

# **Technical Memorandum**

## **Downtown/Riverfront Streetcar Studies**

**City of West Sacramento**

### **Streetcar Stop Design Criteria**

January 30, 2007



2365 Iron Point Road, Suite 300  
Folsom, CA 95630

## Contents

<b>1.0 Introduction</b> .....	<b>1</b>
<b>2.0 Proposed Stop Locations</b> .....	<b>1</b>
<b>3.0 Streetcar Stop Parameters</b> .....	<b>2</b>
3.1 Basic Parameters .....	2
3.2 Enhanced Parameters/Amenities .....	2
3.3 Accessibility Considerations .....	2
<b>4.0 Streetcar Stop Types</b> .....	<b>3</b>

## Figures

Figure 1 – Proposed Streetcar Stop Locations – Phase 1 .....	1
Figure 2 – Streetcar Stop Types – Phase 1 .....	<b>Error! Bookmark not defined.</b>

## 1.0 Introduction

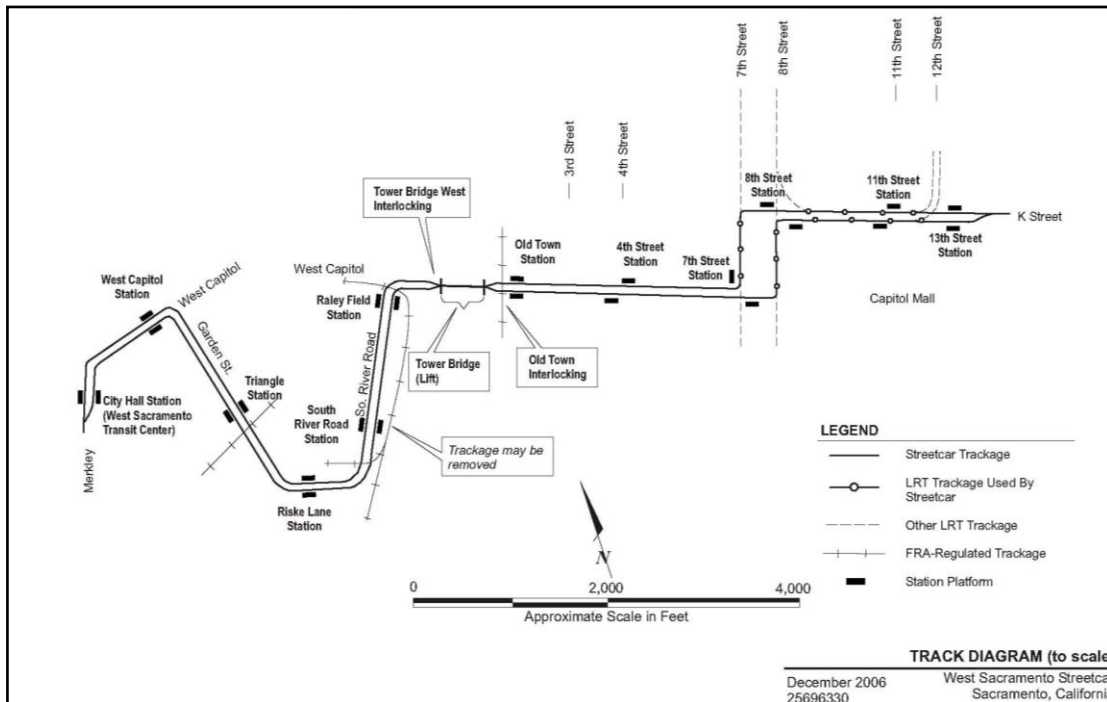
For streetcar stop design criteria, the intent is to have the most cost-effective, community accessible stops at the proper locations. The criteria are coordinated with the general alignment developed in the Route Study, Service Planning, Equipment Analysis, and Conceptual Engineering Tasks. The primary design principles for this Task, in keeping with the overall project goals, are to:

- Keep the design simple and inexpensive
- Use “off-the-shelf” equipment whenever possible
- Minimize the loss of on-street parking
- Design for ease of construction
- Provide safe locations for streetcar patrons
- Offer patrons information on arrival of the next streetcar

## 2.0 Proposed Stop Locations

The Service Criteria (Technical Memo F) identified a series of paired station/stops along the alignment, totalling 26. There are 23 new stops, and three are existing RT stations. Figure 1 illustrates the locations, with paired stops on both the east and west bound lines. During Phase 2 of the project, potential center stops may be evaluated at the Old Sacramento and the 4<sup>th</sup> Street –Capitol Mall locations.

*Figure 1 - Potential Streetcar Stop Locations - Hypothetical Phase 1 Alignment*



### 3.0 Streetcar Stop Parameters

Remembering that the pedestrian is the first class rider of the streetcar, the location of the stops is extremely important. Stops focus on the areas of highest pedestrian and activity concentrations - current and future. Based on the preferred routes, the proposed stops are placed along the routes, based on specific location. Spacing of stops is largely a function of block lengths, and they generally run between 1,200 and 1,400' between stops. The typical block length in downtown Sacramento is 380 feet, so the proposed spacing is the equivalent of three to four blocks.

#### 3.1 Basic Parameters

While the preferred vehicle type can affect the design of the stop, the following basic parameters are applicable:

- Assuming a modern or replica car is used, there will be right side boarding
- Most stations will have two platforms - one for westbound cars and one for eastbound cars.
- The streetcar berthing area is approximately 60'-65' long, sized for a single car
- The boarding area is 40'-45' long
- A shelter, schedule and patron information rack, a sign with the stop name, a bench, a lean rail, a trash receptacle, and an appropriate ADA pedestrian warning strip at the curb edge, along the entire length of the boarding area, would be provided on each platform at each station
- "Next vehicle arriving" technology in the shelter to inform riders when the next streetcar will arrive
- A ticketing kiosk, unless there is no fare or there is on-board ticketing
- A bicycle rack
- A curb extension to board the car to minimize the loss of on-street parking by maintaining the majority of on-street spaces
- If a vintage or replica streetcar is used, an on-board lift or a high block platform will be required for ADA access. For a modern car with low-floor boarding, higher curbs are required; this would require modification along K Street, where the existing street and sidewalks are at rail height. Since at least some of the stop locations could require left side boarding, either stop design or vehicle design modifications will need to be considered if replica vehicles are used.

#### 3.2 Enhanced Parameters/Amenities

For higher visibility stop locations, in addition to the basic parameters, enhanced amenities may include:

- Enhanced architectural treatment for shelters to reflect the character of the specific location
- Specialty lighting with banners or other decorative features
- Specialty paving
- Information kiosks
- Public art
- Additional seating beyond the shelter

#### 3.3 Accessibility Considerations

The Service and Equipment Analysis Technical Memos both discussed ADA/Accessibility factors. Since the streetcar would be sharing RT stations, raised platforms pose a design issue on the

shared station platforms on K Street that are at rail height (street) level. That suggests some form of carborne lifts or bridge ramps are the most applicable means of ADA access for the streetcar. This approach obviates the need to construct new, high block platforms or to adapt RT's ramps and lifts for cars with different floor heights.

Replica and modern streetcars can be equipped to meet ADA requirements. Replicas, which are high floor vehicles, have lifts in the right front door at each end of the car (e.g., Gomaco Birney). Since at least some of the stop locations could require left side boarding, either stop design or vehicle design modifications will need to be considered if replica vehicles are used. These lifts are operative in the Birney cars used in Little Rock. Modern streetcars are level boarding from a raised sidewalk/platform at mid-car door, and they have carborne bridge ramps.

## 4.0 Streetcar Stop Types

Based on the proposed stop locations and the basic parameters, several stop types may be found – Corner, Mid-block, Curbside and Median/Center Stops. A general description and diagram (Figure 2) of these types follow.

- **Corner Stop (near or far side)** – This stop occurs at an intersection to allow direct access from the sidewalk (direct boarding with a low floor vehicle, from an on-board lift or from a raised, ADA-compliant high block platform). The stop is a “bulb-out” or an extended sidewalk. The vehicle stays in the travel lane.
- **Mid-block Stop** – This type occurs less frequently but may be required due to specific site or block considerations, and it, too, is a “bulb- out” design. The vehicle stays in the travel lane.
- **Curbside Stop (likely a mid-block location)** – This stop is on a street with no on-street parking, and it allows berthing directly from the existing curb.
- **Median/Center Stop** – This type occurs if the streetcar is running on the inside lanes. It may take up more available lane width, since it cannot be located in a moving lane. The Median/Center Stop is also applicable for the tracks that run thorough the grassed median in the Capitol Mall. This application requires enhanced pedestrian safety and amenity features. The primary implication of this type is the need for left side doors on all cars in the fleet, and left-side disabled boarding capability.

Figure 2 - Streetcar Stop Types - Phase 1

