4 Evaluation of Alternatives

The alternatives have undergone an evaluation on numerous topics related to transportation function, implementation, cost, and financing/revenue. For each topic, the performance of each alternative is summarized in a matrix against the relevant project evaluation criteria.

At the direction of the staff and City Council, the SITF team developed the alternatives based on the “Regional Transportation Hub” model presented in Technical Report #6. The Regional Transportation Hub model defines the SITF as a facility that incorporates as many transit services as possible, and caters to both intercity and commuter passengers, and includes a major parking component. This vision seeks to maximize transit service, connectivity and patronage. The goals of this vision are represented in the evaluation criteria. The evaluation criteria were previously presented in Technical Report #6.

4.1 Transportation Program

Introduction
The desired transportation program for the SITF was presented in Technical Report #6. Within this document, the transit program was divided into modules for different transportation modes and operators. The program for each module requested by the transit operators was presented, as well as options for scaled-down scenarios. Modules include:

- Freight Rail
- Heavy Passenger Rail and Platforms
- Intercity bus
- Local Transit Bus
- Light Rail Transit/DNA Project
- Private vehicle and Taxi Pick-up and Drop-Off
- Parking
- Terminal Building

Evaluation
The evaluation of the transportation program consists of comparing the program modules described in Technical Report #6 to the program achieved for each of the alternatives. The operator-requested program is used as the basis for the evaluation. Where the operator requested program cannot be accommodated, the reduced program options are used as alternatives.

Table 4.1.1 compares the operator requested and reduced program options against each alternative.

Summary
All of the alternatives can achieve at least the Reduced Program Option for the following modules:

- Intercity bus Bays
- Local transit bus Bays
- Light Rail/DNA Project
- Transit Parking
- Facility Building
None of the alternatives can meet the optimal heavy passenger rail program of two 1,400 foot long platforms, given the design criteria and the physical constraints of the site. However, discussions with passenger rail operators indicate that provision of platforms approximately 1,200 feet long would likely be acceptable if specific issues can be resolved in the detailed design. For example, it would be necessary to provide track segments that extend beyond the platforms by sufficient length to accommodate longer passenger trains (such as the Amtrak Long Distance trains) without impacting signals on adjacent tracks. It is therefore assumed that Sunset Limited, Sacramento Northern and Valley Flyer can provide the adequate heavy passenger rail platforms.

Specific strengths and weaknesses on the individual alternatives are described below.

**Alternative A: Sunset Limited**

Sunset Limited accommodates the program for all modules, and could provide additional space beyond that requested by operators for the Facility building and the passenger pick-up/drop-off area.

**Alternative B: Sacramento Northern**

Sacramento Northern accommodates the program for all modules with the exception of the passenger pick-up/drop-off area. However, the design could be refined to provide additional space, and the space required for this activity could be reviewed.

**Alternative C: Overland Limited**

Overland Limited cannot provide adequate platform lengths while also providing sufficient capacity for passenger trains entering and exiting the station.

Overland Limited also does not meet the program for the passenger pick-up/drop-off area. However, the design could be refined to provide additional space, and the space required for this activity could be reviewed.

The available land north of the tracks and on parcels east of the site would provide Overland Limited with the capability to exceed the requested program for parking spaces, although the location north of the tracks would be less than ideal.

**Alternative D: Valley Flyer**

Valley Flyer accommodates the program for all modules with the exception of the passenger pick-up/drop-off area. However, the design could be refined to provide additional space, and the space required for this activity could be reviewed.
### Table 4.1.1 Evaluation: Transportation Program

<table>
<thead>
<tr>
<th>Program Module</th>
<th>Operator Requested Program</th>
<th>Reduced Program Option</th>
<th>Alternative A: Sunset Limited</th>
<th>Alternative B: Sacramento Northern</th>
<th>Alternative C: Overland Limited</th>
<th>Alternative D: Valley Flyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight Track</td>
<td>Up to 3 Through Tracks</td>
<td>Up to 3 Through Tracks</td>
<td>Up to 3 Through Tracks</td>
<td>Up to 3 Through Tracks</td>
<td>Up to 3 Through Tracks</td>
<td>Up to 3 Through Tracks</td>
</tr>
<tr>
<td>Passenger Tracks and Platforms</td>
<td>2 x 1,400 ft Center Platforms</td>
<td>2 x 1,400 ft Center Platforms</td>
<td>1 x 1,175 ft Center Platform</td>
<td>1 x 1,280 ft Center Platform</td>
<td>2 x 800 ft Center Platforms</td>
<td>2 x 1,200 ft Center Platforms</td>
</tr>
<tr>
<td>Local Transit Bus</td>
<td>14 Total Local Transit Bus Bays</td>
<td>12 Total Local Transit Bus Bays</td>
<td>12 Total Local Transit Bus Bays</td>
<td>14 Total Local Transit Bus Bays</td>
<td>12 Total Local Transit Bus Bays</td>
<td>12 Total Local Transit Bus Bays</td>
</tr>
<tr>
<td>Light Rail/DNA Project</td>
<td>2 LRT Tracks with Platform 2 LRT Layover Tracks</td>
<td>2 LRT Tracks with Platform 2 LRT Layover Tracks</td>
<td>2 LRT Tracks with Platform 2 LRT Layover Tracks</td>
<td>2 LRT Tracks with Platform 2 LRT Layover Tracks</td>
<td>2 LRT Tracks with Platform 2 LRT Layover Tracks</td>
<td>2 LRT Tracks with Platform 2 LRT Layover Tracks</td>
</tr>
<tr>
<td>Pick-Up and Drop-Off Spaces</td>
<td>18 Total Pick-Up and Drop-Off Spaces</td>
<td>18 Total Pick-Up and Drop-Off Spaces</td>
<td>22 Total Pick-Up and Drop-Off Spaces</td>
<td>13 Total Pick-Up and Drop-Off Spaces</td>
<td>13 Total Pick-Up and Drop-Off Spaces</td>
<td>11 Total Pick-Up and Drop-Off Spaces</td>
</tr>
<tr>
<td>Transit Parking</td>
<td>1,027 Parking Spaces 600 Parking Spaces Up to 880 Parking Spaces Up to 1,000 Parking Spaces Up to 1,000 Parking Spaces Up to 1,080 Parking Spaces</td>
<td>60,370 sq ft 60,170 sq ft 60,170 sq ft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility Building</td>
<td>54,570 sq ft 54,570 sq ft 64,240 sq ft 60,370 sq ft 60,170 sq ft</td>
<td>60,170 sq ft</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. Assumes off site layover is not provided.

### Table 4.1.2 Evaluation Criteria Matrix

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meets current and projected demand for transit, paratransit, and freight operation.</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Meets current and projected demand for transit vehicle loading, layover, storage and servicing.</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Meets projected space needs for passengers.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>4. Provides adequate curb length to accommodate pick-up and drop-off activity by private vehicles and taxis.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>5. Provide adequate parking to support the transit functions of the Facility.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>

Legend: ☐ = does not meet criteria, ☑ = meets criteria, ☑ = exceeds criteria

City of Sacramento
Sacramento Intermodal Transportation Facility
TR #9
SITF Alternatives

SMWM/Arup and Associated Consultants
September 28, 2004
Page 50
4.2 Transit Operations

The evaluation of Transit Operations is divided into separate sections for rail operations, including freight rail, passenger rail, museum rail operations, light rail, and buses.

4.2.1 Heavy Rail Operation

Introduction

The operation of heavy rail services is paramount for a viable intermodal facility in Sacramento. The final design must permit efficient freight and passenger movements, provide adequate capacity to accommodate future growth, while also ensuring safe and cost-effective operation. The rail alignment also dictates the ultimate site configuration and facility design.

This section includes background information on the numerous issues and requirements for rail at the SITF site.

Existing Track Arrangement

The existing track arrangement at the Facility has numerous deficiencies for both passenger and freight operation. These deficiencies include:

- Mainline freight tracks share platform tracks, creating safety and capacity issues
- Includes only 3 platform tracks, does not meet program
- Inadequate platform length (950’) for long distance passenger trains
- At-grade pedestrian crossing of active tracks
- Limits freight speeds to 15-20 mph, creating a bottleneck for passenger and freight train operation
- Museum access requires a temporary crossing of Union Pacific Railroad (UP) mainline tracks

Freight Rail Issues

One of the biggest challenges in designing an Intermodal Facility at Sacramento’s Southern Pacific Depot site is that it is located directly on the tracks of a major transcontinental freight route of UP Railroad. Most Bay Area freight trains to and from the north and east, including a significant and growing volume of port-related traffic, pass through downtown Sacramento. Unlike the situation found in some other cities, there is no reasonable freight bypass around downtown Sacramento for these freight trains. Local switching movement adds to this freight train volume. Consequently, in preparing concepts for the railroad portion of the Facility program, the needs of UP Railroad to serve its present and future freight market must be met.

It is the UP Railroad’s stated intent to realign the tracks along the northern SITF project boundary. The SITF project team has respected this intent by developing two alternatives that are consistent with this alignment. However, other alignments have also been considered in the interest of exploring all available options.

The position of UP Railroad is that long-term planning for freight traffic volumes indicates a requirement for three freight-only tracks through the Facility area. UP Railroad further requires that this trackage be designed for 30 mph freight operations. Until recently, UP Railroad’s requirement has been that these three tracks would have to be co-located in a freight-only sub-corridor, that is, three freight tracks situated side-by-side, without any intervening passenger tracks, or other use. Very recent discussions with the railroad, however, have indicated a willingness to consider a ‘splitting’ of the freight track alignment. With
a ‘split’ arrangement, one through freight track could be located south of the passenger station tracks and two freight tracks would be located north of the station tracks. This is an important change that provides a significant degree of flexibility in design, which in turn, may make possible the attainment of passenger and freight operating objectives.

The ultimate rail realignment design will need to include allowances for potential infrastructure improvement projects, including grade separated crossings at 5th, 6th and 7th Streets, station concourse/underpass pedestrian connections, I-5 ramp modifications and High Speed Rail. Generally, this will require the provision of adequate spacing between tracks to accommodate columns for elevated structures. In order to ensure sufficient right-of-way is available, the SITF alternatives include an additional 20 feet in width over UP’s recommendation for the corridor. In addition, the phasing of the rail realignment relative to these other infrastructure improvements must also be carefully considered.

**Passenger Rail Issues**

The program for passenger service indicates a nominal requirement for four station tracks serving two island platforms, each platform being in the range of 1,400 feet in length. This length is based on the maximum length of an Amtrak intercity train. This is an event that occurs four times daily, however only one such train would be in the station at any one time. Additional platform space is required for operation of Capitol and San Joaquin Corridor trains. There are also prospects for commuter rail operations in the depot within a reasonable time horizon. The intercity and commuter operations require enough platform space for arriving trains to unload, be serviced, and then load passengers for outbound trips. In addition, some train consists may be temporarily stored in these tracks during off-peak hours during the day and overnight at the terminal if a remote maintenance and storage facility is not established. It is not entirely clear at this time whether the future growth in operations would be best served by a greater number of short platforms, or a lesser number of long platforms. However, with more tracks, more overall area would likely be required for the track fan and Terminal throat; it also might result in a longer average walking distance for passengers between the terminal head house and the platforms. Growth and service forecasts for the Capitol Corridor and San Joaquin services indicate future service will consist of more frequent and longer trains serving Sacramento. Future flexibility is best maintained by building platforms as long as possible. Long platforms can hold more than one train, but short platforms cannot hold a single long train.

East and west of the Facility, passenger trains share Union Pacific tracks with freight trains under Amtrak joint-use arrangements. For the future Facility, the specific design of the alignments of the tracks connecting the station tracks at the platforms with UP Railroad mainline tracks to the east and west is an important issue. A major concern for passenger operations using the Sacramento River Bridge is the ability to operate “parallel moves,” or, in other words, the ability to have trains arrive and depart simultaneously from and to the west. Trackwork designs previously proposed have not provided this capability. These concepts have indicated instead that as the double-track bridge fans out through the west Facility throat to multiple passenger and freight tracks, the station tracks would be connected only to mainline Track 2, the southernmost on the bridge. As a result, track design concepts have provided an arrangement with limited operational flexibility and reduced capacity. However, with UP Railroad now willing to consider splitting its freight tracks so that the station tracks are in between them, a Facility design that provides for passenger train access to both bridge tracks appears possible, with the result that operational flexibility can be enhanced and capacity constraints eased.

Another issue associated with platform requirements is that of overnight layover and servicing of trainsets. The assumed growth in passenger train service is based, in part, on current studies which
foresee the superimposition on the Capitol Corridor “intercity” service of a “Regional Rail” service oriented to Downtown Sacramento and suburbs. While these studies are incomplete, the assumptions implicit in them have important implications for the Sacramento Intermodal Facility. Present service planning for a combined Capitol Corridor and regional rail service assume that most regional trains will run through between Auburn or Roseville, and Dixon and Davis, with potential through-routing of these trains with local commuter schedules serving the Solano County – Oakland segment of the corridor. Capitol Corridor Joint Powers Authority (CCJPA) desires a new layover and servicing facility east of Downtown Sacramento. One possibility would be to create a new station and servicing facility at “Swanston”, near Arden Way adjacent to the Sacramento Regional Transit “Swanston” light rail station. This location would also afford a large park and ride capability. A layover and servicing facility for Capitol Corridor, San Joaquin and regional trains would also be established at this location. The viability of this facility has yet to be determined, and will require coordination with UP operations, track configurations, and the possible construction of a new American River crossing.

If a Swanston or alternate layover and servicing facility is not established, then trainsets will need to be serviced and stored overnight at the SITF. The requested program (4 station tracks, each 1,400 feet long) would be sufficient to accommodate layover requirements based on recent service forecasts, but growth beyond this level of service might also be constrained by the lack of layover and servicing facilities. The negative impacts of any reductions in the rail program would be exacerbated without a Swanston or alternate facility, potentially limiting the rail operator’s ability to meet growing demands for service.

California State Railroad Museum Issues

Provision must be made for adequate access to the California State Railroad Museum. The Museum’s requirements are more complex than generally realized. In the future, the Museum will consist of two major parts – the existing Railroad History Museum building to the south in Old Sacramento, with its associated California Southern Railroad, and the Railroad Technology Museum to the north, which will be located in several historic buildings of the former Southern Pacific shops.

The main museum building to the south was formerly afforded a direct connection to the Southern Pacific shops via a north-south track that crossed UP Railroad mainline with 90 degree diamonds, located immediately east of the Sacramento River bridge. The diamonds have been removed by UP Railroad because of maintenance and operational issues. When access is required, now about once a week, but expected to be more frequent, a temporary version of the diamond is put in place. This is done in order to provide both for movement of museum equipment and also in order to move freight cars which are handled by the Sacramento Southern to and from a remaining shipper. The temporary diamond is installed by UP track crews at the railroad’s expense, per legal requirements imposed at the time predecessor Southern Pacific abandoned the riverfront Walnut Grove branch, which was taken over by the museum, along with the responsibility for provision of freight service. The freight service is anticipated to be a long-term requirement. Special train movements by the museum would also make periodic use of the southern connection.

The historic shop buildings north of the SITF site which will become the Railroad Technology Museum currently have access to the existing California State Rail Museum via temporary trackage which is a remnant of the yard area associated with the former SP shop activities. A temporary track on the north buildings connects back to UP Railroad mainline east of the new 7th Street underpass, but it is located on land which is slated for development. A new permanent connection will be required to UP Railroad mainline.
The Museum has indicated that its historic collection includes equipment with varying minimum radius requirements. The desired minimum curvature is 15 degrees. Designs prepared to date have anticipated that this curvature would be experienced on the southern connection from the Sacramento Southern riverfront line behind the History Museum turntable, onto what has been assumed to be a station track, or station track lead connecting the terminal to UP Railroad mainline to the west. It is unclear whether, with a freight main located to the south of the terminal trackage, that the south connection would be made into a passenger line rather than a UP mainline. The reality of the space, geometry, and potentially competing requirements of other design objectives suggest that the main connection to the Sacramento Southern Railroad may require somewhat tighter than desired curvature, perhaps on the order of 17 degrees which would still be workable for most Museum purposes. If this occurs, then an agreement should be reached with the Union Pacific to retain the right to occasional use of the temporary diamond system for special movement of museum equipment. The Museum might find this right desirable in any event, for use under extraordinary conditions.

With any realignment of UP Railroad tracks, the determination of the optimal museum connection that meets all the Museum’s stated needs will require additional design work and coordination between key stakeholders.

Status of Design Effort

At this stage, only a highly preliminary and conceptual layout has been possible, one which does not fully take into account the specifics of track geometry, turnout (track switch) locations, or the exact locations of the piers supporting the I-5 freeway structure. In railroad terms, the terminal district is a small site into which diverse and complex operational requirements are being compressed, and a great deal of complex trackwork. Satisfactory resolution of conflicting requirements, and definitive evaluation of alternative treatments, depends upon completion of an adequate level of design. Platform lengths, shapes and locations, as well as overall ROW envelopes presented in this document are indicative and require refinement. The intention is to permit a comparative analysis of the concept alternatives, not a detailed design.

Description of Alternatives

Four highly preliminary initial track layout concepts have been developed to accompany the four conceptual SITF alternatives. All four alternative track concepts have been reconsidered in terms of a split freight line approach, as discussed above, in order to provide passenger operations with a parallel move capability to the west.

**Alternative A: Sunset Limited**

This alternative is based on a modification that uses the previous UP concept, in which freight tracks are realigned along the northern edge of the SITF site. With the split freight arrangement, one freight track would be located south of the platforms and a second freight track (with provision for a third) would be located along the north of the platforms. Four platform tracks and two island passenger platforms would be provided, with platforms on the order to 1,100 to 1,200 feet long. The platforms would be located approximately 575’ north of the terminal (as measured from the center of the terminal complex to the midpoint between the two passenger platforms). A new intermodal facility extension would be built on the north side of the Historic Depot. Pedestrian access to the platforms would be grade separated, using an elevated pedestrian concourse.
Alternative B: Sacramento Northern

The trackwork for this alternative would be the same as for Alternative A. However, with this alternative, the Historic Depot would be north moved to a location closer to the new platforms. The platforms would be located approximately 250’ north of the terminal (as measured from the center of the terminal complex to the midpoint between the two passenger platforms). Pedestrian access to the platforms would be grade separated, using a below ground connection.

Alternative C: Overland Limited

The trackwork for this alternative is based on a suggestion brought forward as a compromise alignment proposed by Save Our Rail Depot (SORD). In the original proposed SORD compromise, the three UP freight lines were located, as originally proposed by the railroad, along the northern edge of the property. The freight tracks, passenger tracks and associated platforms would be moved some distance northward from their present location to a compromise location, farther from the Historic Depot than the original tracks, but south of the original UP proposal. The platforms would be located approximately 425’ north of the terminal (as measured from the center of the Historic Depot to the midpoint between the two passenger platforms).

Using the split freight track arrangement to meet passenger rail operating requirements would result in platforms about 800 feet long. Moving the tracks farther north may permit longer platforms, but would increase the distance from the Depot which is inconsistent with the intent of the initial SORD compromise. Pedestrian access to the platforms would be grade separated, using an elevated pedestrian concourse connecting to the north side of the Depot building.

Alternative D: Valley Flyer

The intention of the alignment presented with this alternative was to maximize developable land area south of the railroad ROW while limiting walking distances from the Historic Depot to the platforms. Initial evaluation seemed to suggest that the resulting curvature for the southern “split” freight track would not be acceptable for 30mph operation with this approach. However, a subsequent more detailed evaluation suggests that this first assessment was too conservative, and that a workable solution can probably be found. The result would be two island platforms of acceptable length. The platforms would be located approximately 400’ north of the terminal (as measured from the center of the Historic Depot to the midpoint between the two passenger platforms). Pedestrian access to the platforms would be grade separated, using an elevated pedestrian concourse connecting between the west ends of the platforms and the north side of the Depot building. Because the concourse would connect to the end of the station platforms, most passengers using the Historic Depot would be required to walk additional distances along the platform to reach their rail cars.

Evaluation

The evaluation of the different rail arrangements considers the following major issues:

- Platform length
- Provision for parallel passenger rail moves to and from the west
- Access to all station tracks from either UP mainline track
- Distance from the Historic Depot
• Provision for 3 freight-only tracks
• Provision for 30 mph freight operation
• Provision of a permanent connection to the existing California State Rail Museum, south of the mainline tracks
• Eliminates need for temporary crossing for the California State Rail Museum
• Provides for curve of 15 degrees or less on freight connection to the California State Rail Museum
• Provision of access to the existing Railroad Technology Museum, north of the mainline of the tracks

Table 4.2.1 presents the results of the evaluation.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform Length</td>
<td>1,100 to 1,200 foot platforms substantially meet the required program</td>
<td>1,100 to 1,200 foot platforms substantially meet the required program</td>
<td>800 foot platforms not adequate</td>
<td>1,100 to 1,200 foot platforms substantially meet the required program</td>
</tr>
<tr>
<td>Provision for parallel passenger rail moves to and from the west</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Access to all station tracks from either UP mainline track</td>
<td>Likely for 2 or 3 out of 4 station tracks</td>
<td>Likely for 2 or 3 out of 4 station tracks</td>
<td>Likely for 2 or 3 out of 4 station tracks</td>
<td>Likely for 2 or 3 out of 4 station tracks</td>
</tr>
<tr>
<td>Distance from the Terminal Building to platforms</td>
<td>Platforms approximately 575 feet from terminal (measured from the center of the terminal complex)</td>
<td>Platforms approximately 250 feet from terminal (measured from the center of the terminal complex)</td>
<td>Platforms approximately 425 feet from terminal (measured from the center of the Historic Depot)</td>
<td>Platforms approximately 400 feet from terminal (measured from the center of the Historic Depot)</td>
</tr>
<tr>
<td>Provision for 3 freight-only tracks</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Provision for 30 mph freight operation</td>
<td>Yes</td>
<td>Yes</td>
<td>Likely</td>
<td>Likely</td>
</tr>
<tr>
<td>Provision of a permanent connection to the existing California State Rail Museum, south of the mainline tracks</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Eliminates need for temporary crossing for the California State Rail Museum</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Provides for curve of 15 degrees or less on freight connection to the California State Rail Museum</td>
<td>No, likely to be 17 degrees or more</td>
<td>No, likely to be 17 degrees or more</td>
<td>No, likely to be 18 degrees or more</td>
<td>No, likely to be 18 degrees or more</td>
</tr>
<tr>
<td>Provision of access to the existing Railroad Technology Museum, north of the mainline of the tracks</td>
<td>Likely</td>
<td>Likely</td>
<td>Likely</td>
<td>Likely</td>
</tr>
</tbody>
</table>
**Summary**

Based on the preliminary evaluation, it appears that the rail arrangements shown with Sunset Limited, Sacramento Northern and Valley Flyer are workable. They will likely accommodate the split freight rail arrangement that allows parallel passenger moves to the west, reasonable platform lengths, adequate freight operation and improved Museum access. Sunset Limited and Sacramento Northern would both move the platforms farther to the north than Valley Flyer. However, Valley Flyer would provide direct passenger access from the Depot to the west ends of the platforms. Overland Limited has inadequate platform lengths. In all cases, designs would need to be completed in greater detail and refined based on coordination with the key stakeholders before final conclusions could be made.
Table 4.2.2 Evaluation Criteria Matrix: Heavy Rail Operation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meets current and projected demand for transit, paratransit, and freight operations.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>2. Meets current and projected demand for transit vehicle loading, layover, storage and servicing.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

Legend: ☐ = does not meet criteria, ☑ = meets criteria, ☒ = exceeds criteria
4.2.2 Light Rail Operation

Introduction

Regional Transit is currently planning two LRT extension projects that will serve the SITF: The Amtrak/Folsom Extension and the Downtown Natomas Airport (DNA) project.

Amtrak/Folsom Extension

This project will extend LRT service to the SITF, in addition to the extending the existing line east to the City of Folsom. The Amtrak segment of the project consists of a 0.7 mile extension. As currently planned, this extension will use 7th Street (southbound), 8th Street (northbound) and operate two-way on H Street. On H Street between 7th and 5th Streets, the extension will transition from double track to single track into the SITF. A single platform will be located north of the Depot building adjacent to the heavy rail platforms. The track will extend to the west past the platforms to provide storage/layover for LRT vehicles. Regional Transit seeks to initiate construction in 2004, although there are issues to be resolved before construction can begin. Right-of-way on the SITF site has not yet been secured at the time of issuance of this report. The design also is being refined to address operation issues and discussions with the Federal Building are ongoing to address security and operational concerns (see below).

DNA Extension

Regional Transit is also currently completing the Transit Alternatives Analysis for a potential extension of LRT from Downtown Sacramento to the Sacramento International Airport. This project is known as the Downtown Natomas Airport (DNA) project. Light Rail using Truxel Road was selected by the Regional Transit board as the locally preferred alternative in December, 2003. Construction on the DNA extension is not likely to begin before year 2010.

In the SITF area, the LRT would include double track, platforms and LRT vehicle storage/layover facilities. A specific alignment has not been identified by RT, but it has indicated that LRT should cross the heavy rail tracks on 6th Street or 7th Street. As described in greater detail below, RT has indicated that LRT must function as a through service (as opposed to stub end operation) at the SITF to meet operational requirements. The process to identify the preferred alignment through the SITF area must also address concerns raised by the Federal Building.

Federal Building Issues

Representatives from the Federal Building located at 5th and I Streets have identified several concerns regarding the implementation of LRT on H Street. These issues pertain to both the Amtrak extension and DNA projects and are related primarily to security and circulation. One specific issue relates to occasional closure of H Street. At this time, the Federal Building representatives have indicated that the potential LRT alignments presented in this report cause them concern. Ongoing coordination between the Federal Building representatives, the City of Sacramento and the SITF team is seeking to produce an arrangement that is acceptable for all parties. This coordination will continue after a proposed project is selected until a solution is reached.
Through-Station Alignment Alternatives

Regional Transit reports that a ‘Through-Station’ alignment is necessary to meet their operational requirements for the DNA Extension. With a Through-Station arrangement, the station is located on a continuous track segment allowing trains to enter the station, stop and continue out of the station in the same direction. This is in contrast to a ‘Stub-End’ arrangement in which the tracks terminate at one end of the platform and trains must reverse direction to exit the station.

Through-Station LRT alignments that are compatible with the SITF alternatives have been developed in coordination with RT and have been shown in the SITF Alternative Facility Plans presented in Section 3. The alignments illustrated with each alternative are generally similar. With each alternative, LRT is shown using H Street between 5th Street and 7th Street. The two tracks are located on the north side of the street, with the westbound track operating in a contra-flow lane and the eastbound track operating in a shared traffic lane where possible. The alignment then turns north into the SITF area where station would be located. All of the alternatives show LRT storage tracks immediately northeast of the SITF. In all cases a 7th Street rail crossing is provided. The track alignment and geometry achieved with a 7th Street crossing is preferable to a 6th Street crossing because additional space is provided to accommodate changes in vertical elevation and storage tracks. A possible bypass track on 7th Street has also been shown on all of the alternatives, which could be utilized by LRT trains to travel continue routes through the area in the event that LRT service must be temporarily interrupted on H Street adjacent to the Federal Building. Use of the bypass would result in LRT not serving the SITF directly; passengers would have to walk approximately 2-3 blocks to make connections.

In the Sunset Limited alternative, the LRT platforms are located on the northeast side of the H Street extension adjacent to the Millennia Development. The connection to 7th Street would be via a bus and LRT-only route passing under 6th Street and the Millennia Development to F Street. The Sacramento Northern alternative has a similar arrangement, although with a slightly different platform position. The platforms would be located immediately adjacent to the east side of the Terminal Building. In the Overland Limited alternative, the LRT platforms are located parallel to the heavy rail tracks, requiring a nearly 180 degree turn from H Street. The connection with 7th Street would be via a LRT-only alignment that runs parallel to the heavy rail tracks, ramping down to the 7th Street underpass. In the Valley Flyer alternative, the LRT platforms would be located on the east side of an extension of 5th Street. The alignment would turn east on F Street to connect to 7th Street, crossing over a 6th Street underpass.

Stub-End Alignment Alternative

As described previously, the Federal Building has raised objections to a permanent, double-track LRT alignment on H Street between 5th and 6th Streets. Alternative Through-Station alignments that do not use this street segment have been studied. However, to date it has not been possible to identify an alignment that meets RT’s operational requirements, provides a station integrated with the SITF and is compatible with planned roadway network and land use development plans.

As an alternative to a Through-Station alignment, a Stub-End alignment option was considered. Figures 4.2.1 and 4.2.2 illustrate a Stub-End LRT alignment with the Sunset Limited and Sacramento Northern SITF alternatives. With this alignment, LRT would utilized 7th Street to cross the heavy rail tracks. An LRT spur would extend east of 7th Street on the G Street alignment. Between 7th Street and 6th Streets, the tracks would ramp down in order to pass under 6th Street and the Millennia Development. The spur would terminate at LRT platforms located below the Millennia Development, approximately 15 to 20 feet below existing grade. Trains traveling in the direction of Truxel Road would enter the spur segment traveling westbound on G Street, stop at the station platforms, reverse direction, exit the station traveling
eastbound on G Street, change tracks as necessary and turn north on 7th Street. Trains traveling in the
direction of downtown would turn east from southbound 7th Street to westbound G Street, stop at the
station platforms, reverse direction, exit the station traveling eastbound on G Street, change tracks as
necessary and turn south on 7th Street.

A Stub-End alignment raises several operational challenges. Regional Transit has summarized the
problems as follows:

1. **Disabled Access.** Changing the direction of a train mid-route would result presents a major
problem for disabled access. Currently, access to trains for disabled passengers is only available
at the front of the car. Wheelchair ramps have been constructed at stations system-wide in this
position. If the train changes direction at the SITF, a passenger in a wheelchair would be required
to exit the train and change ends in order to be able to exit at their ultimate destination. This
condition would be in violation with the Americans with Disabilities Act.

2. **Train Frequency and Capacity.** A stub-end station operation with trains routed through as
described above would double the frequency of trains operating on the stub-end segment.
Providing a 15 minute frequency in each direction would require the operation of 16 trains an hour
on the stub-end, or double the number operating through a normal station. This segment would
thus become a system wide constraint to capacity and train frequency.

3. **Additional Station Dwell Time.** Normal station stop time (dwell) is 20 seconds in length on the
RT system. With a Stub-End operation and a single operator, the dwell time would increase to
approximately 5 minutes. The dwell time could be reduced to approximately 3 minutes with a
second employee assigned full time to assist with train reversal. However, the annual cost of the
additional station employee is approximately $237,000.

4. **Passenger Delay.** The increase in dwell time would create a major delay for passengers and
increase overall route time with an associated increase in operating costs. An increase of station
dwell time of 3 to 5 minutes would increase the travel time for the passenger traveling through the
station on average 10% to 17%.

The quality of the passenger experience at the SITF would also be compromised with the Stub-End
alignment. The east-west orientation would require passengers to walk an additional distance to reach
the end of the platform (as far as 360 feet from the end of the train). The LRT station would also need to
be below grade, located under the Millennia development. The station would thus be less visible and
accessible to passengers, requiring vertical circulation. The LRT station would use a large portion of the
Millennia basement and divide it into two separate areas. Further, it would not be possible to provide
LRT storage tracks at the SITF, as identified in the program. Additional cost would also be associated
with the underground alignment.

Alignment options will continue to be developed and evaluated for the preferred SITF alternative.
Subsequent studies will be required to perform more detailed analysis to address LRT alignment with
respect to numerous issues including LRT operation, intermodal connectivity and passenger experience,
relationship with adjacent properties including the Millennia development, roadway circulation and traffic
impacts, phasing and constructability, as well as with respect to the concerns of proximity to the Federal
Building.
This Section is Below Development at Grade
Evaluation
An evaluation of light rail operations has been completed for the Through-Station alignment options shown on the SITF Alternative Facility Plans. This evaluation considers the following issues:

- Alignment
- Platform Location
- Federal Building

Table 4.2.3 presents the results of the evaluation.
### Table 4.2.3 Evaluation: Light Rail Operation

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<tr>
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<tbody>
<tr>
<td>Alignment</td>
<td>• Requires light rail to travel approximately 2.5 city blocks to the west and back from the 7th Street alignment to serve the SITF directly. Crosses through the 5th and H Street intersection, which may contribute to traffic capacity issues at this location. Storage tracks share space with bus circulation, potential for conflicts. Requires sharp turns at ends of platforms, may require compromises in RT design standards.</td>
<td>• Requires light rail to travel approximately 2.5 city blocks to the west and back from the 7th Street alignment to serve the SITF directly. Crosses through the 5th and H Street intersection, which may contribute to traffic capacity issues at this location. Requires sharp turns at ends of platforms, may require compromises in RT design standards.</td>
<td>• Requires light rail to travel approximately 3 city blocks to the west and back from the 7th Street alignment to serve the SITF directly. Crosses through the 5th and H Street intersection, which may contribute to traffic capacity issues at this location. Storage tracks share space with bus circulation, potential for conflicts. Requires sharp turns at ends of platforms, may require compromises in RT design standards.</td>
<td>• Requires light rail to travel approximately 2 city blocks to the west and back from the 7th Street alignment to serve the SITF directly. Storage tracks share space with bus circulation, potential for conflicts. A portion of the storage tracks will be located on a curve. Requires sharp turns at ends of platforms, may require compromises in RT design standards.</td>
</tr>
<tr>
<td>Platform Location</td>
<td>• Located immediately adjacent to the SITF Terminal Building and bus boarding areas, although a roadway crossing is required.</td>
<td>• Located immediately adjacent to the SITF Terminal Building and bus boarding areas, no roadway crossings required.</td>
<td>• Located adjacent to the heavy rail platforms, but relatively far from the Terminal Building.</td>
<td>• Located adjacent to local bus boarding area, across 5th Street from the SITF site although a roadway crossing is required. Located relatively far from Terminal Building, with visual connections blocks by joint development.</td>
</tr>
<tr>
<td>Federal Building</td>
<td>• Federal Building representatives have raised security and operational concerns regarding the alignment on H Street. Closure of H Street may disrupt LRT service. A bypass track on 7th Street is one potential option to maintain operation.</td>
<td>• Federal Building representatives have raised security and operational concerns regarding the alignment on H Street. Closure of H Street may disrupt LRT service. A bypass track on 7th Street is one potential option to maintain operation.</td>
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</tr>
</tbody>
</table>
Summary
The four SITF alternatives meet the operational requirements of RT by providing for through double track LRT alignments, a station serving the SITF and storage tracks. All four of the alternatives also utilize 7th Street to cross the heavy rail tracks. In all cases, the resulting alignment is somewhat indirect, requiring LRT to travel to and from the west to provide a station at the SITF. The trade-off for direct service to the SITF is longer travel distances and time for the LRT, as well as additional intersection crossing and turning movements which may negatively impact traffic flow at some locations.

Sacramento Northern provides the most favorable LRT alignment, as the platforms are immediately adjacent to the building (with no roadway crossings required) and because much of the ROW in the SITF area is exclusive for LRT. Sunset Limited has a similar alignment and platform location. With this alternative, however, the LRT platform is located across an active roadway from the other SITF facilities and buses share the connection to 7th Street. Overland Limited has the least favorable LRT alignment due to long, sharp curve required within the SITF site and the distance between the platform and the Terminal Building. The alignment with Valley Flyer benefits from not having to pass through the intersection of 5th Street and H Street, but has an unfavorable platform location with respect to intermodal connectivity.

All four alternatives use H Street adjacent to the Federal Building, raising security and circulation concerns. Ongoing coordination between the Federal Building representatives, the City of Sacramento and the SITF team, and refinement of the proposed project will be required to produce an arrangement that is acceptable for all parties.
### Table 4.2.4 Evaluation Criteria Matrix: Light Rail Operation

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<tr>
<td>15. Meets the distinct operation requirements of the operators</td>
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<tr>
<td>16. Provides efficient circulation (minimizes distance and time) for transit vehicles within the Facility and on the adjacent roadway network</td>
<td>☐</td>
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</table>

Legend: ☐ = does not meet criteria, ☐ = meets criteria, ☯ = exceeds criteria
### 4.2.3 Bus Operation

**Introduction**

Bus activity at the SITF will consist of local transit bus services and intercity bus services. Local transit buses include Regional Transit (RT) and potentially other transit operators. Intercity bus services consist of Amtrak Thruway and Greyhound Lines.

The locations of the bus loading bays in each alternative have been illustrated previously in Section 3 of this report. Figure 4.2.3 illustrates the likely bus circulation routes for the four alternatives. The routes identified for RT buses are based on assumptions for future bus service patterns in the SITF area provided by RT and its consultant (memo from DKS Associates to Arup dated August 26, 2003). Regional Transit intends to discontinue the current practice of using 2nd Street for buses exiting the SITF. Buses would instead, enter and exit the SITF from the east. All alternatives include secondary access routes for use in the event of emergencies or other events related to activities at the Federal Building.

All four alternatives assume modifications to the I Street ramps to Interstate 5 (see Section 4.5). These modifications would permit access for intercity buses into the Facility from Interstate 5 via northbound 3rd Street. Direct freeway access does not appear to be feasible for intercity buses exiting the facility. There is a desire to minimize travel distances by intercity buses on city streets in downtown, which is reflected in the alternative designs and the following evaluation.

**Evaluation**

The evaluation of bus operations considers the following issues:

- Local Transit Bus Circulation
- Intercity bus Circulation
- Loading Areas
- Facility Operation

The evaluation of the alternatives with respect to bus operations is presented in Table 4.2.5.
**Table 4.2.5 Evaluation: Bus Operation**

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<td>Intercity bus Circulation</td>
<td>• Provides most convenient access to the intercity bus boarding area from the 3rd Street slip ramp. Removes potential conflicts for intercity buses inbound to the SITF. Includes an option for outbound intercity buses to travel past the front of the Historic Depot to connected to I Street, avoiding 5th Street adjacent to the Federal Building.</td>
<td>• Provides relatively convenient access to the intercity bus boarding area from the 3rd Street slip ramp, but does require intercity buses that are inbound to the SITF to turn left onto the H Street Extension. Most convenient circulation for buses outbound from SITF via the new 4th Street link, buses would not circulate on streets adjacent to the Federal Building. Requires intercity buses outbound from SITF to mix with local transit buses and street traffic on the H Street Extension and 4th Street.</td>
<td>• Provides relatively convenient access to the Greyhound boarding area from the 3rd Street slip ramp. Requires Amtrak Thruway buses inbound to the SITF to circulate around the local transit bus island. Requires intercity buses outbound from SITF to mix with local buses and street traffic on H Street, 5th Street and I Street and to circulate adjacent to the Federal Building.</td>
<td>• Provides relatively convenient access to the Greyhound boarding area from the 3rd Street slip ramp, but would require sharp turns. Requires Amtrak Thruway buses inbound to the SITF to circulate around the local transit bus island. Requires intercity buses outbound from SITF to mix with local transit buses and street traffic on H Street, 5th Street and I Street and to circulate adjacent to the Federal Building.</td>
</tr>
<tr>
<td>Local Bus Circulation</td>
<td>• Provides a convenient clockwise loop operation around the boarding island. Allows for a transit only (LRT, bus) access route to the intersection of 7th Street and F Street, but would create conflicts between LRT vehicles and buses. Provides numerous options for local transit bus access, including the F Street, H Street, the 3rd Street slip ramp and 2nd Street.</td>
<td>• Provides relatively short travel distances for local buses, as they are concentrated in front of the Facility and on H Street. Access options limited for buses stopping on H St Mixes local transit buses with H Street traffic in front of the Facility and the potential for queues of vehicles exiting the Facility to block bus circulation with the arrangement as shown. Provides numerous options for local transit bus access, including 4th Street, H Street, the 3rd Street slip ramp and 2nd Street. May not allow for a transit only (LRT and Local Bus) access route to the intersection of 7th Street and F Street, due to the complexity of the geometry and circulation in front of the station.</td>
<td>• Minimizes conflicts between Local Bus and private vehicles within the Facility. Provides several options for local transit bus access, including 3rd Street, G Street, H Street, the 3rd Street slip ramp and 2nd Street. Local bus and Amtrak bus conflict with LRT movement at LRT station (buses must cross LRT tracks), creating a major flaw in this alternative.</td>
<td>• Provides convenient clockwise loop operation around the boarding island. Mixes buses and traffic exiting the pick-up/drop-off area on H Street. Provides several options for local transit bus access, including 3rd Street, H Street, the 3rd Street slip ramp and 2nd Street. Allows for a local transit bus access from a transit-only LRT and Local Bus access route to the intersection of 7th Street and F Street, but would create conflicts between LRT vehicles and buses. Requires sharp turns for inbound Greyhound buses and outbound Amtrak Thruway buses.</td>
</tr>
<tr>
<td>Loading Area</td>
<td>• Ensures maximum future flexibility for intercity bus operation, such as reallocating or sharing bays or locating Amtrak Thruway and Greyhound loading adjacent to each other. Provides bays for local buses on a single island, ensuring operational flexibility and straightforward wayfinding.</td>
<td>• Results in a two-sided intercity bus boarding area that provides distinct areas for the Amtrak Thruway and Greyhound. Places local transit buses in a highly visible location in front of the facility, but may block some views of the Depot façade. Divides local transit buses between multiple island/curbs, complicating passenger wayfinding.</td>
<td>• Creates distinct boarding areas for Amtrak Thruway and Greyhound, limiting flexibility but allowing for independent operation. Divides local transit buses between multiple island/curbs, complicating passenger wayfinding.</td>
<td>• Creates distinct boarding areas for Amtrak Thruway and Greyhound, limiting flexibility but allowing for independent operation. Divides local transit buses between multiple island/curbs, complicating passenger wayfinding.</td>
</tr>
<tr>
<td>Facility Operation</td>
<td>• Bus waiting areas are separated from main Terminal Building may create inconvenient connections between Greyhound busses, Amtrak Thruway, and the central Terminal Building functions. May create circular routes through the Terminal Building for some passengers Accommodates convenient transfers for passengers connecting directly between heavy rail and Amtrak Thruway Buses.</td>
<td>• Creates logical passenger flow patterns for passengers through the Terminal Building. Provides the opportunity to create a distinct facility for Greyhound with its own street frontage. Provides better connections between the adjacent area and local transit buses, but places the boarding area farther from the heavy rail tracks. Accommodates convenient transfers for passengers connecting directly between heavy rail and Amtrak Thruway Buses.</td>
<td>• Optimizes Greyhound Facility operation. Requires relatively inconvenient connections between Amtrak Thruway buses and the central Facility functions. Places local transit buses relatively close to the Heavy Rail tracks, facilitating commuter transfers, but creates inconvenient connections to the Terminal Building. Accommodates convenient transfers for passengers connecting directly between heavy rail and Amtrak Thruway Buses.</td>
<td>• Optimizes Greyhound Facility operation. Requires relatively inconvenient connections between Amtrak Thruway buses and the central Facility functions. Places local transit buses relatively close to the Heavy Rail tracks, facilitating commuter transfers, but creates inconvenient connections to the Terminal Building. Accommodates convenient transfers for passengers connecting directly between heavy rail and Amtrak Thruway Buses.</td>
</tr>
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</table>
Summary

All four alternatives result in significant improvements in bus operation on the SITF site. They generally provide adequate capacity for bus boarding, isolate buses from street traffic within the boarding areas and create additional access opportunities to the site. Key differences between the alternatives are presented below:

Alternative A: Sunset Limited

Sunset Limited appears to be the most desirable in terms of bus circulation. It provides numerous direct or nearly direct routes into and out of the Facility, minimizes conflicts with street traffic and provides efficient internal circulation. Sunset Limited also provides maximum flexibility in the utilization of the bus loading facilities. However, the Facility arrangement as currently shown required additional design study to optimize functionality and usability, due to the separation of the Greyhound bus boarding areas from the main Terminal Building.

Alternative B: Sacramento Northern

Sacramento Northern provides the best Facility building arrangement and function. In terms of circulation, the H Street extension provides a convenient connection to and from the front of the Facility. However, the placement of local transit buses in front of the Facility would create additional conflicts with street traffic and pedestrians.

Alternative C: Overland Limited

Overland Limited creates a complicated arrangement immediately north of the Historic Depot where Local Bus, LRT (on a horizontal curve), Amtrak Thruway buses and potentially street traffic on the H Street Extension would all compete. It also provides fewer access opportunities than Sunset Limited and Sacramento Northern. Separating Amtrak and Greyhound loading areas allows them to operate independently but limits future flexibility.

Alternative D: Valley Flyer

Valley Flyer mixes bus circulation with private vehicle traffic exiting the pick-up/drop-off area on H Street. It also provides fewer access opportunities than Sunset Limited and Sacramento Northern. Separating Amtrak and Greyhound loading areas allows them to operate independently but limits future flexibility.
### Table 4.2.6 Evaluation Criteria Matrix: Bus Operation

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<tr>
<td>17. Meets the distinct operation requirements of the operators</td>
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<td>●</td>
<td>○</td>
<td>○</td>
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<tr>
<td>18. Provides efficient circulation (minimizes distance and time) for transit vehicles within the Facility and on the adjacent roadway network</td>
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<td>○</td>
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<td>○</td>
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<tr>
<td>19. Establishes flexible space for circulation, parking and support services that can be shared where appropriate and adapted over time</td>
<td>●</td>
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</table>

Legend: ○ = does not meet criteria, ● = meets criteria, ●● = exceeds criteria
### 4.3 Pedestrian Access

**Introduction**

This section examines pedestrian access to the Facility from the surrounding communities. Pedestrian circulation within the Facility, including transfers between modes, is described in Section 4.6 Intermodal Connectivity.

Site improvements would be included in all alternatives that would seek to improve sidewalks, provide pedestrian amenities and reduce conflicts with vehicles. All four alternatives also assume modifications to the I Street ramps to Interstate 5 (see Section 4.5). These modifications would provide a new signalized pedestrian crossing of I Street on the 4th Street axis. Provision of a safe pedestrian crossing of I Street is considered to be a highly desirable improvement that would benefit all of the SITF Alternatives. Such a crossing would restore the historic connection to the center axis of the depot building, as well as provide significantly improved pedestrian connections between the SITF and major destinations including Chinatown, Old Sacramento, and Downtown Plaza.

Similarly, providing a crosswalk on the west leg of the intersection of 5th Street with I Street would also provide improved pedestrian connectivity to the south and benefit all of the SITF alternatives. Placement of the crosswalk at this location would require changes in traffic control, such as operating the northbound dual left turn lanes on a permitted phase (requiring vehicles to yield to pedestrians in the crosswalk), or implementation of a new signal phasing plan to avoid conflicts between vehicles and pedestrians. Additional study would be required to determine the optimum arrangement and any impacts on traffic operation.

The most significant differences between the alternatives for pedestrian access are related to the location of the Terminal Building entrances, the number and quality of access routes and connections to local attractions. In addition, the location of the Terminal Building itself will impact pedestrian access by increasing or decreasing walking distances.

Figure 4.3.1 illustrates principal pedestrian access routes for the four alternatives. These figures also identify the major pedestrian entrances to the Facility. Figure 4.3.2 shows the pedestrian catchment areas for each alternative. The catchment area illustrates locations that are within 5, 10 and 15 minute walking times of the Facility for an average person (assuming straight line distances and a walk speed of 3 miles per hour). Typically, locations within an average 10 minute walk are considered to be easily accessible by foot.
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

Figure 4.3.1: Alternatives A-D

- Alternatives A-D: Circulation: Pedestrian Access

LEGEND

0'
100'
200'
300'
400'

PEDESTRIAN ACCESS

TERMINAL ENTRANCE

Client: City of Sacramento
Consultant Team: SMWM / Arup

Alternative A: Sunset Limited
Alternative B: Sacramento Northern
Alternative C: Overland Limited
Alternative D: Valley Flyer
Evaluation
The evaluation of pedestrian access considers the following issues:

- Facility entrances
- Conflicts with vehicles
- Connections to adjacent attractions
- Catchment area

The evaluation of the alternatives with respect to Pedestrian Access is presented in Table 4.3.1.
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<tbody>
<tr>
<td>Facility Entrances</td>
<td>• Results in pedestrian entrances to the SITF on all sides</td>
<td>• Strengthens the front of the Historic Depot as the primary pedestrian entrance to the SITF</td>
<td>• Pedestrian entrances similar to existing, with access to the Facility building on the south side of the Historic Depot and access to RT buses via 5th Street and H Street</td>
<td>• Pedestrian entrances similar to existing, with access to the Facility building on the south side of the Historic Depot and access to RT buses via 5th Street and H Street</td>
</tr>
<tr>
<td></td>
<td>• Creates the opportunity for a new pedestrian entrance directly to the SITF elevated concourse from the west end of G Street in the Millennia development</td>
<td>• Creates the opportunity for a new pedestrian entrance from the west end of G Street in the Millennia development</td>
<td>• Pedestrians entering similar to existing, with access to the Facility building on the south side of the Historic Depot and access to RT buses via 5th Street and H Street</td>
<td>• Pedestrians entering similar to existing, with access to the Facility building on the south side of the Historic Depot and access to RT buses via 5th Street and H Street</td>
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<tr>
<td>Conflicts with Vehicles</td>
<td>• Pedestrians entering all sides must cross the passenger pick-up/drop-off roadway</td>
<td>• Requires an additional crossing of H Street</td>
<td>• Pedestrians entering from the south must cross the passenger pick-up/drop-off and recirculation roadways</td>
<td>• Pedestrians entering all sides must cross the passenger pick-up/drop-off roadway</td>
</tr>
<tr>
<td></td>
<td>• Places a major station entrance on H Street, which has lower traffic volume and is more pedestrian friendly than 1 Street</td>
<td>• From the corner of 5th Street and H Street, pedestrians can access the SITF without crossing roadways</td>
<td>• Pedestrians entering from 4th Street must cross H Street, multiple bus lanes, and the passenger pick-up/drop-off roadway</td>
<td>• Pedestrians entering from H Street must cross transit routes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Places a major station entrance on H Street, which has lower traffic volume and is more pedestrian friendly than 1 Street</td>
<td>• Pedestrians entering from H Street must cross H Street, multiple bus lanes, and the passenger pick-up/drop-off roadway</td>
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<tr>
<td></td>
<td></td>
<td>• Pedestrians entering from 4th Street must cross H Street, multiple bus lanes, and the passenger pick-up/drop-off roadway</td>
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</tr>
<tr>
<td>Connections to Adjacent Attractions</td>
<td>• Provides a new pedestrian connection to the Sacramento River trail</td>
<td>• Provides a new pedestrian connection to the Sacramento River trail</td>
<td>• Provides a new pedestrian connection along the Sacramento River trail</td>
<td>• Provides a new pedestrian connection to the Sacramento River trail</td>
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<tr>
<td></td>
<td>• Improves access to Old Sacramento and the State Railroad Museum with the new I Street Crossing and connections to the west of the SITF</td>
<td>• Improves access to Old Sacramento and the State Railroad Museum with the new I Street Crossing and extended H Street</td>
<td>• Improves access to Old Sacramento and the State Railroad Museum with the new I Street Crossing and extended H Street</td>
<td>• Improves access to Old Sacramento and the State Railroad Museum with the new I Street Crossing and extended H Street</td>
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<tr>
<td></td>
<td>• Overhead concourse to the rail platforms presents an opportunity to provide direct access to the Railroad Technology Museum</td>
<td>• Below grade connection to the rail platforms presents an opportunity to provide direct access to the Railroad Technology Museum</td>
<td>• Overhead concourse to the rail platforms presents an opportunity to provide direct access to the Railroad Technology Museum</td>
<td>• Overhead concourse to the rail platforms presents an opportunity to provide direct access to the Railroad Technology Museum</td>
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<tr>
<td>Catchment Area</td>
<td>• Central passenger processing functions in the new facility extension are moved approximately 275 feet to the north</td>
<td>• Historic Depot moved approximately 400 feet to the north</td>
<td>• Primary station entrance location remains as existing</td>
<td>• Primary station entrance location remains as existing</td>
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<tr>
<td></td>
<td>• Increases walking distances from locations to the south, but reduces walking distances to future development in Railyards area</td>
<td>• Increases walking distances from locations to the south, but reduces walking distances to future development in Railyards area</td>
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</table>
Summary
All four alternatives create additional pedestrian connections and improve pedestrian access to the SITF. Each would create new pedestrian entrances and access routes to the facility. In all cases, new terminal facilities would be constructed north of the Historic Depot, likely including additional waiting areas, ticket vending machines and other amenities in addition to circulation to the heavy rail platforms. Similar to the existing arrangement, pedestrians could bypass the Historic Depot and walk directly from the surrounding area to RT buses or LRT, although roadway crossings would typically be required. Frequent heavy rail users could also utilize new access points to enter the facility without traveling through the Historic Depot. Key differences between the alternatives are presented below.

Alternative A: Sunset Limited
Sunset Limited creates the greatest number of new pedestrian access points into the Facility, including a new entrance behind the REA building at the west end of H Street and grade separated access into the Millennia development. The Historic Depot also remains as a principal gateway into the Facility in its present location. It also creates a new entrance to the east and concentrates pedestrian activity on H Street, which is a more attractive pedestrian environment than I Street. The primary passenger processing functions of the Facility moves approximately 275 to the north, increasing walking distances from the south.

Alternative B: Sacramento Northern
Sacramento Northern moves the primary pedestrian entrance to H Street, with lower traffic volumes and a more attractive pedestrian environment than I Street. The Historic Depot building is strengthened as the principal entrance to the Facility. This alternative provides the best pedestrian linkages to the adjacent Millennia Development. It does, however, move the primary passenger processing functions of the Facility approximately 400 feet to the north and requires pedestrians walking from the south to cross H Street.

Alternative C: Overland Limited
Overland Limited retains the Historic Depot as the primary entrance to the Facility with pedestrian access from H Street and on the 4th Street axis. Access from H Street is less attractive than in the previous two alternatives, as pedestrians must either travel south to the front of the Historic Depot or enter the facility at the rear of the building. This option also creates a new opportunity for pedestrian access to and from the north.

Alternative D: Valley Flyer
Valley Flyer provides similar pedestrian access to Overland Limited.
Table 4.3.2 Evaluation Criteria Matrix: Pedestrian Access

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>20. Provides safe, accessible, and convenient pedestrian access between the facility and surrounding areas.</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Legend: □ = does not meet criteria, ○ = meets criteria, ● = exceeds criteria
4.4 Bicycle Access

Introduction
This section examines bicycle access to the Facility. There is potential to increase the usage of bicycles as a means of access to the SITF. Both the Capitol Corridor and San Joaquin rail services provide onboard bicycle racks. Bicycles can also be accommodated on RT Buses and LRT vehicles. The weather and topography of Sacramento are highly conducive to bicycle use. In addition, Sacramento has proposed numerous new bikeways in the vicinity of the SITF. Bicycle use by passengers will continue to be actively encouraged, in part by improving bicycle access and providing additional amenities for riders.

Site improvements would be included in all alternatives that seek to enhance bicycle circulation. Improvements may include signposting preferred bicycle routes and physical provisions such as wide outside travel lanes, designated bicycle lanes and off-street bicycle paths. Specific improvements will be identified as part of future design work. All options are also assumed to provide significantly improved bicycle parking facilities and other amenities for riders. Potential improvements include lockers for bicycles or belongings, covered parking areas, attended parking areas and a staffed bicycle station that could incorporate secure bicycle parking and maintenance facilities.

The Sacramento Bikeway Master Plan indicates existing and proposed bikeways in the immediate vicinity of the SITF.

Existing Bikeway:
- Sacramento River Trail

Proposed Bikeways:
- 2nd Street
- 5th Street (if extended north of H Street and across the railroad tracks)
- 6th Street (north of H Street)
- 7th Street (north of H Street)
- H Street

Proposed connections between the SITF and the existing and proposed bikeways for each of the alternatives are illustrated in Figure 4.4.1. Bicycle access would not be limited exclusively to these routes, but they do represent the principal connections to the regional network.
Figure 4.4.1

Alternatives A-D: Circulation: Bicycle Access

Client
City of Sacramento

Consultant Team
SMWM / Arup

Alternative A: Sunset Limited
Alternative B: Sacramento Northern
Alternative C: Overland Limited
Alternative D: Valley Flyer

LEGEND
CONNECTION TO REGIONAL BIKEWAY
PROPOSED REGIONAL BIKEWAY
Evaluation

The evaluation of bicycle access considers the following issues:

- Conflicts with vehicles
- Connections to the Regional Network
- Bicycle parking

The evaluation of the alternatives with respect to bicycle access is presented in Table 4.4.1.

Summary

The differences between the alternatives are relatively minor. All could be well connected to existing and proposed bikeways, and all are assumed to provide improved bicycle parking facilities. Sacramento Northern has the advantage of relocating all station access points away from I Street to H Street, which will reduce the need for bicycles to use the heavily trafficked I Street. Similar to Overland Limited and Valley Flyer, it also accommodates a direct linkage between proposed bikeways on the extension of H Street.
Table 4.4.1 Evaluation: Bicycle Access

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<tr>
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<tbody>
<tr>
<td>Conflicts with Vehicles</td>
<td>• Creates options to enter the facility on H Street reduces the likelihood that bicyclists would use I Street, which has higher traffic volumes</td>
<td>• Placing entrances to the facility on H Street minimizes the likelihood that bicyclists would use I Street, which has higher traffic volumes</td>
<td>• Although the primary access to the facility on I Street, secondary access options would be created on H Street north of the Depot</td>
<td>• Although the primary access to the facility on I Street, secondary access options would be created on H Street north of the Depot</td>
</tr>
<tr>
<td>Connections to Local and Regional Network</td>
<td>• Accommodates a connection between the proposed bikeways on the Sacramento River Trail, 2nd Street, H Street, 6th Street and 7th Street via the extended H Street</td>
<td>• Accommodates a continuous direct connection between the proposed bikeways on the Sacramento River Trail, 2nd Street, H Street, 6th Street and 7th Street via the extended H Street</td>
<td>• Accommodates a continuous direct connection between the proposed bikeways on the Sacramento River Trail, 2nd Street, H Street, 6th Street and 7th Street via the extended H Street</td>
<td>• Accommodates a continuous direct connection between proposed bikeways on the Sacramento River Trail, 2nd Street, H Street, 6th Street and 7th Street via the extended H Street</td>
</tr>
<tr>
<td>Bicycle Parking</td>
<td>• Assumed to include improved bicycle parking and amenities</td>
<td>• Assumed to include improved bicycle parking and amenities</td>
<td>• Assumed to include improved bicycle parking and amenities</td>
<td>• Assumed to include improved bicycle parking and amenities</td>
</tr>
</tbody>
</table>

Table 4.4.2 Evaluation Criteria Matrix: Bicycle Access

<table>
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<tr>
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<tbody>
<tr>
<td>21. Provides safe and convenient bicycle connections between the facility and surrounding areas.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>22. Provides adequate bicycle parking facilities.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

Legend: † = does not meet criteria, O = meets criteria, • = exceeds criteria