



SACRAMENTO STREETCAR SYSTEM PLAN

February 2012



Acknowledgements

City of Sacramento – City Council

Kevin Johnson – Mayor
Angelique Ashby – Vice Mayor, District 1
Sandy Sheedy – District 2
Steve Cohn – District 3
Robert King Fong – District 4

Jay Schenirer – District 5
Kevin McCarty – District 6
Darrell Fong – District 7
Bonnie Pannell – District 8

City of Sacramento – Project Coordinators

Fedolia “Sparky” Harris – Department of Transportation (DOT)
Denise Malvetti – Economic Development Department (EDD)

Project Technical Advisory Committee

City of Sacramento

Hector Barron – DOT
Bill Crouch – Community Development
Leslie Fritzsche – EDD
Ryan Moore – DOT
Tom Pace – Community Development
Greg Taylor – Community Development
Ed Williams – DOT

Sacramento Regional Transit District

RoseMary Covington
Jeff Damon

SACOG

Jim Brown

Consultant Team

Fehr & Peers

Bob Grandy (Project Manager)
David Carter
Robin Hutcheson
Nicole Foletta
Kyle Cook
Steve Rhyne
Carrie Carsell
Amy Smith

Shiels Obletz Johnsen (SOJ)

Ken Johnsen
Rick Gustafson
Brad Tong

HDR

Charlie Hales
Jim Hecht
Sharon Kelly

AIM Consulting

Gladys Cornell
Ciara Zanze

Bay Area Economics

Matt Kowta
Ron Golem

Messagesmith

Rick Laubscher

Douglas Wright Consulting

Doug Wright

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EXECUTIVE SUMMARY

Introduction

Sacramento neighborhoods were once connected by small, electric transit vehicles. They were not long commuter trains, but rather single-unit streetcars – what many called trolleys. These streetcars carried Sacramentans between their homes and workplaces in the Central City and the first ring suburbs between 1870 and 1947. Streetcars also whisked people to dine, shop, study and to be entertained in neighborhoods that were beyond a comfortable walk, but within a short comfortable ride. Ultimately, streetcars made it more attractive to live in the Central City by providing a mobility option that was clean, convenient, friendly, and in scale with their neighborhoods. This document lays out a plan to return streetcars to prominence in the Central City and beyond.

Future streetcar service in Sacramento would complement the region's existing light rail transit system. Light rail was introduced in Sacramento in 1987 and serves a distinctly different purpose than streetcars. Light rail trains are comprised of multiple cars coupled together to serve a track network that reaches into neighboring cities and suburbs surrounding Sacramento with a primary focus on commute trips. Light rail stops are typically spaced every mile. Streetcars are smaller, single car trains that run on a more limited track network with stops spaced every few blocks. The streetcar network is designed to connect employees, nearby residents, and tourists with major activity centers including shops, restaurants, commercial districts, transportation hubs, entertainment and cultural venues, and recreation areas.

The Plan Purpose

- Create a network of streetcar routes that complements existing rail and bus service in the Central City, giving people more attractive travel choices
- Help people get around the Central City area quickly and comfortably without their automobiles, extending the range they could walk in a given time period
- Support the revitalization of neighborhoods and business districts in the Central City
- Bring people to and from the Intermodal Transportation Facility near Old Sacramento, where Capital Corridor, Amtrak, and future high-speed trains will connect Sacramento to other cities
- Connect employment centers, commercial corridors, transit supportive residential neighborhoods, future development areas, visitor destinations, and other major activity centers
- Enhance the identity of Sacramento's unique districts and neighborhoods
- Support the City's Green Initiative by reducing the growth in energy use and air pollution and greenhouse gas emissions caused by transportation

The Streetcars

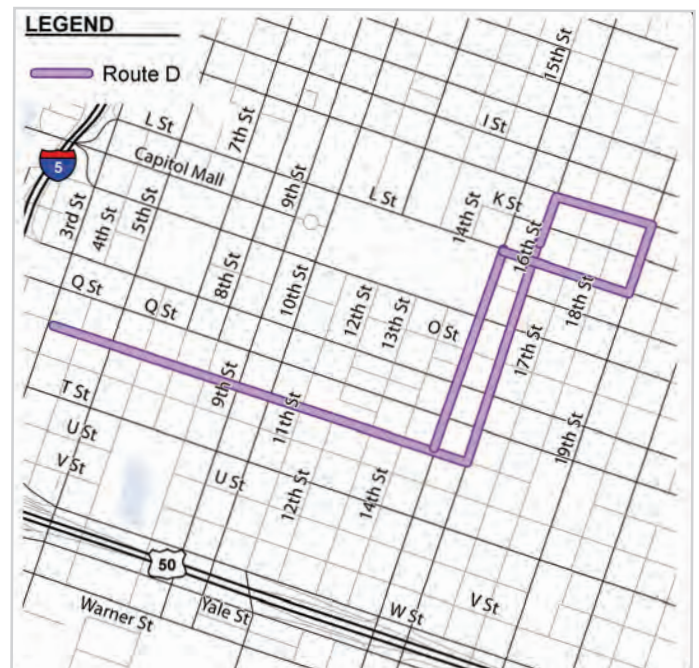
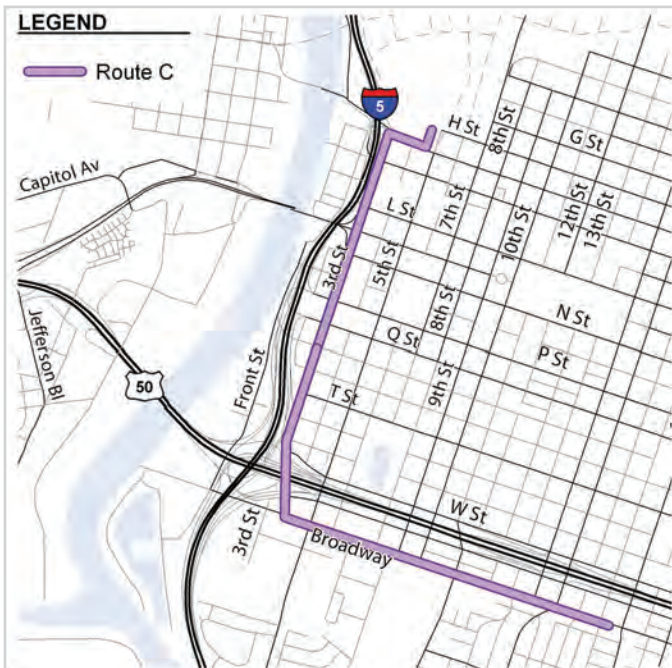
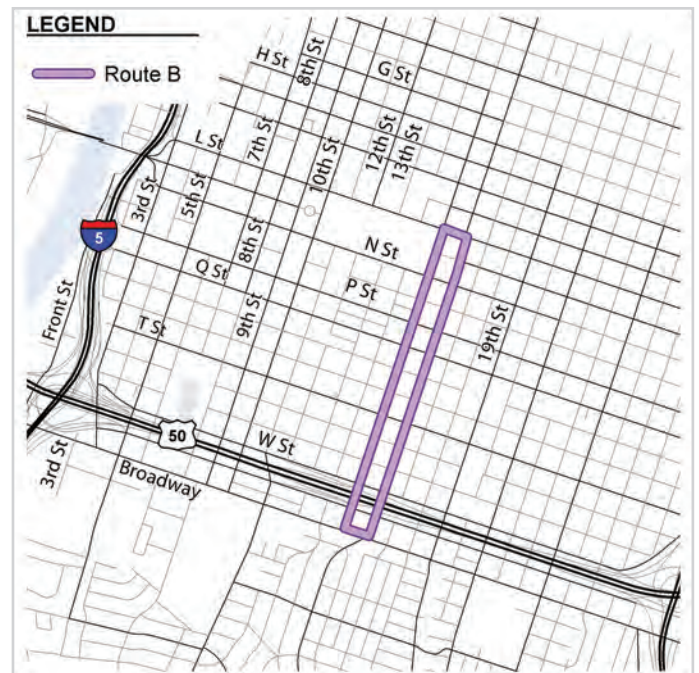
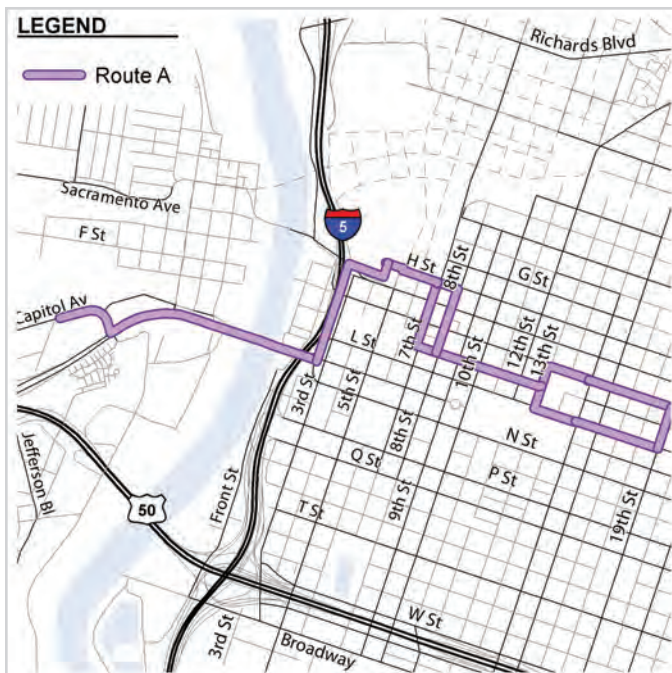
The streetcars proposed in the plan are modern, electric, and low-floor eliminating the need for steps on the streetcars or elevated platforms at the stops. The electric propulsion of the streetcars results in a comfortable riding experience for passengers characterized by smooth even acceleration and deceleration without abrupt stops. The streetcars proposed for Sacramento would operate in mixed-flow traffic along with cars without any physical lane separation. Stops for streetcars are simple extensions of the adjoining sidewalk, usually created by removing a few parking spaces to avoid the diverge and merge movement associated with buses.

The proposed low-floor modern streetcars are currently made in several countries, including the United States. They have been proven in several U.S. cities as well as throughout Europe to be a convenient alternative for all riders especially seniors, persons with mobility challenges, and small children.

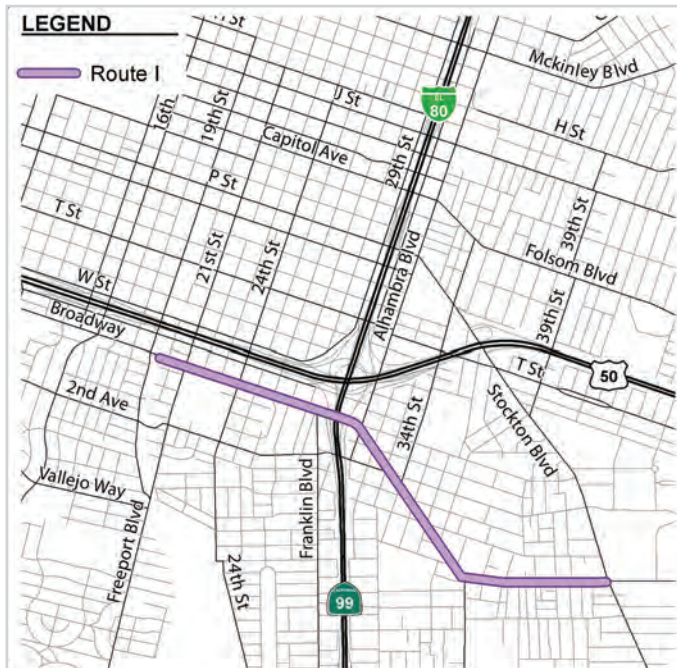
The Routes

The heavy rail tracks parallel to 19th Street and owned by Union Pacific create a significant obstacle to streetcar routes with stops on either side of the heavy rail corridor. At-grade crossings of heavy rail tracks with streetcar lines have been a hotly contested issue in the past. Grade-separated crossings of the heavy-rail tracks with bridges or tunnels are an expensive and potentially fatal flaw for such crossings. For this reason, the streetcar routes in the Central City have been grouped into primary routes and three secondary routes that would require further consideration of the heavy rail barrier.

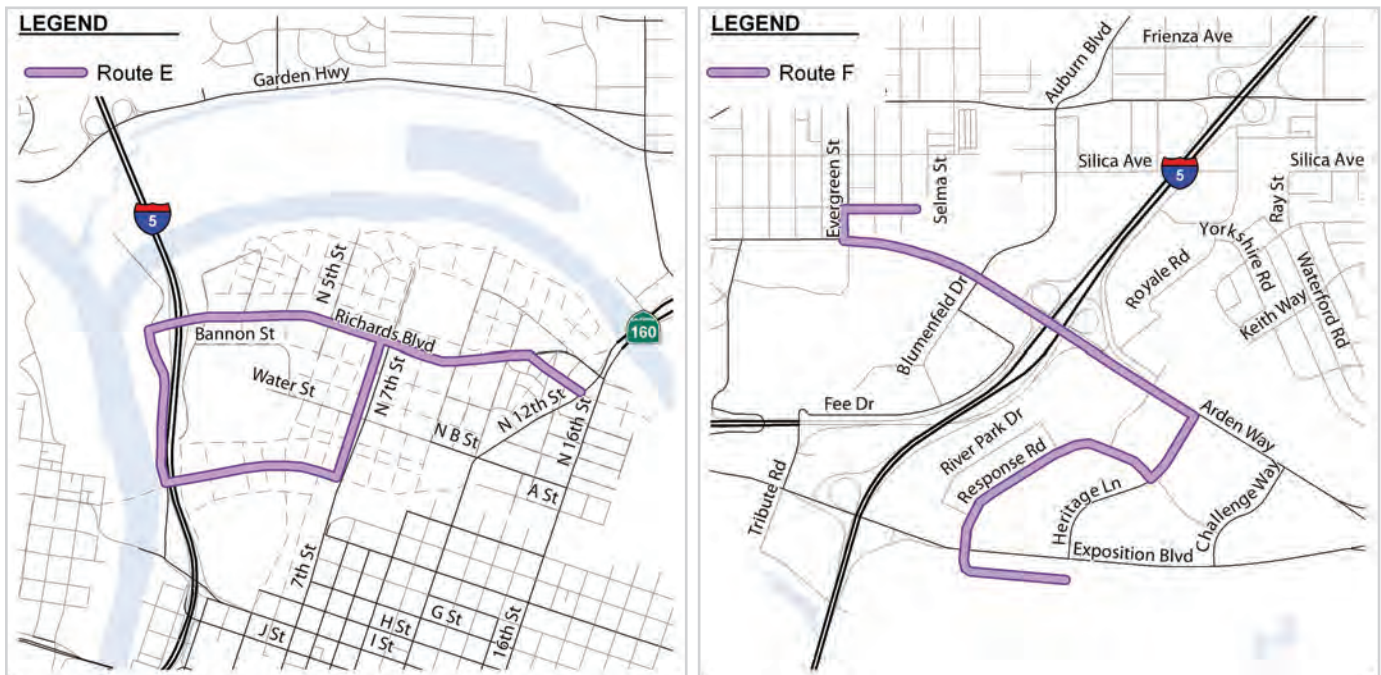
The four primary streetcar routes or route segments, located within the core of the Central City, comprise the heart of the Sacramento Streetcar Network and represent the lines with the highest expected near-term performance.



Connecting Center City to other important destinations, such as East Midtown, Sac State, Oak Park, and the UC Davis Medical Center, would be greatly facilitated by resolving the issue of crossing the Union Pacific freight railroad corridor that runs parallel to 19th Street. If a crossing can be accomplished, these services would most efficiently be operated as phased extensions of Center City routes. If a crossing cannot be achieved, they could still be built and operated as separate routes, though this would require riders to walk across the track and transfer to the route on the other side.



Two additional routes are recommended in areas planned for major development/ redevelopment. This includes the Railyards, River District, and the Arden Fair Mall/Cal Expo areas.



The 2035 Metropolitan Transportation Plan (MTP), being developed by SACOG, includes future streetcar connections across the Sacramento River at multiple locations. This Plan includes illustrations of three candidate lines that could link to the City of West Sacramento in the future.

The Starter Line

The Starter Line connects Midtown, the Convention Center, K Street, Downtown Plaza, the Intermodal Transportation Facility in the Railyards, Old Sacramento, Raley Field, and the West Sacramento Civic Center area. The Starter Line would use the Tower Bridge and portions of Capitol Mall, 3rd, 7th, 8th, 13th, 19th, H, J, K, and L streets. The streetcar alignment within the City of West Sacramento was approved in 2009 and is included in the Sacramento Streetcar Plan as an integral piece of the starter line that offers strong ridership projections and strengthens the case for federal funding by serving multiple jurisdictions and transit agencies.

Initial Starter Line Map



Economic Benefits

The economic development benefits of streetcar systems are several including increased retail sales, investment in new development contributing to an expanded property tax base, and increased property values for parcels in close proximity to the system. This study includes analysis to support a reasonable expectation for a net increase in assessed property value of \$1.6 billion and an increase in local sales tax revenues of more than \$3.5 million annually for properties within 3 blocks of the Starter Line.

Funding

The starter line is estimated to cost \$125-135 million to build. Capital funding would likely come from a combination of federal, state, regional, and local sources. In other cities, local sources in the form of parking fees/surcharges, streetcar assessment districts, tax increment funding, and local transportation sales taxes have proven to be successful financing options for constructing new or expanded streetcar systems. Operating and maintenance costs would likely come from a combination of sources such as: fares, transit district contributions, parking revenues, private sponsorships, and possibly, with voter approval, revenues from a new sales tax program.

Portland Model

Portland, Oregon, has been a pioneer in the development of modern streetcar systems. Like Sacramento, Portland has a successful light rail system to address commute trips from the suburbs and surrounding jurisdictions. But Portland lacked a convenient mobility option for those in central city neighborhoods who were separated from downtown by a decaying warehouse and industrial area known as the Pearl District.

The City of Portland built a 2.5-mile modern streetcar line linking these neighborhoods with downtown and Portland State University that opened in 2001. Since then the Pearl District has been transformed into a vibrant, higher-density, transit-oriented, residentially mixed-use area. The success of the Portland Streetcar line has fostered three subsequent extensions. The extension currently underway is to connect to the Portland Convention Center and the arena for the Portland Trailblazers of the National Basketball Association.

The Portland Streetcar experience is not unique. Several cities comparable to Sacramento in size and amenities including Seattle, Tacoma, Salt Lake City, Tucson, and Cincinnati have since embraced streetcars for many of the same benefits that appear likely here.



Support Documents

Several documents, prepared throughout the course of developing this Plan, are also available to support future implementation.

- **Funding Assessment Working Paper** – a description of candidate funding sources, sources used to fund other streetcar lines, revenue potential for the most applicable sources, and implementation considerations.
- **Economic Assessment Working Paper** – a description of existing economic data for the recommended routes as well as an assessment of the projected economic benefits associated with the starter line.
- **Environmental Screening** – a description of key environmental study areas that will need to be considered in the future environmental assessment as well as potential issues associated with the study routes.

CHAPTER ONE

PLAN
INTRODUCTION

For nearly two decades, the concept of implementing a streetcar line in the core of the Sacramento region has surfaced in multiple plans and studies including the Downtown Sacramento Historic Trolley Study (1994), the SACOG Metropolitan Transportation Plan for 2035 (2008), the City of Sacramento and West Sacramento General Plans, and the Sacramento Regional Transit Long Range Plan (2009). Since May 2006, the City of Sacramento has worked in partnership with the City of West Sacramento, the Sacramento Regional Transit District and the Yolo County Transportation District to develop a streetcar project that will connect Downtown Sacramento (Downtown Riverfront Streetcar line) to West Sacramento. Mobility, economic development, land use, enhanced transit accessibility, connectivity, and air quality are cited as benefits.

Streetcars are used by cities as an economic development tool that generates benefits based on their function as a local circulator to commercial districts and neighborhoods. Their successful applications have stimulated new downtown housing projects, enhanced existing commercial corridors/districts, and encouraged new office development. This occurs because streetcars extend the walking environment by connecting residents, employees, tourists, and visitors to major commercial, entertainment, transportation, and recreation centers.

This Sacramento Streetcar System Plan was developed by the City of Sacramento to identify a streetcar network for the Central City area and other key destinations. The development of the Plan was jointly managed by the City of Sacramento's Department of Transportation and Economic Development Department. The objective of this Plan is to define the key elements of a streetcar network and an initial "Starter Line" that will serve the City of Sacramento and provide connections to neighboring jurisdictions including the City of West Sacramento.

Planning Context

The Central City Community Plan area is bounded by the Sacramento River on the west, the American River on the north, Alhambra Boulevard on the east, and Broadway on the south. The City of West Sacramento is to the west of the Central City, located on the west side of the Sacramento River. Figure 1 shows current and future destinations within the Central City, adjacent community plan areas, and West Sacramento.

To the right is a summary of major efforts that are being planned or developed in the Sacramento Central City area. The streetcar network plan outlined in this document was developed in coordination with these efforts.

"Streetcars promote a "ribbon" of development instead of the nodal development that occurs around light and heavy rail stations."

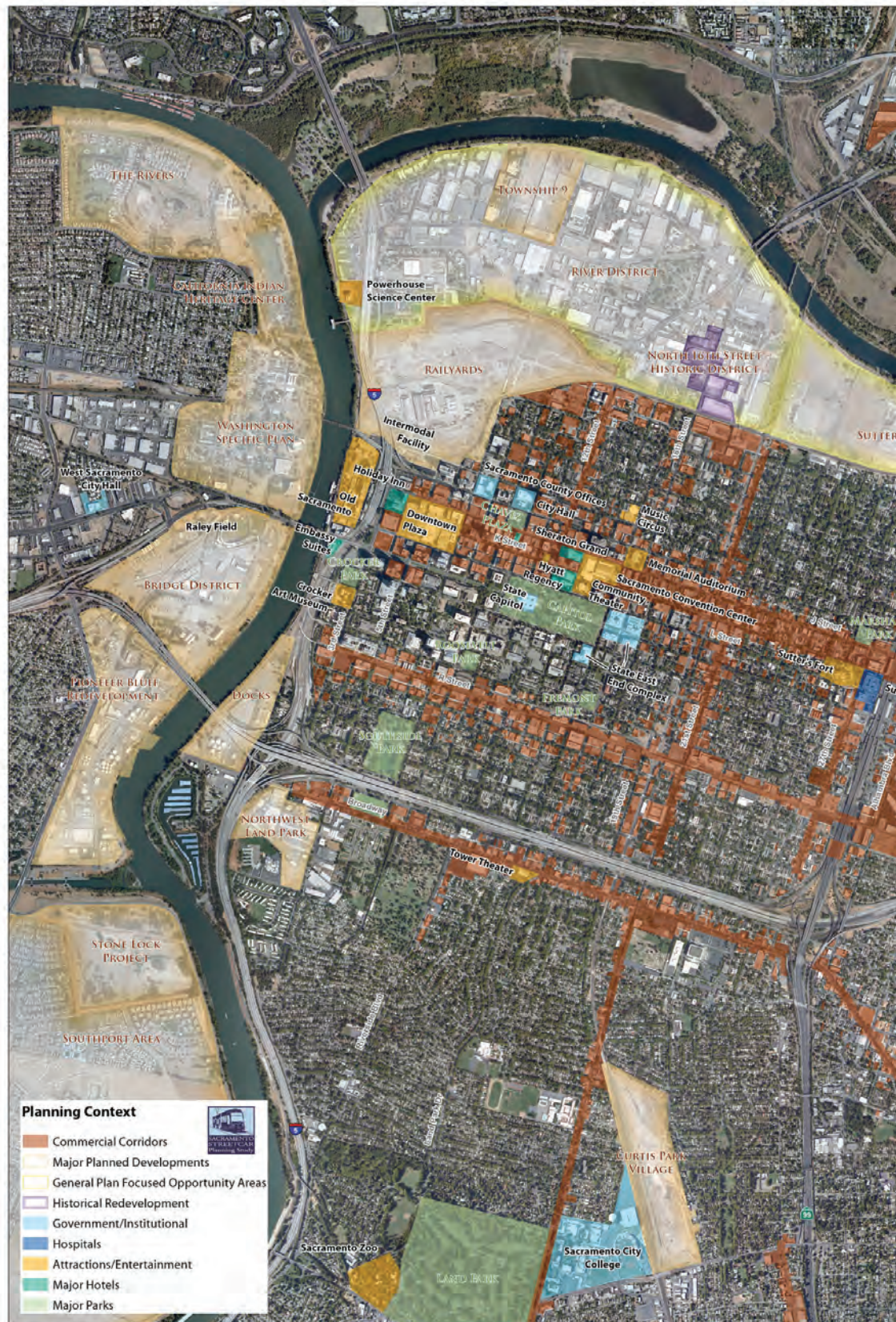
—American Public
Transportation Association

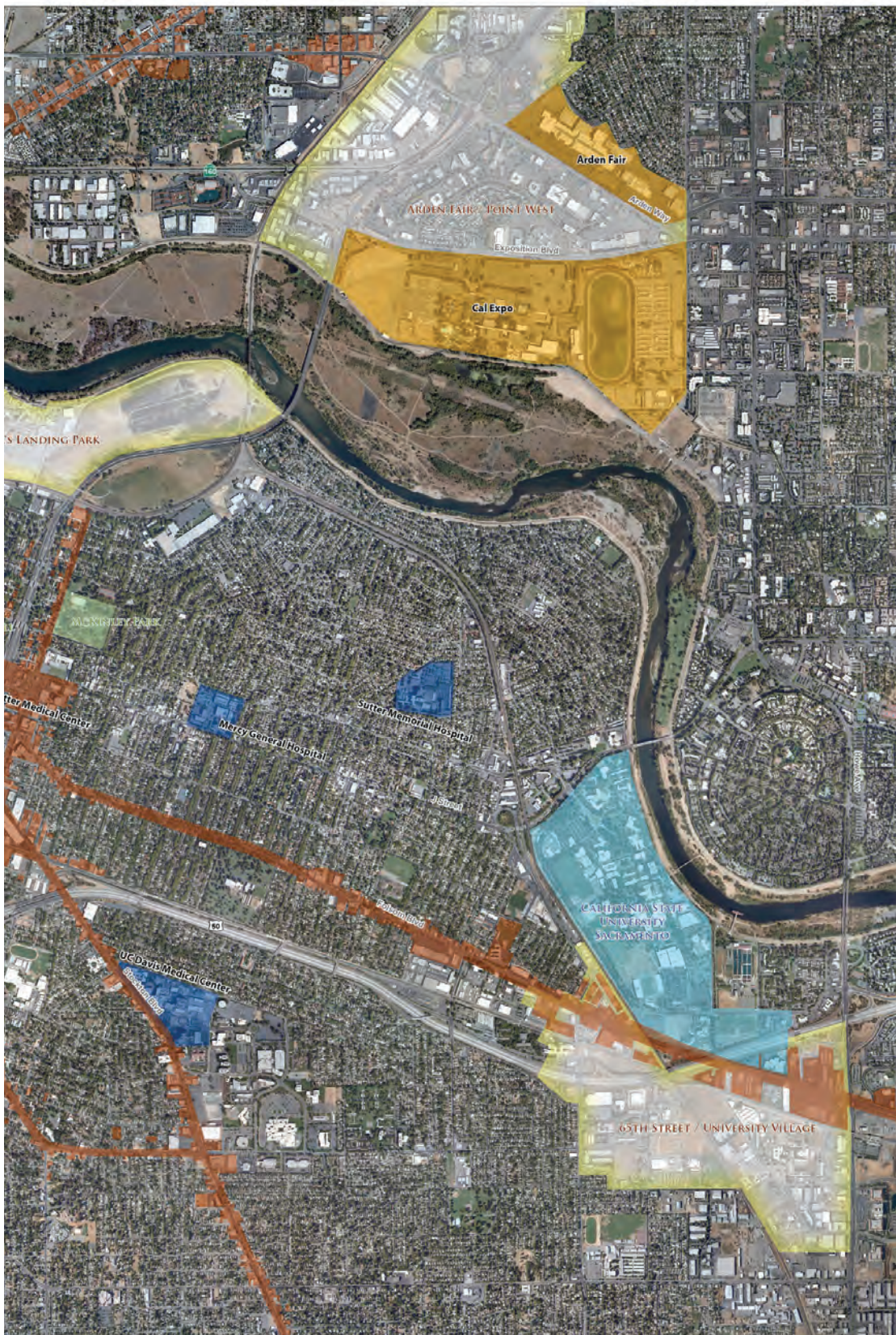


Context: Related Efforts

- Green Line Light Rail Extension to 7th Street/Richards Boulevard
- Sacramento Intermodal Transportation Facility
- Railyards Phase 1 Roadway Improvements and Rail Track Relocation
- Powerhouse Science Center
- I-5 Reconnection Project
- Sacramento River Crossings Study
- Railyards Specific Plan and River District Specific Plan
- Downtown/Riverfront Streetcar
- Point West Streetcar Study
- Riverfront Master Plan

Figure 1: Planning Context





Purpose and Need Statement

During the planning stage of a transit project, it is important to outline the problems to be addressed, the goals set by the community, and to develop a purpose and need statement for the project. According to FTA guidance on preparing alternatives analyses, the purpose and need establishes the problems which must be addressed in the analysis; serves as the basis for the development of project goals, objectives, and evaluation measures; and provides a framework for determining which alternatives should be considered as reasonable options in a given corridor. Though refinements may occur during future study, the purpose and need serves as the analytical framework for the project as it moves forward.

The **purpose** of the Sacramento Streetcar Plan is as follows.

- Increase multi-modal travel choices in the study area by establishing a network of streetcar routes that complements existing rail and bus service
- Increase mobility for short-range trips in the study area, especially pedestrian trips augmented by transit
- Serve the Intermodal Transportation Facility
- Connect major transit stations and lines, employment centers, commercial corridors, tourist destinations, future development areas, transit supportive residential neighborhoods, and other major activity centers
- Support community and economic revitalization and redevelopment in the Central City and surrounding areas
- Enhance the identity of Sacramento's unique districts and neighborhoods
- Reduce the growth in transportation-related energy use, air pollution emissions, and greenhouse gas emissions in support of the City's Green Initiative

The **needs** are developed to address challenges identified in the study area, and to move towards meeting the goals of the project. The project needs are as follows.

- Reduce the growth in automobile trips resulting from build-out of the Central City as identified in the adopted General Plan
- Address barriers created by the freeways that surround the Central City, and the Sacramento and American rivers
- Provide more convenient transit service to residents, employees, and visitors within the study area by improving connectivity to major activity centers and transit stations
- Serve a greater number of existing and planned businesses in and beyond the Central City
- Diminish the impact that limited transit service in the Central City has on reducing the potential to achieve planned urban development and redevelopment of opportunity sites

CHAPTER TWO STREETCAR NETWORK PLANNING PROCESS

The planning process employed to identify a Streetcar Network Plan for the City of Sacramento is consistent with the requirements of a formal Alternatives Analysis (i.e., AA) as defined by the Federal Transit Administration (FTA). This approach was employed to set the stage to pursue federal funding for one or more of the streetcar lines.



A Purpose & Need statement was developed early in the process to guide the screening and evaluation of streetcar routes. The Purpose & Need statement was born from the logical pairing of community goals with identified transportation deficiencies.

Planning Stages

Three sequential planning stages were undertaken to develop the streetcar network.

- Stage 1: Streetcar Route Screening
- Stage 2: Streetcar Route Evaluation
- Stage 3: Streetcar Network Development

Stage 1 Streetcar Route Screening

The purpose of the Stage 1 route screening was to select the most promising streetcar routes for the more detailed Stage 2 evaluation. The first step in this process was the identification of key activity centers that should be served by streetcar lines as well as candidate streets that would both be ideal for streetcar lines and connect the activity centers. The planning context map was developed to facilitate this process. The key activity centers and streetcar-friendly corridors were identified through a series of brainstorming sessions with the Citizen's Advisory Committee (CAC), Business Advisory Committee (BAC), and Technical Advisory Committee (TAC) which were formed specifically for this project.

The initial screening process then filtered out routes that were: cost-prohibitive due to physical barriers; lacked adequate connections to activity centers; were duplicative of existing transit service; or were forecasted to have low ridership potential based on existing and planned development. A total of 12 streetcar routes/route segments were identified for the Stage 2 evaluation.

Stage 2 Streetcar Route Evaluation

The purpose of the Stage 2 evaluation was to identify the top performing routes based on a more detailed quantitative analysis of a series of transportation, land use, and economic development performance measures. The following indicators were used to assess the 12 candidate routes identified in Stage 1.

- TRANSPORTATION
 - Projected Ridership
- LAND USE
 - Population and Employment per track mile
 - Existing
 - 2035
 - Growth – from existing to 2035
- ECONOMIC DEVELOPMENT
 - Current retail sales data
 - Current property tax data
 - Taxable acres with no improvement value (vacant land)
 - Taxable acres with improvement to land value ratios less than 1.0 (underutilized land)

The route segments were also evaluated based on a connectivity assessment, environmental considerations, transit operations, and traffic issues.

Stage 3 Streetcar Network Development

The purpose of the Stage 3 evaluation was to refine and optimize the top performing routes to define an optimal streetcar network based on system factors. The following transit network goals¹ were considered.

- RIDERSHIP – maximize number of passenger trips
- EFFICIENCY – maximize operating efficiency (minimum cost for maximum ridership)
- POSITIVE IMPACTS – create positive impacts external to the system
 - Catalyst for economic growth
 - Improved land use patterns
 - Reduced congestion levels
 - Improved air quality and reduced GHG emission

¹ Vukan Vuchic, *Urban Transit: Operations, Planning and Economics*, 2005, p. 186.

CHAPTER THREE COMMUNITY PARTICIPATION

One of the stated objectives of the Sacramento Streetcar Network Plan was to engage the community in shaping key aspects including the following elements.

- Goals of the Streetcar Network
- Purpose and Need Statement
- Streetcar Network
- Starter Line

The community involvement process consisted of the following elements.

1. **Citizens Advisory Committee (CAC):** a total of 43 community organizations representing neighborhoods, business, institutions, environmental groups, and agencies were invited to participate in four committee meetings. The meetings included an initial brainstorming session on: transportation deficiencies; key destinations and candidate streets; goals; purpose and need; alternative routes; and network and starter line recommendations.
2. **Business Advisory Committee (BAC):** a total of 10 Central City business organizations were invited to participate in five committee meetings. Where applicable, both the executive director and a board member from the business organizations were asked to attend. The meetings included an initial brainstorming session on: key destinations and candidate streets; goals; purpose and need; alternative routes; network and starter line recommendations; and local funding options.
3. **Technical Advisory Committee (TAC):** a committee of 12 staff from several City of Sacramento departments (Department of Transportation, Economic Development Department, Community Development Department), the Sacramento Regional Transit District (RT), and the Sacramento Area Council of Governments (SACOG) provided guidance on the study process and recommendations.
4. **Community Meeting:** approximately 60 community members attended a workshop at the Library Galleria in downtown Sacramento on Thursday, November 10, 2011 to provide input on the network and starter line recommendations. To advertise the workshop, announcements were sent to all of the organizations originally invited to the CAC and BAC as well as distribution lists from the City Department of Transportation, Economic Development Department, and Neighborhood Services; SACOG; RT; the Sacramento Metro Chamber; and the Friends of Light Rail. Media outreach and coverage was also used to advertise and promote the workshop.



Citizens Meeting #1

5. **Briefings of Interested Community Organizations & Agencies:** presentations were provided to several organizations and agencies as requested including:

- Downtown Sacramento Partnership
- State Department of General Services
- Capital Area Development Authority
- Friends of Light Rail
- Alkali and Mansion Flats Historic Neighborhood Association
- Sacramento Metro Chamber
- CSU Sacramento
- Sacramento Old City Association
- Midtown Business Association
- Sacramento Convention and Visitors Bureau



6. **Collaboration with West Sacramento/Sacramento Downtown/Riverfront Streetcar Policy Steering Committee:** presentations were made to two meetings of the Streetcar Policy Steering Committee comprised of members of both city councils, transit agencies, and their designees.

Attachment A provides a list of organizations that were invited to participate in the CAC and BAC.



Public Workshop

CHAPTER FOUR STREETCAR PROFILES

This section discusses the role of streetcars in a transit network, existing streetcar systems, streetcar vehicle options, the different trip purposes for streetcar riders, and the impact of streetcars on transit ridership.

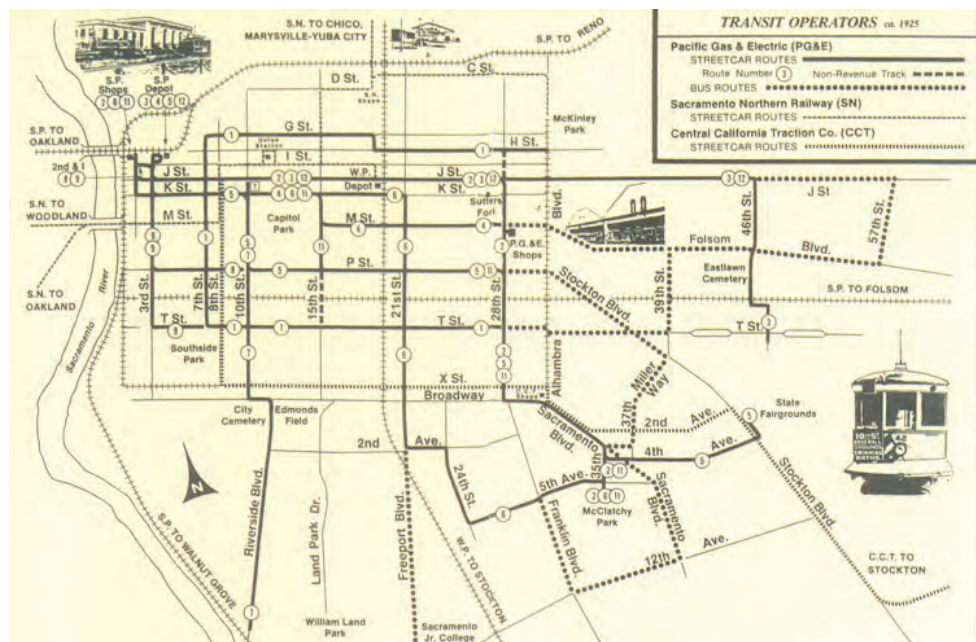
Sacramento Streetcar History

Completion of the transcontinental railroad in 1869, with Sacramento as its western terminus, brought with it rapid population growth and the need for a transportation system to support it. A network of streetcars served that purpose for more than 75 years.

The first permanent streetcar line began operation in Sacramento in 1870. The earliest streetcars were horse-drawn. The downtown rail station was the hub of the streetcar system. The Central Pacific Depot, built in 1879 to replace the original depot at Front and K streets, was the downtown terminus for many streetcar lines.

As the City's population continued to grow, real estate developers partnered with the streetcar companies to serve new neighborhoods. These lines served the "streetcar suburbs" of Oak Park, Curtis Park, East Sacramento, and Land Park. These new streetcar lines also served major recreational destinations such as McKinley Park, Joyland in Oak Park, Edmonds Field Baseball Park, and the original California State Fairgrounds.

Figure 2:
1925 Streetcar Map



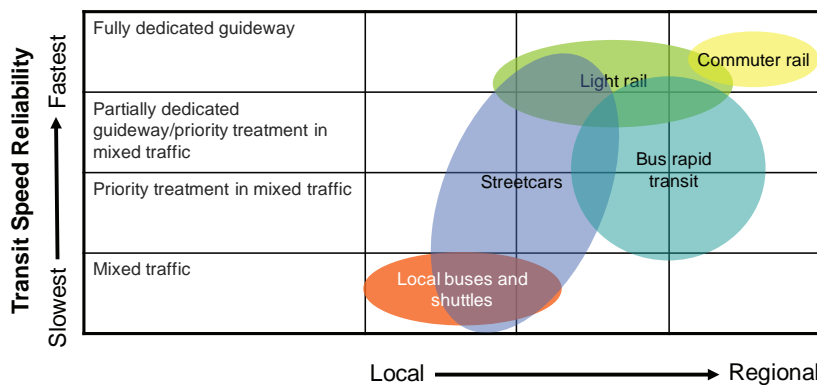
The first electric trolley line was opened in 1890. Electric streetcars were faster, simpler to maintain, and cheaper to operate than horse-drawn streetcars. The streetcar system became part of PG&E in 1906. PG&E sold the streetcar system to Pacific City Lines in 1943, due to a federal law restricting the utility's ability to own a streetcar company. The streetcar line closed in 1947.

Role of Streetcars in Transit Network

Streetcars are a flexible mode of transportation that can complement the region's other transit modes. The matrix below shows how streetcars tend to function within the transit hierarchy between traditional buses and light rail.

As a district circulator, streetcar routes are typically slower than other transit modes with frequent stops and frequent service. Streetcar routes are usually two to five miles in length. The streetcar significantly expands the 20-minute walkable "neighborhood" – for residents, workers, tourists, etc. – allowing people to expand their range from approximately one mile to up to four miles without having to use a car. Streetcars allow districts to function on a "park-once" basis and also allow people who arrived in the district without a car the ability to circulate more liberally without a car.

The flexibility of streetcar design and operations allow it to function within existing travel lanes so that the streetcar vehicles share the right-of-way with autos, buses and other vehicles. Streetcars can provide relatively localized service at slow speeds in mixed traffic, but they can also receive priority treatments for slightly higher speeds. In semi-exclusive or exclusive right-of-way even higher speeds, can be attained with appropriate station spacing. The Regional Transit Master Plan includes plans for both slower speed "urban" streetcars and higher speed "rapid" trams.



Overview of Recent Streetcar Lines

While there are at least 15 to 20 cities with some form of streetcar service in this country, the majority of those systems are either heritage systems with long histories of service (including San Francisco, New Orleans, and Philadelphia) or tourist-oriented systems that do not serve a traditional day-to-day market (such as Denver's Platte Valley Trolley and systems in Kenosha, WI, and Lowell, MA). Four cities have recent experience with newly-built streetcars comparable to the system envisioned for Sacramento:

- Portland, Oregon
- Seattle, Washington
- Tacoma, Washington
- Tampa, Florida



Portland Streetcar

- 11,000 daily riders
- Starter Line
- 2001 Opening
- 2.4 miles
- \$23 million/mile

Portland Streetcar

The modern Portland streetcar opened its initial segment in July 2001 as a single-track counterclockwise loop from the Legacy Good Samaritan Hospital in Northwest Portland to Portland State University. The initial 2.4-mile line (4.8-track-miles) was constructed for approximately \$55 million (or \$23 million per mile). The streetcar was seen as an option to help redevelop downtown Portland and its surrounding neighborhoods, and a way to connect the north and south sides of town. Since then, three extensions have been made to the south waterfront redevelopment area. The original Portland Streetcar was funded almost entirely by local sources (90%), with the capital funds derived through the creation of a parking benefit district, a local improvement district, and tax increment financing. The ongoing operating expenses are funded through the local transit agency and the City of Portland. The local transit agency (Tri-Met) pays for two-thirds and the City of Portland pays a third.

Total daily ridership is approximately 11,000. Its current annual operating cost is approximately \$5.5 million. The new Portland Streetcar Loop project will add another 3.3 miles to the system (6.7 track miles) at a cost of \$147 million (or \$21.9 million per track mile). This extension will cross the Willamette River twice, providing streetcar service to the Convention Center, the Memorial Coliseum and Rose Garden, the Lloyd Center district, and the Portland Central City on the east side of the River.



Seattle Streetcar

- 3,000 daily riders
- 2007 Opening
- 1.3 miles
- \$40 million/mile

Seattle Streetcar

The modern Seattle South Lake Union streetcar was proposed for the South Lake Union District by local developers after seeing the successful development around the Portland streetcar line. Property owners in the neighborhood south of Lake Union wanted a way to increase the potential for redevelopment of the industrial area into a biosciences hub and mixed-use residential neighborhood. Planning for the streetcar system began in 2003, with financing approved in 2005 and construction initiated in 2006. The streetcar system began operation in December 2007. The streetcar line connects downtown Seattle with the South Lake Union District and the Denny Triangle area. The initial 1.3-mile line (2.6 track miles) cost \$52.1 million, or \$40 million per mile. The system currently serves approximately 3,000 riders per day. Its current annual operating cost is approximately \$2.5 million. The Seattle South Lake Union streetcar is funded through several sources. A local improvement district (LID) was created to finance half of the capital costs. Surplus property sales, property exchange, and federal and state grants were used to finance the other half of the capital costs.

In November 2008, voters in the Seattle area approved a second streetcar line (to the First Hill and Capitol Hill neighborhoods) as part of a regional transportation measure. That sales tax measure essentially funded 100% of the capital cost of the line. In December 2008, the Seattle City Council voted to create a multi-line streetcar network with three additional extensions.

Tacoma Link Streetcar

The Tacoma Link is a fare-free system that is called “light rail” by its owner/operator (Sound Transit), but is actually a modern streetcar system. The system was designed as a downtown circulator to connect major activity and transit systems in downtown Tacoma starting at the Tacoma Dome and ending at the Theatre District to the north. In addition to being a connector, the system was designed to facilitate economic development in the downtown and surrounding area as well as reduce street and parking congestion. The Tacoma system began operation in August 2003. The 1.6-route-mile (2.4 track miles) line was constructed at a cost of \$78.2 million, or \$49 million per mile (reflecting the fact that the trackwork and related construction were built to light rail standards), and currently carries approximately 3,000 riders per day. Its annual operations cost is approximately \$3 million. Sound Transit is considering a number of extensions of the system, including to SeaTac Airport, as a result of the passage of a regional funding referendum in 2008.

The funding for the Tacoma Link was primarily from the 1996 Sound Moves regional bus and rail plan. This funded both capital and operations costs. The voters approved an overall program of \$3.9 billion, including a 0.4% local sales tax and a 0.3% vehicle license tax.



Tacoma Link Streetcar

- 3,000 daily riders
- 2003 Opening
- 1.6 miles
- \$49 million/mile

Tampa Streetcar

The Tampa TECO Streetcar is a vintage replica streetcar system that was initially promoted as a tourist and residential connection to various destinations from south of downtown Tampa to the Channelside District and to the historic Ybor City. The 1.2-mile line (2.4-track-miles) was constructed for \$48.3 million (\$40 million per mile) and began operation in 2002. It connects to the Purple and Green Lines of the HART In-Town Trolley to reach downtown Tampa. The system carries approximately 1,000 riders per day, and its annual operation cost is approximately \$2.4 million. It is managed by Tampa Historic Streetcar, Inc., a nonprofit corporation. The TECO Streetcar had 30 funding sources, which included Federal Congestion Mitigation and Air Quality [CMAQ] and New Starts money, Tampa gas taxes, urbanized area funds, land sales, State intermodal funds, and various other resources. Naming rights and station advertising were used to build an endowment for operations. In addition, a tax district assesses 33 cents for every \$1,000 in value for operations.

HART plans a 1/3-mile northern extension to the system in 2010 that will connect “the more than 35,000 people who work in the downtown area to almost every major downtown parking structure with an anticipated operating date of December 2010”.



Tampa Streetcar

- 1,000 daily riders
- 2002 Opening
- 1.2 miles
- \$40 million/mile

Streetcar Vehicle Options

There are generally three types of streetcar vehicles available for use in new systems in the United States: vintage restored, vintage replica, and modern. Each vehicle has several variations and options, which are described in this section.

Vintage Restored Vehicles

To maintain historical accuracy, some cities have chosen to rebuild existing vehicles. Many streetcar systems have acquired and restored trolleys that have been abandoned for several years or that have been in storage by other systems. Some cities have acquired several vintage Presidents Conference Committee (PCC) cars. These types of vehicles were developed in the 1930s through a joint effort of the electric railway industry, whose leaders developed a “modern” design that could compete with buses and autos for public support.

Approximately 5,000 PCC cars were manufactured in the US between 1936 and 1952. PCC cars typically are 50 feet long and have a distinctive streamlined design. Most PCC cars were single-sided and single-ended, requiring loops to reverse direction. PCC cars were used in 25 cities around the country (though not in Sacramento) and continue to be used in San Francisco, Boston, Kenosha, and Philadelphia. Table 8 summarizes the basic characteristics of vintage restored PCC vehicles.

Table 1: Typical Characteristics Of Vintage Restored PCC Cars

Configuration	Single-ended/single-sided
Boarding characteristics	High-floor
Size	47' long x 8'6" wide
Vehicle capacity	90-100 (46 seats)
Cost per vehicle	\$1.5 million for restoration
Geometry/curve minimum radius	45'
Speed	Max 30 mph
Air-conditioned	Yes (retrofitted)
ADA Accessible	Yes (Retrofitted with manually operated bridge plate or lifts)

Vintage Replica Vehicles

Vintage replica vehicles generally consist of new bodies with an historic look mounted on rehabilitated running gear. The replica cars are easily customized to meet specific operating and aesthetic criteria, including ADA access, heating, and air conditioning. The most common replica vehicles have been manufactured by Gomaco for Little Rock and Tampa. These cars can be air-conditioned and are generally high-level cars, requiring on-board or wayside lifts for ADA compliance. Table 9 summarizes the major characteristics of vintage replica Gomaco vehicles.

Table 2: Typical Characteristics Of Vintage Replica Streetcars

Configuration	Double-ended/double-sided
Boarding characteristics	High-floor
Size	46' 1" long x 8' 6" wide
Vehicle capacity	60 (48 seats)
Cost per vehicle	\$1.5-\$3.0 Million
Geometry/curve minimum radius	50'
Speed	Max 30 mph
Air-conditioned	Yes
ADA Accessible	Yes (mini-high platform or on-board lifts)



Modern Streetcar Vehicles

Recent streetcar systems in Portland, Seattle, and Tacoma use modern streetcar vehicles that are larger and longer than vintage restored or replica vehicles but are smaller than light rail vehicles, although their appearance more closely resembles light rail vehicles. Generally, they are approximately 65 feet long, lowfloor, and are double-articulated to allow urban street operations. Portland, Seattle, and Tacoma are using cars manufactured by a joint venture of Inekon and Skoda in the Czech Republic. The Inekon-Skoda design is now being manufactured in the US by United Streetcar, LLC, which is a wholly-owned subsidiary of Oregon Iron Works, Inc.

The vehicles used in the system are the most important element in the overall “image” of the project, as they are the most visible element of the system that the public will see and use. The vehicles used in this system will serve not only as a mode of transportation for residents and visitors of the area, but also as a community amenity and asset that could attract development and redevelopment and serve as an attraction in its own right. Therefore, the performance of the chosen vehicle is vital to the overall success of the project.



Several characteristics and requirements affect the selection of a streetcar vehicle.

- The vehicles must be able to adapt to the nature of the service desired by the community. In other words, the local community should decide if it wants to focus on commuter transportation, special events and weekend transit, connections to activity centers, peak hour vs. off-peak service, and other sometimes competing operational characteristics.
- The vehicles must have the capacity to accommodate the needs of all potential passengers, must provide for rider comfort, and serve the needs of public transit service and special events.
- ADA compliance – Compliance with ADA accessibility regulations is a requirement regardless of the funding source of vehicles. Vintage restored or replica vehicles may have construction and cost issues related to retrofitting to allow ADA accessibility. High blocks (ramps or lifts on passenger platforms) can be used, although they could affect passenger circulation and could result in high costs given the typical close spacing of streetcar stops. Low-floor vehicles, such as most modern streetcars, provide the greatest flexibility for ADA accessibility, although passenger platforms must be built to accommodate low-floor boarding that is typically higher than a standard curb height (eight to ten inches versus the typical six-inch height).
- Performance criteria should include frequency of service, acceleration and deceleration rates, operating speeds, and track geometry, while operating within a given level of safety, comfort, and service reliability.
- Turning radius and other geometric considerations – Most vintage restored or replica cars can negotiate a turning radius of approximately 50 feet, allowing right-lane-to-right-lane turns around corners in most downtown areas. Modern streetcar vehicles have a larger turning radius (usually 62 feet), which generally requires curb cuts or other special designs to negotiate tight turns. Light rail vehicles typically have a larger turning radius (usually >85 feet).

Profile of Streetcar Riders

Limited data is available on the travel characteristics of streetcar riders. The following information is based on on-board surveys of Portland streetcar riders by Tri-Met.

Riders on the Portland streetcar line report using the streetcar for multiple reasons including commuting to/from work and school and using it for shopping and other errands. Overall, most passengers reported using the streetcar for either shopping trips or trips categorized as “other”. The other category includes personal business, medical appointments, and visiting friends and relatives. Work trips are the dominant trip purposes in the morning (52%) and evening peak (36%) periods. School trips comprise the second largest share of morning usage and are also distributed across the other time periods. Following the morning period, “other” trip purposes make up a large share of streetcar trips. Recreation trips comprise the largest share of nighttime trips.

Surveys of streetcar riders indicate a high percentage of “choice” riders – those that have a car or other alternative, but choose to take the streetcar instead. This includes 70 percent of streetcar riders in Portland and 60% of streetcar riders in Toronto.

Comparison of Streetcar and Bus Ridership Data

Streetcars attract more riders than bus routes on the same corridor or area. This is due to a number of factors including the permanence of the routes and preferences for the rail vehicles by choice riders. The following provides a summary of data for three streetcar lines that replaced bus service, resulting in increases in ridership ranging from 15 percent to 500 percent.

Toronto, Canada

- The Toronto streetcar system is the largest streetcar system in North America with 11 streetcar lines comprising a total system length of 47 miles.
- The first streetcar in Canada opened in Toronto in 1861.
- Toronto undertook a significant expansion of its streetcar lines in the 1990s.
- In 1997, a new streetcar line was opened on Spadina Avenue. The line replaced a local bus route, one of the most heavily used in the City, that provided the main transit service through Toronto's Chinatown. Ridership increased by 15 percent with the implementation of streetcars along the line.

Tacoma, Washington

- The Tacoma streetcar line opened in 2003.
- The 1.6 mile route connects the Tacoma Come rail station with the Convention Center, the Broadway theater district, the University of Washington in Tacoma, several museums and downtown offices.
- The City of Tacoma operated a free bus service along the route now served by the streetcar. Annual ridership on the bus line was 141,000. The opening year ridership on the fare-free streetcar line was approximately 750,000.

San Francisco, California

- The F-Line connecting Market Street to the Fisherman's Wharf area via the Embarcadero opened in 1995.
- The F-Line, one of the most heavily used streetcars in the US, experienced a three-fold increase over bus ridership in the same corridor.

CHAPTER FIVE

SACRAMENTO STREETCAR NETWORK

The Sacramento Streetcar Network shown in Figure 3 was created through the three-stage evaluation process described in Chapter 2 with the input of residents and employees, neighborhood associations, business representatives, transportation and community organizations, elected officials, and agency staff. The Streetcar Network meets the Purpose & Need described in Chapter 1. Attachment B provides a list of comments provided by community members and organizations.

Description of Streetcar Network

Four primary streetcar routes or route segments, located within the core of the Central City, comprise the heart of the Sacramento Streetcar Network. These four routes, labeled A-D on Figure 3, represent the highest performing lines. They are located in the area bounded by the Sacramento River on the west, H Street on the north, Broadway on the south, and the Union Pacific Railroad (i.e., between 19th and 20th Street) on the east. These routes can be operated independently, as phases, or part of a loop configuration once all the lines are constructed.

Two streetcar routes, labeled E and F on Figure 3, are recommended in areas planned for major development/redevelopment. This includes the Railyards and River District areas (Route E) and the Arden Fair Mall/Cal Expo areas (Route F). These routes all feature connections to one or more light rail stations. Implementation of these streetcar lines should be tied to increased development potential and pedestrian activity levels.

Three route extensions, labeled G-I on Figure 3, would serve areas east of the Central Business District including midtown, the Sac State Campus, and the UC Davis Medical Center. The Union Pacific Railroad presents a significant constraint for extensions of the streetcar network east of 19th Street. Union Pacific (UP) must consent to new crossings of their freight rail lines. Light rail service along the “Gold” line currently crosses over the UP rail line using the “Bee” Bridge located at R Street. Should at-grade crossings of the freight track prove infeasible, alternative route alignments that use the “Bee” bridge structure to serve areas east of 19th Street could be considered. In the development of the streetcar network, the implementation of new bridges or tunnels across the UP rail line, to support these future streetcar extensions, was assessed and deemed infeasible.

Despite the challenges associated with obtaining approval for an at-grade crossing, it was the consensus of City of Sacramento and Regional Transit staff that potential extensions along the L Street/J Street corridor (to Midtown, East Sacramento, and Sac State) and along the Broadway corridor (to Oak Park and the UC Davis Medical Center) be included in the Streetcar Network.

Figure 3: Streetcar Network





Route A

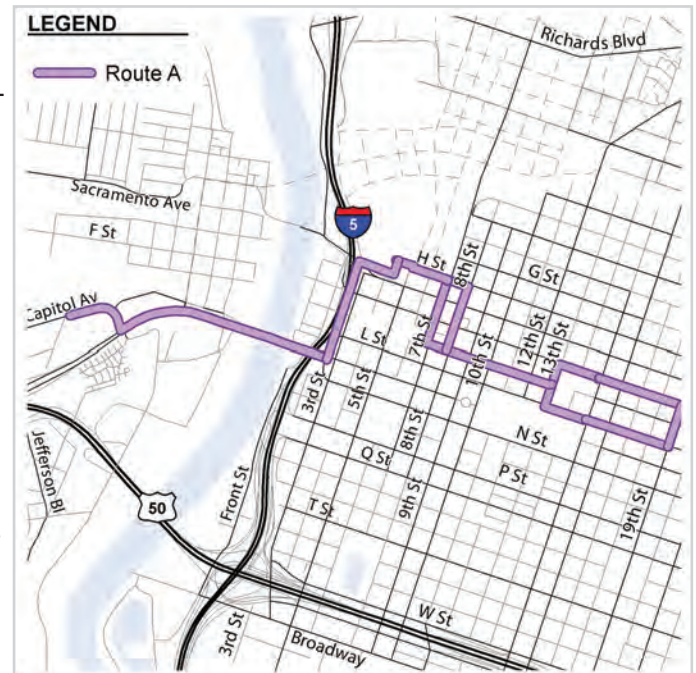
West Capitol Avenue-Garden Street-Tower Bridge-Gateway-3rd Street-H Street-7th/8th Streets-K Street-13th Street/J Street/15th Street/L Street

The western terminus is in the City of West Sacramento in a median stop adjacent to Civic Center complex and Transit Center. From this location, the route travels east on West Capitol Avenue and Tower Bridge Gateway past Raley Field, and then crosses the Tower Bridge into the City of Sacramento. A single streetcar track would be located in the center of the Tower Bridge, where the bridge deck is reinforced to support rail. Once across the Tower Bridge, the route turns north on Third Street towards the Sacramento Valley Station (the planned site of the Intermodal Transportation Facility). Implementation of this route would require conversion of Third Street to two-way operation, for one block, from Capitol Mall north to L Street.

At the Sacramento Valley Station, the route joins existing light rail track on H Street just west of Fifth Street. The route continues east on H Street, turns south onto 7th Street, and then turns east onto K Street. A new, second track may be required to serve eastbound streetcars on K Street between 7th Street and 8th Street, where only one track for westbound light rail trains currently exist. This portion of the route travels on approximately 0.75 miles of existing light rail track.

The route continues on K Street east to 13th Street, where it then forms a one-way loop using 13th Street, J Street, 19th Street, and L Street.

With the exception of K Street from 7th Street to 8th Street and 12th Street to 13th Street, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Terminus Points

West Sacramento Civic Center
K Street/19th Street

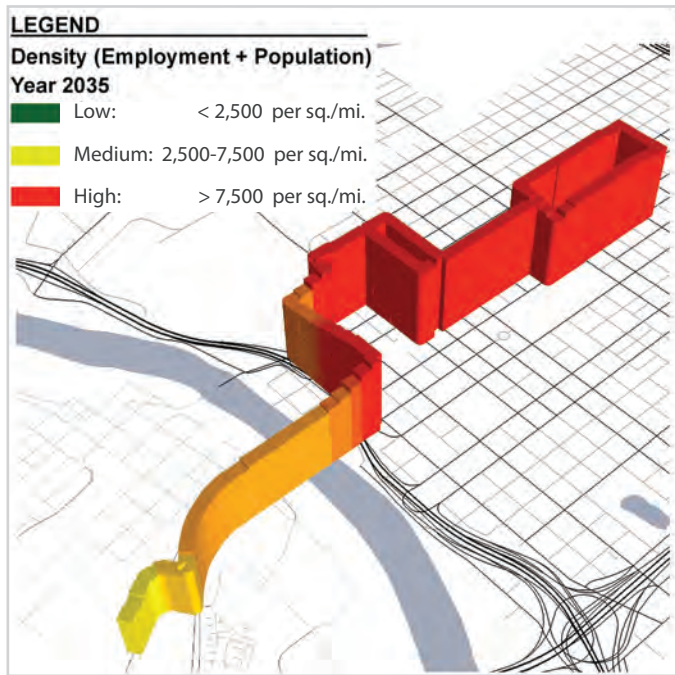


Activity Center Connections

West Sacramento Civic Center
Raley Field
Sacramento River
Old Sacramento
Intermodal Terminal
Railyards Area
Downtown Plaza
K Street
Convention Center
Major Downtown Hotels
Theaters
Midtown

Route Length ¹ (Miles)	New Track ¹ (Miles)	Capital Cost ¹ (Millions)	Cost Per Mile ¹ (Millions)
3.3 Miles	2.55 Miles	\$125-135	\$38-41

¹ Note the above data is for the entire route including the portion within the City of West Sacramento.



Land Use Characteristics

The population and employment levels below are provided for a catchment area from the Intermodal Terminal to the K Street/19th Street terminus with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

This segment of Route A ranks 1st among routes for current and year 2035 densities, and 3rd for projected growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
20,524	24,447	3,923

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route segment from the Intermodal Terminal to the eastern terminus, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$54	7.4	10.5

Ridership Forecast (entire route)

This route would have good ridership, ranging from 7,000 to 8,500 daily riders and 2.2 to 2.7 million annual riders by 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Conversion of 3rd Street to two-way operation from Capitol Mall to L Street (including streetscape improvements)
- Rail and traffic operational improvements on Tower Bridge
- Signaling needs for joint use of light rail tracks
- Capitol Mall/2nd Street design issues
- 3rd Street Extension to Railyards design issues
- Joint operation with light rail on K Street
- Increased congestion on 7th Street, 8th Street, and K Street
- Additional trackage on K Street between 7th and 8th Streets

Route B

L Street-15th/16th Streets-Broadway

It is anticipated that this route would initially operate as a one-way, counter-clockwise loop route along L Street, 15th Street, Broadway, and 16th Street.

The northern portion of the route is the portion of L Street between 15th and 16th Street. This segment of the route is adjacent to the eastern edge of the Sacramento Convention Center and a number of restaurants located on 15th and 16th Streets.

From this location, the route travels south on 15th Street past Capitol Park and the East End state office complex. The route continues south past Fremont Park, the 16th Street light rail station, the commercial hub on R Street just west of 15th Street, and to Broadway.

At Broadway, the route turns east along a one-block segment in front of the Historic Tower Theatre.

The route then turns north onto 16th Street and continues along the approximately 1 mile long route to L Street.

For the entirety of this route, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.

Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
1.2 Miles	1.2 Miles	\$60	\$50



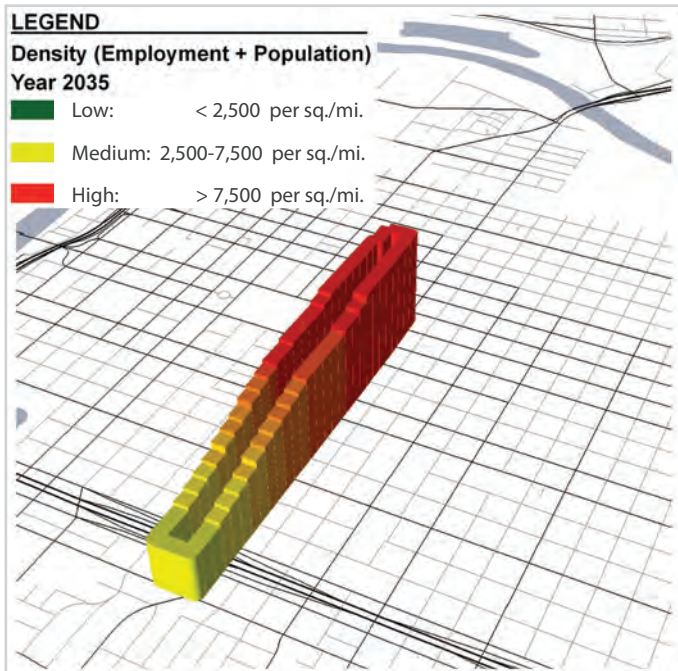
Terminus Points

L Street
Broadway



Activity Center Connections

Convention Center
East End State Office Complex
State Capitol Park
Fremont Park
16th Street LRT Station
15th/16th Commercial Corridor
R Street commercial uses
Broadway Corridor



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route B ranks 4th among routes for current densities, 3rd for year 2035 densities, and 7th for projected growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
13,372	15,562	2,191

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$125	4.5	10.1

Ridership Forecast

This route is forecast to have 1,500 to 2,000 daily riders and 0.5 to 0.6 million annual riders by the year 2035. The significant level of population and employment within a one-block walk, the high levels of existing retail sales, and the activity centers along route make it a strong candidate for early implementation.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- At-grade crossing of the existing light rail tracks between Q and R streets

Route C

3rd Street-Broadway

The northern terminus is the Sacramento Valley Station (the planned site of the Intermodal Terminal Facility). From this location, the route travels south on Third Street. Implementation of this route would require conversion of Third Street to two-way operation, and related streetscape improvements, from L Street south to Broadway.

The route would serve existing uses along the Third Street corridor as well as existing and planned uses to the west between I-5 and the Sacramento River.

The route would continue south along Third Street to Broadway, continuing east along Broadway to the Broadway light rail station at 19th Street. The streetcar would travel in the curbside travel lanes along Broadway.

For the entirety of this route, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
2.9 miles	2.9 miles	\$92	\$32



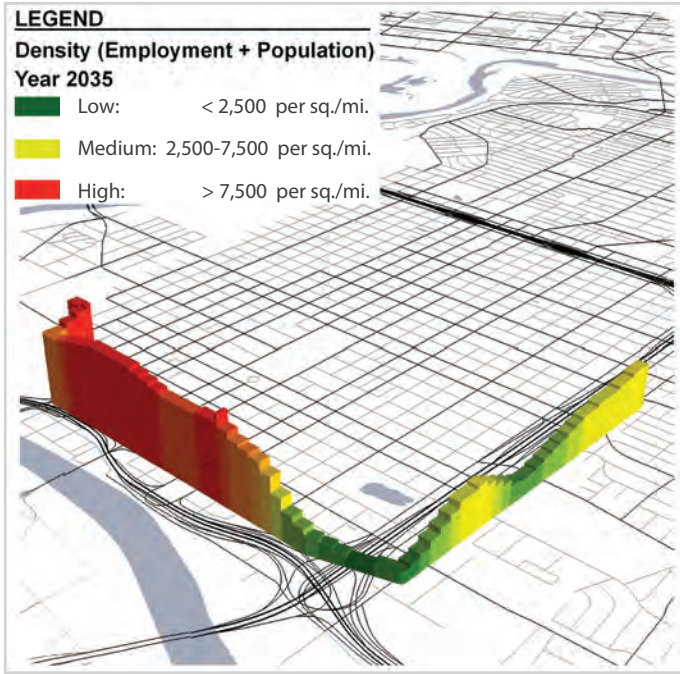
Terminus Points

Intermodal Terminal
Broadway LRT Station



Activity Center Connections

Intermodal Terminal
Railyards Area
Downtown Plaza
Crocker Art Museum
State Offices along Third Street
Docks project
Northwest Land Park project
Broadway Corridor



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route C ranks 5th among routes for current, year 2035, and projected growth densities.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
8,410	11,728	3,318

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$48	6.5	9.3

Ridership Forecast

This route is forecast to have 2,500 to 3,500 daily riders and 0.8 to 1.1 million annual riders by the year 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Conversion of 3rd Street to two-way operation
- Interaction with on-street bike lanes
- 3rd Street Extension to Railyards design issues

Route D

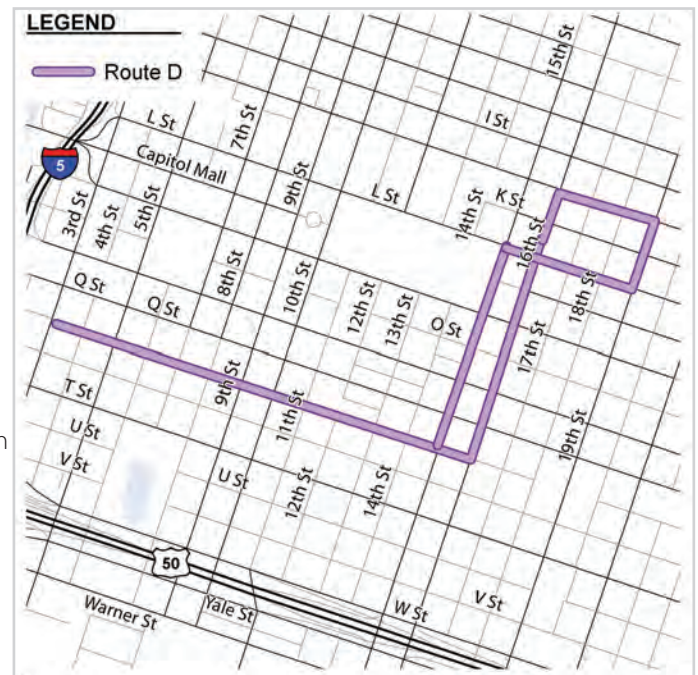
R Street-15th/16th Streets-K Street

The western terminus of this route is on R Street at Third Street. It is anticipated that a tail track will be needed on R Street, between 2nd Street and 3rd Street, for streetcars to lay over and reverse direction. From the western terminus, the route travels east on R Street.

The route continues east on R Street and turns north onto 16th Street, with a connection to the 16th Street light rail station.

After seven blocks along 16th Street, the route turns east on J Street. The route travels east on J Street to 19th Street. The return route uses L Street and 15th Street to return to R Street.

For the entirety of this route, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
1.8 Miles	1.8 Miles	\$103	\$57
	1.0 Miles (R Street Only)	\$56 (R Street Only)	\$56 (R Street Only)



Terminus Points

R Street @ 3rd Street

K Street @ 19th Street



Activity Center Connections

R Street state offices

R Street residential

R Street commercial uses

16th Street LRT Station

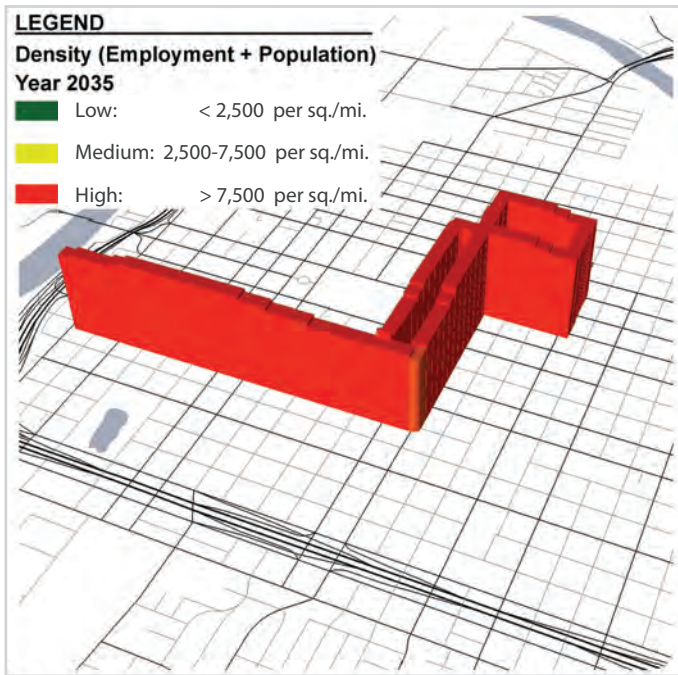
Fremont Park

East End State Office Complex

State Capitol Park

Convention Center – east end

Midtown



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route D ranks 2nd among routes for current and year 2035 densities, and 4th for projected growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
14,859	18,344	3,485

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$83	4.9	9.5

Ridership Forecast

This route is forecast to have 1,000 to 1,400 daily riders and .3 to .4 million annual riders by the year 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Interaction with on-street bike lanes
- At-grade crossing of the existing light rail tracks between Q and R Streets

Route E

Richards Boulevard-Jibboom Street-Planned Railyards Boulevard-7th Street

It is anticipated that this route would be constructed in phases, based on the location and pace of development in the Railyards and River District areas. The initial segment would operate in a linear fashion, with a likely connection to one or more light rail stations. The route could ultimately operate in a loop configuration, or as several linear routes connecting to the Green Line or Blue Line light rail stations.

The eastern terminus of this route would be at the planned Dos Rios light rail station on 12th Street. From this location, the route travels west along Richards Boulevard. The streetcar would travel in the curbside travel lanes along Richards Boulevard. The River District Specific Plan calls for the provision of new rail tracks between 12th Street and 7th Street on Richards Blvd. The Green Line light rail extension will provide tracks from 7th Street west to Sequoia Pacific Boulevard.

At the western end of Richards Boulevard, the route turns south on Jibboom Street, serving the planned Powerhouse Science Center.

The route would turn east from Jibboom Street onto the planned Railyards Boulevard, continuing east to 7th Street. At 7th Street, the route would join existing light rail track from Railyards Boulevard to Richards Boulevard.

For the entirety of this route, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Terminus Points

12th Street @ Richards Blvd.

7th Street @ Railyards Blvd.



Activity Center Connections

Dos Rios LRT Station (planned)

River District area

Township 9 Project

Powerhouse Science Center

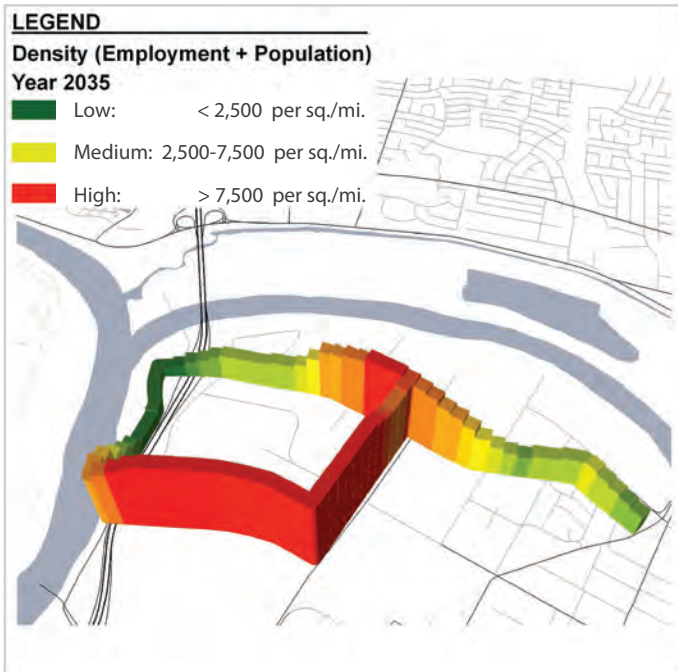
Sacramento River

Museum of Railroad Technology

Green Line LRT Stations

Railyards Specific Plan Area

Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
3.1 Miles	1.9 Miles	\$90	\$29



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route E ranks 9th among routes for current densities, 6th for year 2035 densities, and 1st for projected levels of growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
1,083	7,052	5,969

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database. A large share of the current retail sales along this route are business-to-business and not consumer sales, which are less conducive to streetcar travel.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$26	19.1	29.4

Ridership Forecast

This route is forecast to have 2,500 to 3,500 daily riders and 0.8 to 1.1 million annual riders by the year 2035. It should be noted that much of this ridership would be generated by planned development that has yet to occur. Implementation of this route should be staged with future development.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Alignment through the I-5/Richards Boulevard interchange
- Interaction with on-street bike lanes
- Signaling needs for joint use of light rail tracks
- Pace of development

Route F

Evergreen Street-Arden Way-Heritage Lane-Response Road-

Exposition Boulevard-Challenge Lane

The Point West Streetcar District Study, prepared for the Point West Transportation Management Association in 2005, identified a streetcar alignment to serve the area that is described below.

The western terminus is located at the Swanston light rail station. An alternate terminus location is the Royal Oaks light rail station. From the western terminus, the route travels east on Arden Way to the Arden Fair Mall. The streetcar alignment then turns south on Heritage Lane.

The route turns west onto Response Road and crosses Exposition Boulevard into the Cal Expo parking lot. A new traffic signal would be required at the Exposition Boulevard/Response Road intersection to allow the streetcar to cross Exposition Boulevard.

Once within the parking lot, the streetcar would travel east to a stop at the main entrance to Cal Expo.

For most of this route, with the exception of short segments that are located within the Arden Fair Mall and Cal Expo parking lots, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Terminus Points

Swanston Light Rail station

Cal Expo



Activity Center Connections

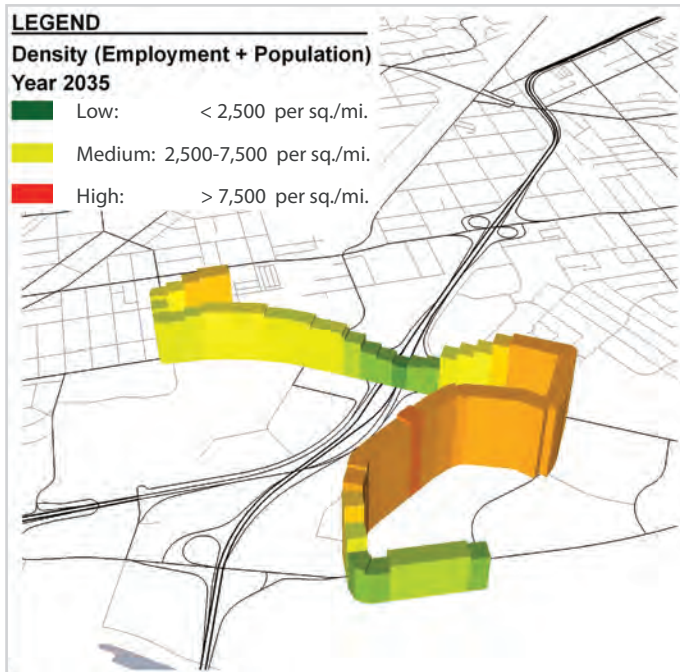
Arden Fair Mall

Arden Way

Point West Area hotels, office,
and commercial space

Cal Expo

Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
2.35 Miles	2.35 Miles	\$97	\$41



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route F ranks 8th among routes for current densities, and 9th for year 2035 and projected growth levels.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
3,064	3,525	462

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$121	4.2	10.0

Ridership Forecast

This route is forecast to have 800 to 1,200 daily riders and 0.25 to 0.4 million annual riders by the year 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Interaction with on-street bike lanes
- Planned operation within existing parking lots at Cal Expo
- Potential construction impacts to Arden Mall access
- Future use of Cal Expo
- Planned right-of-way that is not in the public domain

Route G

J Street/29th Street/L Street

Route G is an extension of Route A, from 19th Street to Alhambra Boulevard. The route serves Midtown along J Streets and L Streets, one-way streets located two blocks apart.

It would require an agreement, with Union Pacific Railroad, for two at-grade crossings of the freight tracks located between 19th Street and 20th Street.

The route begins at J Street and 19th Street, where it continues east along J Street, in a one-way eastbound operation, to Alhambra Boulevard. The route turns south on Alhambra Boulevard, traveling two blocks.

The route turns right on L Street, returning back to the CBD along this westbound one-way street.

The streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
0.9 Miles	0.9 Miles	\$55	\$61



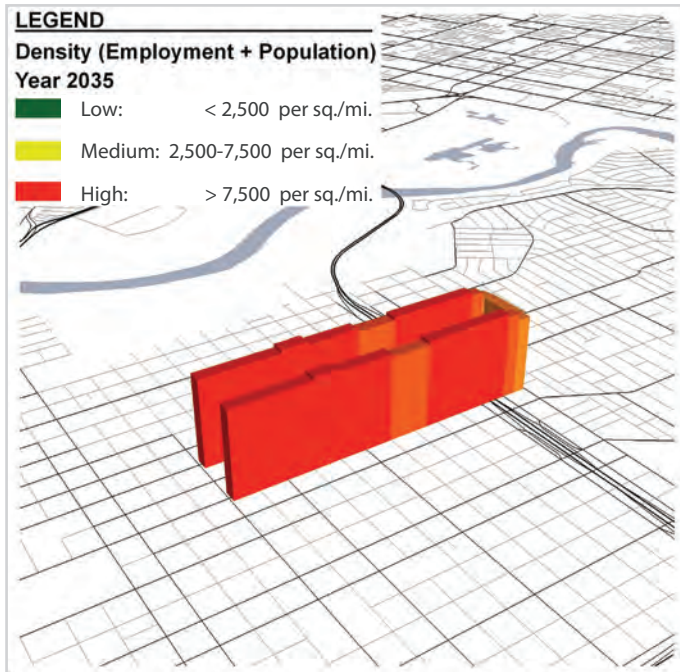
Terminus Points

19th Street at J Street
29th Street at J Street



Activity Center Connections

Midtown
Sutter Medical Center
Sutter's Fort
B Street Theatre
Alhambra Boulevard Corridor



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route G ranks 3rd among routes for current densities, 4th for year 2035 densities, and 8th for projected levels of growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
14,560	15,447	887

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$62	3.3	8.2

Ridership Forecast

This route is forecast to have 900 to 1,400 daily riders and 0.3 to 0.45 million annual riders by the year 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Agreement with Union Pacific Railroad for at-grade crossing of freight tracks
- Interaction with on-street bike lanes on L Street

Route H

J Street

Route H is an extension of Routes A and G. The route would connect the Alhambra Boulevard corridor to Mercy Hospital and Sac State. The route serves the East Sacramento neighborhood via J Street.

From its western terminus at the intersection of J Street and Alhambra Boulevard, the route continues east along J Street. J Street operates in a two-way configuration along the entire length of the route.

Just east of 57th Street, the streetcar line would travel under the Elvas Avenue overpass and the Union Pacific rail overpass. There is limited clearance under these structures, requiring a vertical clearance exception from the California Public Utilities Commission (CPUC).

Just east of Elvas Avenue, the route would turn to the south at Carlson Boulevard into the main entrance of the Sac State campus. The eastern terminus stop would be located within the Sac State campus.

An alternative alignment, at the eastern end of the route, would be for the route to turn south along Elvas Avenue and connect to the 65th Street/University LRT station. Connections to the CSUS campus would be via existing and planned pedestrian tunnels linking Elvas Avenue to the campus.

For the entirety of this route, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Terminus Points

J Street at Alhambra Boulevard

CSU Sacramento



Activity Center Connections

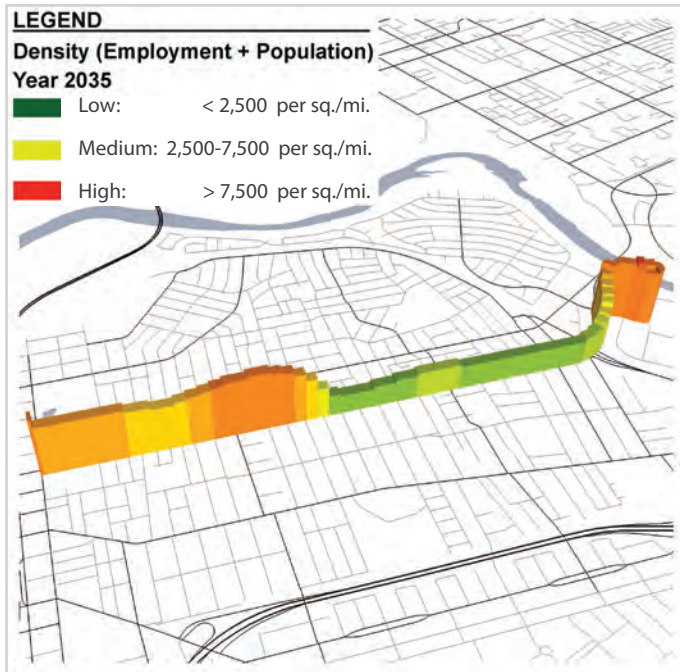
Alhambra Boulevard Corridor

East Sacramento Neighborhood

Mercy Hospital

CSU Sacramento

Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
2.35 Miles	2.35 Miles	\$106	\$45



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route H ranks 6th among routes for current densities, 7th for year 2035 densities, and 6th for projected levels of growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
3,971	6,988	3,017

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$12	5.8	15.2

Ridership Forecast

This route is forecast to have 1,500 to 2,400 daily riders and 0.5 to 0.77 million annual riders by the year 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Limited vertical clearance under the Elvas Avenue and Union Pacific bridge structures
- Alignment alternatives at eastern end of route

Route I

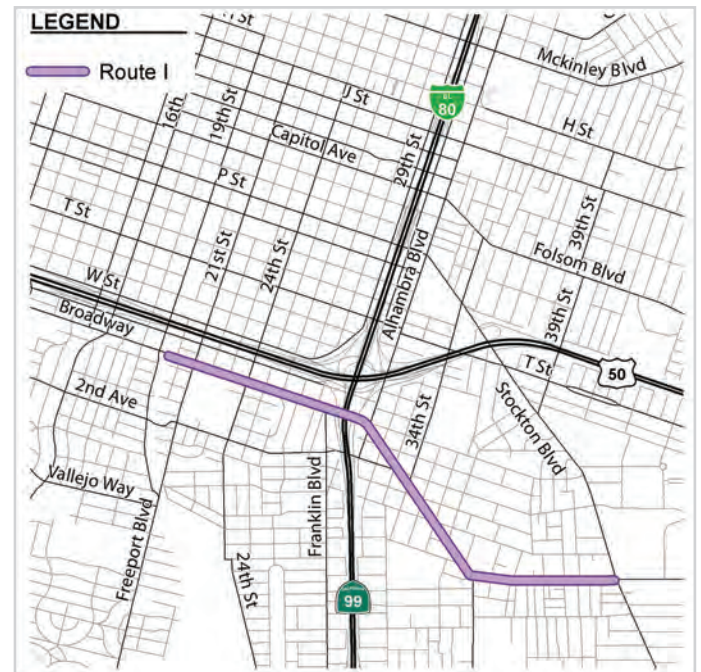
Broadway

Route I is an extension of Route C, from 19th Street to Stockton Boulevard and the UC Davis Medical Center campus. The route serves the Oak Park neighborhood along Broadway.

It would require an agreement, with Union Pacific Railroad, for an at-grade crossing of the freight tracks located between 19th Street and 20th Street.

The route begins at Broadway and 19th Street, where it continues east along J Street to Stockton Boulevard.

For the entirety of this route, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.



Route Length (Miles)	New Track (Miles)	Capital Cost (Millions)	Cost Per Mile (Millions)
2.2 Miles	2.2 Miles	\$88	\$40



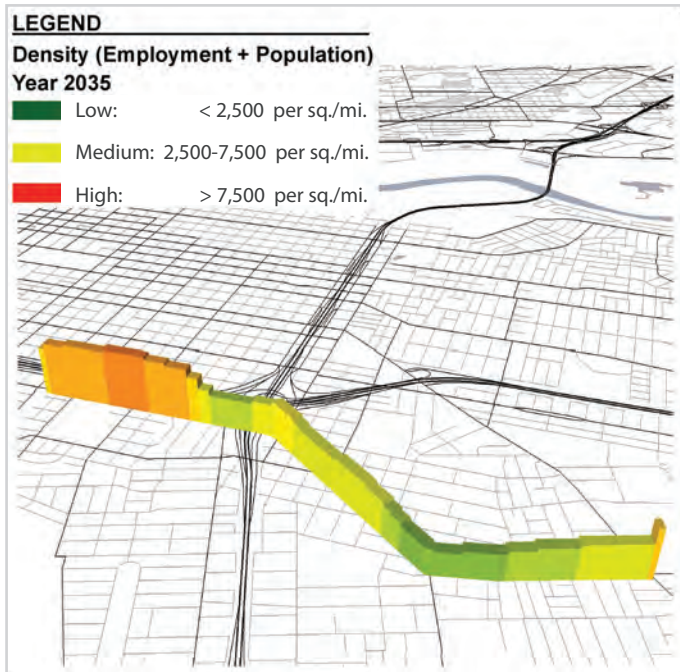
Terminus Points

Broadway at 19th Street
UC Davis Medical Center



Activity Center Connections

Broadway LRT Station
Broadway Corridor
Oak Park Community
UC Davis Medical Center



Land Use Characteristics

The population and employment levels below are provided for a catchment area with a boundary located ¼ mile from the designated route, and are based on the latest data available from SACOG.

Route I ranks 7th among routes for current densities, 8th for year 2035 densities, and 2nd for projected levels of growth.

Population + Employment per Track Mile in Sacramento

Current	2035	Growth
3,925	4,263	338

Economic Development Characteristics

The following economic development data are based on existing retail sales data within one block of the route, as provided by City of Sacramento staff as well as current parcel data from the county assessor's database.

2010 Economic Data Per Track Mile in Sacramento

Existing Retail Sales (Millions)	Taxable Acres – Vacant Land	Taxable Acres – Underutilized Land
\$7	5.7	10.0

Ridership Forecast

This route is forecast to have 2,400 to 3,400 daily riders and 0.77 to 1.1 million annual riders by the year 2035.

Potential Implementation Issues

The following are implementation issues that should be addressed in the design and/or environmental stages of the process.

- Agreement with Union Pacific Railroad for at-grade crossing of freight tracks

Modern Streetcar Vehicle Recommendation

The modern streetcar vehicle is recommended for application on all Sacramento routes based on the following factors.

- Low floor vehicles, which are only available in modern streetcars, are more easily accessible for all people including those with disabilities and elderly.
- The low floor modern streetcar is compatible with the long-term plans of Regional Transit to convert the light rail fleet to low floor vehicles by 2035.

Several manufacturers are developing hybrid and battery-powered modern streetcars, which can operate either fully or partially without overhead electric power. These vehicles are not in revenue service in significant numbers, but should be considered during the vehicle procurement process.

Streetcar Maintenance Facility

The existing Regional Transit light rail maintenance facility could be expanded to store and maintain streetcars, but it is located approximately four miles from the core area. It would be desirable to develop a streetcar storage and light maintenance facility within close proximity to the core area. Because most of the streetcar fleet in the future will be needed to serve routes in the City of Sacramento, the facility should be located in the Central City area. The City should pursue the acquisition and/or designation of a property in the near-term. Candidate sites include underutilized land under Highway 50.

Future Streetcar Extensions

The 2035 Metropolitan Transportation Plan (MTP), being developed by the Sacramento Area Council of Governments, includes future streetcar connections across the Sacramento River at multiple locations. This Network Plan includes illustrations of candidate lines that could link the City of Sacramento and City of West Sacramento in the future.

If an agreement is reached in the future with Union Pacific Railroad to allow at-grade streetcar crossings of the freight line between 19th Street and 20th Street, future extensions could be implemented to the CSU Sacramento campus via J Street and the UC Davis Medical Center via Broadway.

CHAPTER SIX

RECOMMENDED
STARTER LINE**Starter Line Description (Route A)**

The western terminus is in the City of West Sacramento in a median stop adjacent to Civic Center complex and Transit Center. From this location, the route travels east on West Capitol Avenue and Tower Bridge Gateway past Raley Field, and then crosses the Tower Bridge into the City of Sacramento. Once across the Tower Bridge, the route turns north on Third Street towards the Sacramento Valley Station (the planned site of the Intermodal Transportation Facility). Implementation of this route would require conversion of Third Street to two-way operation, for one block, from Capitol Mall north to L Street.

At the Sacramento Valley Station, the route joins existing light rail track on H Street just west of Fifth Street. The route continues east on H Street, turns south onto 7th Street, and then turns east onto K Street. This portion of the route travels on approximately 0.75 miles of existing light rail track.

The route continues on K Street east to 13th Street, where it then forms a one-way clockwise loop using 13th Street, J Street, 19th Street, and L Street. With the exception of K Street from 7th Street to 8th Street and 12th Street to 13th Street, the streetcar tracks would be located in existing travel lanes in mixed flow operation with vehicle traffic.

Operation of the Starter Line would be improved if LRT traffic on K Street could be shifted north to H Street. The potential for this realignment is shown on Figure 4 and should be discussed further with Regional Transit.

Starter Line Considerations

The **Starter Line** recommendation is based on evaluation of the following objectives as well as the overall Plan Purpose & Need statement.

- Select an initial route with the highest potential for success in the opening year
- Support economic revitalization in the Central City
- Connect to the Sacramento Intermodal Transportation Facility
- Connect to West Sacramento
- Route that best meets federal funding criteria for cost effectiveness, economic development effects and public transportation supportive land uses

Operating Characteristics

The streetcar is proposed to operate initially from 7:00 am to 11:00 pm on weekdays and weekends, with 15 minute headways during weekday day time operation and 20 minutes headways on weekday nights and weekends. Service hours can be increased and headways reduced as demand increases on the starter line.

Ridership Forecast

The route would have good ridership, with 4,500 to 5,800 daily boardings forecast for the opening year (estimated at 2015) and 7,000 to 8,500 daily boardings by 2035.

Table 3 provides a comparison of the opening day ridership forecast to those for other streetcar lines.

**Terminus Points**

West Sacramento Civic Center

K Street/19th Street

**Activity Center
Connections**

West Sacramento Civic Center

Raley Field

Sacramento River

Old Sacramento

Intermodal Terminal

Railyards Area

Downtown Plaza

K Street

Convention Center

Major Downtown Hotels

Theaters

Midtown

Figure 4: Starter Line



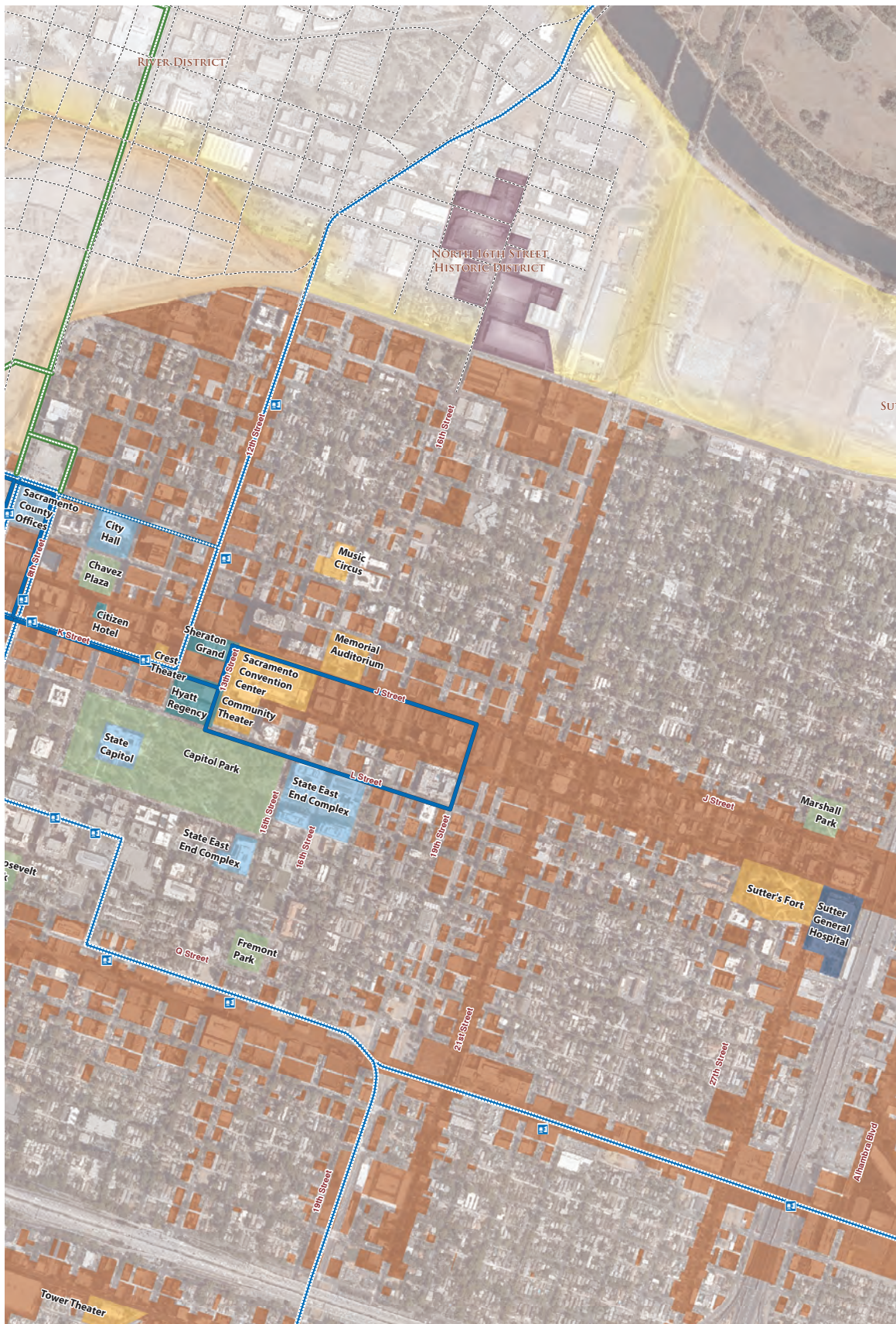


Table 3: Daily Ridership Comparison

Streetcar Line	Length (Track Miles)	System Boardings	Average per Track Mile
Sacramento (Starter Line)	6.6	4,500-5,800 (opening month)	680-880**
Portland (Starter Line)	4.8	4,982	1,040*
Tacoma	2.7	2,170	800*
Seattle	2.6	1,316	510*
Charlotte (Planned)	2.8	1,500	540**
Salt Lake City (Planned)	4	3,000	750**
Tucson (Planned)	7.8	3,600	460**
Atlanta (Planned)	2.7	2,600	960**
* Opening Month Actual ** Projected Opening Day			

Capital Costs

The estimated capital cost for the starter line is \$125-135 million. This cost includes track installation, stop improvements including sidewalk improvements where needed, the conversion of Third Street to two-way operation from Capitol Mall to L Street, train signaling and power systems, streetcar vehicles, a storage/light maintenance facility, professional services (i.e., soft costs), and a project reserve. The range of costs is primarily due to uncertainties associated with the development of a storage/light rail maintenance facility that would ideally be located in the Central City area. The following is a breakdown of the costs (in millions, 2011 dollars):

• Guideway and Track	\$18.5
• Stops	\$1.7
• Maintenance Facility	\$6-16
• Sitework	\$16.6
• Systems	\$16.1
• Right-of-Way	\$0.8
• Vehicles	\$27.8
• Professional Services	\$25.2
• Reserve	\$12.3

Annual Operating and Maintenance Costs

The annual operating and maintenance cost for the streetcar is estimated at \$4 million, based on the initial operating characteristics describe above. This estimate is also based on operating cost factors provided by Sacramento Regional Transit, based on the assumption that RT union drivers would operate the streetcar given the proposed joint use of a section of light rail track.

CHAPTER SEVEN

ECONOMIC BENEFITS

Introduction

The proposed Sacramento Streetcar starter line would create increased mobility for people wishing to travel between the West Sacramento Waterfront, Downtown Sacramento, and Midtown Sacramento. The line would link many key destinations, including West Sacramento's civic center and waterfront development areas; the Sacramento Intermodal Transportation Facility; Downtown Plaza shopping center; several major hotels; Sacramento County's main office buildings; the State of California's East End office complex; , major tourist and entertainment venues including the Convention Center, Memorial Auditorium, Community Center Theater and the Crest and IMAX theaters; and numerous residential developments. The streetcar line would also have connections at numerous locations with other modes of transit linking West Sacramento and Sacramento to the entire region. With so many destinations easily accessible, the preliminary opening year ridership projections for the starter line estimate average daily boardings of up to 5,800 per day.

The economic development benefits of streetcar systems can fall into several categories including: increasing sales in commercial establishments; stimulating investment in new development that contributes to an expanded property tax base; and stimulating increases in the value of existing property proximate to the streetcar line. Table 4 summarizes relevant data regarding potential economic benefits in the City of Sacramento from the proposed starter line.

This chapter explores these potential benefits based on findings from studies of other streetcar systems and the particular characteristics of the proposed Sacramento Streetcar starter line. While it is not possible to attribute 100 percent of economic benefits that are realized over time solely to the presence of streetcar service, it is nevertheless useful to consider the potential that the service area has to accommodate and benefit from new economic activity that could accompany new streetcar service. The economic data provided are based on the portion of the Starter Line located within the City of Sacramento only.

Table 4: Summary of Potential Starter Line Economic Benefits

Infill Capacity on Vacant Parcels

Within 1 Block	771,012
Between 1 and 3 Blocks	1,703,196
Total Infill Potential	2,474,208 building sq. feet

Net Increase in Assessed Value Associated with Infill Capacity on Vacant Parcels

Within 1 Block	\$382,000,000
Between 1 and 3 Blocks	\$544,000,000
Total Infill Potential	\$926,000,000 assessed value

Net Increase in Assessed Value on Underutilized Parcels

Within 1 Block	\$253,000,000
Between 1 and 3 Blocks	\$419,000,000
Total Redevelopment Potential	\$672,000,000 assessed value

General Increases in Value of Existing Development

Within 1 Block	\$112,000,000
Between 1 and 3 Blocks	\$45,000,000
Total Potential General Increase	\$156,000,000 property value

Increase in Annual Property Taxes

From potential development on vacant parcels	\$9,260,000
From potential redevelopment of underutilized parcels	\$6,720,000
Total Potential Increase	\$15,980,000 annually

General Increase in Taxable Sales in Existing Businesses

Within 1 Block	\$17,400,000
Between 1 and 3 Blocks	\$24,700,000
Total Potential General Increase	\$42,100,000 annually

Increase in Taxable Sales Due to Establishment of New Businesses

New Businesses on Vacant Land Within 1 Block	\$39,400,000
New Businesses on Vacant Land Between 1 and 3 Blocks	\$122,300,000
Total Potential Increase	\$161,700,000 annually

Increase in Local Sales Tax Revenues

General Fund discretionary sales tax rev. from General Increase	\$421,000
General Fund discretionary sales tax rev. from New Businesses	\$1,620,000
Total Potential General Fund Increase	\$2,038,000 annually
Additional Local Transportation Funds	\$509,000 annually
Additional Measure A Transportation Funds	\$1,019,000 annually

Note:

See text for details of assumptions.

Source: BAE, City of Sacramento, 2011.

Economic Effects of Streetcar Lines in Portland and Seattle

The combined effect of land use/development policies, new streetcar lines, and other infrastructure investments in Portland and Seattle resulted in significant level of economic growth – at a pace much greater than that for the regions as a whole – for the areas immediately surrounding those streetcar lines. The following are observations about the general economic effects of streetcars.

- Streetcars act with other urban amenities to make areas they serve attractive for new development
- Streetcars can help to spur increases in investment, property values, visitation, and spending
- Benefits of streetcars are maximized when they serve densely developed areas
- Streetcars help with branding an area and also put an area “on the map” for developers and businesses

The level of development that has occurred within ¼ mile of the Portland and Seattle streetcar lines is summarized at right.



Portland Streetcar Line

Over the past decade since the Portland Streetcar line was opened in 2001, more than \$3.5 billion in private investment has occurred along the route. This includes the addition of 10,000 new housing units.

Seattle Streetcar Line

Between 2004 and 2010, \$2.4 billion in private investment in development projects has occurred along the South Lake Union streetcar line in Seattle. This includes the addition of 6.5 million rental square feet of commercial space and 2,500 new residential units.

Existing Economic Conditions Along the Proposed Streetcar Starter Line

There is a well-established land use pattern along the proposed starter line in Downtown Sacramento and Midtown Sacramento. For the purposes of characterizing the area proximate to the proposed Starter Line, data has been compiled regarding property located within a primary catchment area of a one-block buffer of the streetcar line and a secondary catchment area within 1 to 3 blocks of the streetcar line. The primary catchment area includes property that faces directly onto the streetcar line as well as property up to one block away on streets that cross the streetcar line. The secondary catchment area includes properties that will not be directly visible from the streetcar line, but still generally fall within the ¼-mile distance that patrons are typically willing to walk in order to access transit systems. By providing data for these two different catchment areas, information is provided for the area most likely to realize substantial benefits from the proposed streetcar line. Economic benefits beyond 3 blocks would not be surprising but are much less predictable.

Existing Assessed Value of Property Along Starter Line

As summarized on Table 5, real estate with an assessed property tax value of over one billion dollars lies within one block of the proposed Starter Line. Additional property assessed at \$900 million lies in the secondary catchment area, from 1 to 3 blocks from the proposed line. These values may understate the market value of the affected property due to Proposition 13 limitations on the maximum annual increase in the assessed value of unsold property. As a result, many properties that have been held in the same ownership for extended periods of time will have assessed values well below market value.

**Table 5: Existing Economic Data (City of Sacramento portion only),
Proposed Streetcar Starter Line**

	Existing Conditions
Taxable Vacant Acres	
Within 1 Block	17.7
Between 1-3 Blocks	39.1
Taxable Vacant and Underutilized Acres	
Within 1 Block	29.9
Between 1-3 Blocks	71.6
Total Assessed Value	
Within 1 Block	\$1,116,130,567
Between 1-3 Blocks	\$895,854,776
Annual Taxable Sales	
Within 1 Block	\$173,526,617
Between 1-3 Blocks	\$495,017,526
<i>Sources: City of Sacramento, Sacramento County Assessor's Office, Fehr & Peers, BAE, 2011.</i>	

Currently Vacant and Underutilized Property

To facilitate the process of conducting the economic analysis for multiple potential streetcar routes, “vacant” or “underutilized” property was identified and counted using database information available from the Sacramento County Assessor’s office. Therefore, it includes only land located within the City of Sacramento, and does not include vacant land located along the West Sacramento portion of the Starter Line. Land meeting the definition of underutilized is relevant to this discussion because underutilized land is considered to have potential for redevelopment over time. Improvement to land value ratios (I/L ratios) of less than 1.0 indicate that the property is either developed at a relatively low intensity relative to surrounding properties (e.g., a small building on a large lot), or that existing buildings on the site are of relatively low quality or obsolescent. For both vacant and underutilized property, tax-exempt properties are excluded because it is presumed that the land is owned by a government or other tax-exempt entity and is utilized or will be utilized for a use that will not likely be supplanted by new residential or commercial development.

Vacant Land

As summarized in Table 5, there are approximately 18 acres of vacant land within one block of the proposed starter line. Most of this vacant land is located in the Railyards near the proposed Intermodal station streetcar stop, in the vicinity of 5th, 6th, F, and G streets. This vacant acreage excludes land in the Railyards Specific Plan area that is designated for uses other than residential or commercial development. Just over 39 additional acres of vacant land are identified in the areas that lie more than one block from the proposed starter line, but no more than three blocks away.

Underutilized Land

If a broader range of property is considered, including land meeting the definition of under-utilized, the acreage totals increase to just under 30 acres within one block of the proposed starter line and just under 72 acres within one to three blocks of the proposed starter line (including vacant acres identified above).

Existing Taxable Retail Sales

Retail sales tax revenue is an important measure of the level of commercial activity in a given area. The revenue is also one of the City of Sacramento's key sources of discretionary funding for various vital City services, such as police and fire protection, park maintenance, recreation programs, and other municipal functions. A substantial portion of the City's sales tax revenues are generated in the Downtown area, and of those revenues, significant amounts are generated in stores, restaurants, and bars that are close to the proposed streetcar starter line, and could thus benefit from the extra mobility that a streetcar would provide to customers wishing to access those establishments.

According to data from the State Board of Equalization compiled by City of Sacramento Economic Development staff, annual taxable sales in establishments within one block of the proposed starter line totaled approximately \$173.5 million in 2010. Within 1 to 3 blocks of the proposed starter line, nearly one half billion dollars in taxable sales occur annually. Although the Downtown Plaza shopping center is the single most visible generator of taxable sales in the area, the collective sales of the Central City's other shops, and eating and drinking places, make a major contribution to the overall sales figures.

Economic Development Potential Along Proposed Starter Line

As mentioned previously, projected ridership for the starter line is up to 5,800 boardings per day. This represents a substantial number of people who would be using the streetcar to travel between destinations such as home, workplace, shopping, dining and entertainment, and recreation venues. These riders can help create economic stimulus in a number of different ways:

- Some of these riders are people who otherwise would not have traveled to the area without the convenience of a streetcar. These new visitors represent the potential increased demand for consumer spending in the areas near the streetcar line.
- Some of these riders are people who already live or work in the area, or visit on a regular basis. The convenience of the streetcar may encourage them to spend more time in the area, or expand their destinations, or to come to the area more frequently than in the past, also increasing consumer spending.

The streetcar represents a new transportation amenity, which makes the area more accessible to other surrounding activity centers, thus making the area more attractive for investment. This could take the form of increased demand for downtown housing,

increased developer interest in the area, and increased demand for commercial real estate from tenants who value the additional transportation option offered by the streetcar.

This section primarily analyzes the potential for the areas around the proposed starter line to accommodate new economic activity that could be stimulated by the establishment of the streetcar line. Based on the experiences of other communities with modern streetcars, it is clear that streetcar systems can contribute to revitalization and economic development. The approach of this study is to identify the potential that the area around the proposed starter line has to accommodate economic development, and then to make some conservative assumptions about the potential stimulus effect on economic development in the area, in order to understand the potential order of magnitude of economic stimulus that a streetcar system may have in Sacramento.

Potential Infill Development On Vacant Parcels

Based on the Assessor's parcel data and the more detailed lot information from the Railyards Specific Plan, there are approximately 18 acres of vacant, taxable land within one block of the proposed starter line and an additional 39 acres of vacant, taxable land between one and three blocks distance from the starter line. Based on a relatively conservative average floor area ratio (FAR) of 1.0, the potential quantity of new development on these sites would be approximately 2.5 million square feet. The allowable FARs along the portion of the Starter Line in the City of Sacramento range from 0.3 to 15, although most of the route is located in the Central Business District where allowable FARs range from 3 to 15.

Another way of assessing the potential for new development is to consider the average assessed value of existing developed property (including currently underutilized property), which is \$22.2 million per acre in the 1-block range and \$14.7 million per acre in the 1 to 3 block range, and to calculate the difference from the average assessed value of vacant non-exempt property in the two areas (\$619,000 and \$787,000 per acre, respectively). If it is assumed that future development would be at least as valuable as these assessed valuation figures, the vacant parcels could accommodate new investment valued at approximately \$970 million, for a net increase of \$926 million.

Potential Redevelopment of Underutilized Parcels

After netting out the vacant parcels from the total vacant and underutilized land shown on Table 4, there are 12.2 acres of underutilized land within 1 block of the proposed starter line and 32.5 acres of underutilized land located between one and three blocks from the proposed starter line. If developed at the assumed 1.0 average FAR, the total building area on these sites would be approximately 1.9 million square feet. Because there is some existing assessed value associated with the underutilized parcels that would be replaced, it is necessary to estimate the net increase in value from redevelopment of underutilized parcels. Within the one block radius, the net increase would be approximately \$20.7 million per acre, and within the one to three block range, the net increase would be approximately \$12.9 million per acre, for a total potential increase in development value of about \$672 million.



Projected \$926 million increase
in assessed value of new
development on vacant parcels



Projected \$672 million increase
in assessed value of underutilized
parcels

Potential General Increases in Property Value

In addition to helping to stimulate new development, the stimulus effect of a new streetcar line could help to boost overall property values in the area. A synthesis of literature and reports prepared on the topic of the “value premium” or increase in property values associated with rail transit found that value premiums attributed to rail transit systems ranged between 1 percent and 100 percent or more. A review of seven studies that identified the property value premiums for office uses indicated that the median study identified premiums of 11-15 percent within 300 feet of a station/stop. A review of four studies of retail uses identified a larger range of property value premiums, ranging from 0-167 percent. To provide a conservative estimate of potential streetcar benefits in Sacramento, the assumption of a 10 percent general increase in property value within one block of the starter line was used. This figure was selected because with much of the land in Downtown Sacramento already developed, there is less potential for very large increases in value. Because Downtown Sacramento is already served by light rail transit as well as bus service, and commuter rail service, conservative assumptions are justified. Relative to the assumption for Downtown Sacramento property within one block of the proposed starter line, it is assumed that the effect would be diminished for properties between 1 and 3 blocks; thus an assumption of a five percent increase was assumed for those more distant properties.

Based on a \$1.1 billion existing assessed value within one block of the starter line, property owners located within one block of the streetcar line might collectively realize an increase in property value of \$111 million. The value increase for property within one to three blocks, which is currently assessed at almost \$900 million would be approximately \$45 million. These figures are understated, because they are calculated on the available assessed value information. The current market value of the property is most likely greater than the \$1.1 billion and \$900 million figures cited, which will tend to be below market value in many cases due to the effects of Proposition 13; thus, the property value increase calculated on these figures is understated, given the assumptions made.

Potential Increases in Property Taxes

The City of Sacramento and other government agencies that receive a share of property taxes generated within the City stand to benefit from increased revenues if the streetcar line stimulates new investment on vacant and underutilized properties near the streetcar line and/or stimulates general increase in property taxes. The total increase in ad valorem property taxes that could be generated if all vacant land is developed would be approximately \$9.3 million per year. The additional increase in property taxes that would be paid if all of the underutilized land is redeveloped is \$6.7 million per year. These figures are based on the increased value of the property, due to new development and/or redevelopment. Under Proposition 13, these types of improvements to property are subject to assessment at their market value. As discussed below, these figures do not ascribe any increase in property tax revenues to a general increase in the market value of existing property.



Projected \$16 million annual
increase in property taxes

Increase in Property Taxes Due to General Increase in Property Values

The example provided above illustrates the potential for the value of existing development to increase by approximately \$155 million as a result of the stimulus effect of a new streetcar line. However, because Proposition 13 limits increases on assessed property values to no more than two percent per year, the effects of the streetcar in the corridor on property tax revenues would be limited unless new investments are made. Still, the investment in the streetcar could help to sustain the statutory two percent increases in assessed values over time, and help to counter declines in assessed values that have occurred recently due to general market declines. In addition, to the extent that the stimulus effect of a streetcar could generate new investor interest in the areas surrounding the streetcar line, this could encourage long-time property owners who have enjoyed property tax assessments that are substantially below the market values of their properties to sell. This would trigger re-assessment of the property at higher levels reflecting current market values. This turnover of property could result in property tax increases that would substantially exceed the two percent annual rate for a given property. All other things being equal, the property tax revenue generating potential will be increased for property that is currently assessed at approximately \$2 billion in value.

Potential to Increase Taxable Sales

Similar to estimating the potential increase in property values from the stimulus effect of streetcars, it is also possible to estimate the potential order of magnitude of increases in taxable sales in the areas near the proposed starter line.

General Increase in Taxable Sales

As with the assessment of the potential general increase in property values that could be stimulated by the starter line, this analysis assumes a potential 10 percent increase in taxable sales for existing establishments located within one block of the starter line and an increase of 5 percent for establishments located between 1 and 3 blocks of the starter line. The projected 10 percent increase in taxable sales for existing establishments within one block and five percent for establishments between one and three blocks of the starter line would yield a total increase in taxable sales of approximately \$42 million per year. This would translate to \$421,000 in increased discretionary sales tax revenues to the City of Sacramento. Some of these expenditures would be attributable to the direct effects of streetcar riders making purchases, and some of these expenditures would be attributable to the indirect effects of attracting people to the area.

In addition to the City of Sacramento's local discretionary sales tax revenues, new taxable sales activity would generate benefits for the "Local Transportation Fund" which is a 1/4 cent sales tax collected statewide to support local transportation projects, and the Measure A 1/2 cent sales tax, which is used to fund transportation projects in Sacramento County. In addition to the \$421,000 City of Sacramento sales tax increase, the Local Transportation Fund increase would be \$105,000 and the Measure A increase would be \$210,000.



Projected \$42 million annual
increase in retail sales for existing
businesses

Increase in Taxable Sales Due to Establishment of New Businesses

In addition to a broad increase in taxable sales in existing businesses, the stimulus effect of a new streetcar line could encourage additional increases in taxable sales due to the establishment of new businesses. The potential sales tax generation on the vacant property near the proposed starter line is approximately \$162 million per year, if all of the vacant property is developed. This would translate to approximately \$1.6 million in new annual discretionary sales tax revenues for the City of Sacramento. Additional sales tax benefits associated with new development on vacant parcels would include \$404,000 for the Local Transportation Fund and \$808,000 in Measure A funds. Again, the net increase, as opposed to the re-allocation of sales from other locations within the City or County of Sacramento will ultimately depend on the mix of shoppers who are attracted to the area because of the direct or indirect effects of the streetcar line.



Projected \$162 million annual increase in retail sales for new businesses

Conclusion

Experiences from other communities with streetcars have identified substantial economic development effects associated with new streetcar systems, including increased property values, attraction of new investment and jobs, and increased business activity. The specific property data analyzed for the proposed Sacramento Streetcar starter line shows that there is a very large base of existing development and commercial activity within close proximity to the proposed starter line that can benefit from the stimulus effect that a streetcar line can create. Even making a relatively modest assumption about the stimulus affect of the streetcar on existing property values generates an estimate of increased value to owners of existing property along the streetcar corridor of over \$150 million. Similarly modest assumptions used to estimate potential increases in taxable sales in existing establishments along the corridor generated an estimated increase of \$42 million per year. In addition to a stimulus effect on existing development, this analysis has determined that the City of Sacramento has a very large capacity to accommodate new development and commercial activity on currently vacant or underutilized property located near the proposed starter line. This includes potential for up to 2.5 million square feet of new building space on vacant land, plus additional building space on underutilized property. The estimated value of this new development potential is approximately \$1.5 billion. Potentially, an additional \$162 million in taxable sales would be associated with this amount of new development. Thus, even if only a small percentage of the development potential is realized and attributed to the presence of a new streetcar system, the economic benefits would be very large.

This analysis shows that the ingredients are in place for the City of Sacramento to capitalize on the potential stimulus effects of the proposed streetcar line, benefiting not only existing property owners and businesses, but also attracting new private investment to leverage public investment the system.

CHAPTER EIGHT FUNDING

This chapter describes the funding options that are available for both the capital and annual operating and maintenance costs identified for the starter streetcar line in Sacramento. A discussion of the revenue potential and implementation issues is also provided.

A mix of funding from multiple federal, state, and local sources would be required to implement the starter line project. This chapter includes a summary of the funding approach that other west coast cities have used to fund their initial streetcar lines.

During the past ten years, three west coast cities have completed an initial streetcar line: Portland, Oregon, and Seattle, Washington, while a third in Tucson, Arizona, has an initial line under construction at this time. Although each streetcar line is as unique as the city in which it is located, there are similarities between these cities and Sacramento with respect to the general length and location of an initial streetcar line. There are also similarities in regard to the array of potential capital funding sources that were considered in Portland, Seattle, and Tucson, and those that have been suggested for consideration in Sacramento.

Capital Funding

The estimated capital cost for the 3.3 mile starter line is \$125-135 million. The capital cost of two streetcar projects that are currently under construction are the Tucson starter line (3.9 mile, \$191 million project) and the Portland Loop line (3.3 mile, \$148 million).

Overview of Funding Sources

Federal Sources

The most likely source of significant federal funds for the streetcar is competitive grant programs. The Small Starts program administered by the Federal Transit Administration (FTA) is the primary source suggested for the City of Sacramento. Streetcar projects in cities such as Tucson and Salt Lake City have successfully competed for funding under other federal programs such as the Transportation Investment Generating Economic Recovery (TIGER) and Urban Circulator programs established as part of the American Recovery and Reinvestment Act (ARRA) stimulus. The Fiscal Year 2012 Transportation Appropriations bill approved by the House of Representatives includes \$500 million for a fourth round of the TIGER program in 2012.

Small earmarks were obtained for several streetcar projects implemented over the past decade. Although the future of this funding source is uncertain, opportunities may arise to obtain dedicated funding for the streetcar project in future federal appropriations bills or the pending reauthorization bill.

State Sources

The only significant source of state funding that could be applied for the streetcar project is the Regional Improvement Program element of the State Transportation Improvement Program (STIP). This is a highly competitive capital program with funding awarded every two years through the bi-annual SACOG Regional Funding Program Process. New funds are typically programmed in the 4th and 5th years of the five-year program. SACOG issues a call for projects every two years and develops a recommended program of projects for the Regional Transportation Improvement Program that is approved by the SACOG Board of Directors and passed on to the California Transportation Commission (CTC) for final adoption as part of the STIP.

The level of STIP funding available in the SACOG four county region for the 2011/12 funding round is \$60 million. SACOG pools the STIP funds that are available in the four county area (Sacramento, Yolo, Sutter and Yuba) and awards funds to projects that have high regional priority and which over time provides for equity among the member jurisdictions. STIP funds were programmed for light rail and other transit projects, including the Downtown/Riverfront Streetcar Study, in both Sacramento and Yolo Counties in past cycles.

Regional Sources

SACOG awards pass-through formula funds from two federal programs, the Regional Surface Transportation Program (RSTP) and the Congestion Mitigation & Air Quality Program (CMAQ), through the bi-annual SACOG Regional Funding Program process. These funds have been used to support a broad range of transit and transportation projects throughout the SACOG region.

The 2011/12 funding round will allocate \$27.5 million of RSTP funds and \$26 million of CMAQ funds to projects in the four county SACOG region. Applications for the 2011/12 cycle of funding provided through these regional programs (i.e., SACOG's Community Design, Bicycle and Pedestrian, and Regional/Local programs) were due in August of 2011 and scheduled for SACOG Board approval in December 2011.

Completion of an alternatives analysis and NEPA prior to the August 2013 deadline could position the streetcar project well to compete for RSTP/CMAQ funds in the next round for design and construction.

Local Sources

Numerous local funding sources have been used to fund streetcar projects over the past two decades. The most significant of the local measures used by other cities include parking fee increases, streetcar assessment districts, tax increment financing, and local transportation sales tax program funds.

Other local sources that have been used - in smaller funding levels - include private developer contributions, city general fund revenues, funds from sales of public lands, utility fund contributions, transit agency contributions, and contributions from institutional property owners (i.e., university, hospital).

Experience in Other Cities

Portland, Oregon

Portland was the first US city to construct an entirely new streetcar line using modern streetcar vehicles in this century. The initial line was opened in July, 2001, and links the higher-density mixed-use neighborhood of Northwest Portland through the Pearl District neighborhood, the west edge of the City's downtown, and a terminus south of Portland State University, on the south side of downtown. Two subsequent extensions of this line, totaling more than a mile in length, were opened later in the last decade. Ridership on the current 3.9 mile line is approximately 12,000 rides per average weekday, a total that is considerably beyond expectations established during the planning phase of the project.

The initial Portland segment was 2.4 miles (4.8 track miles) in length and operates almost entirely within public street rights-of-way, with north- and south-bound routings paralleling one another on separate streets. The Portland streetcar fleet has now grown to eleven vehicles that are maintained and stored in a facility that utilizes a footprint beneath a freeway structure.

The Portland streetcar was not initiated and constructed by the regional transit agency (TriMet) or the City of Portland, but rather was accomplished by a non-profit organization (Portland Streetcar, Inc., or PSI) that was specifically created for the purpose of implementing and then managing the streetcar system. PSI provides operating policy recommendations, the City of Portland supplies management personnel, TriMet provides operators and mechanics under contract with the City of Portland. The capital cost (which includes "soft costs") breakdown for the initial streetcar segment in Portland is provided below.

Table 6: Capital Funding Sources - Portland Streetcar, Initial Segment (2001 costs)

Source	Cost (Millions)	% of Total
Bonds – City Parking Structures	\$ 28.6	50.3 %
Local Improvement District (LID)	\$ 9.6	16.9 %
Tax Increment Financing (TIF)	\$ 7.5	13.2 %
City General Funds	\$ 5.5	9.7 %
Tri-Met (Transit District) (US DOT)	\$ 5.0	8.8 %
US HUD Grant	\$ 0.5	0.9 %
Misc.	\$ 0.2	0.4 %
TOTAL	\$56.9	
<i>Source: Portland Streetcar, Inc.</i>		

The *City Parking Structure Bonds* were based upon an increase in the parking rates in city-owned parking garages of 20 cents.

The rules for assessing property owners for a specific capital purpose vary from state to state. In Oregon, a Local Improvement District (LID) was created in order to provide financial support for the streetcar. This was accomplished through a very proactive effort undertaken by streetcar supporters who approached property owners and convinced a sufficient number of them to agree to the District approach to financing.

The District was defined as generally a swath of property that paralleled the streetcar line by two to four blocks. Within this linear area, properties were divided into two zones, zone A, or those within 200 feet (the common block size in the downtown Portland area) and those beyond 200 feet but within the boundary of the defined zone. A higher rate was assigned to the near zone, a lower rate to the second zone, and properties facing directly onto the streetcar line were levied with an additional (\$30 per foot) assessment. The LID was defined for a 20-year period, allowing a loan to be secured against this future revenue flow. The assessment for a \$1 million commercial building located immediately on the streetcar line, with 100 feet of frontage, is \$734 in annual payments over the 20-year term, or an up-front cost of \$14,700.

The Portland LID raised a total of \$8,320,000 for the capital financing of the initial segment. Additional funds were contributed by institutional property owners (Portland State University and a major hospital) that raised the total to the \$9.6 million.

Tax Increment Financing (TIF) is a financing tool available in Oregon, as well as in California (and Washington state), and essentially allows financing to be created through debt borrowed against the future growth of property taxes within a defined area (known as redevelopment areas in California and urban renewal areas in Oregon). In Portland, an existing renewal area allowed this funding source to be employed.

City General Funds - The Portland City Council approved the use of \$5.5 million in City General Funds for the starter line.

US DOT funding provided less than 10% of the capital financing for the initial Portland streetcar segment, and this relatively small infusion of federal transportation assistance was an earmark that was transferred to TriMet to use for bus purchases and TriMet paid streetcar the like amount of money. The project also received a HUD grant through an earmark.

The miscellaneous source was \$160,000 in funds provided by Sound Transit for assistance provided by Portland in its railcar procurement process. These funds were dedicated to the streetcar project.

Seattle, Washington

The initial streetcar line, the South Lake Union (SLU) line, which followed the Portland experience by five years, has as many similarities as differences with Portland. The 1.3 mile line was opened in December, 2007, and links an area known as Westlake, on the north edge of downtown Seattle, with a terminus near the Hutchinson Cancer Research center,

just northeast of the south tip of Lake Union. Ridership on the SLU has steadily increased, and in the summer of 2011 was averaging more than 3,000 riders per weekday.

Similar to the Portland streetcar story, the development of the Seattle SLU line was initiated and facilitated by supporters and advocates in the 3-4 neighborhoods served directly or nearly directly by the line. In particular, major property owners, envisioned a streetcar line, the service it would provide, and the change in urban character that it would foster, in advance of a recently adopted city plan (that foresaw a biotech and medical concentration in the corridor). These property owners reached an agreement to create a Local Improvement District (LID) which would eventually provide nearly one-half of the capital financing for the SLU (\$25.7 million).

The capital cost breakdown (which includes “soft costs”) for all components of the South Lake Union streetcar line in Seattle is provided in Table 7.

Table 7: Capital Funding Sources – Seattle SLU Streetcar Line (2007 Costs)

Source	Cost (Millions)	% of Total
Local Improvement District (LID)	\$ 25.7	45.6 %
Federal (US DOT)	\$ 14.9	26.4 %
Sale of Public Lands	\$ 8.5	15.1 %
Municipal Utility	\$ 4.3	7.6 %
State of Washington	\$ 3.0	5.3 %
TOTAL	\$56.4	
<i>Source: City of Seattle, SeaDOT</i>		

The Federal funding in the SLU line was drawn from a number of different Federal Transit Administration resources, including both annual funding from the Section 5307 (Urbanized Area Formula Program), and Section 5307 Competitive grant funding. In addition, the project benefitted from congressional earmarks. The various US DOT grant resources require a non-federal match and this funding, approximately \$3 million, was provided by the State of Washington.

An innovative approach taken to capital financing, in addition to the LID, was the Sale of Public Lands, or the disposition of surplus city-owned land in the corridor. This was in addition to the property swap that allowed the SLU maintenance facility to be located on a parcel proximate to the operating line.

The \$4.3 million in Seattle municipal utility revenues were provided to fund the relocation of underground utilities required for the streetcar project. The State of Washington provided \$3 million in funding for the starter line.

Tucson, Arizona

Tucson is constructing an initial streetcar line (“Tucson Modern Streetcar”) that will be 3.9 miles in length when completed. It will connect a number of major activity centers including the University of Arizona, the main business district, and a shopping and entertainment district. The initial line, estimated to cost \$196.8 million, is part of a \$2.6 billion transportation measure that was approved by County voters in 2006. The Plan envisions further investments in streetcar lines. (The line that is under construction should not be confused with the ‘Old Pueblo’ trolley line, a shorter line that operates vintage streetcar service in central Tucson.)

The source of this information noted that some specific funding resources remain outstanding, or pending.

Table 8: Capital Funding (Partial) – Tucson “Modern Streetcar” Line (2011 costs)

Source	Cost (Millions)	% of Total
Federal (US DOT) (TIGER)	\$ 63.0	33.0 %
Federal (US DOT) (New Starts)	\$ 6.0	3.1 %
Federal (US DOT) (FHWA)	\$ 15.0	7.9 %
Transit District (RTA)	\$ 88.0	46.1 %
Public Utility	\$ 11.0	5.8 %
Private Developer Contribution	\$ 3.2	1.7 %
City of Tucson	\$ 4.6	2.4 %
TOTAL	\$190.8	
<i>Source: Tucson Modern Streetcar - Community Liaison Group</i>		

In contrast to the Portland and Seattle projects, the Tucson capital funding plan offers a different approach to streetcar financing since it relies much less upon private resources. The reliance upon federal assistance is much greater, approaching 50% of the total estimated capital cost of approximately \$197 million. This approach to streetcar financing is being replicated in many US cities, including Portland, where a significant addition to the existing system, the eastside loop, is being funded with a commitment of \$75 million in federal assistance, in a project with a total capital cost of \$132 million. (This cost figure for the Portland project does not include an additional increment of vehicles, funded separately from the loop project, and costing approximately \$20 million.)

Of note with regard to the federal assistance, the Tucson project went through the “New Starts” process at the Federal Transit Administration, which led to the \$6.0 million award. In addition, the project competed successfully in the first round of TIGER funding, an economic stimulus funding source administered by US DOT in which competition for a wide array of transportation projects of all kinds across the nation took place. Finally, the FHWA funding was for a bridge that the streetcar line will utilize.

The \$11 million in Tucson Municipal Improvement District (MID) tax revenues were provided to fund the relocation of underground utilities required for the streetcar project. The \$3.2 million private contribution was provided by a new 14-acre, mixed-use development project. The Tucson City Council approved the use of \$4.6 million in City General Funds.

Revenue Potential and Implementation Issues

The federal Small Starts program is highly competitive and will require that the City prepare an Alternatives Analysis (AA) and subsequent environmental document following FTA guidelines. The adoption of a Locally Preferred Alternative (LPA), at the completion of the AA process, will allow the submission of a formal Small Starts application. This can occur before the environmental process is completed.

It is recommended that the City of Sacramento work in partnership with the City of West Sacramento, RT, and the Yolo County Transportation District (YCTD) to pursue a federal small starts grant for the starter line because multi-jurisdictional collaborations are more competitive for discretionary funding programs. The balance of the project cost would be provided by a combination of state, regional, and local funds. It is recommended that the above partnership work collaboratively to pursue state and regional funds. The balance of the remaining funding needed, after any revenues generated from state or regional sources, would be provided by the two cities based on their fair share of the project costs.

Table 9 provides an assessment of the revenue potential and implementation issues associated with the state, regional, and local funding sources described.

Annual Operations & Maintenance Funding

The annual operating and maintenance cost for the streetcar is estimated at \$4 million.

Overview of Funding Sources

There are no current federal, state, or regional programs that would provide new and/or additional funds to support the annual operating and maintenance costs for a streetcar line.

Local Sources

A limited number of local funding sources have been used to fund streetcar projects in other cities. The most significant of the local measures used by other cities include transit district contributions, sales tax revenues, parking revenues, private sponsorships, and fares.

Other potential local funding sources include a benefit assessment district, a hotel assessment, employer payments, and advertising.

Experience in Other Cities

Portland, Oregon

The annual operating and maintenance costs for the Portland starter line was provided largely from two funding sources: \$2.1 million from the Tri-Met transit district and

Table 9: Capital Funding Assessment

Source	Funding Potential	Implementation Issues
Federal - Small Starts Program	\$\$\$\$	Competitive Grant Program
Federal - Earmarks	\$	Limited opportunities in current fiscal environment
State - STIP	\$\$	Competitive grant program. Funds available in 5-7 years in best case scenario
Regional - SACOG Programs	\$\$	Competitive grant program. Funds available in 4-6 years in best case scenario
Local - Parking Fee Increase	\$\$\$	Source being considered to raise revenue for other projects
Local - Assessment District	\$\$	Requires property owner approval
Local - Tax Increment	\$	Not currently a viable source given recent State legislation
Local - Sales Tax Program	\$\$\$	Requires voter approval of new sales tax measure
Local - Private Developer	\$	Requires approval of new development fee program by City Council
Local - City Contribution	\$	Limited option given current economy and other needs
Local - Sale of Public Lands	\$	Source being considered to raise revenue for other projects
Local - Utility Contribution	\$	Limited option given utility infrastructure needs
Local - Transit Agency	\$	Limited option given other RT and YCTD needs
Local - Institution Contribution	\$	No major institution located on starter line
\$: \$0-5 million, \$\$: \$5-15 million, \$\$\$: \$15-30 million, \$\$\$\$: \$30-75 million		

\$1.3 million from parking meter revenue. The balance of the annual operating and maintenance costs are funded by \$215,000 in private sponsorships and \$80,000 in passenger fares.

It should be noted that much of the Portland streetcar line falls within a “fare free” zone in the Downtown District. This explains why such a small portion of the operating and maintenance costs are funded by fares.

Seattle, Washington

The annual operating and maintenance costs for the Seattle starter line was provided largely from two funding sources: \$2.0 million from the local transit district and \$0.5 million from private sponsorships. The balance of the annual operating and maintenance costs are funded by \$77,000 in passenger fares.

Tucson, Arizona

The annual operating and maintenance costs for the Tucson starter line are being funded primarily by a local sales tax program. Revenues from passenger fares will make up the balance.

Revenue Potential and Implementation Issues

The most likely near-term source of annual operating and maintenance revenue for the Sacramento starter line is a combination of parking revenues, transit district contributions, private sponsorships, and fares. The use of revenues from a new sales tax program, which requires voter approval, is likely a longer-term option.

It is recommended that the City of Sacramento work in partnership with the City of West Sacramento, RT, and the Yolo County Transportation District (YCTD) to determine a fare and sponsorship strategy for the starter line. The approach to fares could involve one fixed fare (i.e., \$2 is a typical one-way trip cost for other streetcar lines with a fixed fare), a distance-based fare, or a “fare free zone” in the core with fares for longer distance trips originating outside the zone (i.e., similar to the City of Portland’s fare structure).

The balance of the annual operating and maintenance costs, which would vary depending on decisions related to fare structure and sponsorships, would be provided by local funds provided by the two cities and transit agencies based on their fair share of the project costs. This could involve a reallocation of existing funds controlled by the City of Sacramento and/or Regional Transit, development of new revenue sources, or a combination of the two.

CHAPTER NINE

NEXT STEPS

This Streetcar Plan identifies a network of streetcar lines for the City of Sacramento, identifies how those lines could extend into adjacent neighborhoods and communities, describes a recommended starter line, identifies the economic benefits of the starter line, and describes funding sources that could be used to implement the starter line.

The next step in the process is to initiate the federal planning process that is required to compete effectively for the New Starts or TIGER grant programs. This involves preparing a formal Alternatives Analysis (AA), in coordination with the Federal Transit Administration (FTA). The AA will evaluate the starter line and alignment/stop location alternatives to establish a final, more detailed alignment. This process would allow for the ultimate adoption of a Locally Preferred Alternative (LPA), an important step in the federal transit planning process for fixed guideway projects such as streetcar lines.

While the Alternatives Analysis is being prepared, the City of Sacramento and its project partners (City of West Sacramento, RT, and YCTD) should develop a detailed funding and implementation plan. A key element of this step involves formalizing the local funding sources that would match a federal grant. The development of an implementation agreement, such as an addendum to the current Memorandum of Understanding between the cities of Sacramento and West Sacramento, is another important step in documenting the responsibilities of each of the project partners and formalizing the desired organizational structure.

The preparation of both federal and state environmental documents, which includes the preparation of preliminary engineering plans for portions of the starter line, is another key step in the process. Depending on the availability of funding, the environmental stage could either be concurrent with the AA preparation or follow. Completion of the environmental documents is an important step in making the project “shovel ready”, and thus more competitive for grant funding.

The identification of a maintenance facility location within the Central City is another key step in the process. Alternative locations should be identified, particularly those under public ownership that could be acquired at little or no cost to the project. Once the environmental process is completed, acquisition or transfer of properties can be initiated.

Once the funding is in place, and environmental studies and design plans are completed, construction of the Starter Line is anticipated to take 18 months.

ATTACHMENT A

Community Advisory & Business Advisory Committee Participation



ATTACHMENT A - **Community Advisory & Business Advisory Committee Participation**

This attachment lists organizations that were invited to participate and/or attended meetings.

Community Advisory Committee

50 Corridor Transportation Management Association	Paratransit Inc.
Alkali and Mansion Flats Neighborhood Association	RAMCO
Boulevard Park Neighborhood Association	Regional Transit
Breathe California of Sacramento - Emigrant Trails (BCSET)	Regional Transit Mobility Advisory Committee
Breathe Sacramento	SACOG
Caltrans	Sacramento Area Bicycle Advocates (SABA)
Caltrans, District 3	Sacramento Convention and Visitor's Bureau
Capitol Area Development Authority (CADA)	Sacramento Housing and Redevelopment Agency (SHRA)
City of West Sacramento	Sacramento Metropolitan Air Quality Management District (SMAQMD)
David S. Taylor Interests	Sacramento Municipal Utility District
Department of General Services (DGS)	Sacramento Old City Association (SOCA)
Disability Advisory Commission	Midtown Neighborhood Association (MNA)
East Sac Chamber of Commerce	Sacramento Regional Transit (RT)
East Sacramento Improvement Association	Sacramento State University
ECOS	Sacramento Transportation Management Association (STMA)
Friends of Light Rail & Transit	Sacramento Zoo
Greater Broadway Partnership	Southside Park Neighborhood Association
Hatch Mott MacDonald	State Parks
Land Park Community Association (LPCA)	State Parks / RR Museum
Marshall School New Era Park	Sutter Health
McKinley East Sacramento Neighborhood Association	UC Davis Medical Center
Mercy General Hospital, Catholic Healthcare West (CHW)	Unger Construction
Midtown Neighborhood Association	Upper Land Park Neighborhood Association
Natomas Chamber of Commerce	WALK Sacramento
North Natomas Transportation Management Association	Yackzan Group, Inc.
Oak Park Farmers Market	YCTD
Oak Park Neighborhood Association Board	
Old Sacramento Historic Foundation	



Business Advisory Committee

Sacramento City Council
Old Sacramento Business Association
Developer
Downtown Sacramento Partnership
David S. Taylor Interests
Inland American Business Manager & Advisor, Inc.
Dan Ramos, Developer
Jones Lang LaSalle
Sacramento River Cats
Rubicon Properties
Downtown Sacramento Partnership
Fulcrum Property
Sacramento Metro Chamber of Commerce
Old Sacramento Business Association
Sacramento Metro Chamber of Commerce
Downtown Sacramento Partnership
SACOG
River District
Capitol Area Development Authority (CADA)
Point West TMA
Midtown Business Association
Midtown Business Association
Councilmember
River District
Sacramento Convention and Visitor's Bureau
Greater Broadway Partnership



ATTACHMENT B

Comments from Community Members and Organizations





Sacramento Streetcar Planning Study
Community Workshop
November 10, 2011
Project Comments

Comments on Initial Streetcar Starter Route	
1.)	Improve streetscape of 3 rd street at west side. Include cross walks, shade and connections to Old Town.
2.)	Tell Howard Chan how many parking spaces you need to remove for stations/project. DO NOT SELL THESE SPACES TO FUND THE ARENA! I'd hate to have to buy out the meters for 30 years to build the project.
3.)	Focus on highest ridership, most air quality friendly routes.
4.)	Do not block/hinder express bus services from collar/out of county providers; work with them.
I am in favor of the initial starter link plus the "east" extension to Sac State. Ultimately this "hi-frequency" line could and should replace Regional Transit's 30 & 31 bus lines. Over the long term, it costs less to operate rail than it does bus. I verified this through Rosemary Covington, the Assistant General Manager of Planning and Transit System Development at the Sacramento Regional Transit District.	
Don't include removed parking for streetcar in any potential arena revenue deal	
Midtown at least through 19 th on J and L, needs to be on initial route in order to get the ridership Midtown can provide, it is necessary.	
Midtown (Handle District and MARRS) should definitely be part of first phase, connect Downtown to Midtown	
Please include Midtown in first phase (to 19 th street)	
19 th street in phase 1	
[East Phase] H and K Streets may be better streets moving east to generate development along K	
[East Phase] East of Convention Center route the line up K with a turn-back at 19 th . The proposed J/L couplet adds transit time and K street is more of a destination. Also, from K Street the passenger traffic would be more symmetrically distributed between J and L.	
[South Phase] 15 th and 16 th are heavy traffic thoroughfares better streets south may be 9 th , 18 th , 19 th .	
I believe that it would be more economically beneficial if the streetcar initial route had a few duplicate services with light rail specifically with central core (shared rails) and if the line was extended to Broadway running from 3 rd street to 16 th or 19 th from the east turning north to form a central core loop. The density is already in place. The loop could extend across the river to West Sac (build the Broadway Bridge)	

Comments on Streetcar Network
Serve East Sac instead of R Street
Serve Stockton Boulevard and south Sacramento
Midtown should be included in initial rail route
There must be a stop AT (not a block away) the railroad station
Route the cars up K street east of Convention Center
The streetcar, which I support, should go south down Broadway, down 3 rd street as soon as possible.
Once the starter line is complete, it is more important to connect to Sac State, Arden Fair Mall, the west to come back Downtown; not as important to go to Broadway.
When the Rail yard turns into a museum have light rail go into it for tourism and regular traffic use existing rails and this will create more jobs.



Sacramento Streetcar Planning Study *Project Comments*

December 5, 2011

I have some recommendations for very brief edits to the "Sacramento Streetcar History" on page 10 of the draft planning study.

Sacramento Streetcar History

Completion of the transcontinental railroad in 1869, with Sacramento as its western terminus, brought with it rapid population growth and the need for a transportation system to support it. A network of streetcars served that purpose for more than 75 years. The first **permanent** streetcar line began operation in Sacramento in 1870. The downtown rail station was the hub of the streetcar system. The **Central** Pacific Depot, built in 1879 to replace the original depot at Front and K streets, was the downtown terminus for **[deleted: all seven] many** streetcar lines.

The earliest streetcars were horse-drawn. The first electric trolley line was opened in 1890.

Electric streetcars were faster, simpler to maintain, and cheaper to operate. The streetcar system became part of PG&E in 1906. As the City's population continued to grow, real estate developers partnered with the streetcar companies to serve new neighborhoods.

These lines served the "streetcar suburbs" of Oak Park, Curtis Park, East Sacramento, and Land Park. These new streetcar lines also served major recreational destinations such as

McKinley Park, Joyland in Oak Park, Edmonds Field Baseball Park, and the California State Fairgrounds **[deleted: at its original location.]** PG&E sold the streetcar system to Pacific City Lines in 1943, due to a federal law restricting the utility's ability to own a streetcar company. The streetcar line closed in 1947.

Notes: Sacramento briefly had a streetcar system in 1860-61, destroyed by the 1861-62 flood, and it was not replaced until 1870 when most of the street raising was done, allowing permanent tracks to be built in the new streets.

The 1879 arcade depot was still the "Central Pacific" depot--it was not until years later that the system fully adopted the "Southern Pacific" name. The 1925 map shows the current 1925 Southern Pacific depot, not the 1879 arcade depot.

Not all of the 1925 streetcar routes stopped at the Southern Pacific depot--four went to the Depot, three to the Shops, and several didn't run near the Depot at all.

Real estate developers did partner with streetcar companies, starting in the 1880s--but there was more than one company (off the top of my head, there were at least five.)

The streetcars did serve the original California State Fairgrounds at its original location at 20th and H Street, but I assume from context that you're talking about the Stockton & Broadway location, which was not the original location.

I suggest the edits above to keep things concise (which you have done an excellent job on, by the way) and factually correct.

I am very impressed with the report draft; it is an excellent piece of work.

William Burg



Sacramento Streetcar Planning Study
Project Comments

December 6, 2011

Hi Gladys,

Interesting meeting about the streetcar proposals. I'd like to submit these comments for your review.

I support Route A as the best starter line. The connection to West Sacramento is good way to tie Sacramento to a vibrant community that is making great strides improving the river and planned terminus area.

I would like to suggest that the plan to run a streetcar on Broadway in the future also consider weekend trips to Land Park. It may be that the weekday businesses on Broadway support Monday – Friday ridership but if the number decreases on weekends, the same cars could be used for recreational travel to Land Park.

The Sacramento Zoo averages 500,000 visitors annually who could be supporting Broadway businesses if they planned their day for a trip to the Zoo, (and Fairytale Town, Funderland, ball games, etc) and then took a ride to Broadway for shopping or lunch or dinner.

Thank you.

Mary

Mary Healy
Director
Sacramento Zoo
(916) 808-5886

December 7, 2011

Gladys Cornell
AIM Consulting
2523 J Street Suite 201
Sacramento, CA 95816
gcornell@aimconsultingco.com

Subject: Comments on Sacramento Streetcar Study

Dear Ms. Cornell

Thank you for involving the Sacramento Air Quality Management District (the District) as a stakeholder in this important project. The streetcar has the opportunity to change the dynamic of West Sacramento and Central Sacramento to be more supportive of air quality goals. The District has the following comments on the plan:

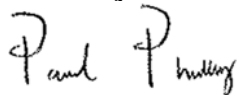
- 1) Right-of-way: The Study should include provisions to identify and protect the necessary right-of-way to ensure the project can be implemented. This includes parking spaces that need to be removed for stations as well as public lands necessary to access the intermodal station.
- 2) 3rd Street Improvements: The project should include provisions to make significant improvements to the pedestrian environment on 3rd Street, specifically to crossings as well as the west side.
- 3) Accessibility: The District recommends choosing vehicles that would not need lifts to accommodate the disabled. Low-floor level boarding that accommodates all users without need for assistance or moving parts speeds boarding and alighting, reducing headways and makes transit more welcoming to all patrons.
- 4) Operations: The project includes prominent comparison to the Portland Streetcar. That particular streetcar is fully integrated into the fare system and also includes a fare-free zone in Central Portland. The study should consider how a fare-free system would impact ridership.

In addition, the streetcar connects prominent venues, notably Raley Field and the Railyards. Should the streetcar require fares, it should consider allowing tickets to an event act as fare media. It would allow patrons of Raley field to

park in the Railyards and vice versa, reducing cruising for parking and congestion by spreading out the destination for the vehicles.

The District staff thanks the City for the opportunity to cooperate on this project and any questions or future correspondence may be sent to me.

Sincerely,

A handwritten signature in black ink that reads "Paul Philley". The signature is written in a cursive, slightly slanted style.

Paul Philley

Associate Air Quality Planner / Analyst

Sacramento Metropolitan Air Quality Management District

777 12th Street, 3rd Floor

Sacramento, CA 95814

pphilley@airquality.org

916-874-4882

C: Larry Robinson, Program Coordinator, SMAQMD



Friends of Light Rail & Transit
c/o 1818 L Street, Suite 615
Sacramento, CA 95811
916.447.1960

December 8, 2011

Fedolia "Sparky" Harris
Sacramento Streetcar Study Project Co-Manager
City of Sacramento, Transportation Department
915 I Street, 2nd Floor
Sacramento, CA 95814

Dear Mr. Harris:

On behalf of the Board of Directors of Friends of Light Rail & Transit (FLRT) I would like to thank you and the team for presenting information on the streetcar project at our October meeting. The Board enthusiastically supports the planning effort and the preliminary recommendations (presented at the meeting).

As you know, we have been active in the streetcar discussion and planning process for the last two decades and we are more excited than ever to hear that this project is moving forward! Further, we are hopeful that the City project team will now work closely with Yolo County proponents, and all stakeholders, to develop an implementation strategy.

The FLRT Board welcomes the opportunity to participate in future outreach and planning efforts. In addition, please feel free to ask us for assistance. You can contact us through our Executive Director, Seann Rooney, at (916) 447-1960, or by email at seann@rooneytategroup.com.

Sincerely,

Dain Domich
President, Board of Directors

Cc: Mayor Kevin Johnson, City of Sacramento
Mike Wiley, General Manager, Sacramento Regional Transit District
Maureen Pascoe, Streetcar Planning Coordinator, City of West Sacramento

(support letter circulated electronically only)



December 8, 2011

Fedolia "Sparky" Harris
Sacramento Streetcar Study Project Co-Manager
City of Sacramento, Transportation Department
915 I Street, 2nd Floor
Sacramento, CA 95814

Dear Mr. Harris:

On behalf of the Board of Directors of the Handle Business Improvement District I would like to express our support of the streetcar planning effort and the preliminary recommendations. In particular, I would like to thank you for including portions of the Midtown community, and the Handle District in particular, on the starter line.

We are eager to learn more and to participate in future planning endeavors. Although the implementation strategies are just beginning to be explored, we hope that you will include us in the discussion. I think we can add value to the process.

Once again, feel free to ask us for assistance. You can contact us through our Executive Director, Seann Rooney at (916) 447-1960, or by email at seann@rooneytategroup.com.

Sincerely,

Jimmy Johnson
President, Board of Directors

Cc: Robert K. Fong, District Four City Councilmember
Mike Wiley, General Manager, Sacramento Regional Transit District

(support letter circulated electronically only)



SACRAMENTO AREA BICYCLE ADVOCATES

909 12th Street Suite 116 – Sacramento, CA 95814 – (916) 444-6600 – www.sacbike.org

December 12, 2011

Gladys Cornell, AIM Consulting
2523 J Street Suite 201
Sacramento, CA 95816
E-mail: gcornell@aimconsultingco.com

Subject: Draft Sacramento Streetcar System Plan

Dear Ms. Cornell:

Sacramento Area Bicycle Advocates (SABA) greatly supports the efforts of the cities of Sacramento and West Sacramento to develop a streetcar system to broaden the transportation options in our area. Thank you for the opportunity to comment on the draft system plan that was distributed and discussed at the Stakeholder Advisory Committee meeting on December 5.

We are concerned about 2 segments of the Recommended Starter Line shown in the draft system plan (Figure 4) because of their high importance to bicyclists:

- The 13th St. segment between J and L Streets, and
- The Tower Bridge crossing.

13th Street. This 2-block segment is a key north-south route for bicyclists between the south of Capitol Park area and the main downtown area of business and government offices north of Capitol Park. No other comfortable north-south bike route exists for the next 4 blocks east (i.e. 17th St.) and until one gets to Old Sacramento to the west (11 blocks). The 13th St route is valuable to bicyclists of all ages and abilities because it has low traffic volumes and speeds.

Because of these characteristics, the City of Sacramento has designated 13th St as an “existing on-street bikeway” for 22 blocks from C St south to W St in its updated 2011 map of Sacramento Bikeways. The J to L streets segment of 13th St is the central link in this long continuous and direct bikeway across downtown.

We suggest that the streetcar line use 12th Street between J and L. Bicyclists now avoid 12th St. as a north-south route because of existing light-rail tracks, hazardous pavement conditions, and high traffic volumes.

If the streetcar line cannot avoid using 13th St., extra precautions will be required to prevent bicycle tires from being caught in the streetcar flangeway slots, both on the parallel sections of 13th St and on the turning sections at 13th and J, K, and L streets. Alta Planning has produced a report on bicycle-streetcar interactions that suggests possible protection techniques; the report can be downloaded from http://www.altaplanning.com/research+_studies.aspx.



SACRAMENTO AREA BICYCLE ADVOCATES

Tower Bridge. This bridge offers the only opportunity for both bicyclists and the streetcar line to cross the Sacramento River anywhere in the Sacramento area. To avoid conflicts between bicyclists and the parallel streetcar tracks on the bridge, the streetcar tracks should be placed down the center lanes of the bridge, reserving the outside lanes for unobstructed bicycle travel.

SABA is an award-winning, nonprofit organization with more than 1,400 members. We represent bicyclists. Our aim is more and safer trips by bike. We are working for a future in which bicycling for everyday transportation is common because it is safe, convenient and desirable. Bicycling is the healthiest, cleanest, cheapest, quietest, most energy efficient and least congesting form of transportation.

Thank you for considering our comments.

Sincerely,

Jordan Lang
Project Assistant

CC: Ed Cox, City of Sacramento Alternative Modes Coordinator