

Midsized Cities on the Move

A Look at the Next Generation of
Rapid Bus, Bus Rapid Transit, and
Streetcar Projects in the United States



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December 2012

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(Inside front cover)

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Acknowledgements

We would like to thank **The Rockefeller Foundation** for supporting this research.

We also wish to thank the review panel members for their helpful comments and suggestions: **Sarah Jo Peterson**, Urban Land Institute; **Dennis Hinebaugh**, National Bus Rapid Transit Institute; **Kathy Nothstine** and **Brett Schwartz**, National Association of Development Organizations; **Jeff Hiott**, American Public Transportation Association; **Roger Millar**, Smart Growth America; **David Westendorff**, Mid-Sized Cities Policy Research Institute, University of Memphis; and **Leslie Wollack**, National League of Cities.

We are thankful for the reflections and participation of staff from transit agencies, cities, and metropolitan planning organizations that contributed to this report.

This report was written by **Sarah Kline** and **Sasha Forbes**, and edited and formatted by **John Hughes**, with contributions from **Elizabeth Wampler**, **Jeff Wood** and **Irving Pham**.

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“We Improved” bus sign from the NAIPTA Mountain Link Launch in 2011.

Introduction

Public transportation investments have helped to shape many of America’s cities. The largest metropolises typically have extensive rail and bus systems that provide mobility for commuters, residents, and visitors and serve as the backbone of the regional economy. The recent shutdown of the New York subway system as a result of Hurricane Sandy, and the crippling gridlock that resulted, demonstrates the extent to which such cities depend on their transit systems.¹ The benefits of such systems are well documented; New York’s subway, the DC Metro, Chicago’s “L” trains, and other large systems have been the subject of numerous studies of their economic and environmental impact.²

¹ “Storm-crippled NYC stirs back to life but gridlock persists”. CBS News <http://cbsn.ws/X3EAIN>. November 1, 2012.

² E.g., *Connecting to Opportunity: Access to Jobs via Transit in the Washington, DC Region*, <http://bit.ly/TxGoOO>. November 8, 2012.

At the other end of the spectrum, transit systems in small towns and rural areas have also been the subject of recent research, including “Exploring the Role of Regional Transportation Projects as Rural Economic Drivers” by the National Association of Development Organizations (NADO) and Reconnecting America’s own report, “Putting Transit to Work in Main Street America: How Smaller Cities and Rural Places Are Using Transit and Mobility Investments to Strengthen Their Economies and Communities.”³ In these more rural areas, transit serves to overcome large geographic distances and limited transportation options for residents.

In this report we focus on the overlooked “middle” of America’s cities: those that are too small to be among the top tier, but too

³ <http://bit.ly/lwVAbe>, July 2011, and www.reconnectingamerica.org/2012rural, May 2012.

big to qualify as small towns. These cities can range in size from 50,000 to 250,000 in population. They are not merely smaller versions of large metropolises, nor are they just “bigger” small towns. Midsize cities are a stand-alone group, with their own unique set of amenities and challenges. Yet, like their larger and smaller counterparts, they too have invested in the development of transit systems to serve their communities. More than 250 transit systems serve midsize cities in the US, providing more than 1.5 billion trips each year.⁴ The backbone of the transit network in most midsize cities is bus service, which in some cases extends into the larger region. This bus service may be complemented by express or commuter service, paratransit for individuals with disabilities, and other special services.

The success of these systems, and continuing challenges in addressing residents’ mobility needs, has led local leaders in some midsize cities to take a new approach to transit. Across the country, midsize cities are investing in new rapid bus systems, bus rapid transit, streetcars, and other improvements to better connect suburbs with city centers, to move people between employment centers, and to improve overall connectivity among key destinations. These new transit investments promise to bring not only improved mobility for local residents, but can also be the catalyst for community revitalization, economic development, and improved connectivity between the transit system

⁴ Because national transit data are readily available only by urbanized area, not by city, we used urbanized areas between 100,000 and 1,000,000 pop. as a proxy for midsize cities in order to generate this statistic from the National Transit Database 2010 tables. American Public Transportation Association, <http://bit.ly/SNKJMy>.

and surrounding community uses.

This report explores that “next generation” of transit in midsize cities, with a focus on best practices in transit planning, funding strategies, and actual or projected outcomes. The goal is to provide elected leaders, planners, and other stakeholders at the local, regional, state, and federal levels with examples of innovative transit in midsize cities that they can draw upon to improve transportation options in their own communities.

Methodology

In keeping with its focus on the “next generation” of transit in midsize cities, this report focuses on midsize cities that either have implemented or are actively constructing or planning a new transit project that is different in character – either through branding, vehicle type, guideway, or service characteristics – from the base transit system in that city. The report does not include discussion of conventional bus or paratransit service, nor does it consider projects that are included in long-range plans but are not the subject of active planning efforts.

In preparing this report, researchers assembled a sample set of 14 midsize cities that met the above criteria by reviewing lists of federal grantees, on-line databases of transit projects including the National Bus Rapid Transit Institute’s Survey of BRT Projects, and Reconnecting America’s Transit Space Race⁵, and suggestions from members of the review panel. The sample set represents midsize cities of a variety of

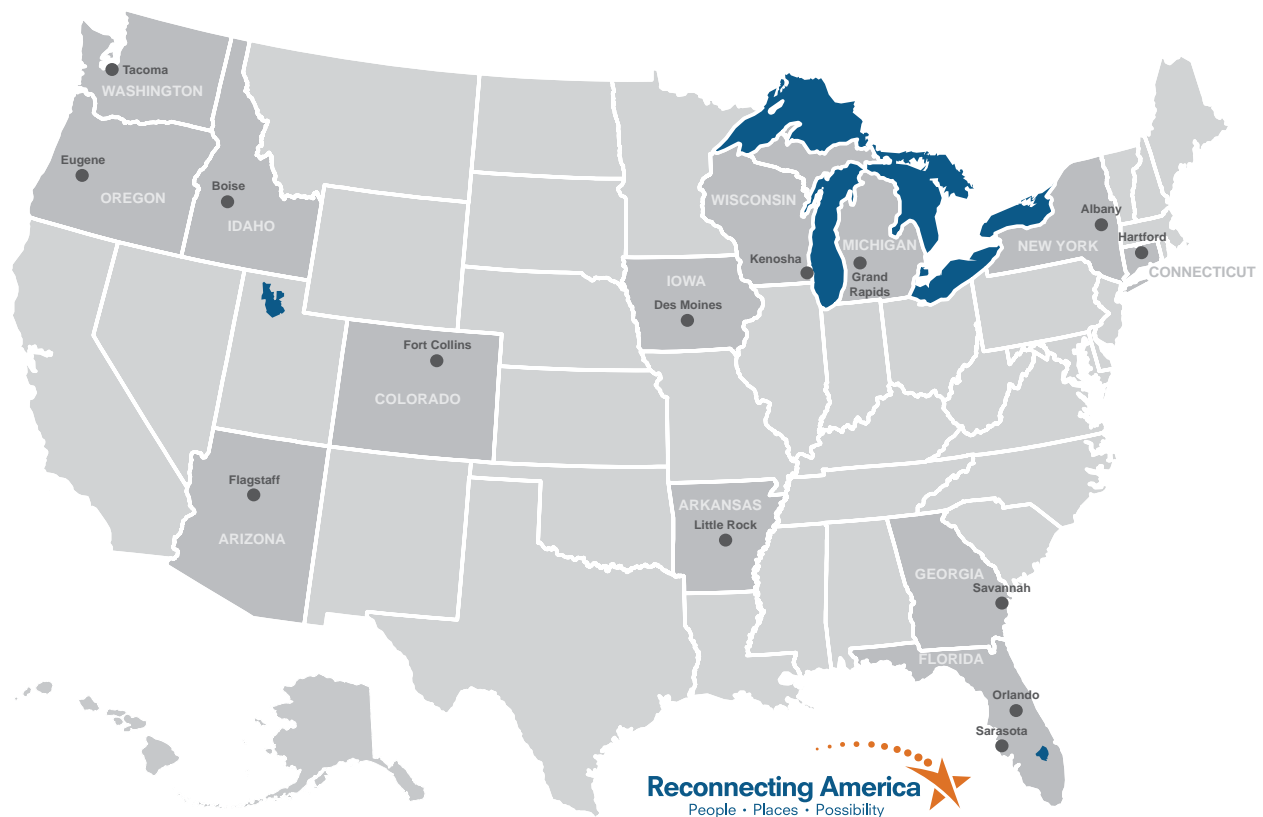
⁵ National BRT Institute Research: <http://bit.ly/UeU7ut>; Transit Space Race: <http://ractod.org/2011-SpaceRace-Map>

sizes and geographic locations; however, it is not intended to be a statistically representative sample. Cities in the sample include:

- Albany, NY
- Boise, ID
- Des Moines, IA
- Eugene, OR
- Flagstaff, AZ
- Fort Collins, CO
- Grand Rapids, MI
- Hartford, CT
- Kenosha, WI
- Little Rock, AR
- Orlando, FL
- Sarasota, FL
- Savannah, GA
- Tacoma, WA

Researchers analyzed transit projects in the sample cities through phone interviews and document review to determine the purpose, type, and current status of the transit project, identify funding sources, major players, and implementation challenges, and review the extent to which the project was being integrated with local land uses. Conclusions drawn from this information are the professional judgments of the report’s authors.

Interviewees included transit agency staff and in some cases, city staff responsible for land-use planning. A complete list of interviewees is included in the Appendix. Researchers used a standard set of interview questions to ensure that the same general areas of information were collected from each interviewee while still allowing for a discussion of any other issues brought up in the interview.



What is a Midsize City?

The literature on midsize cities in the United States is fairly limited, suggesting the need for separate consideration and study of these cities beyond this report. In the research that is available, no standard definition of “midsize” cities exists. Most researchers use a population range from 50,000 at the low end, to 200,000, 300,000, or even 500,000 at the upper end. Some researchers also include a cap on region size, recognizing that all midsize cities exist as part of regions and a city of 150,000 in a region of 500,000 may have quite different characteristics from a city

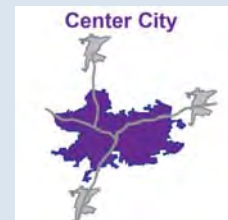
of the same population in a region with 3 million residents.

For this report, we have adopted population thresholds of 50,000 to 250,000 for the cities we examined. Rather than limit our research further by adopting a cap on region size, we have included cities in our analysis that are in regions of varying sizes, from just over 100,000 (Flagstaff, AZ) to over 10 million (Kenosha, WI, in the Chicago region). We are therefore able to explore the question of whether the size of the region, or the city’s role in that region, affects a city’s ability to implement a major transit project.

Three Types of Midsize Cities

In considering the challenges of midsize cities, it is useful to understand what role these cities play in their region. We have grouped cities into three types.

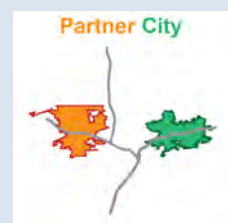
Center City: The hub for a region, whether large or small. The center city is home to major employers, educational institutions, services, cultural attractions, and government agencies. Center cities often have a strong influence on regional transportation and development policies. Examples of center cities interviewed in this report are: Hartford, CT; Flagstaff, AZ; Orlando, FL; and Des Moines, IA.



Satellite City: Often bedroom communities for commuters to the larger city. Satellite cities provide basic city services, but are generally not home to as many major employers or services as the larger city. Cost of living can be high in some of these cities. One explanation may be proximity to a major metropolitan area. Examples of satellite cities interviewed in this report are: Kenosha, WI; and Tacoma, WA.



Partner City: A region with one or more comparably sized cities. Partner cities have some major employers, cultural amenities, and services, but other cities in the region also have some. Partner cities must generally work together on regional issues. Examples of partner cities interviewed in this report are: Eugene, OR; and Sarasota, FL.



Midsize City Characteristics

Most cities, regardless of size, grapple to various degrees with issues such as unemployment, poverty, lack of affordable housing, depressed wages, lack of a commercial base, limited tax revenues, and environmental and topographical challenges. The size of the city becomes most important when responding to the various challenges, especially because many midsize cities have a smaller resource base and less capacity to deal with challenges than their larger counterparts.

In a 2002 forum on midsize cities in Rochester, NY, participants debated the provocative question: “Is there a uniqueness about being ‘midsize’ that calls for a new identity, a new awareness, a new consciousness and a new partnership among these special places?”⁶ Participants concluded that the answer is yes. While midsize cities share some characteristics with their larger and smaller counterparts, they face a unique set of challenges requiring flexible solutions. The report on the Rochester forum sums up some characteristics of midsize cities as follows:

“Compared to their larger counterparts, midsize cities often lack economic diversity. They cannot find ‘pull’ factors strong enough to combat the ‘push’ factors that lure people away. They struggle to retain longtime residents and attract new ones. They often retain poverty but lose wealth. And they often get lost – both in the global economy and in the domestic policy debate.

⁶ “The Mid-Size City: Exploring Its Unique Place in Urban Policy, A Summary of the Rochester Conversation on Mid-Size Cities, November 2002”, p. 7; <http://bit.ly/TeLBnN>.

“Yet midsize cities have assets, too – and those assets are a function of their size and role. They are inexpensive. They are relatively free of congestion. They are often friendly places, and places where the local power structure is easier to organize toward a specific mission. And they have institutional assets, such as universities, that can play a critical role in their future more easily than is the case in larger cities.”⁷

These assets in midsize cities contribute to their ability to create “great places,” which depends on their economic condition and the ability to spur and attract innovative industries, lure young professionals or the “creative class,”⁸ facilitate cultural and entertainment hubs, utilize existing community resources efficiently, and seize opportunities along existing corridors that will benefit current and future residents.

Among midsize cities, significant differences in population and economic conditions affect the cities’ capacity to deal with challenges. *Table 1: Population Change, 2000-2010, Selected Midsize Cities* shows the rate of population growth for selected midsize cities from 2000 – 2010, while *Table 2: Economic Indicators, Selected*

⁷ “The Mid-Size City: Exploring Its Unique Place in Urban Policy, A Summary of the Rochester Conversation on Mid-Size Cities, November 2002”, p. 17; <http://bit.ly/TeLBnN>.

⁸ The “creative class” is a term coined by Richard Florida to describe a socioeconomic group of people who, he states, are a leading force of economic growth in cities. Members of the creative class are split into two groups: Super-Creative Core (artists, designers, engineers, scientists, computer programmers, etc.) and the Creative Professionals (healthcare, business, finance, legal sectors, etc.). Both groups engage in active problem finding and problem solving, create meaningful new ideas, and help to spur innovation in cities. See: *The Rise of the Creative Class: And How It’s Transforming Work, Leisure, Community and Everyday Life*. Richard Florida. 2002.

Midsize Cities shows some select economic indicators for the same cities. Among the cities in our sample set, those with assets such as universities, new and diverse industries, and active placemaking saw the largest percentage of population growth.

Table 1: Population Change, 2000-2010*

City	Pop 2000	Pop 2010	Change
Increase			
Orlando, FL	185,951	238,300	+28.2%
Flagstaff, AZ	52,894	65,870	+24.5%
Fort Collins, CO	118,652	143,986	+21.4%
Boise, ID	185,787	205,671	+10.7%
Kenosha, WI	90,352	99,218	+9.8%
Decrease			
Flint, MI	124,943	102,434	-18.0%
Canton, OH	80,806	73,007	-9.7%
Grand Rapids, MI	197,800	188,040	-4.9%
Rochester, NY	219,773	210,565	-4.2%
Sarasota, FL	52,715	51,917	-1.5%

Source: City-Data, www.city-data.com, October 2012.

*Includes cities within our sample set as well as cities not included in our sample, in order to provide a snapshot of midsize cities generally, not just those midsize cities which are pursuing a major transit investment. Data are specific to the city and do not include larger urbanized area.

Table 2: Economic Indicators*

City	Cost of Living **	Poverty 2009	Jobless 2012	Housing Price to Income Ratio
Orlando, FL	93.8	16.70%	8.70%	5.0
Flagstaff, AZ	97.7	18.30%	6.40%	5.8
Fort Collins, CO	99.3	21.70%	6.50%	4.9
Boise, ID	92.1	14.60%	6.50%	4.0
Kenosha, WI	107.1	18.00%	9.20%	3.4
Flint, MI	81.0	36.20%	16.70%	2.0
Canton, OH	90.2	30.50%	10.10%	2.7
Grand Rapids, MI	86.6	24.10%	9.60%	3.1
Rochester, NY	103.9	30.50%	10.30%	2.5
Sarasota, FL	96.4	17.60%	8.20%	5.3

Source: City-Data, www.city-data.com, October 2012, Housing price to income ratio calculated by Reconnecting America.

*This table includes cities within our sample set as well as cities not included in order to provide a snapshot of midsize cities generally, not just those midsize cities pursuing a major transit investment. Data are specific to the city and do not include larger urbanized area.

**US average is 100.

Midsize cities with a diverse set of industries are more resilient in the face of economic downturn. Orlando, FL, and other midsize Sunbelt cities such as Reno, NV, grew rapidly before the recession. Many of these cities relied on a variety of industries such as tourism and technology, but in the years leading up to the recession were overly reliant on housing and construction industries. After the nation's housing crisis, some of these cities (particularly in Florida, Nevada, and California) saw some of the highest rates of foreclosures and unemployment. Due to the presence of other industries, however, these cities were able to rebound.

On the other hand, some cities have seen a decline in population, have struggled to retain a diverse set of industries, and have generally been hard hit by the recent recession. Leaders in these cities are pursuing transit investments to spur transformation and redevelopment. Many midsize Rustbelt cities such as Flint, MI, and Canton, OH, are examples of cities with a shrinking population and economic decline resulting from reliance on a single industry.⁹ Such susceptibility to downturn in a particular industry can leave such cities with diminished resources to meet the needs of their residents, including their transportation needs. In Canton, OH, an initiative along the Mohaning Corridor is projected to create new businesses and spur economic development. Other Ohio cities such as Youngstown and Toledo are also focusing on revitalizing their downtowns and corridors in order to attract

⁹ Shetty, Sujata, "Shrinking Cities in the Industrial Belt: A Focus on Small and Mid-Sized Cities in Northwestern Ohio." The Urban Affairs Center, the University of Toledo. <http://bit.ly/UU7ZOU>. December 2009.

Supporting Economic Revitalization: Stark Area Regional Transit Authority, Canton, OH

The northeast Ohio city of Canton, with just over 70,000 residents, has experienced continuous population loss since the 1960s with the decline of the heavy manufacturing industry. The city has struggled to maintain vitality in the downtown as jobs, retail, and housing continue to move to non-core locations. In an attempt to restore economic vitality, transit investments are being made in the Mohaning Corridor, which connects the downtown and northeast Canton.

Working with the city, Stark Area Regional Transit Authority (SARTA) is implementing bus service between the downtown and northeast Canton in order to make it easier for customers and employees to travel to the new shops and make the economic revitalization plan a success. The planned improvements would turn a regular bus route into a high-visibility transit corridor. The

corridor will include improved bus shelters with high-quality ADA design, intersection improvements to create bus pull-outs, distinctive signage, new benches, sidewalk improvements, and the extension of a bike-pedestrian path that ties into a regional bicycle and pedestrian network.

In order to implement the project, SARTA had to pull together funding from many sources. In 2010, SARTA received a \$2.7 million grant from FTA's Bus Livability program to fund the project. But the federal funds only accounted for 11 percent of total project cost. Other significant funding sources include Stark County Area Regional Planning Commission, the Ohio Department of Transportation (ODOT), SARTA, and the Ohio Public Works Commission. The project is estimated to create approximately 30 new jobs during construction.

investment in the community.¹⁰

A shrinking population often means that a city becomes poorer as many affluent and middle class families move away, and lower-income residents remain. Often, the population that remains in the city is older than average as well. According to Rodney Harrell at AARP, as young families leave cities with struggling economies, older adults become isolated as the community changes around them. Communities that were once vibrant become vacant and abandoned almost overnight, making

¹⁰ Shetty, Sujata, "Shrinking Cities in the Industrial Belt: A Focus on Small and Mid-Sized Cities in Northwestern Ohio," The Urban Affairs Center, The University of Toledo. <http://bit.ly/UU7ZOU>. December 2009.

socialization and access to various community amenities difficult.¹¹ As a result, connectivity and access to services and amenities becomes an even more important goal.

As discussed above, midsize cities often differ significantly from one another. Some are experiencing continued population declines, while others are seeing population growth. Some cities are seen as desirable locations for development and therefore have "hot" markets, while others have cooler markets. Some cities function as the commercial and cultural hub for their

¹¹ Webinar on Housing and Transportation for the Boomers and Beyond Housing, Rodney Harrell, PhD. AARP, September 2012.

A Look at Midsized Regions

Although this report focuses on midsized cities, some key data are available only by region. The economic strength or weakness of a region can create opportunities or challenges, so we have included regional indicators on density, employment, and traffic congestion.

Density and congestion are important factors, as they help to identify areas that would benefit from – as well as support – a major transit investment. Midsized regions are both less dense and less congested than their larger counterparts. However, it is not possible to draw conclusions about density or congestion along specific corridors from regional data. The data are best understood, therefore, as a broad picture of the context in which most midsized cities exist.

Data developed by Reconnecting America for *Are We There Yet?* shows residents of large regions are significantly more likely than midsized region residents to live in moderate density areas with small block sizes, which the report calls “opportunity areas.” See *Table 3: Households in Opportunity Areas*. Opportunity areas are relevant for transit planners because they are more likely to support transit service.

Jobs in midsized regions tend to be more dispersed. In *Table 4: Employment Density*, data developed by the Public Policy Institute of California measuring workers per square kilometer show that jobs are closer together in larger regions. Job density has been shown to be an important predictor of transit ridership.

Midsized regions are also less congested than larger regions. The Texas Transportation Institute’s Urban Mobility Report includes a travel-time index that measures rush-hour congestion. A higher index indicates more rush-hour congestion, while a lower index means rush-hour traffic is lighter. As *Table 5: Travel Time Index, 2010*, shows, smaller regions have significantly less congestion. The data do not, however, address the average distance that people must drive.

Even if congestion is less in midsized regions, that does not mean people do not have to drive long distances to reach destinations that are far apart, which can mean significant costs in terms of gas and car maintenance.

Table 3: Households/Opportunity Areas

Region Size	% Households in Opportunity Areas
Midsized (100,000 – 999,999)	6.2%
Large (1 million – 5 million)	13.3%
Very Large (over 5 million)	28.4%

Source: Reconnecting America, *Are We There Yet?*, 2012.

Table 4: Employment Density

Region Size	Workers/Sq. Km
Midsized (100,000 – 999,999)	1,728
Large (1 million – 5 million)	5,586
Very Large (over 5 million)	15,244

Source: Kolko, Jed, “Making the Most of Transit: Density, Employment Growth, and Ridership around New Stations,” PPIC, Feb. 2011, <http://bit.ly/UgYTYG>; and Reconnecting America, *Are We There Yet?*, 2012.

Table 5: Travel Time Index, 2010

Region Size	Avg. Population	Travel Time Index
Very Large	6,103,000	1.27
Large	1,594,000	1.17
Medium	669,000	1.11
Small	348,000	1.08
All Regions	498,000	1.20

Source: Schrank, David; Lomax, Tim; and Eisele, Bill, 2011 Urban Mobility Report, Texas Transportation Institute, Sept. 2011; <http://bit.ly/UgZJEL>.

region, while others serve as bedroom communities whose residents commute outside the city to work. For these reasons, while we believe it is useful to examine issues facing midsize cities as a whole, each city will require solutions targeted to its particular needs.

Transit Investments

Transit in midsize cities serves many of the same purposes as in larger and smaller areas. A well-designed transit system connects major destinations, such as universities, hospitals, employment centers, and arts or entertainment districts, with local neighborhoods. Transit can connect suburban residents with downtown opportunities, and can improve circulation within a central business district. Some individuals, particularly those who are unable to drive, use transit because it is their only way to get around a city; others choose to use transit for its convenience, affordability, or environmental benefits.

The backbone of transit service in midsize cities is buses. For many cities in this size range, developing an integrated network of bus routes that connect key destinations and residential areas is the primary focus of transit planners. Even among midsize cities, there are often major employment centers, medical facilities, or universities which are located outside the central business district, and transit can serve as a mechanism for better integrating these places into the fabric of city life. In some cities, local bus routes will connect with regional or express buses or commuter rail to create a seamless connection with other parts of the region. For example, in Orlando the transit agency is planning an extension of its bus rapid transit system

that will connect residential neighborhoods with the city's central business district, and also connect to the new SunRail commuter line that will open in 2014.

There are considerable challenges to operating quality bus service in midsize cities, including limited public resources to pay for the service, low/moderate residential and employment densities, and more “horizontal” development patterns than larger cities. Still, many midsize cities have established successful bus systems and are looking to take their transit service to the next level. In each city examined for this report, transit planners grappled with identifying the best transit technology and system type to meet their local goals for service and cost. Among our sample cities, the most common choices for a major transit investment were rapid bus, bus rapid transit (BRT), or streetcar, which are described in detail in the following pages. Light rail and heavy rail (subways) are typically more costly options that require minimum residential densities and higher concentrations of downtown workers than midsize cities usually have.¹²

Overview of Rapid Bus and Bus Rapid Transit

Rapid bus and bus rapid transit (BRT) refer to bus service that has different characteristics with regard to speed, frequency, and passenger amenities than regular bus service. A growing number of US cities have implemented rapid bus systems. While numerous international examples of BRT exist, few BRT systems operate in the United States. As a result

¹² See, e.g., Pushkarev, Boris, and Zupan, Jeffrey M., “Public Transportation and Land Use Policy”, Indiana University Press, 1977.

of this country's limited experience, such systems are not as familiar as conventional bus service nor has there been a universal standard for the way BRT systems are implemented in the US.¹³

Rapid bus and BRT systems typically include some or all of the following features in order to achieve improved service:

- **Dedicated running ways**¹⁴ that allow buses to operate apart from the rest of the traffic. These can be lanes on a street or highway that are separated from other traffic with physical barriers, or simply painted to say “bus only”.
- **Priority for buses** at intersections that allow a bus to switch a traffic light to green or provide a “queue jump” lane to allow the bus to bypass stopped traffic.
- **Frequent service**, typically 15-minute or better headway¹⁵, makes the rapid bus or BRT system more convenient and attracts more riders.
- **Vehicles with level boarding and other amenities** such as Wi-Fi or more comfortable seating, serve both to attract more riders and to speed boarding, as riders do not have to go up and down stairs.
- **Off-board fare collection** speeds boarding by allowing passengers to pay for their trip before boarding the bus.
- **Greater distance between stops** allows the rapid bus or BRT system to achieve greater speeds and reliability.

¹³ Some efforts have been made to develop standard rating scales for BRT projects, such as the Institute for Transportation and Development Policy's “The BRT Standard Version 1.0”, January 2012, <http://bit.ly/IEWKla>

¹⁴ A “running way” is the path along which a transit vehicle travels.

¹⁵ “Headway” refers to the frequency of service on a particular route.

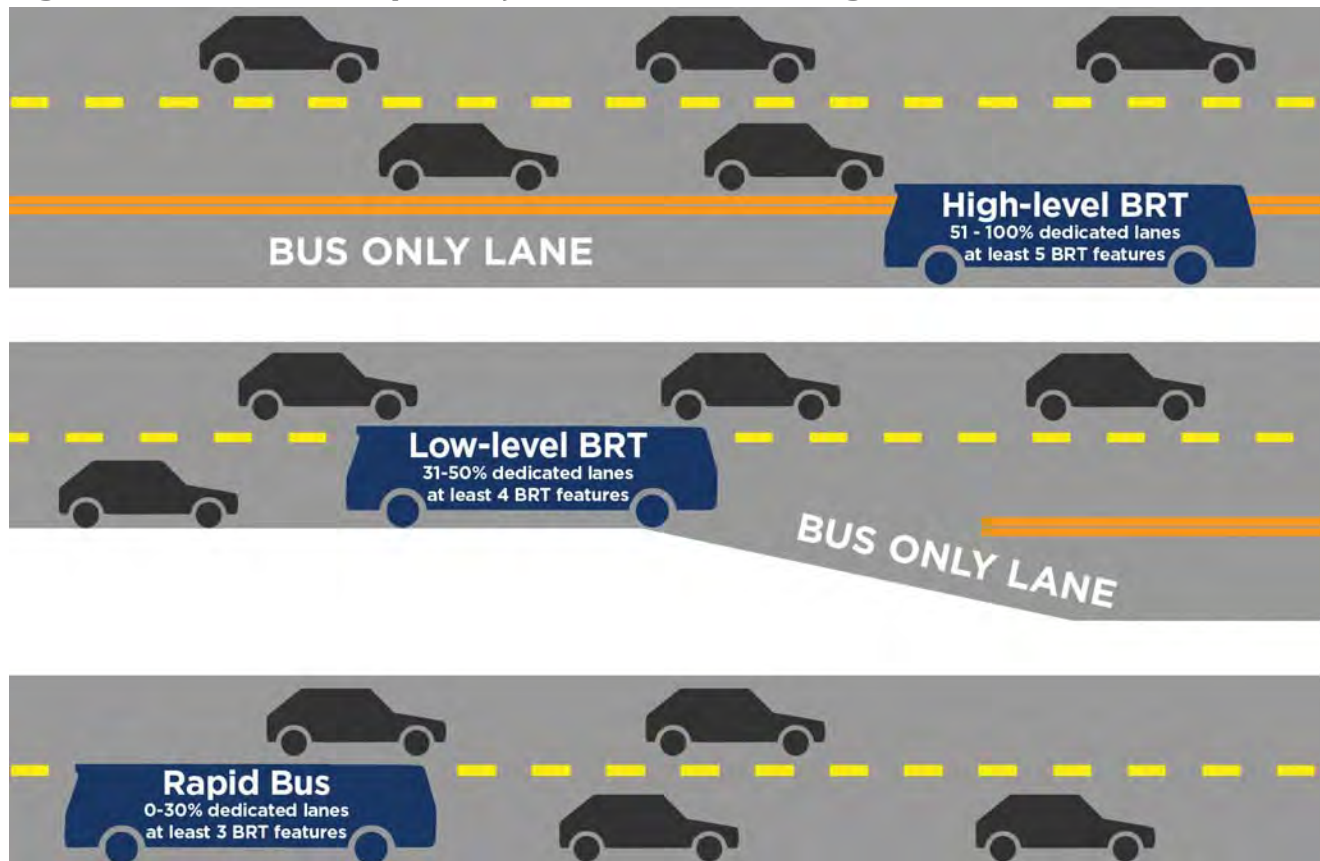
- **More substantial stations** than a typical bus stop, including seating, real time arrival information, shelter, and other amenities.
- **Unique branding** serves to distinguish the rapid bus or BRT system from regular bus service, making it easier for riders to identify and use.¹⁶

A guide to BRT planning issued by the Federal Transit Administration refers to the running ways as the “major defining factor” when developing a BRT system.¹⁷ The type or types of running way used along a route can vary significantly from one system to another. They can be dedicated bus lanes along arterial streets or highways, roads that are entirely separate from regular streets, or mixed-use lanes shared with other traffic. The decision over running ways – whether to operate the buses along a dedicated lane or in mixed traffic – is “the most critical element in determining the speed and reliability” of the system,¹⁸ since a system that operates primarily in mixed traffic generally cannot avoid service delays caused by traffic congestion. Rapid bus systems generally include limited or no dedicated lanes. BRT systems, on the other hand, include a more substantial amount of dedicated lanes.

¹⁶ This description is drawn from sources including “Bus Rapid Transit: Projects Improve Transit Service and Can Contribute to Economic Development”, US Government Accountability Office, GAO-12-811, July 2012; “Characteristics of Bus Rapid Transit for Decision-Making,” Federal Transit Administration, Office of Research, Demonstration, and Innovation, Project No. FTA-FL-26-7109.2009.1, February 2009 and “Bus Rapid Transit: Volume 1 Case Studies in Bus Rapid Transit”, TCRP Report 90, Transit Cooperative Research Program, 2003.

¹⁷ “Characteristics of Bus Rapid Transit for Decision-Making”, Federal Transit Administration, Office of Research, Demonstration, and Innovation, Project No. FTA-FL-26-7109.2009.1, Feb. 2009, p. 2-3.

¹⁸ “Characteristics of Bus Rapid Transit for Decision-Making”, Federal Transit Administration, Office of Research, Demonstration, and Innovation, Project No. FTA-FL-26-7109.2009.1, Feb. 2009, p. 2-3.

Figure 1: Definitions of Rapid Bus, Low-Level BRT and High-Level BRT

See Page 15 for list of BRT features

In some cases, cities construct a running way for a particular corridor that is fully separated from regular streets. This is referred to as a “busway.” Because it creates a running way for buses that is entirely separate from other traffic, speed can be maximized. Busways may be used not only by BRT vehicles, but also by local or regional buses for a portion of their routes. Busways are a permanent infrastructure investment that can reshape a corridor, and therefore they can be significantly more costly than merely restriping a lane as “bus only.” Cities considering busways must balance their cost with the benefits they provide in terms of speed and permanence.

Because of the importance of running ways, we have categorized bus-related transit projects for purposes of this report as

shown in *Figure 1: Definitions of Rapid Bus, Low-Level BRT and High-Level BRT*. We note, however, that local uses of the terms “rapid bus” and “BRT” may vary from the definitions in the report, and some projects we categorize as rapid bus are referred to locally as BRT.

The division between rapid bus and low-level BRT on the one hand and high-level BRT on the other is consistent with recent changes in federal transit law. Under the Moving Ahead for Progress in the 21st Century Act (MAP-21), passed in July 2012, BRT systems that operate along separate running ways for a majority of their route are eligible for funding from the federal New Starts grant program, while projects that do not operate on separate running ways for a majority of their route but still represent a “substantial investment in a

defined corridor” are eligible for the federal Small Starts grant program, which is limited to projects under \$250 million and provides a maximum of \$75 million per project.¹⁹

According to National BRT Institute data, as of May 2012, 22 cities are currently operating a rapid bus or BRT system, of which four are midsize cities (Everett, WA; Eugene, OR; Livermore, CA; and Orlando, FL). Nearly 30 more cities are planning or constructing a rapid bus or BRT system, of which 14 are midsize cities.²⁰ These figures demonstrate that midsize cities are increasingly considering BRT and rapid bus as a transit option.

Not every city requires the same level of investment in running ways or other features in order to achieve its transit goals. Cities must choose the level of service that is right for them, based upon local congestion and density, location of key destinations, and physical characteristics of the corridor. ***Improvements over conventional bus service can be realized with rapid bus, low-level BRT, or high-level BRT as long as the service provided is frequent, convenient, and reliable.*** High-level BRT with a significant percentage of dedicated lanes can also be a focal point for economic development. Although not a midsize city, the Greater Cleveland Regional Transit Authority reports that its high-level BRT line has seen \$4.3 billion invested along the route.²¹ To date, there is little evidence in the US of rapid bus or low-level BRT affecting surrounding

land uses. However, several cities in our sample are currently planning rapid bus and low-level BRT systems as part of larger redevelopment efforts. In these cases, the transit investment is expected to support the redevelopment, even if it would not, by itself, spur such development.

Overview of Streetcars²²

Streetcars refer to a type of public transportation that operates on rails and is usually powered by electricity either overhead or through an underground third rail. Streetcars operate in shared lanes in mixed traffic or dedicated lanes on streets and usually operate as a circulator, connecting destinations in and around downtowns with other major entertainment, business and activity centers. In some cities, streetcars may be referred to as trolleys or trams.

Unlike light or heavy rail, streetcars are not designed to carry many people over long distances at high speeds. The average streetcar makes frequent stops, is approximately 2-3 miles in length, has an average speed of about 3-5 miles per hour, can adapt to the existing built environment, and has smaller sized vehicles. They differ from buses in that they run on fixed-guideways,²³ which are permanent infrastructure investments, rather than on routes that can be changed.

²² See Ohland, Gloria and Shelley Poticha. Street Smart: Streetcars and Cities in the Twenty-First Century. Reconnecting America. 2009.

²³ As defined by the Federal Transit Administration, a fixed guideway refers to any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes heavy rail, commuter rail, light rail, monorail, trolleybus, aerial tramway, inclined plane, cable car, automated guideway transit, ferryboats, that portion of motor bus service operated on exclusive or controlled rights-of-way, and high-occupancy-vehicle (HOV) lanes.

¹⁹ See Sections 5309(a)(3) and 5309(a)(4) of Title 49, United States Code, defining “corridor-based bus rapid transit project” and “fixed guideway bus rapid transit project.”

²⁰ National BRT Institute, BRT Database. Retrieved from <http://www.nbrti.org/database.html>.

²¹ RTA Healthline – Euclid Corridor Transportation Project. Retrieved from <http://bit.ly/UG7p1d>.

The streetcar was a primary transportation mode in many US cities before World War II. Before the spread of the automobile, almost every city had an extensive streetcar system, which enabled the development of early suburban neighborhoods and served as a collector for intercity rail systems. Streetcars were not just an urban feature; many cities of 5,000 or more had at least one street railway line and steam railroad station.²⁴ Streetcars connected downtowns, main streets, and retail districts to newly developing outlying districts. They paved the way for development that created street networks, and connected people and neighborhoods. The private streetcar providers often doubled as land developers, using investments in transportation and electricity infrastructure to boost the value of their development sites on the city's periphery.

While streetcars were associated with economic growth and helped shape many American cities in the early part of the 20th century, streetcar use declined in the early 1930s as bus use increased and car use was encouraged. After World War II, with a growing automobile industry and a national investment in highway construction, streetcar ridership declined further and many lines closed. In 1917, there were 44,800 miles of streetcar track and 11.3 billion riders in the US.²⁵ By 1940, there were approximately 6 billion riders annually,

²⁴ Bernstein, Scott, "How Streetcars Helped Build America's Cities" P.17 Street Smart: Streetcars and Cities in the Twenty-First Century. Reconnecting America. 2009.

²⁵ Graebner, James, "A History of the Electric Streetcar" P.20 Street Smart: Streetcars and Cities in the Twenty-First Century. Reconnecting America. 2009.

and today less than 200 million.²⁶

Reviving the streetcar is now the focus of many US cities. Currently 29 streetcar systems operate in the US, of which 10 are in midsize cities.²⁷ **Streetcars are seen as an economic development tool and have the potential to activate development or redevelopment along dormant or underutilized corridors.** According to studies of the streetcar systems in Tampa, FL, and Little Rock, AR, the streetcar has generated more than \$150 million and \$800 million in development investment, respectively.²⁸ In some cities, streetcars serve as urban connectors that are integrated into other regional transit systems; for example, the streetcar in Kenosha, WI, is linked to Chicago's Metra commuter rail system.

North America has four major categories of streetcar systems, based primarily on vehicle type and service provided. See *Figure 2: Four major categories of streetcars in North America*. The different types of streetcar systems can each have a different impact on economic development, land use and transit ridership. The choice of which system to use depends upon the intention, budget, and vision of the city. Does the city want the streetcar to serve an economic development purpose with a focus on tourism, or does the city want

²⁶ Bernstein, Scott, "How Streetcars Helped Build America's Cities" P.17 Street Smart: Streetcars and Cities in the Twenty-First Century. Reconnecting America. 2009; and National Transit Database Unlinked Passenger Trips by Mode, 2011.

²⁷ Smatlak, John. List of US Streetcars Systems. Updated April 9, 2012. <http://bit.ly/ViajzD>

²⁸ Tampa reference: American Public Transportation Association Heritage Streetcar, "Capital Funding" Retrieved from: <http://bit.ly/VbbCdT> Little Rock reference: Central Arkansas Transit Authority "DRAFT: Economic Enhancement Study: Development Along the River Rail Streetcar System" November 2012.

Figure 2: Four Major Categories of Streetcars in North America

Survivor streetcar – a streetcar system that is a survivor of more extensive systems of the past. Some of these systems use enhanced versions of original streetcars, fit into an overall transit network, and serve local residents and tourists. Examples include Philadelphia, New Orleans, and San Francisco.



Heritage (Vintage) streetcar – a streetcar system using streetcar vehicles (or trolleys) dating from roughly 1900 – 1950 in modern use. These cars are usually originally preserved cars that are restored to accurate or nearly accurate historical standards. Heritage or vintage streetcars mostly serve a community or business development purpose. Examples include Memphis, Kenosha, and San Francisco (F-line).



Replica streetcar – a streetcar system using a replica of a streetcar from the early 20th century. These cars are usually built to accurate or nearly accurate standards of past vehicles. Replica streetcars can be retrofitted to include modern conveniences such as air conditioning. These systems mostly serve a community or business development purpose. Examples include Tampa, Little Rock, and Charlotte.



Modern streetcar – a streetcar system using contemporary streetcars, originating within the last 12 years in the US. These streetcars use newer technology, have greater carrying capacity than survivor, heritage, or replica vehicles, and have reduced loading and unloading times due to car design elements such as additional doors. Modern streetcars are typically more expensive to implement than other streetcar systems. Examples include Portland, OR, and Tacoma (locally referred to as light rail), as well as planned systems in Washington, DC, and Tucson.

the streetcar to play an integral transit and mobility role for local residents that can also influence land use? Heritage and replica streetcars are good tools for the former, but not often the latter because they do not typically serve as an efficient transit alternative. Alternatively, modern streetcars have greater carrying capacity, more frequent services, and focus more on overall connectivity for local residents.

Planning and Implementation of Transit Projects

Once a midsize city has decided to pursue a major transit investment, successful implementation requires several elements: key champions and partnerships among relevant stakeholders; a solid funding package; and an understanding of the role that transit plays in the context of local land use. These elements are no different from the elements required for success in a city of any size, but the specific stakeholders, funding sources, and land uses may be different in midsize cities than in their larger counterparts.

The following sections are based upon analysis of major transit projects that have been built or are currently being constructed or planned in the sample cities we reviewed. See *Table 6: Major Transit Projects in Sample Cities*.

The transit projects differed somewhat among city types. Satellite cities in the sample – Kenosha and Tacoma – were focused on transit investments that provided circulation in their downtown areas, but which also connected with regional transit networks that would

connect their downtown with the center city in their region (Seattle for Tacoma and Chicago for Kenosha). Partner cities and center cities tended to focus more on addressing congestion or redevelopment issues along major corridors, particularly, in the case of partner cities, along corridors that connect with other partners. Some center cities also pursued streetcars to improve mobility in their downtowns.

Players and Partnerships

All transit projects require a strong set of partnerships to move them forward, whether they are in a large city, a midsize city, or a small town. In each case, a diverse set of partners comes together to achieve a common purpose, as shown in *Table 7: Key Players in Sample Cities*.

Transit Operator

The type of operator can affect the process for moving a project forward by requiring a city to work with other entities in the region or even the state to implement a project. The projects reviewed for this report are primarily operated (or will be operated) by a regional transit authority, such as Sound Transit in the Seattle-Tacoma region. In some cases, a city department operates the transit project, such as Fort Collins and Savannah. In Sarasota, FL, the county is planning and will operate the project, and in one case – Hartford, CT – the transit project is being constructed by the state.

When the operator is a regional transit authority – which typically draws its funding from all jurisdictions in a region – there can be resistance from other parts of the region to moving the project forward, if the project will only serve one

or a few jurisdictions. For example, this has been an issue in the Little Rock area, where many residents feel that they do not benefit from the streetcar. The county transit agency, the Central Arkansas Transit Authority, is currently preparing a study of the streetcar’s benefits as a counter to this sentiment; they have also created a River Rail Marketing Committee that includes local business groups to improve the profile

of the streetcar in the region. As shown by the number of successful projects in midsized cities that are operated by regional authorities, this issue does not present an insurmountable barrier, and often produces opportunities for midsized cities to work in closer partnership with their neighbors.

Multi-Jurisdictional Planning

In some cases, the entire project serves

Table 6: Major Transit Projects in Sample Cities

City	Project	Status	Mode	Description
Savannah, GA	River Street Streetcar	Operating*	Heritage Streetcar	2.3 miles; 7 stops; 15 minute peak headways; fare-free; connects to free shuttle and ferry service
Kenosha, WI	Kenosha Streetcar	Operating	Heritage Streetcar	2 miles; 18 stops; 15 minute peak headways; connects with commuter rail, bus, and paratransit
Little Rock, AR	River Rail	Operating	Replica Streetcar	3.4 miles; 15 stops; 20 minute peak headways
Tacoma, WA	Tacoma Link	Phase 1 operating; Phase 2 planned	Surface Light Rail**	1.6 mile system (6 stops) plus 1.3 mile planned extension; fare-free; 15-minute headways
Boise, ID	Boise Streetcar	Analyzing alternatives	TBD	Considering a modern streetcar for a downtown corridor
Albany, NY	BusPlus	Operating	Rapid Bus	17 miles; 36 stations (18 each direction); real-time arrivals; signal priority; branded buses; 15-minute peak headway
Flagstaff, AZ	Mountain Link	Operating	Rapid Bus	5.8 miles; 20% dedicated lanes; 10-15 minute peak headways; branded buses, real-time arrivals
Des Moines, IA	Route 60	Planned	Rapid Bus	7-mile route; branded buses and stations; real-time arrivals; signal priority; queue-jump lanes; 10 minute headways
Sarasota, FL	North-South Corridor	Planned	Low-level BRT	8.2 mile route planned; 50% dedicated lanes – alignment is being reviewed so may change
Grand Rapids, MI	Silver Line	Final design	High-level BRT	9.6 miles; 65% dedicated lanes; 18 stations (33 independent curbside platforms); 10 minute peak headways; level boarding; off-board fare collection; signal priority
Hartford, CT	Hartford-New Britain Busway	Construction	High-level BRT	9.4 mile busway; 11 landscaped stations; off-board fare collection; 3-6 minute peak headways; connects to one rail stop and two future rail stops.
Eugene, OR	EmX	2 lines operating; 1 in project development; 1 in planning	High-level BRT	Existing EmX: 11.4 miles; branded buses; 10 minute peak headways; 64% dedicated lanes; 33 stations, signal priority; off-board fare collection; real time arrival; level boarding; 4.4 mile extension in development.
Ft. Collins, CO	MAX	Construction	High-level BRT	5 miles; 12 stops; completion by mid 2014; 60% dedicated lanes; 10-minute headways; branded buses; signal priority; real time arrival
Orlando, FL	LYMMO	1 line operating; 2 additional lines planned	High-level BRT	2.5 miles; 100% dedicated lanes; 5 minute peak headways; fare-free; branded buses; constructing two additional lines: East-West 3.7 miles (52% dedicated lanes); Parramore 2.1 miles (89% dedicated lanes)

* The streetcar has been out of operation since early 2012 for maintenance.

**This line shares technological and operating characteristics with modern streetcars, but is officially part of the Link light rail system in the Seattle-Tacoma region.

only a single city, while in others, multiple jurisdictional lines are crossed, which means that even if a single transit authority will operate the project, multiple entities

will be responsible for land-use planning along the route. When adjacent cities work closely together on an integrated vision for the new service, both places

Table 7: Key Players in Sample Cities

City	Project	City Type	Transit Operator	Jurisdictions	Key project champions
Savannah, GA	Streetcar	Center City	Local: City of Savannah Mobility and Parking Services Department	Savannah	Mayor, Mobility and Parking Services Department, business community, hospitality industry
Kenosha, WI	Streetcar	Satellite City	Local: Kenosha Area Transit	Kenosha	Mayor, transit agency, city planning department, Downtown Business Association
Little Rock, AR	Streetcar	Center City	City/County: Central Arkansas Transit Authority	Little Rock, North Little Rock	Mayor, County Executive Manager, transit agency director
Tacoma, WA	Surface Light Rail	Satellite City	Regional: Sound Transit	Tacoma	Transit operators (Sound Transit and Pierce Transit), city of Tacoma
Boise, ID	Streetcar	Center City	Local: Mayor/City of Boise	Boise*	Mayor and Council, individual businesses
Albany, NY	Rapid Bus	Partner City	Regional: Capital District Transportation Authority	Albany, Schenectady	Mayors in Albany and Schenectady, local business leaders, Chamber of Commerce, County Manager in Schenectady, County Executive in Albany
Flagstaff, AZ	Rapid Bus	Center City	Regional: Northern Arizona Intergovernmental Public Transportation Authority	Flagstaff	NAIPTA, local elected officials, Northern Arizona University, and citizens
Des Moines, IA	Rapid Bus	Center City	Regional: Des Moines Area Regional Transit	Des Moines	DART Commissioners (mostly elected officials), DART member governments, neighborhood associations, Greater Des Moines Partnership, and other business representatives
Sarasota, FL	BRT	Partner City	County: Sarasota County Area Transit	Sarasota	Transit authority
Grand Rapids, MI	BRT	Center City	Regional: The Rapid	Grand Rapids, Wyoming, and Kentwood	Mayors, business community, major employers, local advocacy groups.
Hartford, CT	BRT	Center City	State: Connecticut DOT	Cities of Hartford and New Britain, Towns of West Hartford and Newington	State transportation commissioners and transit administrator, CRCOG, some in business community
Eugene, OR	BRT	Partner City	Regional: Lane Transit District	Existing lines run through Eugene and Springfield; extension is in Eugene only	Eugene mayor, Eugene and Springfield Chambers, transit advocacy group, transit district
Ft. Collins, CO	BRT	Center City	Local: Transfort	Fort Collins	Local transit advocate Dan Gould, elected officials, City of Ft. Collins, Colorado State University, Downtown Development Authority
Orlando, FL	BRT	Center City	Regional: LYNX, Central Florida Regional Transportation Authority	Orlando	City of Orlando

*The line will primarily go through the city of Boise, but may also run through property owned or maintained by Boise State University, Ada County Highway District, and the Idaho Transportation Department.

can benefit. For example, Little Rock and North Little Rock, across the Arkansas River from each other, worked to connect their downtowns with the first segment of the River Rail streetcar, as did the cities of Eugene and Springfield, OR, with their first BRT line. As an example of further cooperation, the executive director of the Springfield Chamber testified in favor of the third corridor, which is entirely in Eugene, citing the importance of the system.

On the other hand, when a new transit line crosses city lines, it can also lead to uneven planning along a corridor, if one city is proactive in focusing transit-supportive land uses along the route, but other cities are not. This is most common when the transit line crosses into suburban jurisdictions, where the higher densities of transit-supportive land uses are not as common. In the Grand Rapids area, the most active land-use planning around the

A Strong City-Transit Partnership: Grand Rapids, MI

Grand Rapids is an old city with a new vision. Once a lumber and furniture-making town, Grand Rapids has reinvented itself as a hub for high-tech and medical industries. With a large student population and a focus on social equity, the city is redesigning its downtown so that it is a more walkable, inviting place to live.

The high-level BRT system now under construction is a focal point for the city's efforts. The project includes dedicated lanes for 65 percent of its 9.6 mile route, and will connect major destinations in downtown Grand Rapids such as Michigan State University, Grand Rapids Community College, and DeVos Place Convention Center and Performance Hall. In the central business district, 30,000 jobs will be within a quarter-mile of the BRT.

The Silver Line BRT has been in planning for nearly a decade, during which time city planning staff have met regularly with planners at The Rapid, Grand Rapids' transit agency. The city has already taken a number of actions

designed to support the coming BRT line. Recognizing that transit works best when the surrounding land uses provide the system with a critical mass of riders and destinations, the city has created a TOD zone in its zoning code for the areas around BRT stops, with higher height limits and the ability to waive parking requirements entirely.

The city and transit agency also engage regularly with the business community and citizens' groups. As a result of their educational efforts, some developers have shown interest in properties along the BRT line, and one grocery store has already committed to locating next to a BRT stop.

The Silver Line will be the first BRT line in Michigan, and as a result of close coordination between the city and the transit agency, the new service will help the city realize its vision for a sustainable future. As Conrad Venema, Strategic Planning Manager for The Rapid, put it, "We're growing from a small city into a larger city and can't always do things the way it's always been done."

BRT line is being done by Grand Rapids, while the suburban cities of Wyoming and Kentwood have not yet implemented zoning amendments to facilitate transit-oriented development along the BRT route. Similarly, Hartford has now begun an aggressive station area planning process for the busway stations within its city limits; the more suburban towns along the busway between Hartford and New Britain are not taking similar steps. In these situations, the planners in the central cities are hoping that their efforts will set an example that the suburban towns can follow once the central city has been able to demonstrate success.

Local Officials

In a majority of cities studied, the mayor or another elected official was a – if not the – prime mover behind the project. For example, Grand Rapids’ decision to invest in a new type of transit service was driven by the former mayor’s strong interest in light rail. He and the current mayor have been champions for the Silver Line BRT. Similarly, the mayor of Kenosha, WI, is a supporter of the streetcar and is a key champion for the proposed expansion. Mayors are well-positioned to understand both the transportation and development needs of their cities and to make things happen to address them.

Those places in which the city government was a strong proponent for the project saw more proactive efforts either to integrate the transit project with existing land use (e.g., in Little Rock, Savannah, and Flagstaff) or to refocus new development toward the transit stops (e.g., in Grand Rapids and Fort Collins).

In general, the inverse also appears to be true: Places in which cities were not the

City-County Partnerships: Snohomish County & Everett, WA

In many parts of the country, cities and counties behave like oil and water – arguing over resources, services, and who should pay for what. But for many midsize cities, the county can be a supportive partner in the quest to take transit to the next level.

In Washington, for example, the city of Everett partnered with Snohomish County to develop the region’s first BRT line. The city’s transit agency operated only to the city limits, so a partnership with the county transit service, Community Transit, was necessary to provide a seamless trip for transit riders along Highway 99 from Shoreline to downtown Everett. The low-level BRT system has dedicated lanes for about 40 percent of its route, plus frequent service, limited stops, off-vehicle fare collection, and traffic signal priority for about 60 percent of the route.¹

¹ “Community Transit to Launch Hybrid BRT Service,” Metro Magazine, November 2009.

lead drivers in development of the transit project also did not experience as much transit-oriented land-use planning.

Business Community

The business community and other major stakeholders can play an important role in moving projects forward, particularly in cases in which the transit line will serve their employees or customers. In Savannah, Kenosha, and Grand Rapids, for example, downtown businesses have worked in close partnership with the transit agency and

city planners to support development of streetcar and BRT lines. Both Eugene and Springfield Chambers of Commerce were important supporters of the BRT system.

Northern Arizona University and Colorado State University participated extensively in development of the rapid bus and BRT lines in Flagstaff and Fort Collins, respectively, which have stops on both universities' campuses. Health centers and tourist attractions can also be important partners who can help to move a transit project forward. In the future, Flagstaff, AZ, may consider extending its rapid bus line to the Flagstaff Medical Center, which is a major employer in the city and has a growing transit demand.

Community Involvement

Public engagement is a required part of the process of planning a major transit investment, and when done effectively, can increase residents' buy-in at the outset, so that controversy is reduced down the road. Public engagement strategies are similar regardless of the size of the city, and typically include community meetings, educational sessions, an online forum for discussion of the project, and in some cases community task forces or working groups. Some midsize cities have developed robust processes for community involvement in transit project development as well as land-use decision-making. Flagstaff, AZ, developed a Citizens' Community Task Force in 2008 to engage in a campaign and a series of open houses around the community that would support the transit initiative. In addition, the Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA) developed an online survey to give residents the opportunity

to weigh in on different transit visions. In Grand Rapids, a "Public Transportation Tomorrow Taskforce" was convened with business and community representatives to develop a new transit vision for Grand Rapids. In Orlando, the transit agency (LYNX) initiated an extensive public involvement process that was critical to choosing a locally preferred alternative for the East/West expansion lines. The neighborhoods were diverse and included low income and minority communities, higher income neighborhoods, senior towers, and older gentrified areas.

On the other hand, when community support for a project is lacking, community resistance can slow the project down, which can affect the willingness of city officials and private developers to focus their efforts on a new transit line that may never be built. Lane Transit District, who, up to the most recent corridor development effort, had been the chief sponsor of Eugene's BRT system, has noted that projects without a political or community champion other than the transit authority can have a more difficult time advancing to the implementation stage.²⁹

Funding the Project

The cost of designing and constructing rapid bus, BRT, and streetcar projects can range from a few million dollars to several hundred million, depending upon the type and location of the running way, the number of vehicles and stations, and the local construction market. Among the projects reviewed for this report, the Savannah streetcar – a 2.3-mile route

²⁹ "The EmX Franklin Corridor BRT Project Evaluation", Federal Transit Administration, April 2009. <http://1.usa.gov/Sc55ki>.

Communicating Your Project to the Community: Flagstaff, AZ

Since the approval of the Long Range Transportation Plan in 2000, the Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA), has been working in consultation with the community, elected officials, the Flagstaff Metropolitan Planning Organization (MPO), and the city on a clear vision to build the Mountain Link rapid transit system. NAIPTA's public engagement strategy has created a heightened awareness about the transit initiatives, gaining the support of residents and local



partners such as the Northern Arizona University.

In 2000, Flagstaff residents approved a sales tax to support transit by funding a variety of transportation improvements. As a result of the improvements, NAIPTA saw an increase in transit ridership and decided to propose another tax for additional projects. In 2006, NAIPTA asked voters for a renewal of the tax, but was voted down. NAIPTA and the city learned an important lesson from the 2006 transit measure: voters need to see an itemized list of projects and be given

the choice to decide what projects they want to fund.

Complete with a new approach that involved a campaign to increase community awareness, NAIPTA introduced an itemized list of improvements in the 2008 election, each with its own dedicated tax percentage over a 10-year period. Residents approved the measure, which included funding for Mountain Link, the city's first rapid bus service that links Downtown Flagstaff, Northern Arizona University, and an off-campus residential and commercial area called Woodlands

Village. The success of the 2008 measure was no doubt attributable to the public engagement strategy that included a series of open houses to help people understand the projects they were voting on.

NAIPTA also utilized the local media to create a series of informative articles about how different transportation projects can support future development in the region.

Since then, NAIPTA, Flagstaff, the Flagstaff MPO and elected officials continue to work with citizens to ensure public input in the city's transit. In addition to local media, NAIPTA uses website and email notifications, posters/fliers, billboards, online surveys (called MetroQuest), and social media to stay connected with the public and allow community stakeholders to provide input into implementation of the Long Range Transportation Plan recommendations.

with one vehicle – had the lowest cost, \$1.5 million. The Hartford busway – a 9.4-mile road being built in part over an unused section of railroad track and in part along an operating rail corridor, spanning four municipalities – came in at the other end of the spectrum at \$587 million.

Federal Funding

While the particular mix of sources differs from city to city, the federal government was a funding partner in most of the sample cities. The Federal Transit Administration’s New Starts/Small Starts program provides funding for engineering, design, and construction of rail and corridor-based bus and BRT projects.³⁰ For those projects in the sample using federal funds, the New Starts/Small Starts program provided the bulk of the funding, as shown in *Table 8: Federal Funding for Projects in Sample Cities*.

Beyond New Starts/Small Starts, other programs administered by the Federal Transit Administration and Federal Highway Administration are also available to help pay for transit projects. While not every project reviewed made use of this funding, these programs helped to supplement New

Table 8: Federal Funding for Projects in Sample Cities*

City	Project	Total Cost**	New Starts/Small Starts	Other Federal	Federal Share
Savannah, GA	Streetcar	\$1.5 M	-	-	-
Kenosha, WI	Streetcar	\$6.2 M	-	\$5.2 M	80%
Little Rock, AR	Streetcar	\$30 M	\$24 M	-	80%
Tacoma, WA***	Light Rail	\$80.4 M	-	-	-
Albany, NY	Rapid Bus	\$32.2 M	-	\$29.2 M	80%
Flagstaff, AZ	Rapid Bus	\$10.41 M	\$6.24 M	\$1.9 M	78.2%
Des Moines, IA	Rapid Bus	\$25 M	\$20 M	-	80%
Grand Rapids, MI	BRT	\$39.8M	\$31.9M	-	80.0%
Hartford, CT	BRT	\$572.69 M	\$275.30	\$179.53	79.4%
Eugene, OR****	BRT	\$95.57 M	\$74.99 M	-	78.5%
Ft. Collins, CO	BRT	\$86.83 M	\$65.58 M	\$3.89	80.0%
Orlando, FL	BRT	\$21 M	\$10.5	-	50%

*Funding information was not available for Boise, ID, and Sarasota, FL, because their projects are earlier in the planning stage. Figures from interviews with transit agencies and the Federal Transit Administration’s Annual Report on Funding Recommendations for Capital Investment Programs (various years).

**Dollar amounts were provided by project sponsors or public documents; they have not been converted into 2012 dollars and therefore caution should be used when comparing them to each other.

***Tacoma Link figures do not include the planned extension

****West Eugene EmX Extension

Starts/Small Starts funding in several cases. *Table 9: Other Federal Funding Sources* lists the key sources of federal funding besides New Starts/Small Starts for transit projects in the sample cities.

In addition to the grant programs listed in Table 9, the Department of Transportation offers a loan program, known as TIFIA, that can finance transit projects when there is a dedicated revenue stream for repayment of the loan. None of the sample cities made use of TIFIA financing for its transit project. However, changes made to TIFIA in MAP-21 were intended to make the program more attractive to midsized cities. While previously TIFIA projects had to cost more than \$50 million, the new law creates a separate cost threshold of \$25 million for projects in cities with a population under 250,000.³¹

³⁰ New Starts projects must run along a fixed guideway, and cost more than \$250 million or request more than \$75 million in federal funds. Small Starts projects can include BRT that does not run along a fixed guideway as long as the project represents a substantial investment in a corridor; Small Starts projects cost less than \$250 million and may receive up to \$75 million in federal funds.

³¹ See Sections 601 and 602 of Title 23, United States Code.

Table 9: Other Federal Funding Sources

Program Title	Brief Description
FTA Section 5307 Urbanized Area Formula Program	Eligible uses include purchase, rehabilitation, or replacement of vehicles, equipment, and facilities.
FTA Bus Discretionary Program*	Funds new and replacement buses and facilities.
FHWA Congestion Mitigation and Air Quality (CMAQ) Program	Funds projects that reduce congestion and improve air quality in non-attainment areas. Projects can include bicycle, pedestrian, and transit facilities.
FHWA Surface Transportation Program (STP)	Funds transportation projects including highways, bridges, and transit.
FHWA National Highway System Program (NHS)**	Funds transportation projects along the National Highway System, including transit projects that benefit the NHS.
Transportation Investments Generating Economic Recovery (TIGER)***	Funds innovative, multimodal and multi-jurisdictional transportation projects that promise significant economic and environmental benefits to a region, an entire metropolitan area, or the nation.

*Became a formula program in MAP-21

**MAP-21 changed NHS to the National Highway Performance Program (NHPP)

***TIGER funding depends on annual congressional appropriations.

State and Local Funding

Regardless of whether federal funding is used, state and local funding is an essential component of transit project development. For those projects which received federal funds, federal law requires that at least 20 percent of the project's cost come

from non-federal sources, and projects that have a higher share of local funding tend to be more competitive in seeking limited federal grants. For those projects that are not using federal funding, local funding becomes even more important. Funding can include state gas taxes, state infrastructure bank loans, parking

New Starts/Small Starts Funding under MAP-21

The Moving Ahead for Progress in the 21st Century Act (MAP-21), passed in July 2012, made important changes to the New Starts/Small Starts program.

MAP-21 streamlined the project development process to allow projects to move through FTA's evaluation more quickly, and also expanded eligibility for high-level BRT projects to qualify for New Starts funding. In addition, MAP-21 added a new type of project called "core capacity." Core capacity projects are improvements to existing transit lines to address overcrowding at core stations or along major segments.

The funding for New Starts/Small Starts remained flat, at about \$1.9 billion per year, even as new eligibilities for core capacity and BRT were added. In addition, while most federal transit funding comes from gas tax revenues, New Starts/Small Starts funds come from general revenues, which means that the program is subject to cuts each year in the annual congressional budgeting process. With more projects competing for the same pool of funds, this program will become even more competitive. Unless federal funding is significantly increased, cities will increasingly need to look to other funding sources and financing to pay for new transit construction.

as well, as in Little Rock and North Little Rock, where the cities donated land for the streetcar tracks and facilities. Other local and regional entities have also contributed funding for these projects. In Flagstaff, Northern Arizona University, which will be served by the rapid bus line, contributed \$765,000 to the project.

Some cities chose to go to the voters for approval of a tax or bond measure to support the project's construction. In a transit ballot measure, voters are asked to approve a project or a package of projects that will be completed over a number of years, and to be taxed to complete them.

Value Capture

In addition to revenue from local partnerships, capturing the increased value of property adjacent to the transit project can also be a financing mechanism. For example, tax increment financing (TIF), by which a portion of increased property tax revenues from areas along a project are used to finance the project, paid for

revenues, tax-increment financing, local and state transportation funding, foundation grants, business improvement districts and legislative earmarks, among others. *Table 10. Sources of Local Funding for Construction* shows the non-federal funding sources for projects in our sample group.

The state government was an important funder for several of the projects. In most cases, state gas tax revenues were used, as in Hartford and Grand Rapids. Albany received \$10 million from the New York State Department of Transportation for its rapid bus project. But other potential sources of state funding for transit exist. For example, Lane Transit District in Eugene, OR, is applying to use state lottery funds as local match for its third BRT line.

Cities also used their general revenues to pay for transit projects. Little Rock, North Little Rock, and Pulaski County in Arkansas contributed \$2 million each in general funds for construction of the River Rail streetcar. Cities can provide match in other ways

Table 10: Sources of Local Funding for Construction*

City	Project	Local Tax (voter approved)	Local General Revenue (city or transit agency revenue or program funds)	Other Local (donations, partnerships, or value capture)	State
Savannah, GA	Streetcar	★	★	★	
Kenosha, WI	Streetcar	★	★		
Little Rock, AR	Streetcar		★		
Tacoma, WA	Light Rail	★			
Albany, NY	Rapid Bus		★		★
Flagstaff, AZ	Rapid Bus	★		★	
Grand Rapids, MI	BRT				★
Hartford, CT	BRT				★
Eugene, OR	BRT				★
Ft. Collins, CO	BRT		★	★	★
Orlando, FL	BRT		★	★	★

*Funding information was not available for Des Moines, IA; Boise, ID; and Sarasota, FL; because those projects are earlier in the planning stage. Data comes from interviews with transit agencies and the Federal Transit Administration's Annual Report on Funding Recommendations for Capital Investment Programs (various years).

improvements around the streetcar line in Little Rock. In Fort Collins, the Downtown Development Authority contributed \$600,000 in revenues from tax increment financing to the BRT project. In some cases, property owners along or adjacent to a transit route may agree to a specific property or business tax, which others in the community do not pay, the idea being that the property owners along the route are directly benefiting from the investment,

Operational Funding

Once a project is up and running, it requires a stable source of funding for ongoing operations and maintenance. In some cases, a portion of this funding comes from passenger fares. However, a number of project sponsors – particularly streetcar projects – choose not to charge fares in order to encourage ridership and speed boarding. Operations funding most commonly comes from local general revenues or local taxes. In Orlando, the LYMMO system is primarily funded through local general and parking revenues, and receives funds from a downtown redevelopment association (using tax-increment financing).

In some cases, voters specifically approve operations funding at the ballot box, as in Grand Rapids, where voters in May 2011 approved a tax measure to support transit operations, including the BRT line. The voters of the City of Flagstaff approved a millage of .0002 to raise \$350,000 annually for operation of the Mountain Link route connecting downtown Flagstaff to Northern Arizona University.

either through increased property values or through business patronage. Although not a midsize city, in Seattle, WA, property owners paid \$25.7 million of the \$52.9 million cost of the streetcar through this mechanism.³²

Lessons Learned on Funding

The variety of funding packages behind these projects leads to several conclusions. First, and perhaps most important for midsize cities considering a transit investment, this research shows that these cities are not on their own when it comes to paying for these projects. **States, the federal government, and other entities such as universities and businesses can be an important partner in these efforts, and a wide variety of federal and state programs can support transit investments in midsize cities.**

Second, cities should not discount the possibility of asking residents to help pay for the project. The Center for Transportation Excellence (CFTE), which tracks local ballot measures with a transportation funding component, has found that voters are often willing to tax themselves to pay for a transit project that will specifically benefit them. This holds true for voters in both small and large cities and counties. As of Nov. 7, 2012, CFTE found 79 percent of transit-related ballot measures were approved in 2012, many of which continued or increased local taxes that support transit.³³ This is not to say

32 Ohland, Gloria and Shelly Poticha. Street Smart: Streetcars and Cities in the Twenty-First Century. “The Seattle Case Study: The South Lake Union Streetcar” Preface. Reconnecting America. 2009.

33 “Transportation Measures Continue Trend of Success on Election Day”, Center for Transportation Excellence, November 7, 2012, <http://www.cfte.org/pages/2012presspost>.

Creating Funding Partnerships to Promote Business Activity: Savannah Streetcar

“Dottie,” the River Street Streetcar in Savannah, GA, has the reputation of being the least expensive streetcar built since the current resurgence of streetcars began in the US. With a fairly modest start-up cost of \$1.5 million (\$600,000 for right-of-way, \$300,000 for concept development and design, \$397,000



to build the hybrid energy propulsion system, restore the car and make it ADA compliant, and \$200,000 for the car barn), the system has contributed to the success of the historic district in downtown Savannah.

Realizing the benefits of the streetcar to the economic vitality of the downtown,

Dottie has had the support of the downtown business community through Savannah Area Mobility Management Incorporated, locally known as SAMMI. SAMMI is a multi-partner collaboration of local businesses, the Chamber of Commerce and Visitors Bureau, the hospitality industry, Chatham Area Transit and the city of Savannah. The partnership provides continuous funds for the operation of the streetcar, allowing the system to operate as a downtown circulator providing free rides for tourists and residents to patronize local businesses. Not only does SAMMI fund the streetcar, but it also funds an interconnected fare-free downtown transportation system known as the dot. The dot system includes an Express Shuttle and the Savannah Bells Ferry – all of which increase the mobility options of visitors to downtown Savannah.

Each partner in SAMMI assumes a different role in the partnership. For example, the city pays for the drivers of the streetcar, the city and the county pay for the ferry captain, and Chatham Area Transit pays for the shuttle drivers. In addition, the city contributes revenues from parking fees and services and the hospitality industry contributes funds generated from a downtown hospitality tax, added on to each visitor staying in a downtown hotel. The hotel charges a small fee upon registration which gets put back into the SAMMI fund to generate additional revenue for the operation and maintenance of Dottie.

that going to the voters is a simple process or guaranteed to succeed. In fact, many successful ballot initiatives were preceded by an unsuccessful one. CFTE's research has found that one of the best strategies for success is to clearly demonstrate how the project will benefit the voters.

Finally, it is important to note that the streetcar, rapid bus, and BRT investments being pursued in midsize cities have a range of costs, from only a couple of million dollars to as high as a half-billion dollars. This variation allows cities considering these types of investments the flexibility to design a project that fits both their community's needs and their budget.

Integration of Transit with Surrounding Land Uses

Land uses around major transit investments can have a big impact on the success of the system. The surrounding uses and density

can promote transit ridership, connections to other modes, and access to destinations such as employment and entertainment districts. A mix of transit-supportive uses around transit stops not only creates or supports the density of people and infrastructure needed to support enhanced transit service, but also encourages the creation of quality places, where the combination of transit service, walkable neighborhoods, jobs, and housing allows for more affordable, healthier lifestyles. Planning and zoning changes that actively promote the transit investment should:

- Focus on compact mixed-use development.
- Provide a range of housing options for various incomes.
- Provide a range of community uses and amenities.
- Create an environment that supports bikes and pedestrians.



This rendering of Fort Collins illustrates placemaking that supports various modes: bikes, cars, transit and pedestrian activity.

are taking a less proactive approach. The approach taken depends upon the vision and goals adopted by the city at the outset of the transit planning process. The cities surveyed generally fell into one of three categories in terms of how they envisioned land use around their transit investment:

- Mobility and connectivity were primary goals, and land-use impacts secondary.
- Boosting economic value for existing land uses was a primary goal.
- Mobility and redevelopment were dual goals of the project.

Table 11: Cities' primary goal for surveyed projects summarizes these findings. In the majority of the projects reviewed, sponsors intended for the project both to improve mobility and to help shape or redevelop surrounding land uses.

For those projects in the first two columns

- Facilitate high-quality public space including parks, plazas and public art.
- Develop traffic-calming measures and limit curb cuts.
- Create well-landscaped streets that frame the street.
- Develop buildings with minimal setbacks and activity on the ground level.³⁴

As evidenced from our interviews and a review of planning documents, midsized cities vary in how they approach the integration of transit and land use. It is important to note that transit agencies are not responsible for land-use planning. Instead, city departments typically have that responsibility. Some cities are actively coordinating with their transit agencies to develop a project that will be integrated with surrounding land uses, while others

³⁴ Ontario Ministry of Municipal Affairs and Housing. Transit-Supportive Land Use Planning. Retrieved from <http://www.mah.gov.on.ca/Page6855.aspx>

Table 11: Cities' Primary Goal for Surveyed Projects

City	Type of Project	Mobility/connectivity (existing uses)	Boosting economic value for existing land uses*	Enhancing mobility supporting planned and new uses
Savannah, GA	Heritage Streetcar		★	
Kenosha, WI	Heritage Streetcar		★	
Little Rock, AR	Replica Streetcar		★	
Tacoma, WA	Surface Light Rail (Modern Streetcar)			★
Boise, ID	Modern Streetcar (proposed)			★
Albany, NY	Rapid Bus			★
Flagstaff, AZ	Rapid Bus	★		
Des Moines, IA	Rapid Bus			★
Sarasota, FL	Low-level BRT			★
Grand Rapids, MI	High-level BRT			★
Hartford, CT	High-level BRT	★		
Eugene, OR	High-level BRT			★
Ft. Collins, CO	High-level BRT			★
Orlando, FL	High-level BRT			★

* This column is distinguishable from the first column because economic benefits would come from mobility improvements primarily for tourists, shoppers, and recreational visitors, not from mobility improvements for the commuting population, which make up the largest percentage of transit trips.



Integrating Land Use, Transit: Mason Corridor and MAX BRT, Fort Collins, CO

Fort Collins is a great example of a city that “gets it.” The city understands that all things in a community are connected. When you fix one thing, you can have an effect on another. The city’s vision of a vibrant corridor with access to transit began in the late 1990s as part of the “Building Community Choices” ballot. After the measure passed, the city approved, in 2000, a vision plan for the Mason Corridor that included a concept for a high-level BRT system. Since then, through various community planning initiatives, failed and successful ballot measures, funding challenges, and extensive cooperation with different agencies, the city is well on its way to a sustainable corridor that will impact the quality of life of residents and the economic development in the city.

The Mason Corridor is a five-mile corridor that will include the MAX BRT system and pedestrian and bicycle trails. The city envisioned transit-oriented development (TOD) as a way forward, and has zoned the area along the corridor and the BRT route as a TOD overlay district and created the Fort Collins Urban Renewal Authority to attract development. The city is now

undergoing an urban design planning process along the Mason Corridor, which was tied to recommendations from its Long Range Transportation Plan. The urban design plan will focus on increased pedestrian access, minimizing setbacks for buildings, way finding, and landscaping. As a result of the investment in transit and the overall integration of transit-supportive land uses, the city projects a regional economic impact of \$150 million, generation of 1,000 jobs and approximately \$600,000 in new sales tax revenue.

Construction on the MAX BRT system began in July 2012 with a projected completion of the entire line in early 2014. In addition, the city is building a multimodal transit center, the South Transit Center, that will serve as a southern hub for many routes. According to Emma McArdle at Transfort: “The BRT system is not just about transit, nor is it just trying to move people. It’s about spurring redevelopment in the core of the city and benefiting from the economic development incentives it will provide.”

Hot Link, Mason Corridor: <http://www.fcgov.com/mason/>

of Table 11, transit agencies were less likely to have significant interaction with land use planning departments. In cases where the project was intended to stimulate or support redevelopment, the transit agencies and cities engaged in a more integrated planning approach.

However, even for projects in the first two columns, where the original set of goals did not focus on land-use impacts, cities can still take advantage of the opportunities that a project presents, even after it is well on its way to completion. In Flagstaff, the rapid bus focused on connecting existing core areas and creating greater connectivity for students and residents rather than on economic development. The city has been successful in creating these connections and in the future Flagstaff plans on placing a greater emphasis on promoting the system as an economic development tool. In Hartford, where the busway is already under construction, the city is now beginning an aggressive station-area planning effort, even though the busway's potential to shape surrounding land uses was not a focus of the city's until fairly recently.

While the first two columns are clearly divided by mode – the mode of choice for boosting economic value for existing land uses is heritage and replica streetcars, while rapid bus and BRT are the most common choices for mobility and connectivity improvements – the third column, focused on mobility and redevelopment, includes a variety of modes. The following section provides a more in-depth look into the projects in the third column to explore their role in shaping or supporting redevelopment efforts.

Does Mode Matter for Shaping Land Use?

Sponsors of rapid bus, BRT, and streetcars are conducting integrated planning efforts to various extents, suggesting that mode is not the determining factor as to whether cities are integrating land-use planning, economic development, and the transit investment. Still, the potential of rapid bus, BRT, and streetcars for shaping land use do differ. ***In addition, other factors such as local political, social, and economic climate, the quality and frequency of the service, and ability to meet the needs of the user also contribute to the development potential.***

Rapid Bus and Bus Rapid Transit

We surveyed three rapid bus systems, one low-level BRT and five high-level BRT systems. In the cities surveyed, all BRT and rapid bus projects were being implemented in part for their ability to move and connect people to existing trip generators such as hospitals, universities, downtowns, or business or shopping districts. These connections are essential to neighborhood development, and integrating these connections with other benefits increases the value of the transit investment.

Four of the five cities operating or constructing high-level BRT—Grand Rapids, Orlando, Eugene, and Fort Collins—have conducted or are currently engaged in robust planning along their BRT routes. This suggests that planners and city officials were intending these high-level BRT projects to stimulate redevelopment. This is consistent with research by the National BRT Institute, which shows that high-level

BRT can have an impact on property values depending on the level of BRT as well as the permanence of services.³⁵

For example, in Grand Rapids, the city and transit agency chose Division Avenue to serve as a BRT route due to its high existing ridership and economic development potential. Grand Rapids has a land-use plan that includes special zoning for BRT stations to include mixed-use development, complete streets, context-sensitive design, and requirements for placing parking in the back of the businesses. The city is engaging with developers and property owners along the proposed route to encourage them to redevelop or re-orient their properties toward the BRT line.

Three out of the four cities operating or building rapid bus or low-level BRT – Albany, Des Moines, and Sarasota – also indicated that their projects had dual goals of improved mobility and redevelopment. In all three cases, however, these projects would support broader redevelopment plans, not stimulate redevelopment on their own. In Des Moines, for example, the rapid bus is not meant to be a catalyst for reshaping the downtown, but will generally support the overall vision for downtown Des Moines and the central Iowa region by conveniently providing an alternative to driving cars. Similarly, Albany wanted the service to be accessible, provide additional mobility, and serve as a lynchpin to other development along the corridor. There is little evidence to date of midsize cities using rapid bus or low-level BRT to create development potential on their own.

Given its various levels of implementation,

³⁵ National Bus Rapid Transit Institute, “Land Use Impacts of Bus Rapid Transit” <http://bit.ly/SccaRY>

rapid bus and BRT can be scaled to meet a midsize city where it is, financially or otherwise. Rapid bus and BRT projects can be implemented incrementally as funding becomes available. High-level BRT, while generally more costly, shows potential for helping to shape surrounding land use, when city planners and transit planners work in concert. Rapid bus and low-level BRT can improve mobility and when city planners and transit planners work together, help to support local redevelopment plans by providing a transit option for new residents and businesses. This research suggests that the greater permanence, additional features, and higher level of service provided by high-level BRT are necessary to yield greater impacts on land use. However, given that many of the projects surveyed are still in the planning stage and that development around existing projects has slowed as a result of the recession, future research will be needed to determine the actual land-use impacts of both the high-level and low-level BRT and rapid bus systems reviewed.

Streetcars

Due to the long history of streetcars in the United States, there is a robust set of research on streetcars as they relate to land use. In general, this research shows a streetcar line has the potential to shape land use because this technology is a permanent investment that can attract developer interest and contribute to placemaking in communities.³⁶

For this report we profiled three heritage and replica systems (Savannah, Kenosha

³⁶ AECOM, CRA/LA, and GoStreetcarLA.org “LA Streetcar Economic Analysis: Executive Brief”. February 2011. Retrieved from <http://bit.ly/UeeTKH>

and Little Rock); one modern streetcar in the alternatives analysis phase (Boise); and one light rail/modern streetcar (Tacoma). Our case studies showed that the type of vehicle technology used and the intention of the service has an impact on the land-use outcomes. Active planning for modern streetcar systems has a different land-use planning element and outcome than heritage or replica streetcar systems.

The majority of the streetcar projects studied were heritage streetcars, serving developed main streets or downtowns with limited focus on shaping land use. The heritage and replica streetcars typically fit into the existing urban fabric of the city with established densities and forms less likely to change. As we learned through the interviews, heritage and replica systems typically focused on the mobility of tourists or local business patrons and generating economic and business activity. These streetcars served a localized economic development purpose, but often did not include an integrated land use planning strategy. For some cities, this might change moving forward. In a recent strategic planning effort in Kenosha, the city recommended that the streetcar line be expanded to support the new vision for Kenosha's downtown. In this case, the aim of the streetcar will not be to specifically shape land uses, but to support the overall revitalization efforts.

In the analysis of the modern systems in Boise and Tacoma, we found different results; there, the cities are integrating their transit investments with land-use planning. As discussed earlier, modern streetcars have increased carrying capacity and frequency and can serve as a transportation

alternative for local residents and commuters. They have been shown in larger cities to help spur economic development and shape land use. Both Tacoma and Boise envision a streetcar with transit-supportive land uses along the route. In Boise, the city specifically chose to analyze a modern streetcar system as part of the alternatives analysis process because they want to create a system that can have high ridership, create economic development, and have positive environmental impacts for local residents. In Tacoma, they have a modern streetcar/surface light rail system that serves as a last-mile connection between the downtown and a multimodal transit hub at the Tacoma Dome station. Tacoma is working to redevelop the Tacoma Dome area as a Transit-Oriented District, made possible by its convenient connection to downtown Tacoma.

The experience in larger cities that have similarly planned for their streetcar lines supports this finding. In Portland, OR, investment along the nation's first modern streetcar line includes \$3.5 billion of investment in downtown, which encompasses more than 10,212 housing units and 5.4 million square feet of office, institutional, retail, and hotel space.³⁷ Economic impacts have also been documented along the H Street corridor in Washington, DC, where land values have increased and new businesses opened along the corridor as soon as construction of the modern streetcar system began.³⁸

³⁷ The Office of Transportation and Portland Streetcar, Inc. "Development Oriented Transit". April 2008. <http://bit.ly/NCHruU>.

³⁸ See examples: King, Andrew et. al "Improvement Plans for H Street Retail Shops" PowerPoint. Georgetown University. August 2012; and Washington Business Journal "Major Development Planned for 600 Block in H Street" Sep. 2012. <http://bit.ly/PlxXEh>.

Capitalizing on a Transportation Hub: The Tacoma Link and the Dome District, Tacoma, WA

Tacoma, WA, is a satellite city in the Seattle region. Like many cities, Tacoma has struggled in the recent recession, and local transit services have been reduced. Located on the edge of downtown Tacoma, the Tacoma Dome stadium and a large multimodal transit center sat in an industrial, warehouse district for many years, unconnected to the rest of the city.

Sound Transit constructed the 1.6 mile Link surface light rail line (which shares technological and operating characteristics with modern streetcars)



to provide better connectivity between the Tacoma Dome multimodal station and downtown destinations, including the University of Washington's Tacoma campus and the theater district. The Tacoma Dome Station is served by Sound Transit's Regional Express bus routes and Sounder commuter rail, as well as other regional and local bus service, and Greyhound. Eventually Amtrak service will also be available at Tacoma Dome Station. Sound Transit used local sales

and other taxes to pay for Tacoma Link, which has been so successful that planning is now underway for an extension.

When plans began for construction of Tacoma Link, city planners also began an effort to capitalize on the new system as a catalyst for redevelopment of the Tacoma Dome area, which is currently the southern terminus of the Link route. Tacoma Link provides quick and convenient access to downtown Tacoma, presenting the City with an opportunity

to redevelop the Tacoma Dome area into a vibrant, walkable neighborhood with a mix of uses. The City zoned the area as a Transit-Oriented District, with an Urban Center Mixed-Use zoning code.

Although progress was slowed by the recent recession, some new businesses have moved into the area and historic buildings in the area are being renovated. In 2011, the Social Security Administration

moved into a redeveloped building across the street from a Tacoma Link station, bringing 30 employees into the Dome district. The new LeMay American Car Museum, with display space for up to 350 modern and vintage automobiles, opened next to the Tacoma Dome in June 2012, and invites its visitors to use Tacoma Link to get to the museum from downtown.

Hot Link: "Employees in the Dome District" <http://bit.ly/URL698>

Overall, these differences between the types of streetcar systems deal with their ability to shape land use, not their overall ability to generate economic and business activity. Research has shown that any type of quality streetcar system with dependable service and frequency, regardless of technology, can accomplish the latter. The appropriate choice of streetcar depends on the intention and goals of the community, as each system type plays a different role.

Outcomes

Each major transit project reviewed for this report has a specific purpose that has led to (or is projected to have) a range of positive outcomes: enhanced mobility, increased business activity, reduced congestion in downtowns, growth in ridership, connections to underutilized or vacant lots with redevelopment opportunities, and connections to entertainment and employment destinations. ***The outcomes depend not only on the choice of technology and mode, but on the quality of the system, including frequency, networks, alignment choice, and usefulness to the community (visitors and residents) as well as market conditions in the area.***

“Putting Transit to Work in Main Street America” found a lack of quantitative data on the impacts of transit investments in rural areas. The same is true for midsize cities. In both small towns and midsize cities, impact analysis is needed to better understand how transit investments benefit the economy and overall quality of life for residents. In a few cases, however, we did find some quantifiable economic impacts of the transit investment.

For example, a study by University of Utah researchers examined employment change near BRT stations in Eugene. Looking at data from three years before the system opened and three years after the system opened, the study found 42 percent of the increase in jobs over that period were within a quarter-mile of BRT stations. They found that administrative and health-care-related jobs were most attracted to locations near BRT stations. The researchers attribute the BRT system’s success in attracting jobs to be a result of locating stations in either existing or planned high-demand areas, and note that Eugene adopted land-use policies to encourage new development near BRT stations.³⁹

Similarly, Little Rock has seen \$800 million invested downtown, with fewer vacancies, and more investment in their businesses by property owners (façade improvements, signage changes, etc.). Little Rock cannot directly attribute all of the success of downtown to the streetcar, but the streetcar has been a part of the overall downtown improvement.⁴⁰

Other cities also reported economic impacts. In Savannah, the business and hospitality industries continue to financially support the streetcar because it brings tourists to their establishments, hence bringing in more revenue for their businesses. The “Dottie” streetcar, as it is known in Savannah, connects with a free shuttle and ferry and averaged 434

³⁹ Nelson, Arthur C., et al. “Bus Rapid Transit and Economic Development: Case Study of the Eugene-Springfield, OR BRT System,” Metropolitan Research Center, University of Utah, November 2011. <http://bit.ly/T1ELbo>

⁴⁰ Central Arkansas Transit Authority “DRAFT: Economic Enhancement Study: Development Along the River Rail Streetcar System,” November 2012.



Results from the River Rail Streetcar: Little Rock, AR

In the mid-1990s, the cities of Little Rock and North Little Rock, together with Pulaski County, developed a revitalization plan to strengthen their urban core. A replica streetcar system that would circulate through both downtowns was an integral part of that plan.

The River Rail streetcar opened in 2004, and an extension serving the Clinton Presidential Library opened in 2007. Today, the River Rail is heavily used by tourists to the two cities and by those attending special events downtown. In 2011, the system provided 100,402 rides. New features, such as real-time arrival information, have been added to encourage more local residents to use the system as well.

To better understand how the River Rail supports the overall revitalization effort, the Central Arkansas Transit Authority conducted a study of business investment and development in the areas adjacent to the streetcar line. The study found that since 2000, these areas have seen the development of 957 new residential units, the creation and/or

retention of 12,571 downtown jobs, and more than \$800 million of construction investment.

According to the study, from 2000 to 2012, for every \$1 local taxpayers paid for construction of the River Rail, an additional \$135 was invested into capital improvements and revitalization efforts in the downtowns by private developers and government organizations. The study also found a 21 percent increase over that period in people living near the streetcar line and a 56 percent increase in residential property values in that area, as well as increases in hotel tax and food tax revenues in downtown North Little Rock. The study concludes that not only has River Rail promoted downtown tourism, it has also succeeded in meeting its goal of supporting the downtown revitalization efforts.

Source: Central Arkansas Transit Authority, "DRAFT: Economic Enhancement Study: Development Along the River Rail Streetcar System," November 2012.

passengers daily in 2011.⁴¹ Savannah has witnessed increased economic activity in the east side of the city since the streetcar began operations in 2009. In Kenosha, officials have noted that as the economy improves more businesses are locating downtown closer to the streetcar line.

A lack of quantifiable economic data, however, does not mean that the investments have not yielded positive impacts. Many of the transit investments are serving the transit needs in the community by connecting residents to jobs, recreation, education, and other destinations.

- In Flagstaff, the rapid bus has created greater connectivity for the students to access the university, downtown locations, and off-campus housing. Data on transit ridership indicate 600,000 trips per year on the Mountain Link line. In addition, Northern Arizona University has been able to capture the momentum from the rapid bus line by closing some parking lots, creating more green space on campus, and creating a more pedestrian-friendly environment for the students and faculty.
- In Orlando, the city implemented its fully dedicated BRT route, known as LYMMO, to function as a downtown urban circulator. A 2003 study found increased transit ridership and reduced congestion in the downtown. The BRT line, touted as the only fully dedicated lane BRT in the country, has also been associated with providing mobility choices for downtown employees by giving them greater access to their jobs

and restaurants and reducing reliance on cars.⁴² Most trips are relatively short trips, providing access between parking garages and employment/entertainment destinations.

- In Albany, the use of technology has increased the quality of the service and improved accessibility for riders on the BusPlus rapid bus line. Approximately six out of every seven trips on the BusPlus line are work trips along Route 5, the largest and busiest corridor in Albany. Riders have the ability to track buses with mobile applications. According to the CDTA, Bus Plus averages 15,000 riders daily.

Almost half of the projects profiled are either in the planning or construction phase - Fort Collins, Sarasota, Des Moines, Grand Rapids, Hartford, and Boise. In addition, Eugene, Orlando, and Tacoma are actively planning for extensions of their existing systems. Future research will be needed to assess the outcomes of these projects and their relationship with other revitalization efforts occurring simultaneously.

⁴¹ Interview with Howard Helmkin, DOT operator. 2012 ridership numbers are not available.

⁴² Interview with Laura Minns, LYNX, Orlando, November 2012

Results from the Emerald Express BRT, Eugene, OR

As the 21st century approached, the Board of Directors of Lane Transit District, serving Lane County and the cities of Eugene and Springfield, OR, instructed the agency's staff to identify strategies that would allow transit in the region to take a "quantum leap."

Transit planners worked with the community to develop a proposal for a 61-mile BRT network – the first of its kind in a midsize city. In 2007, the first line of the Emerald Express (EmX) BRT opened. This route connects the downtowns of Eugene and its partner city, Springfield, and also serves major destinations in the region such as the University of Oregon. The line connecting the two downtowns was seen as the backbone of the future BRT network. It was developed in order to reduce automobile use along the busy Franklin Boulevard corridor, and was selected based upon its high traffic volume, heavy transit ridership, and population density.

In 2009, the Federal Transit

Administration evaluated the outcomes of the first EmX line. In that report, FTA determined that while travel times along the BRT route were only slightly faster than on the pre-existing conventional bus route, ridership on the BRT line was growing significantly (ridership had more than doubled compared to the previous service) and riders reported that the service was much improved in terms of its reliability. FTA concluded that Lane Transit District had successfully branded the BRT system as a reliable, easy-to-use, and clean alternative to the automobile. Although redevelopment of the corridor was not a primary goal of the project, FTA found that investors showed an increased interest in land near the BRT line.

Resource and Hot Links: "The EmX Franklin Corridor BRT Project Evaluation," Federal Transit Administration, April 2009. <http://1.usa.gov/Sc55ki>. "Bus Rapid Transit Applications Phase 2," 2011 <http://bit.ly/R8cWTo>



Recommendations

Even in midsize cities, transit projects can take several years to develop and implement. They cost millions of dollars and represent a significant undertaking for these communities, many of which have not had a rapid bus, BRT, or streetcar line in their recent history. Still, many midsize cities are taking action to implement these projects through development of local partnerships, diverse funding packages, and coordination with local land-use agencies. Drawing from the most successful examples uncovered in our research, we have developed recommendations for midsize cities that maximize the likelihood that the investment will yield benefits for the city.

One key premise underlying these recommendations is that while placemaking may not be a primary goal of every transit project in a midsize city, every project needs supportive land uses at its stations to attract riders, upon which all transit systems depend. Putting a transit system on the street does not automatically integrate it with land use. Instead, ***the city and transit agency must integrate corridor level and station area land uses with the transit investment by proactively planning for such integration.***

1. Have a vision: The cities with the most successful projects know who they want to become and see transit as a part of the vision. Little Rock had a vision of capitalizing on President Clinton's hometown to promote tourism. The streetcar fit into that broader vision. In Eugene, the region wanted to take transit to the next level to support its growing communities without choking on traffic

congestion. The BRT system fit into and supported that vision.

2. Choose the mode that best fits your needs: Each transit mode has its purpose. Heritage systems offer a sense of nostalgia for riders and serve visitors to downtown and main street areas well. Low-level BRT and rapid bus focus on enhancing connections and mobility for riders and supporting broader revitalization efforts. High-level BRT and modern streetcars aim to improve mobility and to shape land use, influence economic development, and contribute to high ridership.

3. Think about all the benefits upfront: Cities that consider the land use and economic development potential upfront have greater success integrating the transit system with other city goals. Transit has the ability not only to connect people to opportunities, but to impact the development of the community. The cities that recognize the role of transit in community development – and convey that goal to developers, community members, and other stakeholders – are more likely to see a higher return on the transit investment.

4. Develop a good working relationship between the land-use department and the transit agency: In some of the most successful cities, we found that the city and transit agency had a good working relationship. In Fort Collins, the transit agency is a city department, not a stand-alone agency, which allows for close coordination of the transit and land-use development processes. But even where the city and transit agency were separate

entities, strong relationships could be built. In Grand Rapids, for example, the BRT planners meet frequently with the city's planning staff.

5. *Pick a route with potential:* Not all corridors will yield the same result in terms of ridership or development potential. Looking at existing residential and employment densities, ridership on existing transit, and major destinations will help to identify the best route to meet community goals. Grand Rapids, for example, chose its first BRT corridor because that corridor already had strong transit ridership and shows potential for redevelopment. Market strength will also have an impact on the success of the investment, as a strong market in the transit corridor will often secure more investments than a weaker market or corridor. In both strong market and weak market areas, however, there is the risk that new investments could displace existing businesses and residents; cities should work to mitigate these effects so that the existing community can benefit from revitalization.

6. *Design and operate the service so that it is attractive to riders and well-integrated with the existing transit network:* Ridership and development potential will not be realized if the transit service provided is not frequent, convenient, and reliable. One of the advantages of rapid bus, BRT, and streetcars over conventional bus service is that they are intended to run frequently, so that riders will not need to consult a schedule to know when the bus or streetcar is supposed to arrive. Stations must be easily accessible from

surrounding neighborhoods, and the utility of the new investment will be extended if it is supported by a network of other local and regional transit services. The new services must be designed with these features in mind if the full ridership potential of the route is to be realized.

7. *Seek community input early and often:* If the community believes in the investment, the process is more likely to be smooth and successful. The West Eugene extension has had a different level of community support than the original Eugene BRT route, which has slowed the transit agency's ability to implement the project. Flagstaff has had successful transit ballot referendums, largely based on the city's ability to involve the community in identifying the need and developing the vision for rapid bus and other transit improvements. Their information campaign includes a fair amount of education on the relationship of land use and transportation, the desired land use forms, and the range of alternative transportation available in the future.

8. *Work with business interests, institutional interests, property owners, and developers:* Cities should work with the private sector to educate them about the potential impact of the new service. While this is true for both streetcars and bus-based investments, it is particularly important for rapid bus and BRT since so few midsize cities currently operate such systems. As a result, developers and businesses often hesitate to take the risk of investing along a BRT route. Streetcars are better understood, given that they are a more permanent investment. However,

as discussed earlier, the type of streetcar and the corridor it serves can affect the amount of new development that is possible. By proactively reaching out to the business community and major institutions, cities such as Savannah and Flagstaff have generated financial support for their projects. By working with the development community, Grand Rapids and Fort Collins, both of which are building high-level BRT, have garnered some developer interest in their projects.

9. Enact supportive zoning: Zoning that considers transit-supportive land uses and is planned for the right densities and intensities is essential. In Fort Collins, the BRT will operate along the Mason Corridor, a corridor that is ripe for investment and is already zoned as a transit-oriented development (TOD) district with appropriate densities. In Orlando, the city had been planning for TOD in its downtown even before it had the “T” (transit). By the time the BRT system was implemented, the route was well established with transit-supportive land uses.

10. Be creative in seeking financial support: Financial support is critical, and a variety of sources can be tapped, including federal programs, the state, a local university, hospital, hospitality industry, downtown business association, or other partners. Federal funding remains critical for many projects and needs to be increased so that more communities can make these investments. At the same time, other sources of funding must be considered, and partnerships with local stakeholders can yield significant results. For example, Savannah and Flagstaff have

partnerships with the business community and the university, respectively, that helped the projects get funding.

Conclusion

The types of transit investments discussed in this report can serve a variety of purposes in midsize cities. They improve mobility and connectivity for residents and tourists. They support economic development. And they can, under certain circumstances, help to shape land use. Transit’s potential to achieve these goals exists regardless of mode, but it can only be realized if cities and transit agencies work together to establish a vision and an inclusive process for the transit project. If a city enters the transit development process with a narrow vision for the project, then that is what it will get – a project that serves a narrow set of goals. But **when a city establishes an aggressive set of goals and develops the partnerships to advance them, the transit projects can help revitalize communities, be they streetcars, rapid bus, or BRT.**

As more midsize cities around the country consider transit investments, we recommend that they approach the projects from the broadest and most collaborative perspective, in order to realize the maximum benefits from their investments. With this approach, and following the recommendations outlined above, more communities will experience the improved mobility and economic return provided by a transit system that is well-integrated into the surrounding community.

Appendix

List of Individuals Interviewed

1. Albany, NY: Jonathan Scherzer, Capital District Transportation Authority
2. Boise, ID: Cece Gassner, City of Boise/Office of the Mayor
3. Des Moines, IA: Elizabeth Presutti, Des Moines Area Regional Transit Authority; Mike Ludwig, City of Des Moines
4. Eugene, OR: Tom Schwetz, Lane Transit District
5. Flagstaff, AZ: Jeff Meilbeck, Northern Arizona Intergovernmental Public Transportation Authority; David Wessel, Flagstaff Metropolitan Planning Organization; Erika Mazza, Northern Arizona Intergovernmental Public Transportation Authority
6. Fort Collins, CO: Emma McArdle, Transfort
7. Grand Rapids, MI: Conrad Venema, The Rapid; Suzanne Schulz, City of Grand Rapids
8. Hartford, CT: Michael Sanders, Lisa Rivers, Thomas Maziarz, Connecticut DOT; Sandy Fry, Greater Hartford Transit District; Thomas Deller, City of Hartford
9. Kenosha, WI: Ron Iwen, Kenosha Area Transit; Jeff Labahn, Kenosha Department of Community Development and Inspections
10. Little Rock, AR: Matthew Long, Central Arkansas Transit Authority
11. Orlando, FL: Laura Minns, LYNX
12. Sarasota, FL: Sarah Blanchard, Sarasota County Area Transit; David Smith, City of Sarasota
13. Savannah, GA: Dominic Ross, City of Savannah Mobility and Parking Services Department; Howard Helmkin, Connect the dot operator
14. Tacoma, WA: David Beal, Val Batey, Karen Waterman, Sound Transit

Interview Questions

Goal: What did the community do? What was their intention? How was it paid for? What was the economic or land-use impact? What processes or partnerships were needed to accomplish the project?

Background Questions

Tell me about your community and the population that your transit serves.

Please describe your current transit system. How would you characterize your ridership levels and the quality of the existing transit system? What are the primary reasons people ride your system? Is the existing system connected to any regional networks?

What are some issues in the community and how are you hoping to address them with transit? (Issues: tourism, jobs, access to workers, student population, poverty, congestion, etc.).

Transit Project

What major transit investments are you pursuing –ex. bus rapid transit, streetcar or trolley and why? Please be specific in describing the proposed project, as BRT and trolley in particular can encompass different types of services.

Please describe the status of the transit investment – where are you in the process?

What types of partnerships are necessary to develop and move your project forward? Who is leading the project – any champions? (Mayor? Chamber of Commerce?)

What is your funding source?

Transit / Land Use Connection

What entities have responsibility for land-use planning in your service area (e.g. city or county government, regional authority)? How involved have those entities been in the planning process for your project and its stop/station areas?

What are your goals for land use around the project's stops/stations? How are you using the transit investment to shape land use? What policies are you creating to guide your investments to achieve those goals?

What challenges, if any, have you experienced in integrating supportive land uses with your project, and how have you addressed them?

Is the transit investment laid out in the City or County comprehensive plan?

How has the community been involved in the land-use decision-making process for your project?

Results

If the project is already complete – what was the end result? Increase in ridership, jobs created, increase in private or public investments, reduced vehicle miles traveled?

If the project is not yet completed, what are some of the projected economic development impacts?

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Page 1: Kenosha Area Transit District photo



Page 1: Lane Transit District photo



Page 1 and Page 19: Sound Transit District photo



Page 6: "We Improved" adapted from Northern Arizona Intergovernmental Public Transportation Authority photo



Page 9: Maps by Reconnecting America



Page 16: Rapid Bus, Low-Level BRT and High-Level BRT graphic by Irving Pham, Reconnecting America



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Page 19: Central Arkansas Transit Authority photo



Page 26: Adapted from Northern Arizona Intergovernmental Public Transportation Authority photo



Page 31: City of Savannah photo



Page 32: Fort Collins station plan rendering



Page 34: Fort Collins station plan rendering



Page 38: Sound Transit District photo



Page 40: Central Arkansas Transit Authority photo



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