



The Mobility Benefits of the Streetcar

October 2015

*Community
Streetcar
Coalition*



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INTRODUCTION

When the new generation of streetcars began appearing starting in 2000, the communities began to see the multiple benefits accruing to this “new” mode. Among the benefits from the streetcar were:

- New, short-distance trips that did not require a car
- Enhanced pedestrian mobility and increased pedestrian activity
- Connectivity with the regional transport network and
- Robust private investments in walkable urban development along streetcar routes

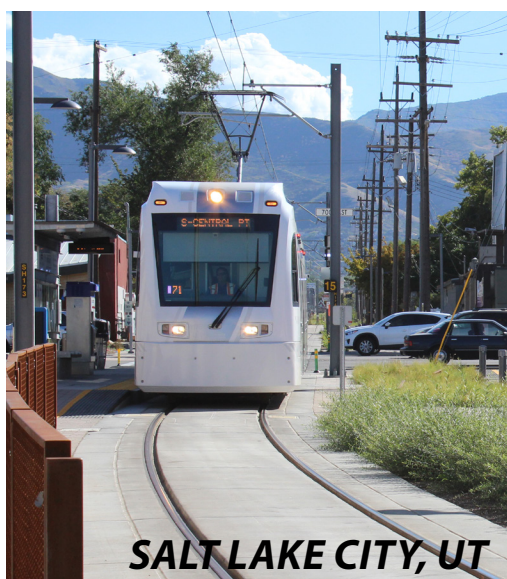
Yet, despite these documented benefits, some are now suggesting that the streetcar is not delivering on its promise from the mobility perspective. Some critics claim the mode is not fast enough, does not compete with other modes on travel time, and that other modes are superior urban transit modes based on speed and travel time alone. These critics are either misstating or misunderstanding the objectives of the streetcar, and saddling it with metrics it was never intended to meet. Further, the streetcar is incorrectly being compared to modes that cannot deliver the streetcar’s economic development and pedestrian activation benefits.

The Community Streetcar Coalition (CSC) did extensive background research and consulted with select “modern” streetcar cities to examine the mobility profile and bring the broader benefits of streetcars to the forefront. In order of their initiation, the cities surveyed are Portland, Seattle, Salt Lake City, and Tucson. These four are referenced in subsequent sections.

This document outlines the streetcar’s benefits in the context of the recent streetcar history, changing demographic and urbanization trends, and actual experience across the country. The CSC trusts these resources will help advance future streetcar investments in communities to meet their mobility, economic, and livability goals.

When considering the streetcar as an element of the local transport network, it is not a stand-alone infrastructure decision. There is a broader context where people-moving and place-making potential should be optimized, with the assistance of the streetcar. Communities should look broadly to define a streetcar district that is appropriately scaled with the following factors:

- Definable, manageable boundaries
- Route visibility and clarity
- Stop spacing for efficient operations and easy access for riders
- Multiple options for internal connectivity and links to the larger transport



SALT LAKE CITY, UT



PORTLAND, OR

network

- A mix of pedestrian attractors and producers with a supporting sidewalk network
- Appropriate land use and zoning provisions to allow intense and dense mixed uses
- Require appropriate orientation toward sidewalks, and, where possible, direct integration with the streetcar
- Walkable sub-areas
- Opportunities for redevelopment and joint development
- Potential implementation by public-private partnerships

The combination of these features and elements allows the streetcar to help complete the “last mile of longer transit trips” and also to avoid short auto trips that can be completely avoided because of a well-designed walking environment and transit – the so-called “trip not taken.” These twin mobility benefits are integral features of a more walkable, livable downtown or streetcar district, and the streetcar’s urban integration and frequent access points are essential to delivering its economic development benefits. A complementary result is making a meaningful dent in auto traffic congestion.

THE “NEW” STREETCAR HISTORY – ONLY FIFTEEN YEARS

The role of streetcars as a feature of city transportation systems dates back to the late 1800s, when hundreds of U.S. cities began developing streetcar networks that thrived for a half-century. At one point, every community over 5,000 population had a streetcar. In a few exceptional cases, legacy streetcars such as New Orleans, San Francisco, and Philadelphia never ceased operations. However, the preponderant share of streetcar systems was gone by the mid-1950s. After 50 years of virtual invisibility, streetcars reappeared in modern form in 2000, launching the modern streetcar era. This means the *contemporary* streetcar history is very short – *only fifteen years*. This short history period is important to the current debate circling around the streetcar as a means of mobility. The new streetcar era in the United States began between 2000 and 2002 in three cities, in different regions, with different population sizes, different intents and purposes, and different choices in streetcar vehicles.

The First Modern Streetcars

Each of the initial streetcars had different objectives, but **economic development** and **mobility** were always priorities.

Kenosha, WI (2000)

Initial Distance: 2 miles

Objectives: To link potential redevelopment sites through downtown, and connect Kenosha and Chicago via Metra

Portland, OR (2001)

Initial Distance: 2.5 miles

Objectives: To provide a mobility mode with sufficient permanence to entice high-quality, long-term development, as well as stimulate redevelopment

Tampa, FL (2002)

Initial Distance: 2.4 miles

Objectives: To connect tourist attractions such as the convention center, cruise port, aquarium, and mixed-use activity centers

5 projects opened between 2002 and 2014:
Tacoma **Portland (second line)**
Seattle **Tucson**
Salt Lake City

20 communities began formal planning, design, and/or construction of streetcar projects, as well as extensions between 2002 and 2014.



The New Beginning

The first American streetcar project of the modern era opened in 2000 in Kenosha, WI. Portland, Oregon followed in 2001 and Tampa, Florida in 2002. Interestingly, each had a different set of objectives, but economic development and mobility were always high priorities.

Kenosha:

At 95,000 residents, Kenosha was the smallest of the three early streetcar cities. The City envisioned its streetcar line as having mobility and development benefits. It developed a two-mile line to link a potential redevelopment site on the shores of Lake Michigan through downtown to an end-of-the line Metra commuter rail station. The latter would connect Kenosha and Chicago via Metra, allowing the streetcar to be part of a regional transit network. The lakefront brownfields site served by the streetcar became Harbor Park, a downtown-adjacent neighborhood. Four private development projects quickly followed and precipitated a desire for a four-mile extension. Kenosha acquired and rehabilitated five pre-1940s President Conference Committee (PCC) cars. Half of the line runs in the street and half runs in a grass strip alongside the street. The Kenosha streetcar is owned and operated by the Kenosha Transit Commission and cost \$6.3 million to construct, including a maintenance facility.

Portland:

Portland's streetcar was part of a larger strategy to focus mobility and development in a more urban context. The initial 2.5-mile line was the nation's first "modern" streetcar, using European vehicle technology with low floor, double-sided/double-end boarding equipment and off-board ticketing. Its initial segment is in-street running, and the streets chosen were one-way streets with lower traffic volumes. The streetcar became an essential element of a multi-modal system – including intercity rail, commuter rail, light rail, bus, and streetcar – to offer broader choices. In concert with the regional land use plan to concentrate development within an urban growth boundary, the streetcar became an integrating mode.

One of its most chronicled successes was to help stimulate redevelopment of the Pearl District, previously an 80-acre rail yard immediately north of downtown Portland, where the land lacked even a basic street grid. The initial line was routed to connect major destinations, starting from the Good Samaritan Hospital, through the Pearl redevelopment district, into downtown and on to Portland State University. The Pearl District was the centerpiece, of the initial alignment, and the streetcar, along with new zoning, financial incentives, and public infrastructure investments, helped spur the complete

redevelopment of the rail yard into a vibrant, mixed-use, urban neighborhood. The heart of the Pearl District is Jamison Square, a lively public space that attracts people of all ages and is served by the streetcar on both its east and west edges.

Initiated by a group of business owners and developers, and supported by the City, the Portland Streetcar aimed to become a “pedestrian accelerator.” The streetcar would encourage more walk trips, create more retail-seeking foot traffic, and provide a mobility mode with sufficient permanence to entice high-quality, long-term development. By all indications, the Portland Streetcar met its desired objectives. Since its opening, more than \$4.8 billion in commercial and residential development occurred within ¼ mile of the streetcar line.

Since the initial line, Portland saw five additional extensions, resulting in a 7.35-mile long system. Until the City received a federal Small Starts grant of \$75 million in 2009 (the fourth extension), the system was locally funded. Businesses in Portland formed Portland Streetcar, Inc. to build and operate the streetcar, with the support of The City of Portland. The initial 2.5-mile route cost \$55 million to construct.

Tampa:

Addressing tourism was the principal goal of the Tampa streetcar, connecting the convention center, cruise port, Florida Aquarium, associated attractions, and mixed-use activity centers to Ybor City, the historic Cuban barrio. The Tampa line was deemed the destination crescent, clearly supporting its tourism role. At 2.4 miles long, it runs in a dedicated right-of-way using a replica car. The Gomaco Burney Safety car is the same streetcar that historically ran in Tampa. While the line is to the east and south of downtown proper, it does skirt Channelside, a mixed-use redevelopment district with a residential

and entertainment focus. A short extension brought the streetcar to the edge of the downtown core. By not running through downtown, it limits broader non-tourist mobility benefits.

That said, the City estimated approximately \$1 billion in public and private investment occurred within the first five to six years after operations began. The City is currently assessing an expanded streetcar network as an element of its downtown/waterfront planning and implementation strategy. A newly-announced \$1 billion private waterfront development project is urging the City to expand the current streetcar line and to convert it to a modern vehicle. Tampa’s original streetcar segment cost \$48.3 million to construct.

These three streetcar systems set the table for a nationwide interest in pursuing the streetcar as an integral element of community building. Between 2002 and 2014, another five projects opened: Tacoma, Seattle, Portland’s second line, Salt Lake City, and Tucson. During that period, another 20 communities began formal planning, design, and/or construction of streetcar projects, as well as extensions.

Implications of a Short History

With these new projects – and Portland with the first modern streetcar in over 50 years – there were no operative “rules” to guide project development. Consequently, each community developed its lines to meet local needs and expectations. The transportation industry did not have accepted planning and design standards to coordinate/calibrate with the regional travel demand model for estimating ridership. Street cross sections, overhead power supply delivery, traffic control, pedestrian coordination, speed and related issues were addressed independently. Accordingly, each community made local decisions on these issues. Kenosha had both in-street running and designated guideway; Portland elected to have a completely in-street running

line; and Tampa had a designated guideway. Because mobility was an important factor, the streets designated for the streetcars were those that offered desired access to existing and future destinations, gave route visibility and clarity, promoted modal connectivity, and could accommodate future extensions.

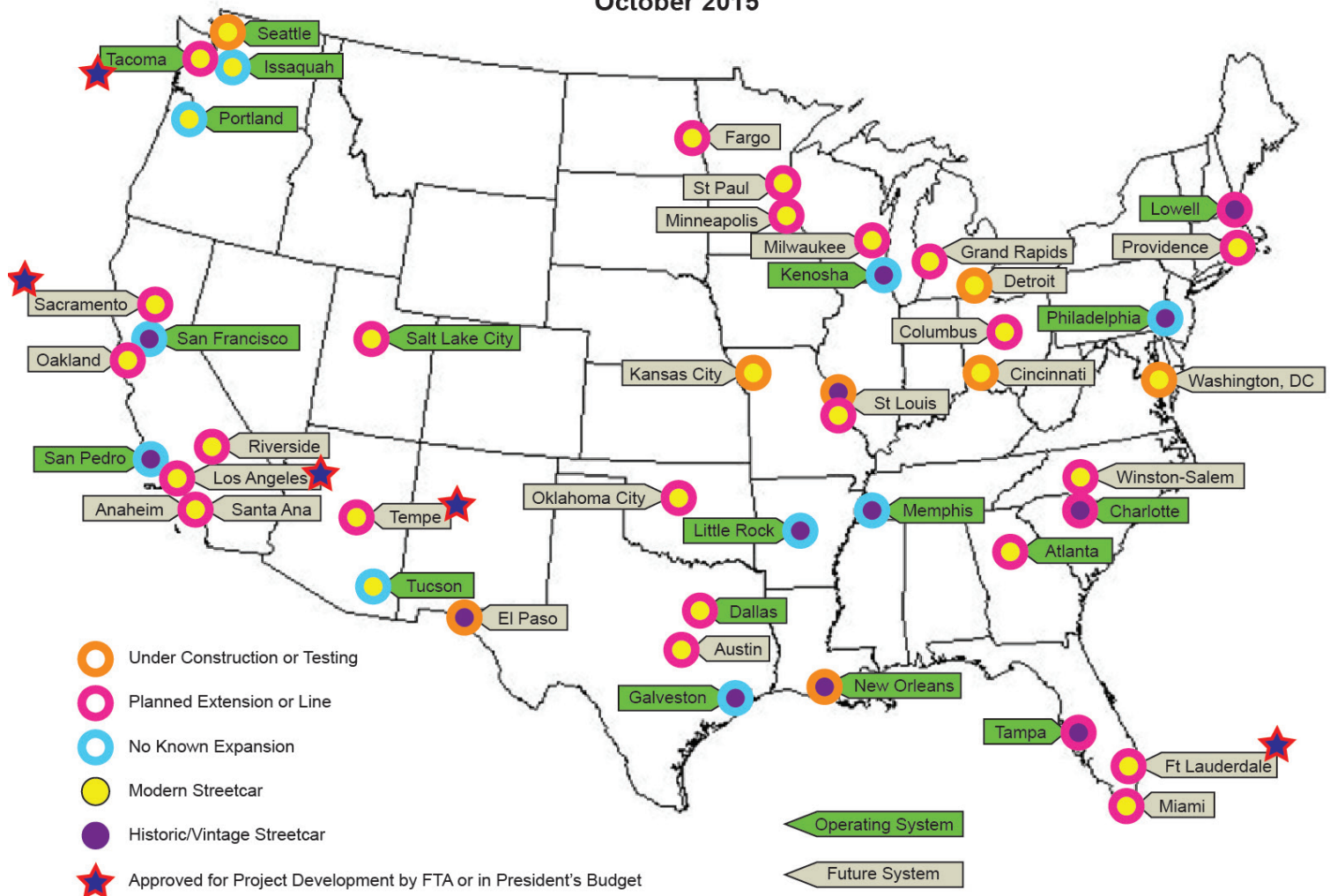
Because streetcars had been largely absent for so long, both from the public consciousness and from the transit planning and design professions, their arrival brought some challenges. As new streetcar systems began operations, there were some minor accidents, as these new vehicles share the roads with cars, commercial vehicles, pedestrians, and bicyclists. Drivers and operators were unaccustomed to sharing the road with a rail

vehicle. These accidents were no more frequent than with the introduction of other new transit modes, and because of the streetcar's slower speed, the accidents that occurred were uniformly less severe. In its first 10 years of operations, the Portland Streetcar did not experience a single accident that caused an injury.

Rating and evaluating systems for transit projects also were poorly-suited to measure the benefits of streetcars. When federal funding opportunities began to emerge, evaluation criteria for modes such as light rail and commuter rail were used to assess the streetcar's cost-effectiveness. Since these measures were designed for longer commuter-based trips and focused on congestion mitigation and travel-time savings, the streetcar

Committed & Exploring Streetcar Cities

October 2015



SOURCE: COMMUNITY STREETCAR COALITION

did not rate well; it was slower and stopped more frequently, often in urban congestion. Of course, that is the streetcar operating model. While the streetcar's benefits come from easy pedestrian access, integration with the urban environment, and suitability for all types of trips (not just commute trips), traffic-imposed delays and slower speeds raised concerns among some about operating reliability of the streetcar. The inability to meet "accepted transit measures" gave rise to criticisms of the streetcar as a true transit mode. These critiques reflect a misunderstanding of the streetcar's objectives and strengths, and often reflect a bias for speed over access, a philosophy shown by the highway system to be highly detrimental to urban life and development opportunities.

Expectations and Adaptation

Missing from the discussion is a common set of streetcar-specific evaluation criteria that can be used to equitably assess streetcar performance. Some supporters of the streetcar are urging that critics stop making "perfect" the enemy of the "good." In fact, as identified in the section on Mobility Benefits, communities are addressing critical issues such as reliability, frequency, and speed in a number of creative ways, without compromising the accessibility that underlies the streetcar's primary benefits. The results of these lessons learned will help inform a more positive approach to project development that can be more universally adapted and applied.

What the Future Looks Like

The Community Streetcar Coalition monitors and documents new streetcar projects. In its *Streetcar Summit 2015* report, the CSC reports 43 communities committed to or exploring new streetcar projects. In 2015, future openings are set for Dallas, Charlotte, Seattle (extension) and Washington, DC. 2016 will see openings in Cincinnati, Detroit, Kansas City, and St. Louis. The accompanying map depicts the current status of Cities Committed and Exploring Streetcars.

THE STREETCAR - FOR TODAY AND TOMORROW

There is a generous mix of reality and myth concerning the streetcar – its goals, its functionality, its role in development and value creation, and its long-term contribution as a transportation mode. The streetcar came on the scene during a time of change – a documented population return to city centers, complementary demographic shifts, emerging attitudes for travel choices, and the market shift toward walkable urbanism. While the first round of modern streetcars actually preceded these changes by several years, they and those that followed benefitted from and facilitated this new urban ethic. As the renaissance in city centers began to grow and spread, the streetcar was at the forefront. It provided access to both mature urban places and emerging opportunity areas. The well-chronicled return to the city over the past two decades is creating new real estate markets. At both ends of the population spectrum – millennials and seniors – there is an increased desire to live in walkable in-town neighborhoods and mixed use, high-density environments.



MODERN STREETCARS: PORTLAND, SALT LAKE CITY, SEATTLE, TUCSON

Changing Demographics – Both Ends of the Spectrum

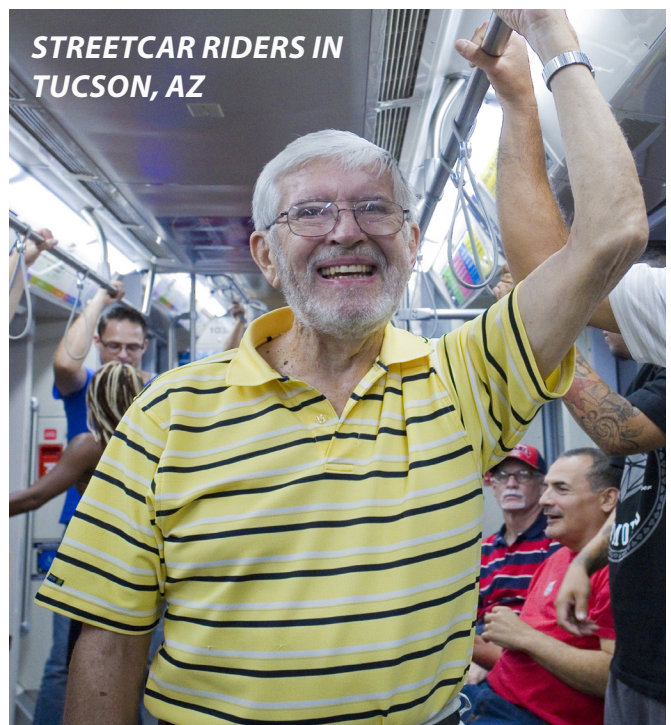
The changing demographic picture in the US over the last 15-20 years showed the beginnings of dichotomous age trends with a focus on millennials (born between approximately 1984 and 2004) and baby boomers (born between approximately 1945 and 1965). In 2015, there are 92 million millennials and 77 million baby boomers. These two population bulges have implications for future development and transportation choices.

Millennials - A recent report by the US PIRG Education Fund on millennial habits found that these younger Americans have a propensity for urban living. Evidence comes from multiple sources. The Pew Research Center in 2014 revealed that 38 percent of 18- to 29-year-olds prefer to live in cities compared with 24 percent of all age groups. A similar 2014 TransitCenter survey reported that 32 percent of those under age 30 preferred city neighborhoods as their “ideal” neighborhood. For those over age 30, the preference was 16 percent. The Urban Land Institute in a 2013 survey found that 21 percent of 18- to 34-year-olds who were likely to move stated they would like to relocate to a big city. The American Planning Association also indicated some 56% of millennials desire to live in walkable communities.



Further support comes from *Millennials & Mobility* by the American Public Transportation Association (APTA). It concluded that millennials are driving change and they:

- **Prefer communities with many transportation options, including public transportation.** Millennials are multimodal, they choose the best transportation mode (driving, transit, bike, or walk) based on the trip they are planning to take. Communities that attract millennials have a multitude of transportation choices, as proven by millennial hotspots, popular zip codes where residents have self-selected into a multi-modal lifestyle.
- **Consider public transportation options as the best means for digital socializing and among the most likely to connect the user with their communities.** Transit also allows millennials to work as they travel, a trend noted by 40% of those polled.
- **Employ pragmatic reasons for transportation choices,** such as needing to save money, convenience, exercise, preferring to live in a place where it makes more sense to use transit.



- **Would like to see, over the next 10 years, more reliable systems** with real time updates and Wi-Fi/3G/4G availability for fully leveraging technology.

Cities across the nation are leading the way by expanding public transportation options, building new bicycle and pedestrian infrastructure, and opening the doors for an array of innovative new technology-based transportation services. For example, Atlanta, certainly a car-dominated city, understands the “today and tomorrow” implications. The City recognized that its streetcar investment was to attract – and retain – the millennial age group as a long-term strategy to position Atlanta in the global marketplace.

Baby boomers – Between now and 2030, an estimated 1.6 million baby boomers will turn 65 annually. Trends are showing, according to a Pew Research Center survey, that those 65+ prefer to live in a city. If the 50-64 baby boomer age group is added to the 65+, 37% have a preference for city living. As living preferences shift, the baby boomers are seeking convenience, pursuing healthy living and staying engaged. Boomers are looking for something different:

- Many are seeking urban or close-in suburban locations
- Most want urban amenities, even in suburban locations
- Walkable communities with amenities, culture, health care, and education

The streetcar is one of those transportation investments that responds to both of these dynamic demographic-induced change factors.



Walkable Urban Places – “WalkUPS”

Driven by the demographic trends and the associated preferences, the downtown renaissance came to understand the fundamental changes in a broader context. There is a growing body of research into two patterns of development: drivable suburban, the last 60 year pattern; and walkable urban, the more recent pattern. Christopher Leinberger named the neighborhoods that reflect this preference “WalkUPs,” or Walkable Urban Places. The drivable suburban model of the twentieth century featured low-density development accessed primarily by private automobiles. Real estate products – housing, shopping, office and industrial – were largely separated, requiring auto driving as the principal mode. This model fueled the economy and was very successful in the mid- to late-20th century.

In contrast, the WalkUP format offers greater density, intensity, and mixes of diverse real estate types. They are connected by multiple modes such as rail, bus, bike, and auto. In WalkUPs, most daily destinations are within walking distance. Research studies into WalkUPs are being conducted by the George Washington University’s School of Business and LOCUS, an arm of Smart Growth America. Today there are over 550 WalkUPs in 30 US metropolitan areas. Four WalkUP types are defined, ranging from High Walkable to Low Walkable. These places have greater economic productivity, higher percentage of college graduates, and higher per square foot rent premiums. Trends found in the research suggest the demand for tens of millions of square feet of walkable urban development and hundreds of new WalkUPs.

With the spread of WalkUPs, the streetcar can play an increasingly important role, since the pedestrian is the top priority rider. Research regarding WalkUPs are showing these places perform at a higher rate with rail transit.

SUPPORTING GROWTH AND OPPORTUNITY

Historically, transportation investments drove development - where roads met rivers, where railroads met towns, and where interstates met the suburbs. So the issue of whether the streetcar creates, catalyzes, facilitates, guides or supports economic development is not as important as the result. When streetcars are introduced, development and increased property values show up. This stresses the importance of land use and mobility working together. The discussion on dense, mixed use, and walkable development patterns illustrates specific mobility requirements and the streetcar's potential role for today and tomorrow.

Creating Value

Streetcar projects generate higher property values for cities, and that translates into higher revenues. A 2009 study by The Brookings Institution provides findings in property value increases for three American cities with recent streetcar and related development experience – Portland, Seattle, and Tampa. Of the three, Portland experienced the greatest increase in raw land valuation. The increases were due largely to substantial underdeveloped property and highly successful redevelopment efforts in proximity to the streetcar alignment. In Seattle's South Lake Union area, the streetcar proved to be a particularly important catalyst for bioscience, technology companies, and general office, residential, and mixed-use activity that accompanied the large

NEW DEVELOPMENT SURROUNDING THE STREETCAR IN SALT LAKE CITY, UT



initial investments. Tampa's streetcar investment was intended to serve as a catalyst for increased tourism and it also led to unanticipated benefits for other commercial and mixed-use investment.

The Brookings study observed that a major benefit of these three streetcar projects was the *"ability to connect places that were never connected before."* In effect, ***"the streetcar became the connective tissue and organizing principle for growth."*** The private developers saw the streetcar as a permanent, high-quality, infrastructure investment evidencing the public sector's long-term commitment to the area. While a strong facilitating factor, the streetcar was not the only reason for development. Key private players were in place to assure that the streetcar's return-on-investment was realized early on. Such near-immediate success also served to draw new and often unanticipated business and investment interests toward transit supportive developments

Tracking Development Activity

Communities are tracking new development activity on a regular basis. Looking at the four cities surveyed by the Community Streetcar Coalition for this report, a diverse array of economic and development activity is evident around their streetcar lines.

Portland:

Portland's goal was always to use high quality transit service as a means to improve mobility and livability. The City achieved early success in development along the streetcar, initially and as it expanded. Portland's 2014 development report, updated to show development activity since 1998, when the original streetcar alignment was identified. Within ¼ mile of the streetcar line, growth continued and market value was further

enhanced. Even with the recession, properties along its length experienced demonstrable changes. Current findings include:

- \$4.5 billion of public and private investment was built within ¼ mile of the streetcar alignment; that represents 30% of all development in the corridor to date
- Within ¼ mile of the line, a total of 23 million square feet of space was built since 1998, with 7.7 million square feet in commercial uses and 17,888 residential units
- 35% of all commercial development and 41% of multi-family units were attributable to the streetcar
- Recently updated information found that the total market value of in the corridor rose from \$4.3 billion in 1998 to \$11.63 billion in 2015; in 1998, that was 11% of Portland's total market value, and in 2015, it represented 17% of its total market value
- 25% of all residential units in the corridor are affordable
- Between 2000 and 2014, population grew 30% in the corridor, while Portland grew 12.4%
- In 2014, 33% of all Portland jobs were found within the streetcar corridor
- Properties located nearest the streetcar line more closely approached the available zoning density potential than properties situated farther away
- Developers are building new residential buildings with significantly lower parking ratios than anywhere else in the region. In some cases there was no parking at all.

DEVELOPMENT IMPACTS

within 1/4 mile of the Portland Streetcar



\$4.5 billion

- Since 1998, \$4.5 billion* in market value** has been developed in the corridor.
- New development comprises 28% of the total market value in the corridor.

Source: RLIS



\$11.63 billion

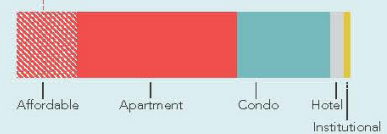
- The corridor has increased in market value by \$11.63 billion since 1998.
- The corridor comprised 11% of citywide market value in 1998. Post-Streetcar, it increased to 17% of total market value in the city by 2015.

Source: RLIS



25%

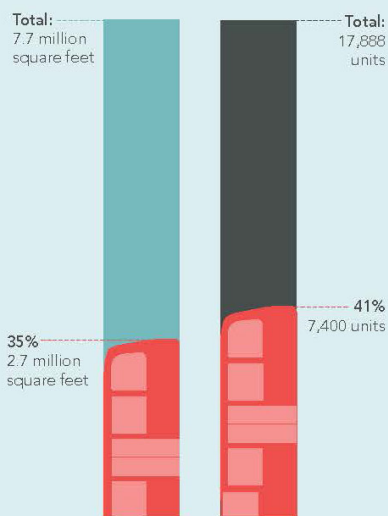
- 25% of all apartments developed in the corridor from 1998 to 2015 were subsidized affordable housing units.



Source: ECONorthwest and Portland Housing Bureau (2011 affordable housing data)

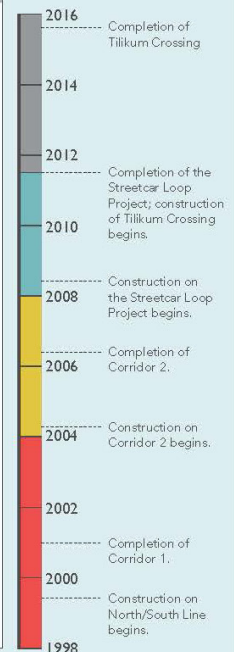
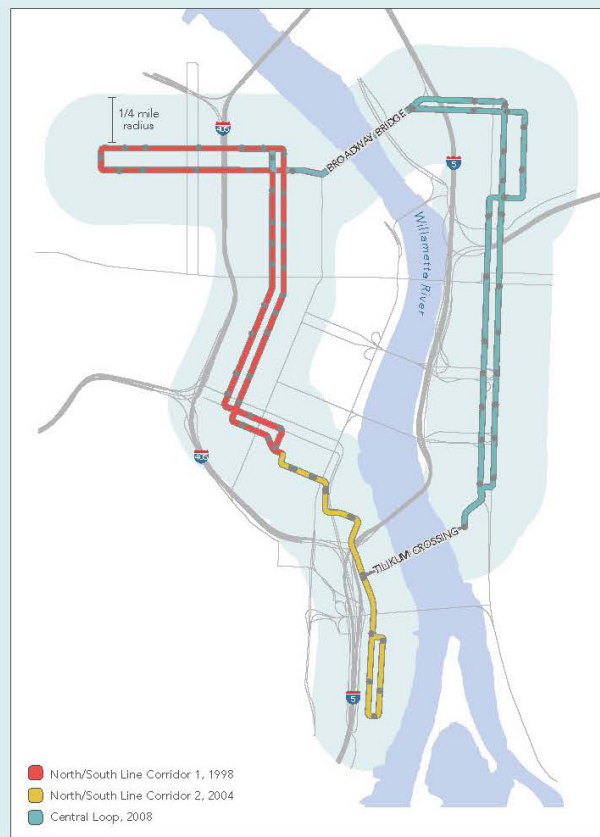
Development in the Streetcar Corridor Since 1998

- commercial
- multifamily residential
- percent attributable to proximity to Streetcar



Source: ECONorthwest and Fregonese Associates

Portland Streetcar Lines and Construction Timeline



Study completed in July 2015.

*Excludes development that occurred prior to the announcement of each Streetcar line.

**"Market value" is measured as Real Market Value as reported in Metro's RLIS database.

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Seattle:

Likewise, Seattle has a goal to accommodate economic development and contribute to neighborhood vitality. Since its announcement, the South Lake Union streetcar line acted as a catalyst for more than:

- \$4 billion in private investment
- Six million square feet of commercial space
- 3,500 housing units and
- 20,000 new jobs

With future extensions slated to open in 2015, 2016, 2017, and 2018, the City expects continued economic development activity and will provide regular updates.

Salt Lake City:

Recognizing that for the new S Line streetcar to be successful, Salt Lake City and South Salt Lake City (each City shares one mile of the two-mile line) needed to coordinate and increase their land use and zoning allowances. Both City's actions allowed major increases in density. By doing so, they began to realize the development potential anticipated with these changes. To date, Salt Lake City reports \$235 million of new private development completed or underway, including:

- 700 new housing units and
- 220,000 square feet of new commercial space

Based on current trends and reported activity, Salt Lake City expects another 350 housing units and 475,000 square feet of office/commercial space from projects that are currently being planned.



South Salt Lake City, with its land use and zoning changes, has a five-acre mixed use/housing project breaking ground in 2015, with a similar 10-acre mixed use/housing project opening in 2016. Currently, the City is projecting \$600 million in development including:

- 3,000 housing units
- 150,000 square feet of retail and
- 1.2 million square feet of office

Tucson:

Tucson is one of the newest streetcar cities, opening its SunLink line in 2014. It is experiencing a wide variety of activity in concert with the line. Between 2008 and 2015, the Tucson Downtown Partnership documented \$553 million in private development on or near the line. In 2015, \$162 million in development is being added. The development totals break down as follows:

- Office - \$120 million
- Mixed Use - \$170 million
- Residential/Hotel - \$118 million
- Retail - \$50 million
- Utilities - \$60 million
- Cultural Arts - \$15 million
- Health and Education - \$20 million

Beyond the \$196 million spent on the streetcar, the Downtown Partnership lists another \$334 million in public investment to support the project and anticipated development. During the same 2008 to 2015 period, 220 new businesses opened. In terms of jobs, the Downtown Partnership estimates a total of 3,000 permanent jobs was created or relocated from private developments. With the public construction, there were some 7,400 jobs. The City of Tucson and the Downtown Partnership see the streetcar as a win-win investment.

Attractiveness to Developers

As the old saying goes, “the proof is in the pudding.” While some question the causal relationship between the streetcar and various private investments, the best way to ascertain the thinking of the investors is to ask them. The testimony of those willing to make investments in collaboration with the streetcar investment is compelling.

Kansas City - The Kansas City experience is highlighted here as another example where the development community was attracted to the streetcar line. This two-mile line, running primarily along Main Street, is scheduled to open in 2016. It serves downtown and major activity centers to the north and south. The City estimates more than 40 projects totaling just over \$1 billion were started along the route since 2012. Here are some of the testimonials of developers as to the benefits they see from the streetcar investment.

“The Streetcar project...prompted us to double the size of our development and increase our investment in Kansas City by \$20 million.”

Jonathan Arnold, CEO
Arnold Development Group

“It’s on the streetcar line and everybody is looking at ways to maximize that.”

Deb Churchill, Partner
KC Commercial Real Estate

“Our decision to commit to residential and other services ...is tied to the streetcar.”

Dan Musser, Senior Vice President
Zimmer Real Estate

Of course, each of the four surveyed communities – Portland, Seattle, Salt Lake City, and Tucson - has similar responses from developers and investors. A sample of them follows by City.

Portland - Two investors were the major drivers of development and investment downtown and in the Pearl District. Their direct involvement was crucial in the early days of the streetcar’s implementation.

“As Board Chair for Streetcar, I would sit down with property owners to discuss construction and say, ‘Go to the beach for a week, when you come back, the project will be done and your business will not have been negatively impacted and your property will be worth twice what it was the day you went to the beach.’ We made good on one promise, failed on the other. We did get it done in a week, and the property values didn’t go up twice, it went up closer to four times.”

Michael Powell, Owner
Powell’s Books

“The work that we put together was based on three principles, and identified by three words that we thought captured the very essence of the streetcar. The first word is Commitment. From a developer’s perspective and from a community’s perspective, the idea of the city making a commitment to this infrastructure was very important. The next word’s Permanence. If a developer and small businesses come into the area, they’d like to know that that streetcar line is going to be there. The last word Catalyst, this is the most important word. If the streetcar line is in place, people felt that they could make investments in their businesses and in their properties because the commitment and the permanence signaled to them that this was going to be here in twenty five, fifty, seventy five years, and they knew that that long term picture was going to be good for them. I can’t think of any one event that could have triggered more catalytic development, business growth than the streetcar.”

John Carroll, Principal
Carroll Investments

Seattle - The unprecedented growth and redevelopment in the South Lake Union area was fueled by Vulcan, Inc. The increase in property values enabled approximately one-half of the first phase streetcar capital cost to be covered by private investment.

"The Seattle Streetcar ignited investment and development in South Lake Union and played a key role in attracting innovative companies to the neighborhood. This has resulted in countless new jobs and millions of dollars of tax revenue for the city. The streetcar has been a vital component of growing a pedestrian-oriented urban environment where residents, tenants and visitors can experience a car-free, sustainable lifestyle."

**Ada M. Healey, Vice President, Real Estate
Vulcan Inc.**

Salt Lake City - Not only was Salt Lake City aggressive in up-zoning to induce development, its sister city, South Salt Lake did the same. The development community followed suit by investing and developing.

"We are integrating transit stops and connections that are walkable and attractive into our mixed-use development. We believe the benefits of the streetcar and our TOD will result in a new and remarkable mixed-use development for the neighborhood."

**Todd Olsen
Dee's Inc.**

"The streetcar project is a big catalyst for our development. It was the tipping point in our being willing to pay top dollar for the site."

**Dan Lofgren
Cowboy Partners**

Tucson – As the latest of the modern streetcar cities surveyed, Tucson, in conjunction with the Downtown Partnership, forged an important relationship to bring \$1 billion in public and private investment to the streetcar corridor.

"In a little over 60 months we have seen more than \$350 million in the greater downtown area and \$650 million of private investment along the entire streetcar axis. I think we have answered the critics who so strenuously stated that transit-adjacent development would never happen in Tucson"

**Michael Keith, CEO
Tucson Downtown Partnership**

THE MOBILITY BENEFITS

This section is based on the surveys of the four cities that are operating "modern" streetcars - Portland, Seattle, Tucson, and Salt Lake City. Topics considered are:

- Mobility goals and purposes
- Meeting expectations
- Adapting for reliability
- Expanding reach and benefits

While there is a summary for each city, several noted trends were gleaned from the survey findings. The trends point to emerging directions for planning, designing, and operating a streetcar to maximize the benefits, beginning with mobility. Among the trends are:

- Mobility generally is among the first goals for implementing streetcars
- New systems are demonstrating smart route planning to avoid congestion
- Ridership is meeting or exceeding expectations
- "Congestion" is not always a problem and it is not an all-day phenomenon
- Innovative solutions are being introduced to increase and enhance reliability
- Land use changes are being made in advance of openings
- Streetcars help advance economic development along the lines
- The development community still strongly supports the streetcar as a project "benefit"
- Streetcars are becoming more integral elements of regional networks

Mobility Benefits: Topics Considered

1

Mobility goals and purposes

2

Meeting expectations

3

Adapting for reliability

4

Expanding reach and benefits

The next four topics - Mobility Goals and Purposes, Meeting Expectations, Adapting for Reliability, and Expanding Reach and Benefits - are summarized City-by-City based on the survey results and supporting documentation. The sequence is Portland, Seattle, Salt Lake City, and Tucson, the order in which streetcar lines opened.

Mobility Goals and Purpose

All four communities have goals that feature mobility as a primary role, along with supporting economic development and livability. Having this emphasis on mobility leads to integrated policy development and coordination. This is critical since some streetcars are sponsored by cities, other by transit agencies, and others by non-profit organizations. Clearly stated goals and purpose help develop coordinated mobility, land use, and infrastructure implementation across multiple platforms. Goals for each, with mobility highlighted are:

Portland:

The *Portland Streetcar System Concept Plan* offers a holistic set of goals that is “encouraging infill development and redevelopment...serving as a catalyst for housing development...**providing an accessible network of transit options that will reduce the dependency on the automobile...**and advancing a healthy, competitive local, regional and state economy.”

Seattle:

The goal for Seattle is to “...**provide local transit service, connect to the regional system, accommodate economic development, and contribute to neighborhood vitality.**” Based on the 2005 Capital Financing and Operating and Maintenance Plan, mobility is in the forefront of the expanding streetcar system.

Salt Lake City:

The Sugar House streetcar’s goal, according to the 2010 Environmental Assessment, is clearly mobility-oriented and intended to “...**address the need and opportunity for connectivity and increased mobility between the newly developing 2100 South area and...the community of Sugar House...** The project is expected to **contribute to improved connectivity on 2100 South and between neighborhoods and attractions...and beyond...Provide multimodal travel choices; increase mobility for short-range trips; provide connections to the regional network...provide a transportation improvement that is pedestrian-friendly, is compatible with surrounding neighborhoods, and supports community and economic development.**” Salt Lake City understands the need for accessibility and convenience, while supporting neighborhood compatibility and economic opportunity in Sugar House and beyond.

Tucson:

The last of the four, and most recently opened, the intent of Tucson's Sun Link streetcar is to "... **develop a major transit investment connecting major activity centers in the central core.** The City of Tucson and other local decision-makers have been **focused on addressing this need, as documented in previous transportation planning and development initiatives.** The need for the proposed action is based on the following criteria:

- **Connect Major Activity Centers**
- *Create Economic Development*
- *Support Population and Employment Growth*
- **Improve Transit Service**
- *Mitigate Parking Constraints*

Meeting Expectations

While there are often criticisms that expectations were overstated and not being met, a review of the four cities helps to dispel some of the criticisms. Using the reported survey results, planned versus actuals for construction costs, construction schedules, and ridership are summarized below. On the whole, estimated versus actuals for each of the three factors show very good performance across the cities.

Portland:

The discussion for Portland is more complex given its tenure and number of extensions. With five segments and a total construction cost of \$251.5M, each extension was under budget and on time. Portland's original daily ridership goal was 4,980 and now the daily the ridership is 15,000. When the new loop is complete, that number is expected to reach 25,000 over the next 10 years. Even when the fareless square in downtown was eliminated, there was little ridership drop-off. This was due to the interlining streetcars on SW 10th and SW 11th, resulting in more service being provided.

Seattle:

On the initial segment, Seattle's estimated capital costs of \$53M were met, as was the planned construction period of 16 months. The initial ridership was estimated at 2,000 riders per day and current ridership sits at 2,500 per day. In 2012, there was a slight drop in ridership due to PM peak congestion in a specific location, and the City is addressing this pinch point. The City estimates when its four routes are completed (first extension opens in 2015), weekday ridership in 2018 will reach approximately 27,000.

Salt Lake City:

The S Line was completed within its 18-month construction schedule and its \$37 million construction budget. Ridership projections were 2,000 riders per day, but the economic recovery, shorter operating hours, and the fact that some of the nearby housing projects were still under construction all contributed to a lower starting ridership of about 800 per day. Operating hours were extended in August 2015 to match the rest of the regional rail system, several new housing projects have opened, and ridership had climbed to 1,334 riders per day by September 2015.

Tucson:

Sun Link's estimated budget was \$196M and the project is anticipated to meet that number. It currently is under budget, awaiting project closeout. The project construction period exceeded its June 2013 opening by four months, being completed in October of that year. As the most recent streetcar project, its ridership is impressive. The initial estimate of 3,600 riders per weekday now sits at 4,200. Saturdays find between 4,000 and 5,000 riders, depending on particular events. The single highest day was a Saturday with 10,000 riders.

Expectations v. Reality

On the whole, planned versus actuals for **construction costs**, **construction schedules**, and **ridership** showed **very good performance** across the cities.

Portland

With a total construction cost of \$251.5M, each extension was **under budget** and **on time**.

Portland's initial daily ridership goal was 4,980 and the current daily ridership now has **increased to 15,000**.



Seattle

On the initial segment, estimated **capital costs and construction timeline were met**. Initial ridership was estimated at 2,000 rides per day, which has now **increased to 2,500**.



Tucson

Although pconstruction period exceeded its opening by four months, the SunLink project is **currently under budget**, awaiting project closeout. The initial estimate of 3,600 riders per weekday **has risen to 4,200**. The single highest day had **10,000 riders**.



Salt Lake City

The S Line's \$55M cost estimate and construction time **was realized**. The initial ridership of 800 riders per day **was more than met**, and **ridership is expected to double** over the next two to three years

Adapting for Reliability

As noted earlier, with no operative models in place when the early systems opened, streetcars were generally built to run in the street. Any new street-running mode that shares the right-of-way with cars will create and encounter new conditions. Driver behavior is affected by having a new vehicle in the street. The specific route such factors as time of day, congestion points, and high pedestrian activity can affect the streetcar's performance. The surveys revealed each community understood there were unexpected issues they would need to address. Some adaptations were dealt with after the fact, and some were anticipatory. In the latter case, adaptations were based on lessons learned from other communities' experiences. Saying there never would be congestion or delays was not the message ever sent by streetcar sponsors. However, the ability of cities to recognize and mitigate "hot spots" reinforces the streetcar's mobility value. The advanced planning and adaptation revealed in the surveys again are listed by City.

Portland:

The City and Portland Streetcar, Inc. reported very few traffic-related issues on their alignments. The streetcar runs at 86% reliability, which is equal to the MAX light rail system (which runs partially in a dedicated right-of-way) and better than TriMet's buses. In a limited number of locations, the City is employing mitigation solutions such as interlining, overlapping routes to reduce headways, and installing pedestrian signals. On the Central Loop line, the City is interlining service on SW 10th and SW 11th through downtown to the Pearl District, reducing effective headways to seven minutes during the day and 10 minutes in the evening. Along the Central Loop, there is also a pedestrian problem that affects traffic, and the City is installing pedestrian signal to allow a "pedestrian scramble" to address the conflict.

In specific locations, the City is considering streetcar- and turn-only lanes.

There is a PM peak congestion period at the interstate interchanges and at the Moda Center (National Basketball Association games/concerts). Both are east of the Willamette River in the Rose Quarter. All modes of transportation, including the streetcar, are subject to delay at this location, especially during sporting and entertainment events.

Seattle:

Most of the congestion issues occur during peak travel times, principally in the PM peak near South Lake Union. Evening commuters are trying to access I-5 at the same location where the streetcar serves a major medical center, Amazon, and high-density residential development. Consequently, the 15-minute planned headway is affected. The City is addressing the issue with spot improvements at specific, high congestion intersections. A transit-only lane for bus and streetcar is being developed on the South Lake Union line. With the expansion of the system, the new 1.2-mile Center City Connector (2018) will run in an exclusive lane, delivering five-minute headways.

Salt Lake City:

The S Line is a 2.1-mile starter line that completely runs in a separate dedicated right-of-way. This avoids the typical congestion concerns so often raised. At two arterials, the S Line has priority (though not preemption), and at smaller-volume street crossings, the cities gave the streetcar the right-of-way over crossing vehicles. Cars are stopped by a traffic signal or stop sign. Because it is serving neighborhoods and ending in the Sugar House business district, the City made a conscious effort to choose access and convenience over speed. With seven stops on the line, the City wants existing and future residents to easily

access the streetcar as a means of travel. In addition to direct access with housing and shopping destinations, integration with bus and light rail allows access from Sugar House to the greater region.

Tucson:

Tucson reviewed other streetcar projects to apply lessons learned. The streetcar was designed to be a new mode for improving the City's mobility network. In conceptualizing the Sun Link alignment, and knowing concerns over congestion, Tucson took a "smart route planning" approach. The City selected 3.9-mile route for the preferred alignment, using streets that had very low traffic volumes. A conscious decision was made to avoid arterials for the alignment. There are no AM or PM peak congestion issues. By not choosing an arterial, the City could focus on making sure the streetcar's operations were compatible with overall traffic conditions along the corridor. Interestingly, there are impacts to service from Thursday through Saturday evenings in downtown - the area is once again popular as a "cruise way." That led the City to develop a traffic diversion program to maintain streetcar operations. Tucson is working on priority signalization and queue jumpers at key locations along the streetcar alignment. City ordinances allow towing and ticketing of illegally parked vehicles. There are regular meetings with emergency services to reduce blockage to streetcars. The City specifically noted the high rate of "self-policing" along the corridor.

Extending the Reach and Benefits

The idea of extending the reach and benefits is to emphasize that the streetcar is not solely focused on short trips. Rather, this section emphasizes the streetcar's maturing role as an integral feature of the larger regional transportation network. It has a role in connecting riders to the regional services that have a commuter function, while within the

city centers, they provide the last mile of the trip service. The surveys indicated that each City was interested in maximizing connectivity to the available modes. Obviously, the larger cities have more robust intercity and regional rail service. Nonetheless, integration and connectivity are scaled to each city's available modes. The result is a broadened understanding of the streetcar's emerging role as a regional transport asset.

Portland:

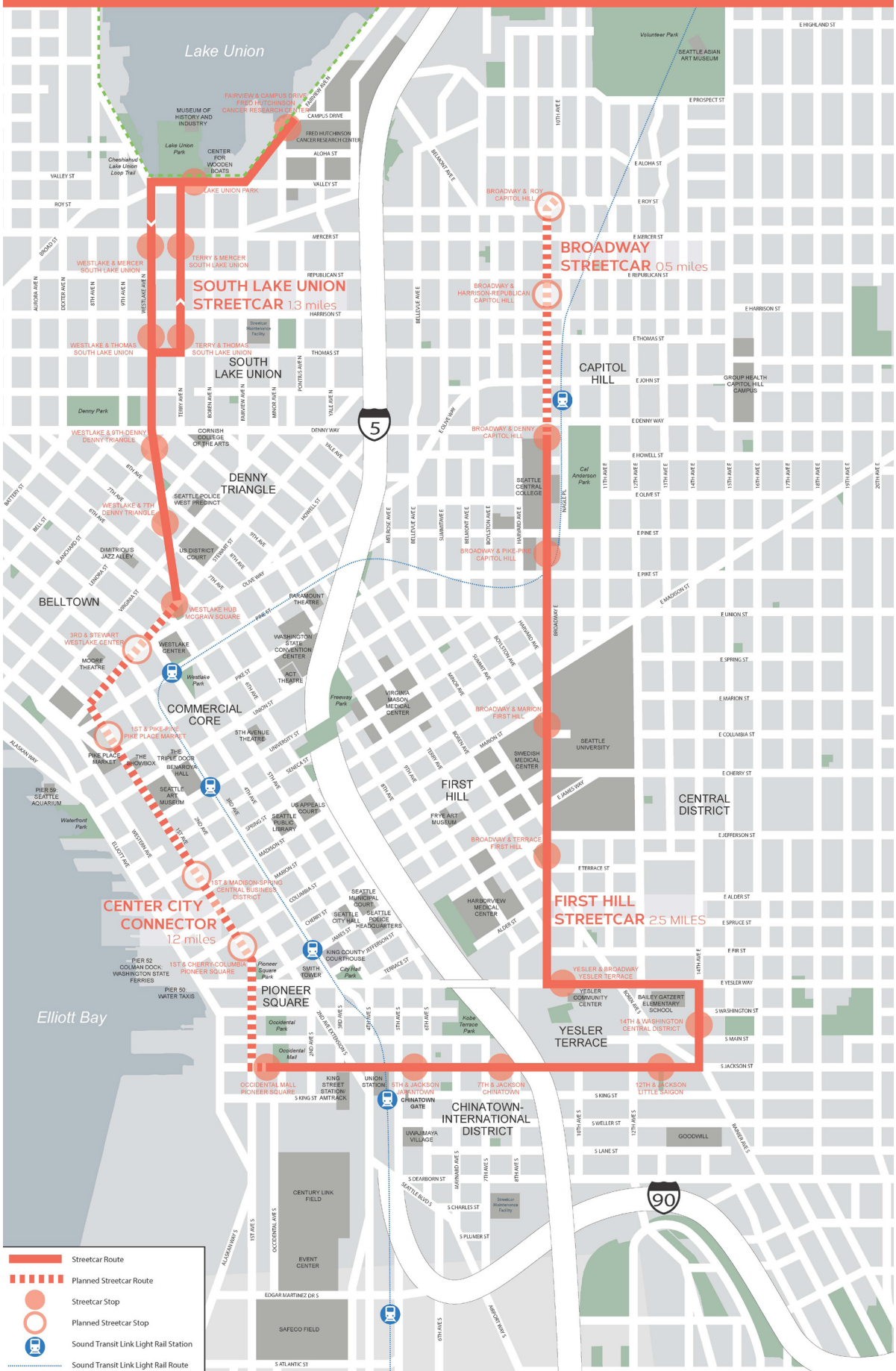
A critical part of the City and region's transit legacy is the diversity of available modes - Amtrak, commuter rail, light rail, bus, and streetcar. Four modes directly connect through the central city. There are no intermodal hubs per se, rather the streetcar intersects with the Portland Transit Mall, allowing easy and frequent transfer with light rail, buses, and Amtrak. The Transit Mall is one of the City's most iconic and recognizable transit investments. Commuter rail, the fifth regional mode, is accessible via light rail at Beaverton to the west of the City.

Seattle:

As one of the largest streetcar cities, Seattle has a rich transit network to which it connects. As the system expands over the next three years, the multimodal integration will commensurately broaden. The Seattle Streetcar connects with the Sounder commuter rail, Link light rail, and Metro buses. There are seamless connections between modes, and transfers are free using the Orca smart card. The King Street station with Amtrak service in downtown sits just south of the new First Hill line that opens in 2015. However, there is no direct streetcar stop, the two closest being about three blocks east and three blocks west of the station.

The City is planning two major intermodal hubs with Link light rail at each end of downtown - one at Westlake and the other at the International District. The streetcar will

SEATTLE STREETCAR



have a future connection with Link light rail at a smaller hub on Capitol Hill. These three hubs allow riders to access the ever-growing light rail system, as well as the extensive Metro bus network.

Salt Lake City:

The S Line inter-connects with light rail, bus and a circulator as part the expanding regional rail and bus network. The S Line does not reach the region's intermodal hub, but the streetcar connects to three north-south light rail lines at the east end of the line. Along the route, the streetcar intersects with five north-south bus lines, adding to its intermodality. As part of the overall project, a paralleling greenway/bikeway adds bicyclists and pedestrians as additional connecting "modes". A single, electronic fare card allows access to all modes.

Tucson:

For a City of its size, the Sun Link streetcar demonstrates a high level of connectivity with all available modes: bus, University of Arizona and neighborhood circulators, and Amtrak. The streetcar connects with Sun Tran's (bus) fixed route in the downtown hub. Cat Tran, the University of Arizona circulator, also connects with the streetcar on campus. The University is taking advantage of the streetcar for on-campus service, helping reduce the need for additional expensive structured parking.

Sun Shuttle, run by the Regional Transportation Authority, is a neighborhood circulator that connects with Sun Link, thus extending the effectiveness of the streetcar as an integrating mode. In addition to hub connections, streetcar stops link to these services at various locations along the alignment. It also serves Amtrak located at a train station near the alignment. For customer convenience, Sun Tran coordinates the transfer information in brochures, online, Facebook, and Twitter.

SUMMARY

Even in the face of skeptics, streetcars are repeatedly and continuously producing strong economic development benefits, as well as mobility benefits. Those making private capital investments uniformly point to the streetcar as a critical component to their willingness to invest. However, the economic development success of streetcars does not necessarily overshadow their mobility benefits, which are emerging more clearly with every new project.

The "modern" streetcar history is only 15 years, beginning in 2000. Consequently, as streetcar projects came onto the national stage, there were no "models" or "standards" for planning and design. Over a three-year period – 2000 to 2002 – three streetcar projects were developed. Kenosha was a heritage car version; Tampa was a replica car version and Portland was a modern car version. Three cities, in different regions, with different population sizes, with different intents and purposes, and different choices in streetcar vehicles, nonetheless helped kick-start what became a virtual streetcar revolution. Since these early starts, project goals and expectations are well-defined, including mobility as a central role.

With increased expectations for the streetcar, there was a need to adapt to the particular situation of each location and vehicle type. The proponents of the streetcar movement understand that it is about not only today but also for the future. The sharp change in the Millennial and Baby Boomer demographics emphasize the need for non-auto modes of transportation. The demographic trends are reinforced by the emergence of walkable urban places, WalkUPs. A major finding is that streetcars support growth and opportunity. Reviews and surveys show that land values increase, development activity accelerates and the streetcar lines are attractive to developers.

The premise of this report is that mobility benefits accrue to communities from their streetcar investments. To help develop these benefits, the Community Streetcar Coalition surveyed key

features in four cities with modern streetcars and a minimum of one year in operation. . These features surveyed were: Setting Mobility Goals, Meeting Defined Expectations, Adapting for Reliability, and Expanding the Streetcar's Reach. We highlighted general trends and outlined future updates.

Mobility Trends:

Based on the surveys and interviews, several noted trends were gleaned. These trends point to emerging directions for planning, designing, and operating streetcars to maximize the benefits, beginning with mobility. Among the trends are:

- Mobility generally is among the first goals for implementing streetcars
- New systems are demonstrating smart route planning to avoid congestion
- Ridership is meeting or exceeding expectations
- Congestion is not always a problem and it is not an all-day phenomenon
- Streetcars – like other modes of transit – require innovative solutions to increase and enhance reliability
- Land use changes being made in advance of openings
- Streetcars are helping advance economic development along the lines
- The development community still strongly supports the streetcar as a project benefit” and
- Streetcars are becoming integral elements of regional networks, thereby extending their reach.

Future updates:

This document represents the Community Streetcar Coalition's initial effort to provide communities the most current information on the diverse benefits – and especially the mobility benefits – that streetcars provide. Each year, the Coalition holds a Streetcar Summit that continues to develop a broader and deeper appreciation of the benefits that come with this important transportation investment. As more projects start and others mature, the streetcar story will become even more compelling.

If you seek additional information about this report or the Community Streetcar Coalition, please contact:

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