

Technical Memorandum

Downtown/Riverfront Streetcar Studies

City of West Sacramento

Route Studies Approach

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1.0 Introduction

This technical memorandum documents the methodology, assumptions, and results of the definition of Task E “Route Studies Approach” for the Downtown/Riverfront Streetcar Studies.

Prior to initiation of the study, the PSC had articulated the general parameters for the potential route(s), while allowing flexibility for other route options. The identified route, along Capitol Mall, across the Tower Bridge and on West Capitol Avenue, is one route to be considered, since it directly connects the two downtowns. However, the work conducted under this task evaluated alternative alignments or routes, based on a variety of factors, including current and anticipated development and redevelopment, existing and potential areas with high pedestrian volumes, and a good mix of pedestrian-producing commercial and institutional uses.

The approach was based on the input received during the week-long project Charrette, informed by a group of senior streetcar planners and engineers who examined possible alignments and collected important technical data for each potential route.

Important technical factors considered were as follows:

- **Service entries**
- Horizontal and vertical clearance issues
- Traffic operations and safety impacts
- Geometric requirements
- On-street parking locations
- Urban design/visual context
- Potential development, redevelopment and joint development locations
- Transit centers
- Light rail transit lines, operations, OCS and connectivity issues
- Sensitive receptors
- Traditional trolley line locations
- Logical termini to accommodate future extensions
- **Utility (overhead and underground) conflicts**
- Right of way limitations
- One way streets and impacts on turning requirements and signal
- Topographic or grade issues.
- Land use adjacencies
- Existing and potential high pedestrian activity areas
- Key destinations and activity centers
- Railroad lines and stations
- Parklands and public spaces
- Possible station/stop locations
- Historic properties and sites
- Possible maintenance/operation/storage facility



Methodology - The process of defining and refining the feasible streetcar alignment (s) included:

- ◆ Reviewing the input received during the project Charrette
- ◆ Reviewing the technical factors and data collected during field visits in conjunction with inputs received during the Charrette to establish feasible routes
- ◆ Preparing graphics illustrating each feasible general route (including station locations)
- ◆ Performing route alternative screening to identify the pros and cons of each feasible route
- ◆ Further refining the route choices with follow-up meetings with TAC and PSC.

1.1.1 Data Collection and Route Evaluation

Information regarding the local and regional context and history of the issues surrounding the project study area was gathered in order to identify potential streetcar routes.

Data Collection

Types of data collected included available aerial mapping, land use, zoning, public roads right of way, existing transit systems, local road traffic data, local attractions, site conditions, existing physical barriers, surface apparent utilities, existing reports and analysis (such as the Downtown Parking Study). Additionally, this information base included consultation with State, City, County, Yolo County Transportation staff and others. Most of the data obtained was in Geographical Information System and hard copy format.

Project Charrette

A week long Charrette was held during the early weeks of the project. During the Charrette, the project concept was presented to the general public, specific stakeholder groups and public officials. Displays and handouts illustrated the project's P&N, provided education about streetcars in general, and invited a dialogue among the attendees. The first day of the Charrette provided opportunity for the general public to learn more about the project and provide input, while subsequent days included focused meetings with neighborhood leaders, business and tourism

experts, local commissioners, existing transit riders and area developers. The display boards, which illustrated an aerial map of the project study area, provided opportunity for attendees to

Alignment ideas being discussed at the Charrette





identify desired destination points for streetcar. Additionally, several meetings and team work sessions were conducted. The meetings and team work sessions were intended to capture ideas, important facts and issues, and overall project direction to objectively reduce the number to a manageable set of alternative routes. During a joint session meeting between PSC and TAC members, potential streetcar routes were referenced and discussed. The pros and cons for different routes were documented. The following key features from the PSC and TAC joint meeting were noted:

- ◆ Economic catalyst- future connections for future development
- ◆ Outreach to riders not yet present
- ◆ Serve both sides of the river
- ◆ Riverfront mobility and access
- ◆ Serve areas not served by Light Rail Transit

The Charrette process established the conceptual beginning and ending points of a potential initial route (Alignment A). The westerly limit would be at West Sacramento's City Hall, and adjacent to the planned transit center and community college facility; the easterly limit would be at J Street and 19th Street in the City of Sacramento. The Tower Bridge was identified as the most feasible (and likely only) location to cross the river.

Field Evaluation/Focused Meetings

The Charrette process established a set of routes to be carefully examined by the technical team. Through several field evaluations and focused meetings with feedback from PSC and TAC members, the team narrowed down the number of feasible route alternatives. The criteria considered to narrow down the potential routes included:

- ◆ Most popular destinations
- ◆ Physical barriers (e.g. railroad crossings)
- ◆ Available right of way
- ◆ Existing utilities
- ◆ Existing traffic circulation
- ◆ Infrastructure reconstruction cost (e.g., the existing Washington Underpass at West Capitol Avenue has a reduced vertical clearance, thus does not allow enough room for streetcar overhead wires)
- ◆ Specific issues and concerns of individual PSC members;



A number of variations in the route were considered in these discussions, and some of those have been incorporated into a resulting refined alignment.

Selecting the Preferred Alignment

A provisional alignment emerged from the Charrette process, and was then developed and further analyzed. It reflected the results of project tours, a review of preliminary route opportunities, public input, PSC and TAC involvement, Design Team guidance, and the principles and selection criteria. Based on that initial alignment, a series of Technical Memoranda explored various aspects of project development. Toward the end of Phase 1, the PSC requested that the Design Team verify that the planned alignment would meet project objectives, serve the civic and cultural heart of West Sacramento, and reach the Midtown area of Sacramento. Between these points, the objectives stated that the streetcar should connect and transform as many area development and redevelopment projects as possible. To do that, the PSC directed the Team to:

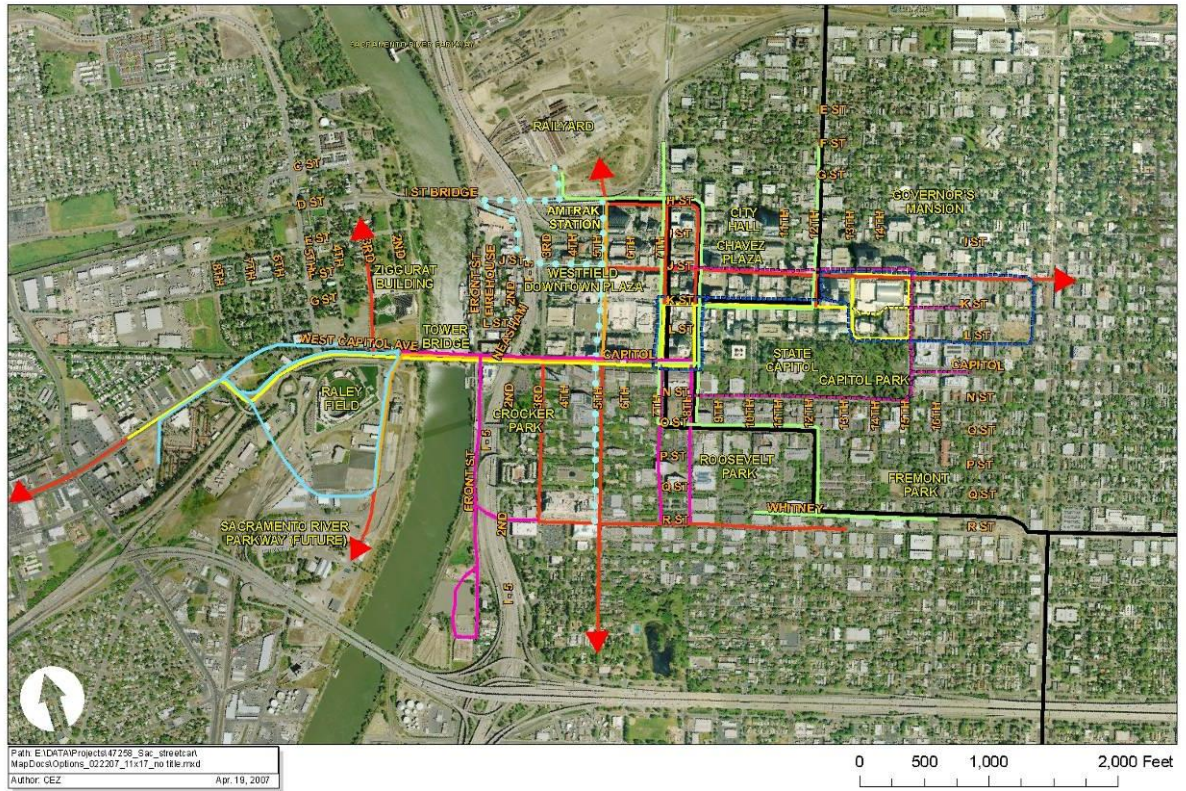
- ◆ Meet individually with the PSC members to finalize specific issues and concerns
- ◆ Hold another TAC work session to incorporate PSC and TAC goals and suggestions into a more refined alignment
- ◆ Define a range of possible future extensions – immediate and near-term – off the refined alignment
Some suggested potential revisions were not adopted for reasons of feasibility. For example, it was suggested that an alignment along J Street (requiring new track) be considered as an alternative to sharing existing track with RT light rail on K Street. This revision would be problematical in terms of added cost (building new track instead of using existing track for a portion of this distance), but a more serious “fatal flaw” is the high traffic volume and congestion on these sections of J Street. High traffic volumes and low levels of automobile service (congestion) make streetcar operations difficult, in that it becomes impossible to maintain a consistent schedule.

There is another issue which bears on this question as well: the City of Sacramento believes that J Street needs to be evaluated in the context of Sacramento RT’s long range light rail operating plans for downtown. Future studies will likely address the location of all light rail lines in downtown Sacramento and such plans would need to be integrated with streetcar operations – and vice-versa.

The result of these PSC and TAC sessions was an approved refined alignment that addressed the goals and concerns articulated by the PSC and TAC.



Figure 1. Charrette Alternatives



The Preferred Alignment

The resulting Preferred Alignment (shown in Figure 4) is a refinement of the initial Charrette alignment and is shown in yellow on Figure 3. It works well as an urban circulator or “pedestrian accelerator” - precisely the function that other highly successful streetcar projects serve. The preferred alignment is 2.2 miles long, and 0.5 miles of light rail trackage with RT. The preferred route:

- ◆ Follows a direct route from the civic and cultural heart of downtown West Sacramento, and serves most of the potential redevelopment sites along the line
- ◆ Extends farther into Midtown Sacramento using the K Street light rail line to 13th Street, thus accessing the area activities and helping vitalize the greater K Street corridor
- ◆ Traverses the Sacramento Convention Center, moving up 13th Street to J Street, east to 15th Street, looping back on L Street to 13th Street and K Street for the return trip to West Sacramento.

A list of stops is provided in Section 4.3 of this report. These stops are designed to best access existing and future pedestrian connections to destinations along the line. Individual stop locations will be subject to further refinement in the Preliminary Engineering phase of the



process. The Preferred Initial Alignment is designed to be easily expanded as significant future development occurs in the Triangle Specific Plan Area and in the Railyards redevelopment site.

Future Possible Extensions

Understanding the potential for extending the system was an important consideration throughout the feasibility study process, since recent streetcar projects show that when the initial system proves itself, there is an almost immediate call for extensions. Future extensions generally add value to the initial investment, shape more destinations and serve more riders. Figure 4, in addition to the preferred alignment, shows two sets of possible extensions – **immediate**, shown in orange line; and **near-term**, shown in red. These extensions are designed to link and connect true pedestrian-oriented development in the two Downtowns and along the Riverfront.

Immediate Extensions

This first planned extension would travel a “Z” shaped route branching off from the Preferred Initial Alignment. The suggested route would:

- ◆ Share track with the initial route from 3rd and Tower Bridge Gateway on the West Sacramento side to 5th and Capitol Mall on the Sacramento side;
- ◆ Branch south from the spine (yellow line) on the West Sacramento side to serve and catalyze development in the Triangle Specific Plan area;
- ◆ Branch north from the spine on the Sacramento side to extend into and serve the Amtrak Station and the Railyards redevelopment area.

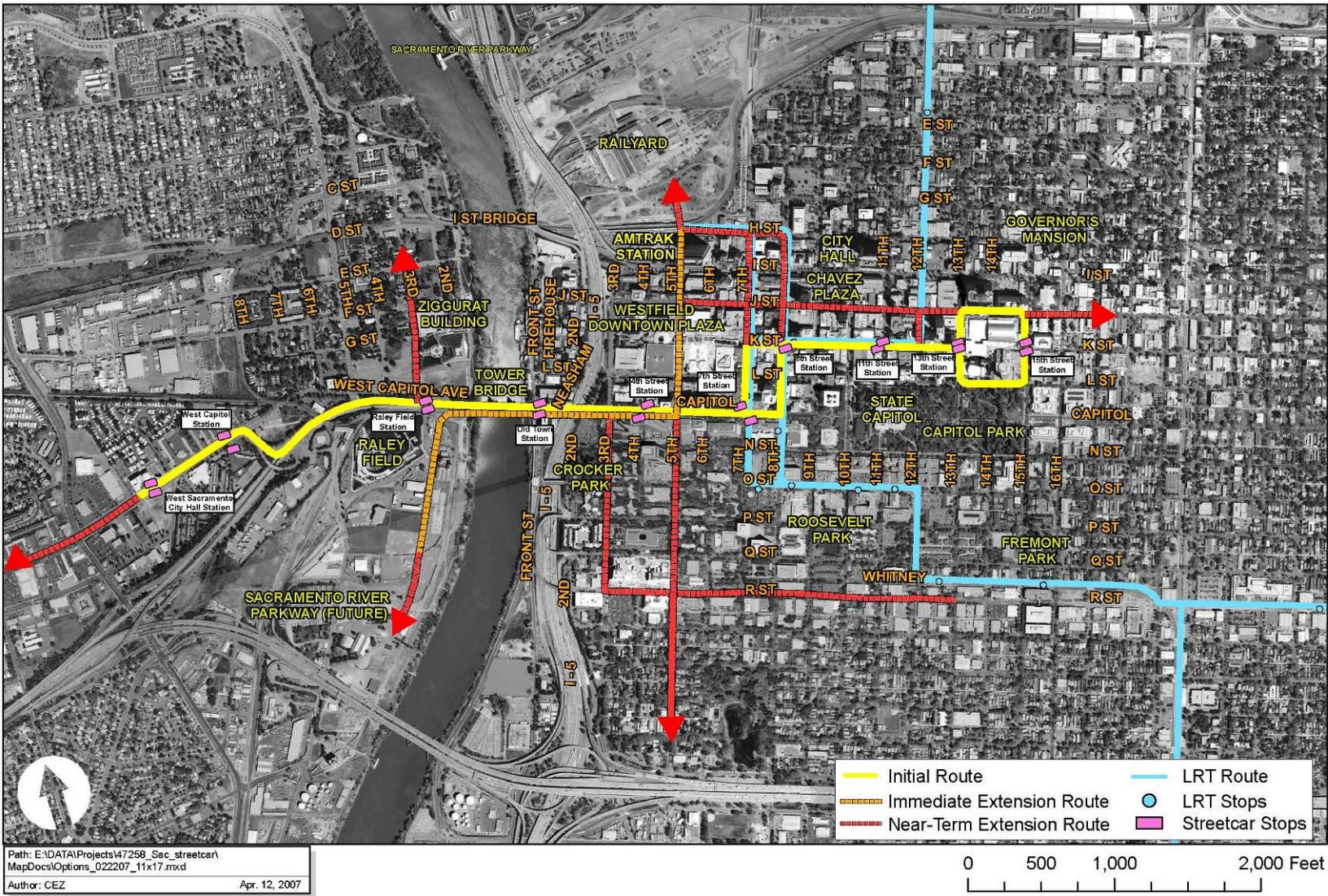
Either of these arms of the “Z” could be built as the immediate extension. Both could also serve as the first leg of further extensions.

Near-term Extensions

In addition to the immediate possible extensions, there are a wide variety of possible near-term extensions (shown as the red dashed lines on Figure 4). These extension options would serve planned and programmed redevelopment areas on both sides of the River. In West Sacramento, these options would include heading west along West Capitol Avenue; south to Pioneer Bluffs, the Stone Lock District, and Southport; or north to Raley’s Landing and the Washington Specific Plan area. For Sacramento, possible extensions could serve redevelopment and infill locations including the Railyards, Richards Boulevard, and Natomas areas to the north; the R Street corridor, Southside Park, and Broadway to the south; and farther east into Midtown.



Figure 2. Preferred Initial Alignment and Possible Extensions



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 Author: CEZ Apr. 12, 2007