



City of Sacramento

**Sacramento Intermodal
Transportation Facility**

Technical Report #13
Intermodal Alternatives Study

January 14, 2009

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City of Sacramento

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Project Reports

Technical Report #1: Existing Site Conditions

Working Paper #2: Armchair Tour of Intermodal Terminals

Working Paper #3: Transit Operational Requirements

Working Paper #4: Transit Operational Requirements

Working Paper #5: Conceptual Programs for Transit and Joint Development and Evaluation Criteria

Technical Report #6: Final Conceptual Transit and Joint Development Programs

Technical Report #7: Baseline Traffic Simulation and Analysis

Working Paper #8: SITF Alternatives (draft)

Technical Report #9: SITF Alternatives (final)

Working Paper #10: Proposed SITF Project (draft)

Technical Report #11: Proposed SITF Project (final)

Working Paper #12: Conceptual Master Plan Schemes for the SITF (draft)

Technical Report #13: Conceptual Master Plan Options for the SITF (final)

To see all Working Papers and Technical Reports, see the project website at:

www.cityofsacramento.org/transportation/director/sitf

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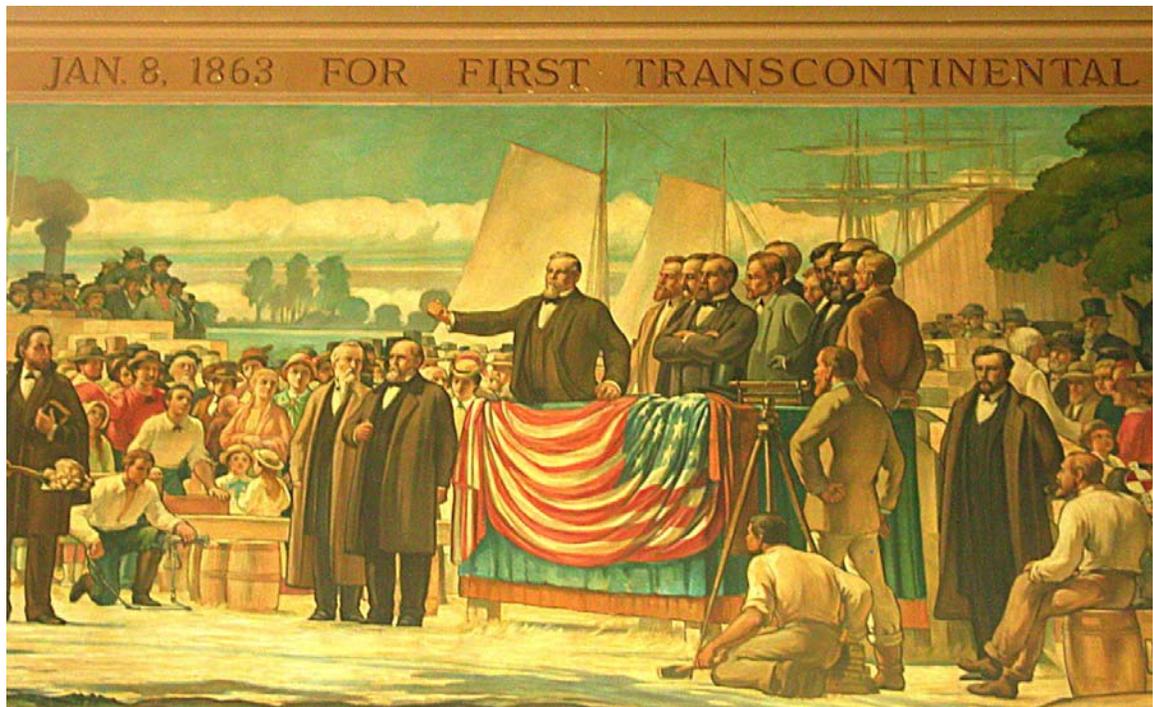


Figure 1.1 Mural in Grand Waiting Room of Historic Depot

1 Executive Summary

The development of the Railyards area and the Sacramento Intermodal Transportation Facility (SITF) presents a tremendous opportunity for Sacramento and the region, including the residents, transit agencies, stakeholders, property developers, and neighbors. It is envisioned as a regional transportation hub that incorporates as many transit services as possible to cater to both intercity and commuter passengers, and includes a major parking component to allow park and ride access. This vision seeks to maximize transit service, connectivity, and patronage. Successful completion of the project depends on establishing mutually beneficial public/private partnerships and partnerships among local and regional agencies, governments and private parties.

Since 2002, the project team has explored a wide range of alternatives for the SITF. A range of alternative schemes was developed and documented in a series of Working Papers and Technical Reports (See page 3 for document list). Through a highly interactive public process, a preferred scheme was selected by the Sacramento City Council in March 2004. Technical Report #11 produced in October 2004, was a more detailed investigation and conceptual design of the preferred concept terminal master plan which proposed relocating the Historic Sacramento Valley Station Depot adjacent to the future realignment of the tracks.

As this project enters the environmental review phase, an evaluation of alternative schemes is required to ensure a balanced analysis of the comparable issues. There has been considerable debate on the subject of moving the Depot. The key concerns from both the public and the City of Sacramento can be summarized as follows:

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- The importance of the Historic Depot maintaining its role as the transportation facility and gateway
 - The practicality and convenience for passengers with the increased distance between the Historic Depot's current location and the newly realigned tracks if the Historic Depot remains in its existing location.
 - The implications to the historic status of the Historic Depot if it is moved
 - The feasibility and cost effectiveness of physically relocating the Historic Depot
 - Potential impacts on Federal participation in the project, particularly regarding funding

Consequently, the project team was charged with developing a master plan scheme that considered retaining the Historic Depot in its current location as well as updating the previous *Move the Depot* option to the new Railyards Specific Plan. These two alternatives will be assessed during the environmental process. Though all of the public and City of Sacramento concerns are still relevant, they are not all addressed within this report. This report studies the Move and Don't Move options focusing on transportation functions, proposed operator needs, architecture and urban design. In depth discussion on Federal Funding and implications to the historic status are not within this report's scope.

The project is continuing to progress and has been divided up into 3 distinct phases to allow the different aspects of the project to continue to move forward in-line with funding and local development commitments. The first of these distinct phases will be the relocation of the heavy rail tracks and passenger platforms (Phase 1 - Track Relocation Project). As of the time of writing this report (subject to change), this phase of work is expected to begin construction in early 2010 and is expected to be completed mid 2011. Upon completion of Phase 1, work will immediately (subject to funding) begin on Phase 2 of the project. Phase 2 (Sacramento Valley Station Improvements) will proceed with the aim of reconfiguring the space around the Historic Depot to improve transit and passenger access. Phase 2 work includes the relocation of the LRT Extension, bus area, extension of H Street, parking and site improvements, and electrical system upgrades to the Historic Depot. Further information on the Phase 2 project can be found in Section 3. The final phase of this work is Phase 3 (Intermodal Improvements). This technical report outlines the two alternatives that are currently being considered for Phase 3.

The purpose of this report is to present two alternative options - one that relocates the Historic Depot and one where it remains in its current location. Both options respond to the established program and project goals, maximize joint development opportunities, and are exciting and dynamic concepts for the SITF. The project team has explored and evaluated the implementation of both options and a rough order of magnitude cost model based on the conceptual phasing plans has been completed.

Additionally, this report includes an in-depth analysis and costing of the means and methods of physically relocating the Historic Depot. The findings of the technical study concluded

that the Depot is a good candidate for relocation due to the simplicity of the move path and its straightforward and robust structural system. The report further notes that the decision of whether to move the Depot or not, should not be based on whether the move is physically feasible; it should be based on comparisons of functionality, costs, and historical resource impacts. The Technical Issues Study prepared by Simpson Gumpertz and Heger can be found in the Appendix Section 9.2 of this report.

Upon considerable study of the two options, the City of Sacramento has requested the team to put forth a recommendation for the better option. The team determined that the “Don’t Move the Depot” option, though a larger and longer terminal, presented better joint development parcels, flexibility in phasing the project, and did not bring undue risk to integrity of the historic setting of the Depot. The viability of this option relies heavily on the successful integration of joint development within the new terminal extension, Depot, and the adjacent land parcels and requires further study beyond the scope of this report.

1.1 Alternative Schemes

Both alternatives were developed on the basis of the program outlined in Working Paper #5 and Technical Report #11. The program assumptions were verified and updated by the project team with the transit operators and project stakeholders for this scope of work. Many of the project’s parameters are the same for both schemes, including:

- The rail tracks will be realigned for increased rail capacity, safety, and to extend the City’s street network into the Railyards
- The Historic Depot will be seismically retrofitted and rehabilitated and will be a key element of the project
- The operator program for the future SITF is greater than the capacity of the Historic Depot and requires the construction of a terminal extension
- The “West Side Access” project will be completed and if determined to be feasible, will provide additional roadway access to the western side of the station site via the extension of 3rd Street north of I Street
- A traffic signal will be installed on I Street at 4th Street to provide pedestrian and vehicular access to the station site
- A pedestrian connection at G street will be made through the future Thomas Development from the Intermodal to the Railyards area being developed south of the rail corridor
- A pedestrian connection may be made to the Railyards Development Market Plaza
- On site circulation will be extended into the Intermodal site along the H Street alignment
- On the west side of the site a transitway will extend from H Street parallel to the tracks to the east

- The final design and location of the pedestrian and bicycle tunnels under the realigned heavy rail tracks are to be determined as part of the Phase 1 Rail Relocation project

The following provides a brief comparison between the two alternatives.

Move the Depot

In this concept, the Historic Depot is physically moved north by approximately 300 feet, placing it approximately 500 feet from the new passenger platforms (see Figure 4.1.1). This action ensures the Historic Depot's role as the anchor for the new SITF and shortens the passenger connections between transit modes. The Historic Depot will retain the majority of the transit ticketing operations with additional program housed in a new terminal extension. Between these two major transit anchors there will be a semi-open pedestrian plaza. Multiple modes of transit will be located and organized per two broad categories: local city level connections such as light rail and local buses adjacent to the new covered pedestrian plaza and regional transit such as Greyhound and Amtrak will be grouped together for ease of connection.

Don't Move the Depot

In this concept, the Historic Depot will remain in its current location approximately 800 feet from the new passenger platform (see Figure 5.1.1). A new terminal extension will be constructed north of the H Street alignment between the relocated tracks and the Historic Depot. This will include a generously scaled upper concourse over a ground level bus facility immediately adjacent to the local bus facility and the LRT platforms. The Historic Depot will retain transit operations but the majority of transit related functions will be located on the concourse level of the new terminal extension. Elevators and escalators will connect the concourse to the ground level bus facility, and to the Historic Depot. The elevated concourse scheme "bridges" over H Street from the Historic Depot and continues on to a bridge crossing over the tracks to the Railyards development to the north, with access to the platforms made directly down from the Concourse level via escalators and elevators. Ideally, this bridge will connect to the Railyards development on the north side of the rail corridor.

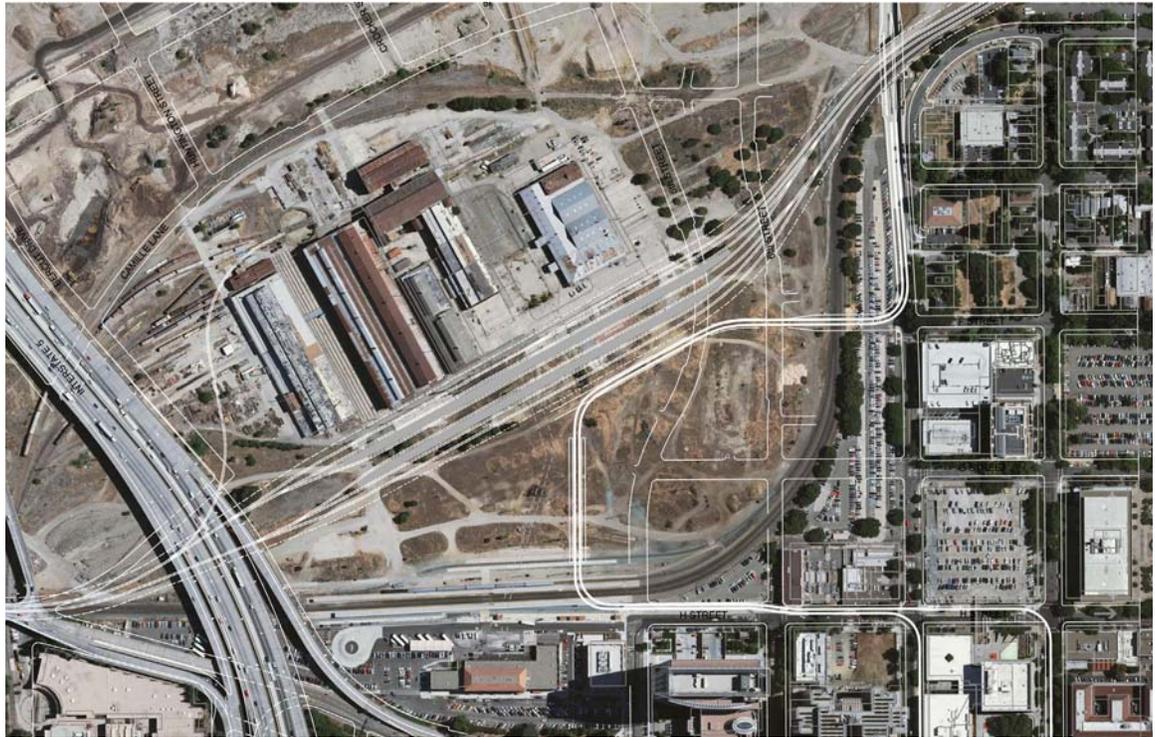


Figure 2.1 Existing Aerial of site with overlay of new rail alignment

2 Introduction

The City of Sacramento is reinventing the Railyards as a vibrant, active, and urban district with the Sacramento Intermodal Transit Facility (SITF) as its centerpiece. The proposed northern track realignment required for modern rail and future high speed rail will permit the extension of Sacramento's historic street grid and the creation of a new transit-oriented, mixed-use infill neighborhood in the historic Railyards. As a part of this urban design study, two alternatives have been advanced in order to address the multiple viewpoints of the regulatory agencies, stakeholders, and the public regarding the layout of the future intermodal transit facility. These groups include both historic review agencies and transportation advocates and the concepts presented here will be the subject of environmental review as the project proceeds into the next stage.

The "Move the Depot" option evolved from what was called in Technical Report #11 the "Sacramento Northern" scheme. In this scheme, the historic role of the Sacramento Valley Station Depot as Sacramento's center of rail transportation will be retained by physically moving the Historic Depot to the new track alignment so that it retains its historic use as a rail transportation facility, while becoming an integral part of an expanded regional transit hub serving the city and the region. The "Don't Move the Depot" option, representing the evolution of the "Sunset Limited" scheme from Technical Report #9, retains the depot in its current location, continues to use it for transportation purposes, and proposes the construction of a new multi-modal transit facility

between the Historic Depot and the rail tracks.

2.1 Terminology

For clarity, the report uses the following terminology: “SITF” is the Sacramento Intermodal Transportation Facility, the “Intermodal Planning Area” or “Depot District” refers to the portion of the Railyards area in which the SITF is located, bounded by Central Shops to the north, 7th Street to the east, I Street to the south, and the Sacramento River to the west (See Figure 2.1). The “Intermodal Facility”, “Facility” or “SITF” refers to the entire facility complex including passenger facilities, heavy rail platforms, other transit areas, parking, and major open spaces.

The “Terminal Building” is composed of two integrally related components, the Historic Depot and the new Terminal Extension, and houses the primary passenger, transit, and transit-related joint development program areas, including ticketing and waiting areas, baggage handling, administrative functions, and joint development program elements. The “Historic Depot” referred to as the “Depot” is the existing 1926 Sacramento Valley Station Depot that currently serves rail and bus passengers on the project site. The two options presented include additional passenger facilities: the “Move the Depot” has a compact plan adjacent to the tracks that includes almost all of the transit operations, the relocated depot and the terminal expansion, while the “Don’t Move the Depot” has a linear configuration of transit operations due to the adaptive re-use of the existing terminal for Amtrak and ticketing functions.

2.2 Need for Project

The Intermodal Facility is a key public project for Sacramento and the region, and will be a catalyst for the redevelopment of the 240-acre Railyards area. The Intermodal Project Team was tasked with the assignment of developing concept plans for an Intermodal Facility that would meet the transportation needs of the Sacramento region and the various transit operators planned through the year 2025. This programming work is summarized in Working Paper #5 . Analysis of the existing facility, track and platform layouts, and joint development potential quickly revealed major drawbacks with the current depot facility. In brief, the existing site, structures, and track alignments are deficient in three key areas:

- The Historic Depot on its own does not meet the combined program needs of the operators
- The existing rail alignments do not meet the operational and capacity requirements of the freight and passenger operators.
- The current track location prevents the creation of viable north-south urban framework connections at 5th and 6th streets, restricts land available for transit functions, and severely limits opportunities for revenue-producing and transit-serving joint development.

Maintaining the existing platform locations and building a new freight mainline along the northern track alignments would further limit access to the site, restrict revenue-producing joint development and prohibit the creation of strong urban linkages between the Railyards area and the existing downtown core. For additional discussion of the project need, see Technical Report #1 and Technical Report #6.

2.3 Project Benefits

The proposed project offers significant benefits for Sacramento and the region. As a key element in the regional transportation network, the SITF will help to achieve the following goals:

- Create a state-of-the art regional transportation facility that meets the needs of transit users and operators through the year 2025 and beyond
- Increase local and regional transit use by bringing disconnected components of the transit network together in a single regional hub
- Bring new life to the Historic Depot by establishing the Depot as part of the core facility of the SITF while continuing its historic use as a regional rail station
- Make transit an increasingly viable and appealing option for local and regional users by increasing choices and service levels within this regional hub
- Play a key role in the region's air quality strategy by helping decrease the region's reliance on automobiles
- Improve main line heavy rail capacity and reliability - both passenger and freight - by reconfiguring the main line and platform tracks through the site
- Stimulate smart-growth in the downtown by enhancing transit oriented development in the urban core and facilitating extension of Sacramento's efficient circulation grid
- Enhance tourism through improved access to Sacramento and the region with strengthened connections to the California State Railroad Museum, the proposed Railroad Technology Museum, Old Sacramento, and to the Sacramento Railyards project and its Central Shops Historic District
- Celebrate transit in the daily life of the region by creating a recognizable transit landmark

2.4 Regional Significance

The SITF is a project of great regional significance. It is envisioned as a regional transportation hub that incorporates as many transit services as possible including a major parking component to cater to both intercity and commuter passengers. This vision seeks to maximize transit service, connectivity, and patronage. Successful completion of the project depends on establishing mutually beneficial public/private partnerships as well as partnerships among local and regional agencies and governments.

Features of the SITF that enhance its role as a regional transportation hub include the following:

- High levels of planned service at the site by the numerous current and future transportation modes that are planned for Sacramento, including Amtrak rail and bus; Capitol Corridor and San Joaquin trains, regional rail, California High Speed Rail, Greyhound, RT bus and light rail transit (LRT), other local transit operators, shuttle services and others. Thus it is called an "intermodal" or "multi-modal" facility.
- Compact and easy-to-navigate layout that facilitates transfers between the same service or different transit modes.

- Amenities geared to transportation users, such as food services, retail, travel planning, hotel, tourism facilities, commuter parking and specialized services.
- Efficient, state-of-the-art transportation and support facilities at a single location shared by several transit operators. Combining operational benefits while providing more scheduled service and connections results in higher usage. The service offered and the users would be mutually supportive and result in a more successful facility.
- The SITF is located at the historic and geographic center of the region: at the confluence of the Sacramento and American Rivers, the crossroads of the major rail lines, and the interchange of major interstate highways; midway between the Sierras and the Bay, at the juncture of the Sacramento and San Joaquin Valleys, and at the western starting point of the nation’s first transcontinental railroad. The SITF offers unparalleled access to the regional transportation network.

The SITF will be a landmark facility with a solid nucleus of joint development that will offer choices in shops, restaurants, offices, hotels and other tourism facilities. This identity, joined with convenient transportation options and access to destinations, will attract development. It will have high volumes of people flowing through it that will further attract development.

In addition, the SITF will be the gateway to regional destinations, such as the State Capitol and offices, Federal Building and agencies, the Mexican Consul, Old Sacramento, the California State Railroad Museum and other State museums, the Convention Center and Community Center Theater, the Crocker Art Gallery, the Sacramento Zoo and countless other varied cultural, business and tourist attractions. It also will provide easy access to Sacramento financial institutions and office centers, major retail shopping centers, entertainment centers and unique districts that are downtown and beyond.

Having the SITF as a landmark also brings respectability to transit alternatives as well as greater use and viability. In this role, it will be similar to Grand Central Station in New York City, Union Station in Washington, D.C., Union Station in Los Angeles and the future Transbay Terminal in San Francisco.

2.5 Project Goals and Objectives

The project goals and objectives have been previously defined in Working Paper #5. The objectives are shown in the following tables:

2.5.1 Physical Capacity

Criteria	Objectives
1. Transportation Program	A. Meets current and projected demand for transit, paratransit, and freight operations B. Meets current and projected demand for transit vehicle loading, layover, storage and servicing C. Meets projected space needs for passengers

2. Expandability	<ul style="list-style-type: none"> A. Accommodates expansion of the facility over time to meet growth in demand beyond the planning horizon B. Limits the amount of disruption and demolition required for subsequent expansion. Allows operations to continue while under construction C. Provides flexibility to add new transit services or connections at the facility
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2.5.2 Operations

Criteria	Objectives
1. Transit Operations	<ul style="list-style-type: none"> A. Meets the distinct operational requirements of the operators B. Provides efficient circulation (minimizes distance and time) for transit vehicles within the facility and on the adjacent roadway network C. Establishes flexible space for circulation, parking, and support services that can be shared where appropriate and adapted over time
2. Pedestrian Access	<ul style="list-style-type: none"> A. Provides safe, accessible, and convenient pedestrian circulation within the facility B. Provides safe, accessible, and convenient pedestrian connections between the facility and surrounding areas
3. Bicycle Access	<ul style="list-style-type: none"> A. Provides safe and convenient bicycle connections between the facility and surrounding areas B. Provides adequate bicycle parking facilities
4. Automobile Access	<ul style="list-style-type: none"> A. Provides adequate curb length to accommodate pick-up and drop-off activity by private vehicles and taxis B. Provides adequate parking to support the transit functions of the facility C. Provides efficient circulation (minimizes distance and time) for automobiles within the facility and on the adjacent roadway network
5. Intermodal Connectivity	<ul style="list-style-type: none"> A. Optimizes intermodal connections by providing convenient and attractive access between modes, including minimizing travel distances, vertical level changes and roadway or track crossings, and providing visual connections and wayfinding signage B. Improves connections between existing operators and adds new connections to other modes not directly provided at the facility

2.5.3 Joint Development Evaluation Criteria

Criteria	Objectives
1. Transit Program Compatibility	<ul style="list-style-type: none"> A. Does not unreasonably constrain opportunities for a functionally optimized transit facility B. Compatible with current and planned freight operations and Railroad Museum operations C. Increases peak and off-peak transit ridership by incorporating transit oriented development D. Increases opportunities for off-peak and backhaul ridership
2. Phasing Impacts	<ul style="list-style-type: none"> A. Allows phased/incremental development of commercial areas B. Facility can be continuously operational during construction C. Does not conflict with phased implementation of transit components D. Is flexible to allow for market changes and technology changes
3. Funding Potentials & Fiscal Impacts	<ul style="list-style-type: none"> A. Is fundable using identifiable funding sources B. Produces revenues that reduce the public cost of facility rehabilitation/construction C. Reduces public cost of facility operations D. Does not increase net operating cost of facility
4. Site Impacts	<ul style="list-style-type: none"> A. Improves site circulation and access B. Improves connectivity over planned rail lines C. Improves connectivity between existing and new site development D. Allows the segregation of transit intensive areas from commercial areas E. Maximizes potentials for shared support facilities, including parking and vertical circulation
5. Urban Context Impacts	<ul style="list-style-type: none"> A. Improves pedestrian and bicycle safety and access to the SITF B. Increases number of people accessing the facility via all modes C. Is integrated in every direction with the surrounding neighborhoods and destinations including the Railyards development, the Railroad Museum, the riverfront, Old Sacramento, the Federal Courthouse and other nearby destinations D. Should not produce disproportionate negative impacts on surrounding neighborhoods E. Minimizes negative impacts of grade-separated crossings F. Maximizes north-south and east-west urban connectivity
6. Urban Design Potential	<ul style="list-style-type: none"> A. Creates an architecturally significant place/address for the SITF B. Is compatible with the scale, massing, materials, and architectural and landscape elements of the surrounding development C. Allows mixed pedestrian access

<p>7. Historic Facilities opportunities and constraints</p>	<ul style="list-style-type: none"> A. Meets the criteria of the “Principles of Agreement Related to the Sacramento Intermodal Station, May 17, 2001” for use of the Historic Depot and REA buildings B. That the Historic Depot continue in a transportation role and be a gateway to Sacramento C. Uses the unique historic architectural and cultural features of the Depot and REA building to maximize transit-serving joint development opportunities D. Meets the Secretary of the Interior’s Standards for Rehabilitation. E. Gains Finding of No Significant Impact (FONSI) determination from the federal preservation reviews F. Gains approval of the State Historic Preservation Office
<p>8. Incremental Traffic and Site Circulation Impacts</p>	<ul style="list-style-type: none"> A. Meets the traffic and transit circulation goals and objectives of the city at each development phase

3 Foreword

The City of Sacramento has been working concurrently on the Intermodal and the Track Relocation projects while this technical report was nearing completion. Several decisions involving the Heavy Rail Track Relocation (Phase 1 of the Project) were made that differ from some of the parameters used in the development of the schemes represented in this report. As with all long-term and complex urban redevelopment projects, project parameters will continue to evolve as decisions are made and agreements reached among the many stakeholders involved. The design alternatives presented in this document are based upon Heavy Rail Track Relocation project designs as presented and frozen in May 2008.

The Intermodal (Phase 3) conceptual ideas and site strategies presented in this report remain valid and unaffected by these developments but the drawing exhibits in this report do not necessarily reflect these changes in design between the May 2008 and the report issue date. These changes include minor realignments of tunnel locations under the relocated rails and have been determined through preliminary analysis that they will work with either scheme. These alignments are however still being finalized as the Heavy Rail Track Relocation Project is being developed and this Technical Report is completed. They are illustrated in the following exhibits (Figures 3.1 - 3.3) to the degree that they were known at the time of issuing the report. These exhibits and the diagrams of walking distances for each option (Figures 3.4 - 3.6), were developed for the environmental study (after the completion of the report) and have been included for additional reference. The following describes the developments in more detail and their impact on the schemes:

West (2nd Street) Bicycle/Pedestrian Tunnel

At the time of the development of the Intermodal schemes in Spring 2008, the bicycle/pedestrian tunnel was located near the I-5 overpass and was going to be newly constructed and optimally aligned with the new master plan of the Intermodal site (as shown in the drawing exhibits and diagrams included in this report). Subsequently, reuse of the existing Southern Pacific worker's tunnel and its extension through the new rail corridor was proposed. As of November 2008, the City of Sacramento has decided to abandon the existing tunnel western tunnel and replace it with a new realigned pedestrian/bike tunnel in the vicinity of I-5. Though this tunnel alignment does not greatly affect either scheme, the southern ramp to grade will conflict with the layout of the surface parking as currently shown. These conflicts can be resolved with further design study but could result in reducing the total amount of surface parking achieved with the tunnel alignment proposed in this report.

Service Tunnel

As an alternative to an at-grade private rail crossing or a baggage tunnel accessing the platforms from the south, it has been proposed to provide a shorter service tunnel on the western side of the site. The tunnel would be located east of the West Bike/Pedestrian Tunnel, and west of the transitway access road. Baggage carts and service vehicles would access the service tunnel via either a ramp parallel to the I-5 on-ramp or via the transit way passing underneath the heavy rail tracks to access the heavy rail passenger platforms.

Passenger Platform Tunnel

Ongoing discussions with Thomas Enterprises, Union Pacific, and the City of Sacramento have resulted in a new optimized alignment of the passenger platform tunnel. This new tunnel alignment effectively eliminates the “dogleg” shown on the Don't Move the Depot scheme. As for the Move the Depot scheme, the tunnel alignment will change the integration of the ramp and the new terminal extension. The new tunnel alignment will also likely increase the complexity of the construction phasing. However, it is believed that these negative impacts are relatively minor and could be mitigated through further design study and analysis.

Phase 2 - Sacramento Valley Station Improvements

Obtaining funding for the Intermodal Transportation Facility Improvement project will likely take many years to complete. As a result, a number of phased, smaller-scale improvements have been identified. These smaller projects contribute to both the Move and Don't Move the Depot alternatives, by providing improved transit and pedestrian facilities at the Historic Depot until the Phase 3 work can be completed.

The smaller cost improvement schemes that can be undertaken in Phase 2 include the following:

- Relocation of the LRT extension platform and tracks onto the DNA alignment
- Improved local and intercity bus facilities with greatly improved connections between heavy rail, light rail and buses
- Development of transit-only lanes (transitway) parallel to the rail corridor providing direct bus route between the east and west sides of the site
- Increased parking space with improved facilities for both vehicles and bicycles
- Tunnel extension connecting the Depot's existing baggage tunnel and the passenger platform tunnel to be built as part of the track relocation. (Note: This tunnel extension may not be built if the service tunnel on the west side of the platforms is constructed.)
- Electrical system and code upgrades to the Historic Depot.

The Phase 2 scheme is presented in Figure 3.1.1.

Alternative Phasing Strategy

Section 6 of this report presents phasing strategies for each of the Intermodal options. An alternative Phasing Strategy has subsequently been developed for the Don't Move the Depot Option in order to address concerns related to acquiring adequate funding for each phase. This is presented in the Technical Addendum –Alternative Phasing Strategy for the Don't Move the Depot Option which is available from the City Department of Transportation upon request. The alternative phasing strategy further subdivides the sequence with the intention of reducing the cost of individual sub-phases. The ultimate design and construction phasing of the Intermodal

facility, and the Terminal Extension building in particular, will need to be compatible with the future funding streams.

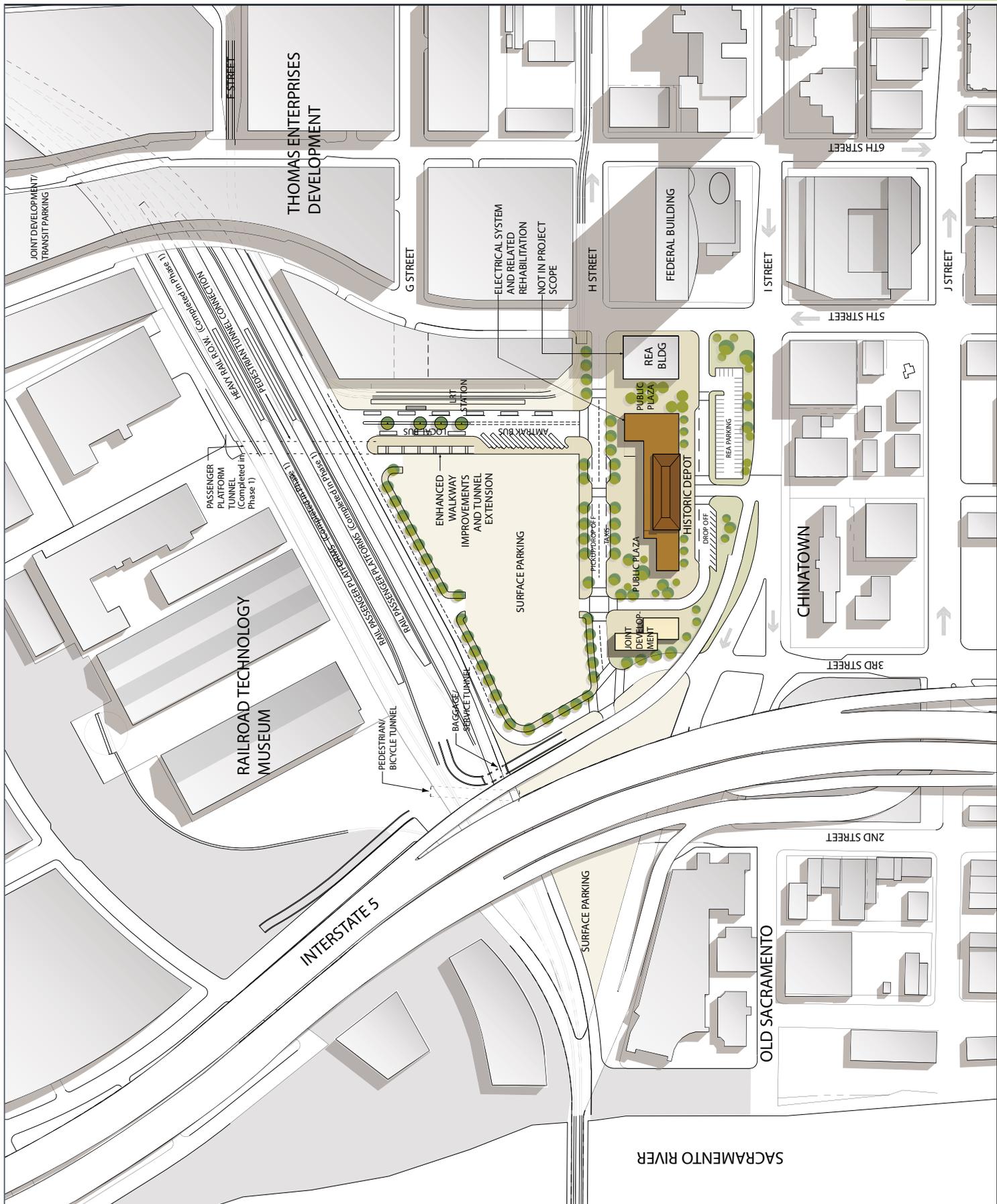
Project Schedule and Cost Estimates

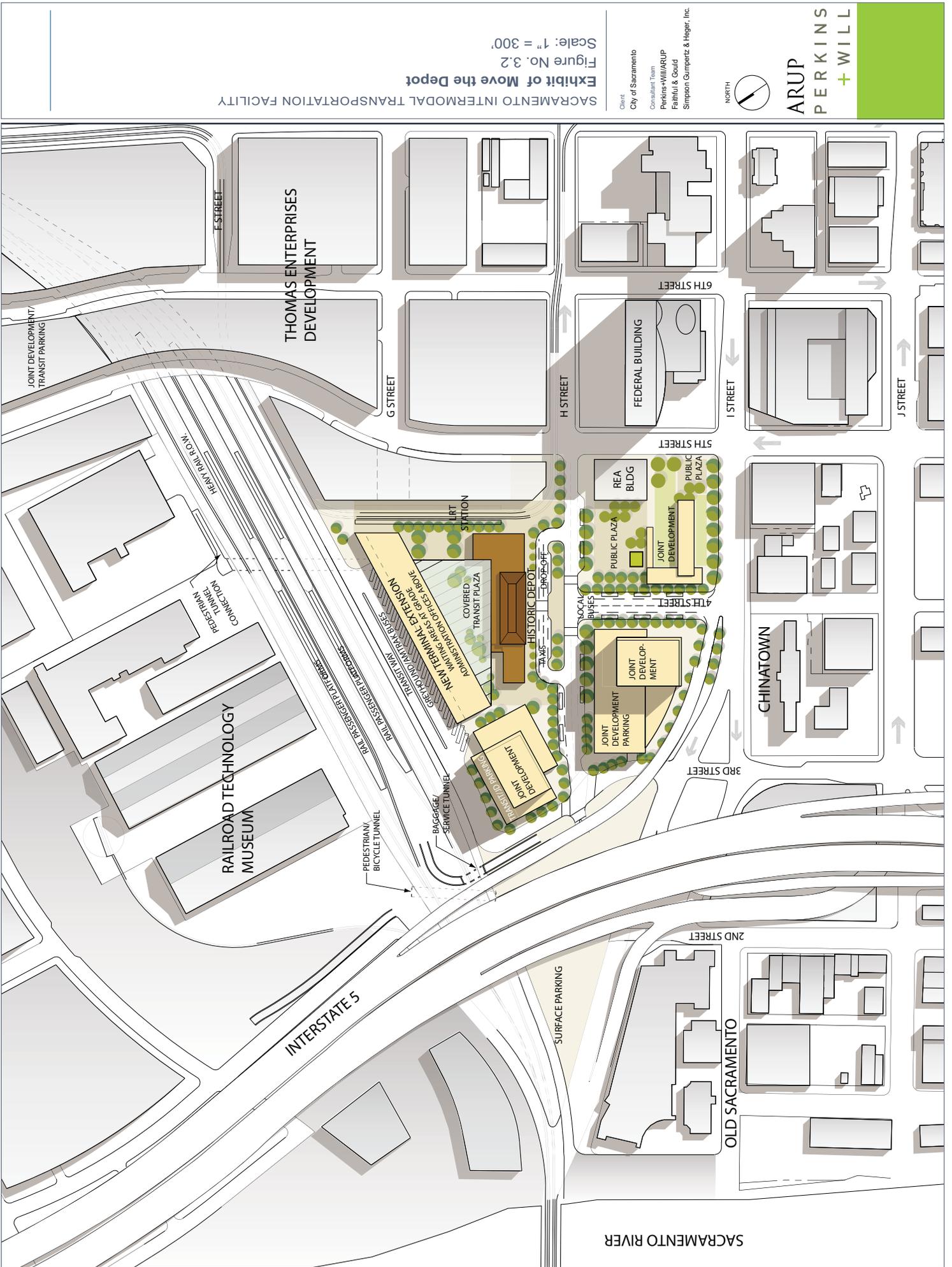
The phasing strategies described in Section 6 of this document assumed a start date for Phase 1 (Track Relocation) 1st Quarter 2010. The start date for this phase has subsequently been revised to 3rd Quarter 2009, moving forward each of the phases by 6 months. This is reflected in the Technical Addendum –Alternative Phasing Strategy for the Don't Move the Depot Option and is still subject to change. It should be noted that the varying start dates will affect the cost estimates to a certain degree but for planning purposes, the rough order of magnitude costs presented in this report should remain the same.

Client: City of Sacramento
 Consultant Team: ARUP, Perkins+Will, Faithful + Gould, Simpson Gumpertz & Heger, Inc.



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Exhibit of Move the Depot

Figure No. 3.2

Scale: 1" = 300'

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 Consultant Team: Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.



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Don't Move The Depot/ Move the Depot Option

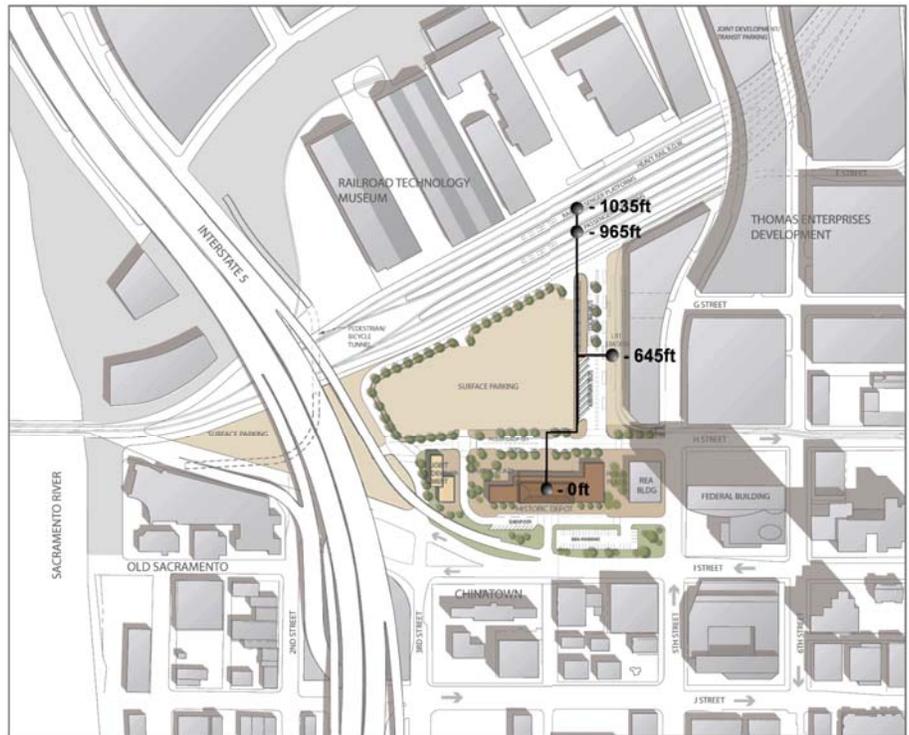


Figure 3.4 Phase 2 Walk Distance
Measured from center of Historic Depot waiting area to vertical circulation for each platform

Don't Move The Depot/ Move the Depot Option

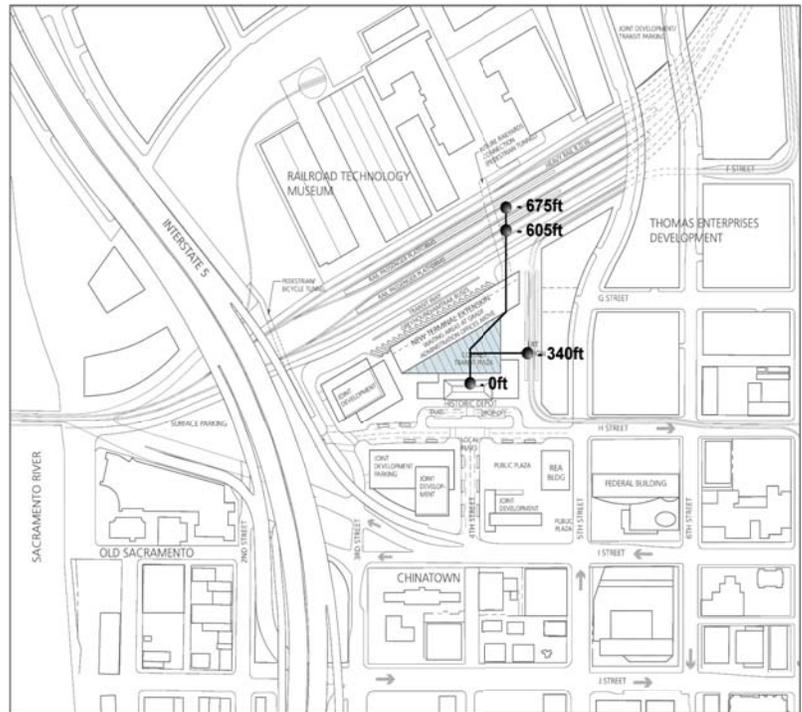


Figure 3.5 Phase 3 - Move the Depot Walk Distance
Measured from center of Historic Depot waiting area to vertical circulation for each platform

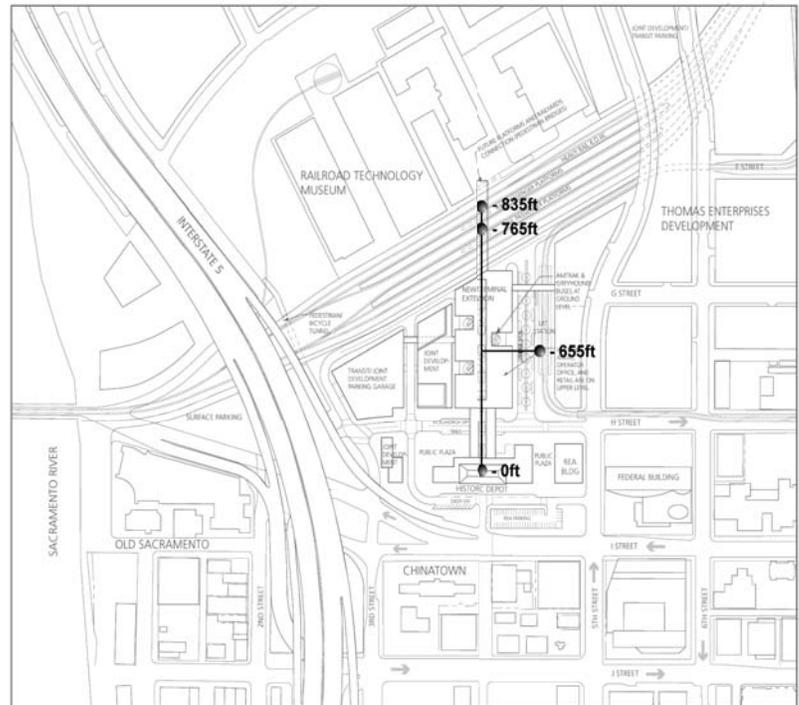


Figure 3.6 Phase 3 - Don't Move the Depot Walk Distance
Measured from center of Historic Depot waiting area to vertical circulation for each platform



Figure 4.1 Amtrak passengers arriving at Sacramento Depot

4 Move the Depot Option

In this concept the Historic Depot will be relocated to be adjacent to the realigned rail tracks, convenient to multiple modes of transportation, and strongly related to the Railyards Project. Moving the Depot will ensure that it becomes the anchor for the new Depot District and will address passenger convenience by shortening the connections between transit modes. The new Depot District plan (Figure 4.1.1) will enhance and emphasize the stature of the Historic Depot by making it the centerpiece of the development, creating a generous public entrance plaza oriented to I Street and framing it with joint development. The joint development will visually buffer the project's public spaces from the adjacent I-5 freeway but from the rail platforms, the elevated freeway will still be visible.

The new transit facility will be comprised of two distinct building elements: the rehabilitated Historic Depot and a new terminal extension. While the majority of the operator requested

program will be retained inside the Historic Depot, the terminal extension will provide pre-boarding waiting rooms for bus and rail passengers and other transit related program elements as well as spaces for joint development. An underground ramp will provide passenger access from the terminal extension to the rail platforms. A covered open air landscaped plaza will connect the terminal extension and the Historic Depot.

The multiple modes of transit will be organized per two broad categories: local city level connections such as light rail and local buses will be located adjacent to pedestrian plazas and streets while regional transit such as Greyhound and Amtrak will be grouped together adjacent to the rail tracks and bus arrival/departure zones for ease of passenger connection and efficiency for the operators. The arrangement of transit operations allows for convenient transfers among all operators with minimal walking distance.

4.1 Move the Depot Site Design

Consistent with the site design strategies described in Technical Report #11, the urban design setting for the relocated Historic Depot creates a significant new open space south of the relocated Depot that maximizes joint development opportunities, and provides a visually direct and efficient circulation system for transit operators and visitors alike. The Historic Depot is the focal point for this transportation hub and anchors the many modes of transit passing through the district from multiple directions. As represented in Figure 4.1.2, the Depot District planning is massed to frame the Historic Depot and maintain the idea of the gateway to Sacramento. Though moving the Depot closer to the tracks achieves many benefits, it will forever alter the Depot's relationship to its historical context along I Street and the REA Building.

In Technical Report #11 it was assumed that the I-5 ramp would be reconfigured to create two virtually square joint development blocks between H and I Streets and 3rd and 5th. However, the freeway on-ramp will remain in its current form, making the irregular southwest block of the station district more difficult to develop since the curvilinear freeway ramp constrains access and views on two sides while it rises to meet the level of the I-5 freeway.

One of the goals of this concept is to recreate the former axial relationship to the depot along 4th Street which currently no longer exists due to changes made in the block pattern between I and J Streets and the addition of freeway ramps. Although the new segment of 4th Street, will provide a limited formal axial view for one city block, from an urban design perspective the best views to the depot will be created by re-programming the block bounded by I & H and 4th & 5th Streets. It is recommended that this block be configured as a low density cultural and retail block with a height limit that roughly matches the REA building, and it is also recommended that a small building of a similar height be added at the corner of 4th and I Streets to frame pedestrian views to the depot from the corner of 5th and I Streets. An organizing element of the district plan is to continue the path of H Street through the district, which will assist visitors with orientation and preserve the view corridor to the Historic Depot.

The master plan for the district is envisioned as three distinct zones:

- A transit zone that comprises the SITF and the light rail

- A low density “public/cultural” zone at the corner of 5th and I Streets
- A higher density mixed use joint development zone adjacent to the I-5 Freeway that includes a major transit parking structure that is in addition to the new parking structure proposed for 5th street in the Railyards, shown in Figure 4.1.3. This site could be planned for multiple uses including office, hotel and housing. There are many alternative configurations that could be developed.

Although the proposed uses are the same in both Intermodal schemes, the sites are planned differently due to several factors including the different street grids, the location of the Depot and the block patterns. The planning zones will be configured as follows in the Move the Depot option:

Low Density Zone

The block bounded by 4th & 5th and H & I Streets includes the REA building, which is not a part of the project; and is envisioned as a low density complex of structures. Appropriate uses on this block would consist of a public open space, pavilions, and retail or restaurant uses that could take advantage of the park-like setting. Ideally, the REA surface parking would be relocated to the nearby parking structure or carefully screened with landscaping. Limiting development on this block to smaller structures will preserve the framed view to the Historic Depot from the corner of 5th and I Streets. The development of this block should emphasize the visual and former physical link between the Historic Depot and the REA Building by means of a public plaza.

High Density Zone

There are two large parcels adjacent to the I-5 ramps. The first of these is the block bounded by the freeway ramp, H and 4th Streets. It is designated as a high density, mixed-use joint development parcel which would have structured parking at the lower levels to visually screen the adjacent freeway on-ramp. Access to the structured parking and loading would be via 3rd Street. Curb cuts would be prohibited along the 4th and H Street frontages to encourage small retail establishments and restaurants along these two streets. Joint development will generally occur above the 4th or 5th levels to maximize views and daylight while minimizing noise. The generous site area makes it feasible to wrap the garage with mixed-use program such as retail or commercial uses along H and 4th Street frontages. This will enliven the streets and provide convenience retail for the tower tenants.

Since the local buses have been relocated to H and 4th Streets, a joint development block is created in the northwest corner of the site adjacent to the SITF. This area is part of the high density zone that includes the development across the street. An ideal location for transit parking development, this parcel will include 4 levels of parking with roughly 70 spaces per floor housing the SITF transit parking. The floor plate could easily be wrapped with passenger-oriented retail and commercial uses fronting along I-Street. The depicted program shows the potential for a joint development tower above the parking garage. The smaller floor plate of this site lends itself to hotel or residential uses which would have great views.

This basic massing strategy focuses the visual “entries” to the district on the westward approach along I and H Streets and the re-established historic 4th Street axis. The lower density block at 5th and I Streets would be populated with pedestrian scaled amenities and would emulate the scale of the existing REA building, which could be programmed for a variety of events – festivals, farmer’s markets and music – bringing a new vitality to the station district and providing a new ceremonial entry.



Scale: 1" = 300'

Figure No. 4.1.1

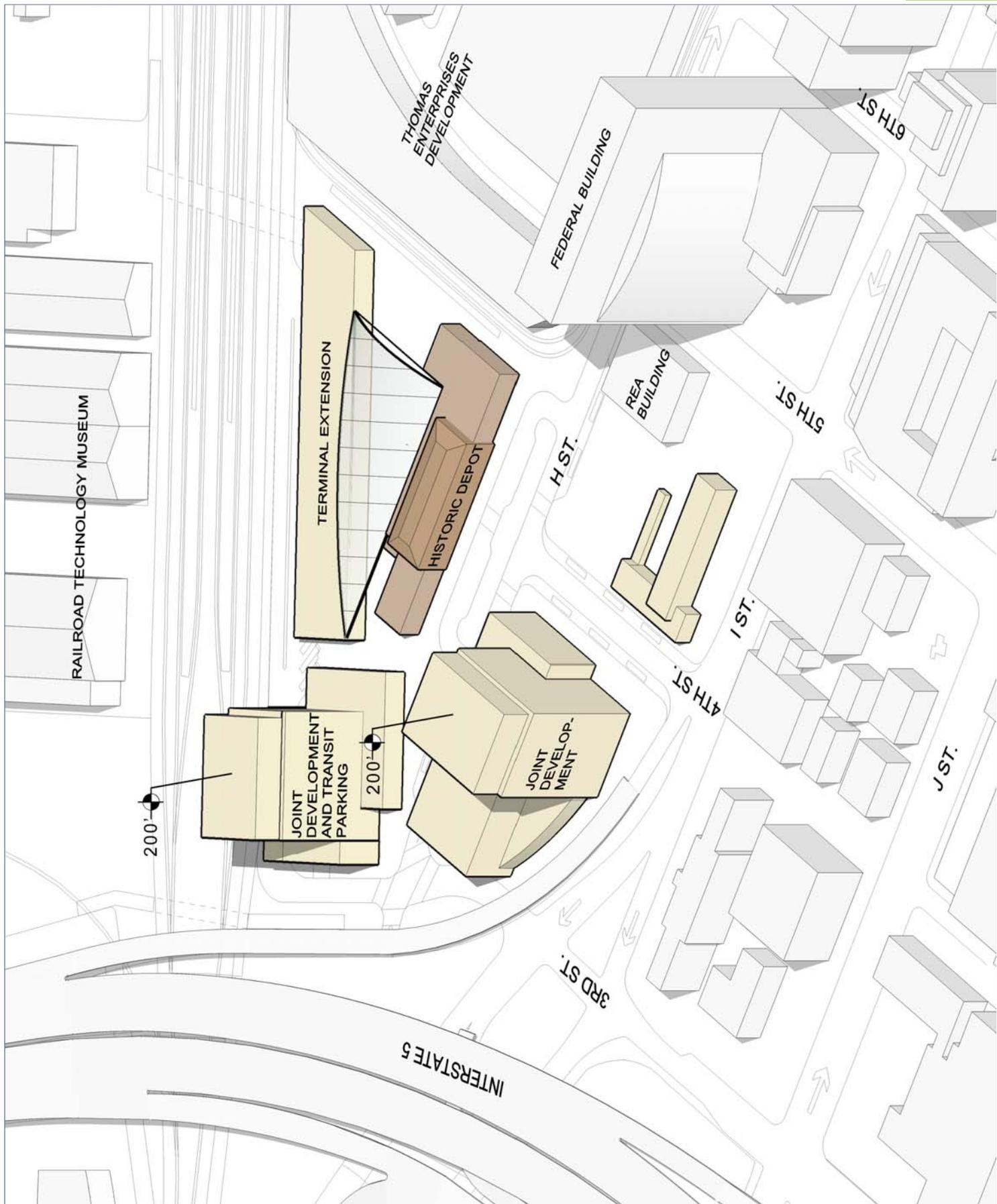
Move the Depot Rendered Site Plan

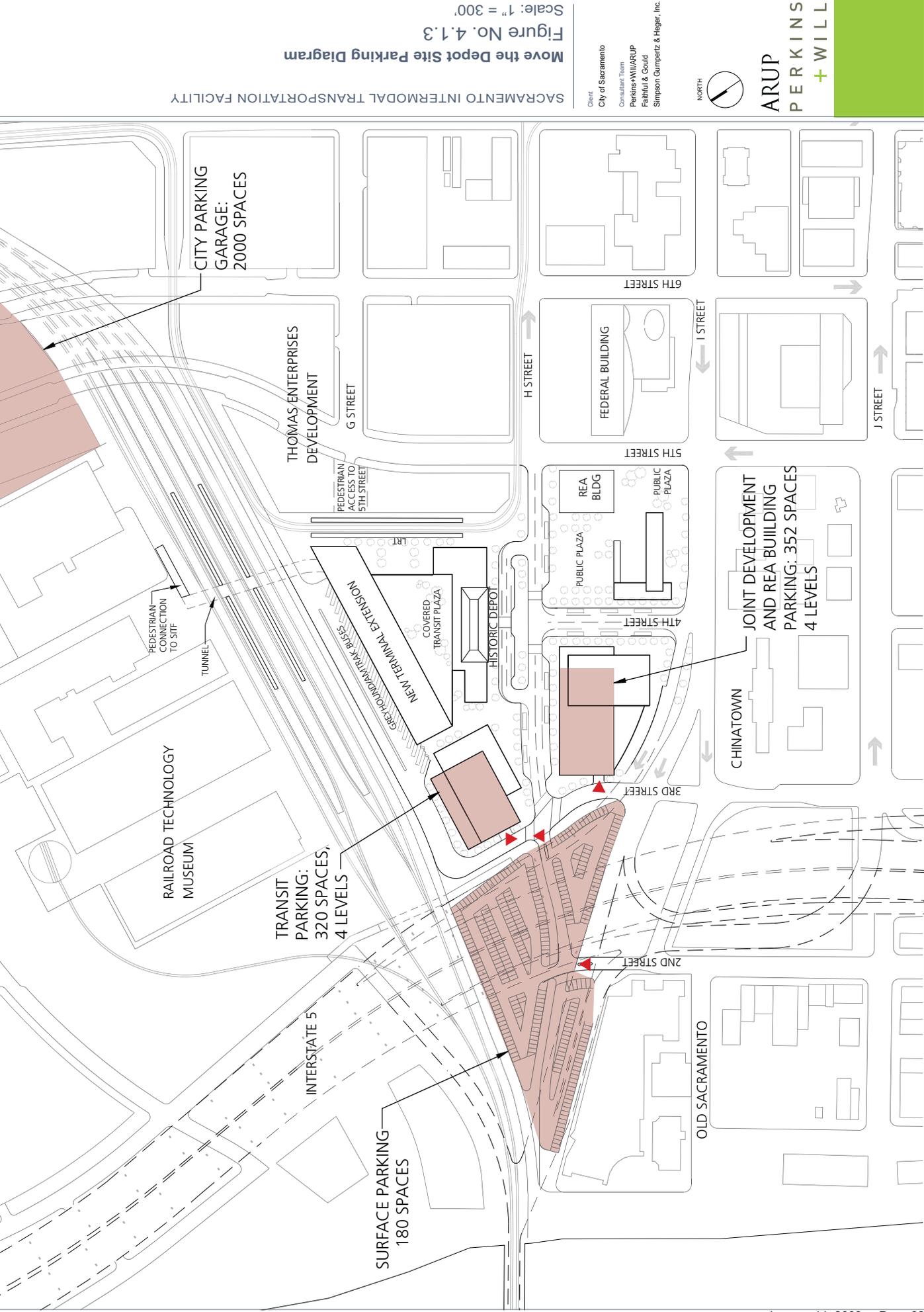
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

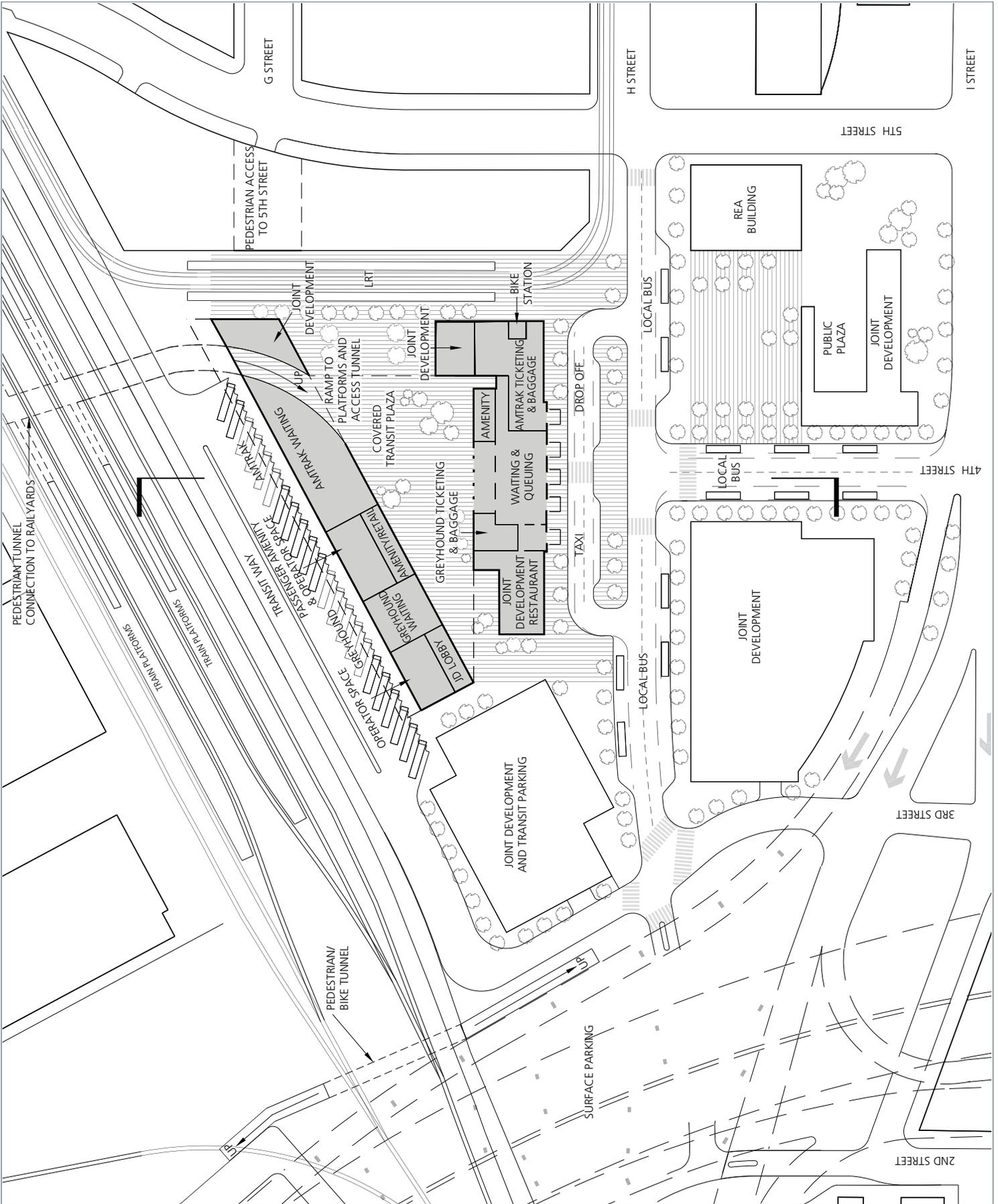
Client: City of Sacramento

Consultant Team: Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.

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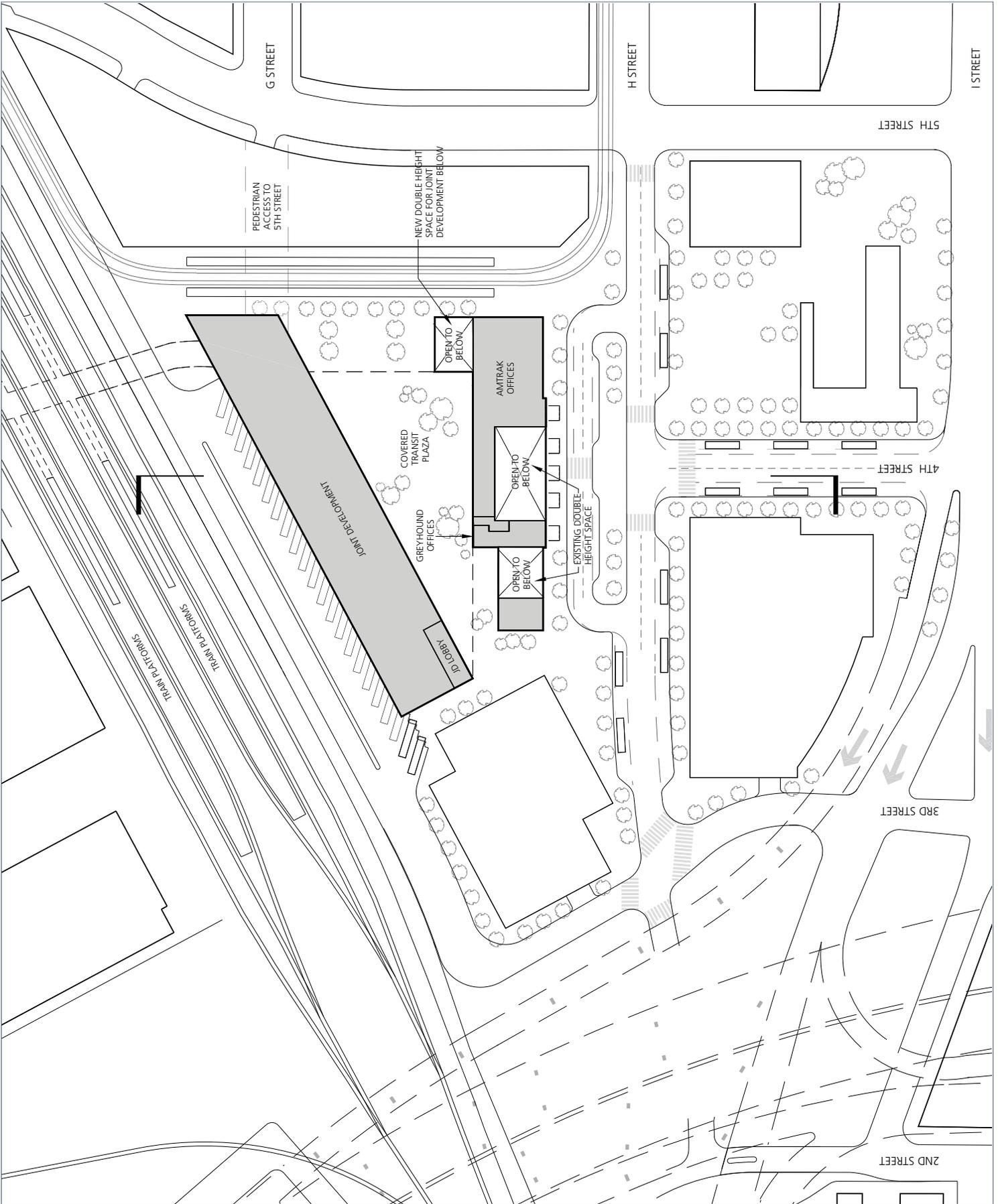






SACRAMENTO INTERMODAL TRANSPORTATION FACILITY
 Client: City of Sacramento
 Consultant Team: Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.
 Figure No. 4.1.4
 Scale: 1" = 150'





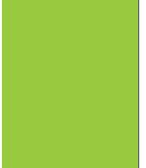
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

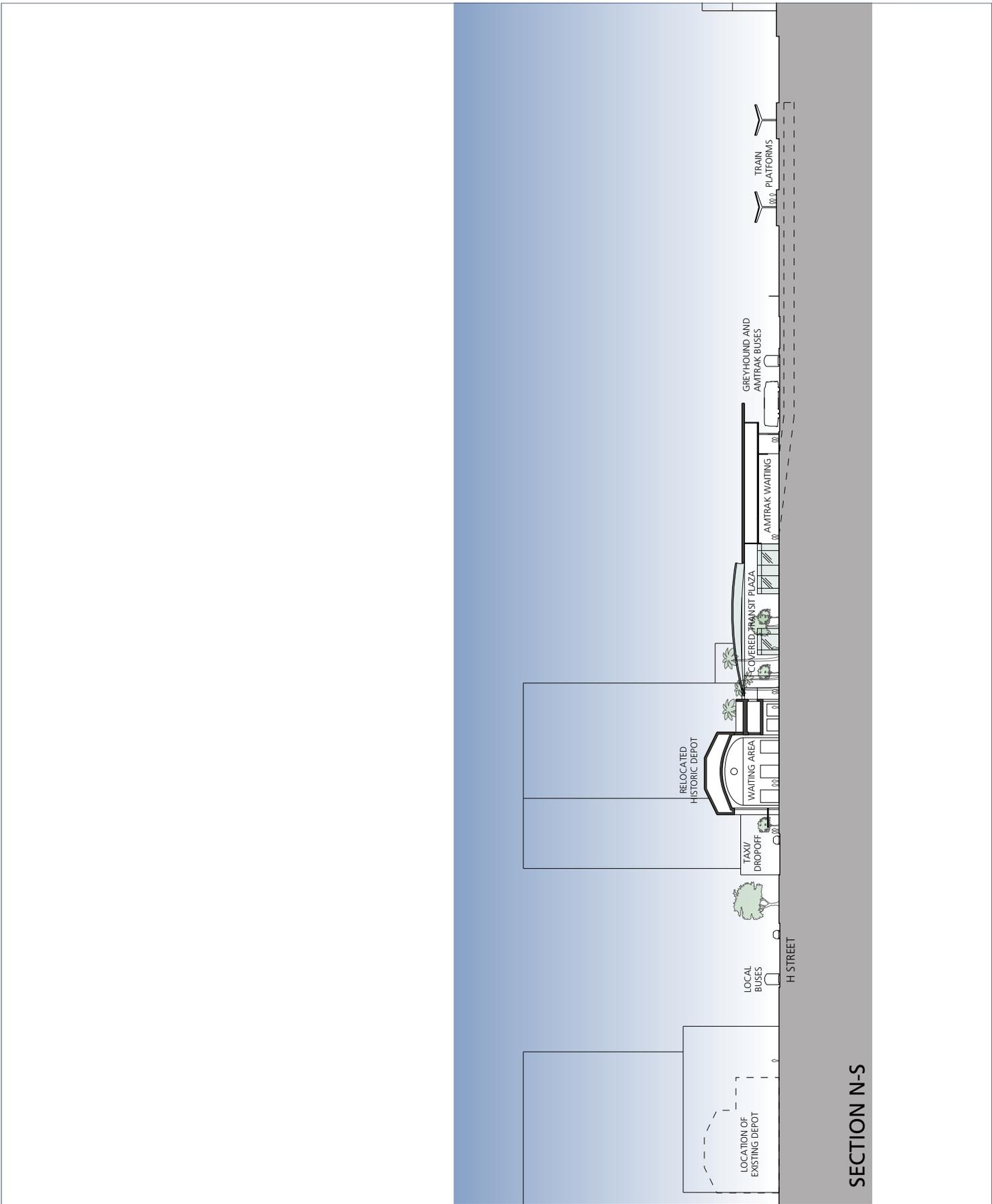
Move the Depot Second Level Plan
Figure No. 4.1.5
Scale: 1" = 150'

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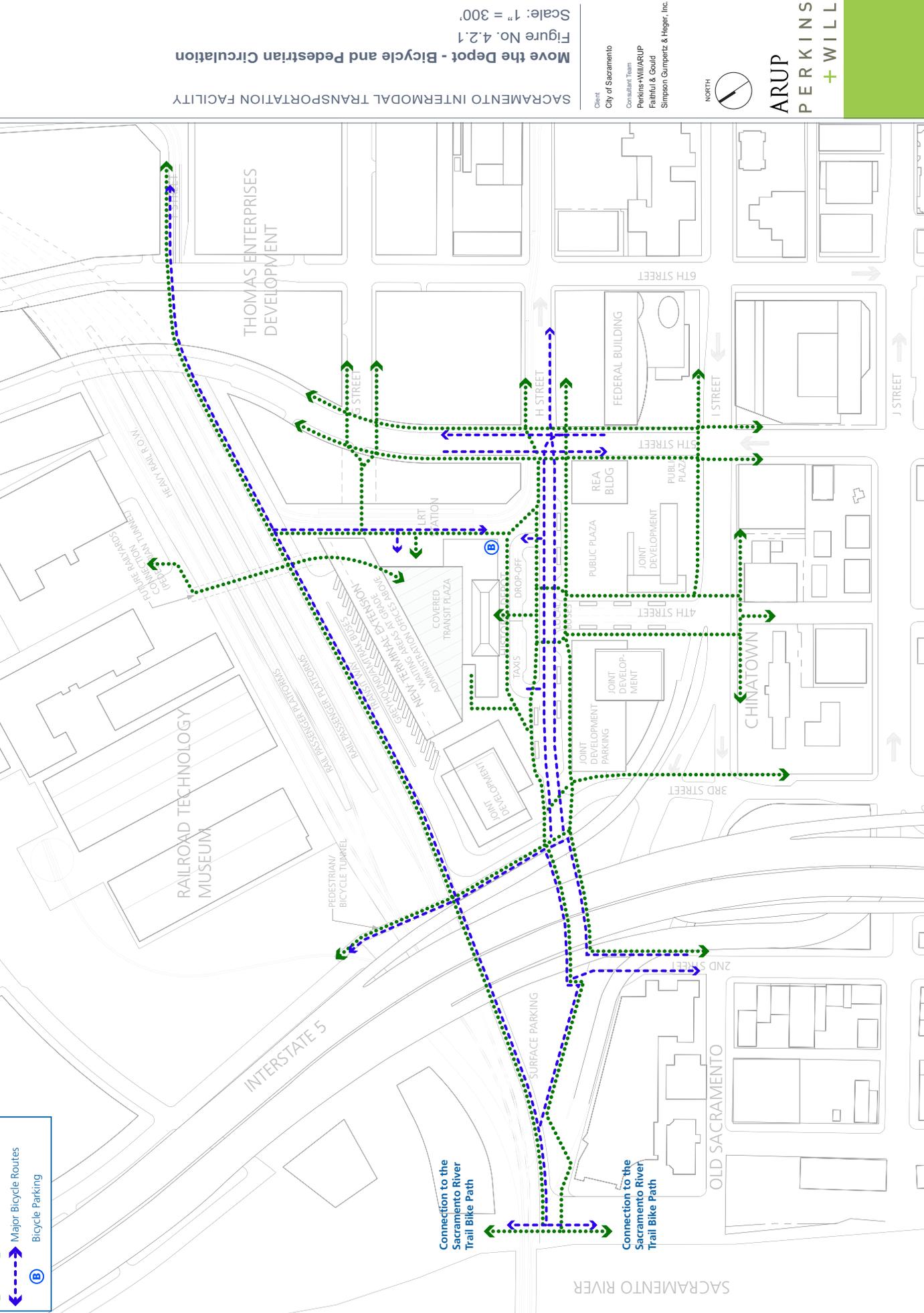




SECTION N-S



NORTH



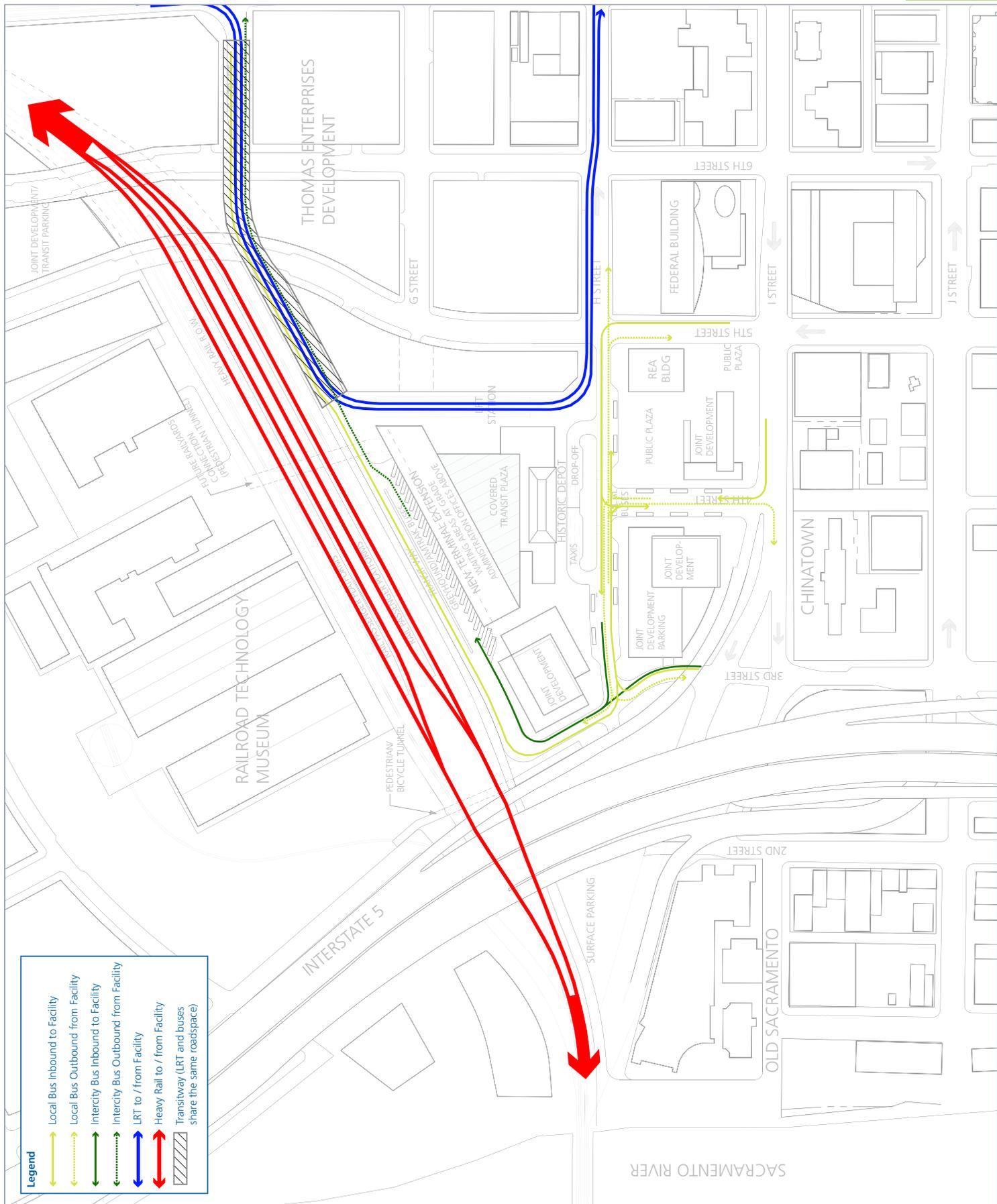
- Legend**
- ⋯→ Pedestrian Access Routes
 - - -> Major Bicycle Routes
 - B Bicycle Parking

Connection to the Sacramento River Trail Bike Path

Connection to the Sacramento River Trail Bike Path



SACRAMENTO INTERMODAL TRANSPORTATION FACILITY



Legend

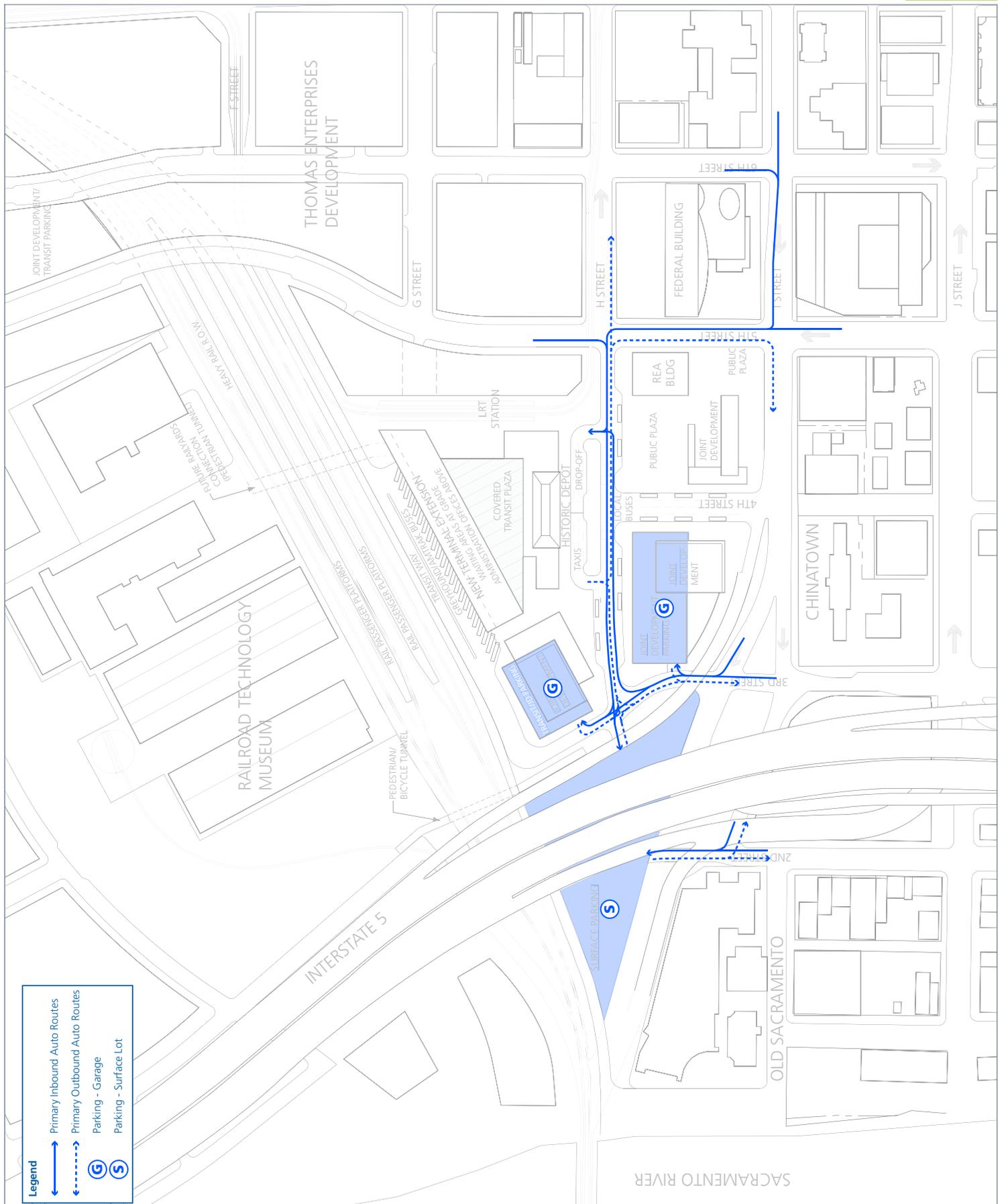
- Local Bus Inbound to Facility
- Local Bus Outbound from Facility
- Intercity Bus Inbound to Facility
- Intercity Bus Outbound from Facility
- LRT to / from Facility
- Heavy Rail to / from Facility
- Transitway (LRT and buses share the same roadspace)



Client: City of Sacramento
 Consultant Team: Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.

Move the Depot Automobile Circulation
 Figure No. 4.2.3
 Scale: 1" = 300'

SACRAMENTO INTERMODAL TRANSPORTATION FACILITY



Legend

- Primary Inbound Auto Routes
- Primary Outbound Auto Routes
- Parking - Garage
- Parking - Surface Lot

4.2 Move the Depot Circulation

This proposed SITF option includes some modifications to existing roadways as well as new roadway segments. The Move the Depot design extends the downtown grid system to the north and west with new segments of 3rd and H Streets. As part of the proposed Railyards Development project, 5th and 6th Street will also be extended to the north and ramp over the realigned heavy rail tracks. Similarly, modifications to existing segments of F, H, 7th and 8th Streets have been incorporated in the Railyards project to accommodate the extension of light rail.

In addition to extending the downtown street grid northward, the new road systems serving the site also improve connectivity between Downtown and the northern portion of the Railyards Development and on to the Richards Boulevard area.

The study area for development of roadway plans was bounded by 2nd Street to the west, J Street to the south, 8th Street to the east, and the heavy rail tracks to the north.

In several locations within the study it was not possible at this point to identify the specific street configuration due to unresolved issues and the fact that the street configurations are beyond the scope of this study. These locations are identified below.

Railyards Development Area. The Railyards Development area is located north of H Street, east of the SITF, and west of 7th Street. The configuration of the roadways within this area are integral with the Railyards Development. Initial roadway concepts have been provided which have been illustrated on the plans. However, the final configuration of these roadways will be subject to additional design by the developer and subject to review by the City as part of the development application.

3rd and I Street. A separate study is currently underway to look at the possibility of providing a new intersection at 3rd and I Street. This design incorporates this new intersection and would likely be completed during Phase 3 of the construction process.

7th Street Underpass. The 7th Street Underpass below the heavy rail tracks needs to be reconfigured to provide additional roadway capacity to serve area development and to accommodate light rail. The configuration of this underpass is currently under development and includes design of a pedestrian/bicycle tunnel on the west side of the street.

7th Street LRT Bypass. The design of the proposed LRT bypass track on 7th Street has not been determined to date. This track will be designed during RT's DNA preliminary engineering phase.

ADA Compliant Sidewalks. The design of ADA compliant sidewalks where street grades are changed and/or steep will be addressed during detailed design.

The accuracy of the design at this phase is limited by the available topographic survey at the time when this was being developed. Topographic information was provided by two sources: UP/Millennia and Regional Transit. Information from these sources cover portions of the study area, but a comprehensive survey of the entire study area was not available. Differences in datum or coordinate systems between the two sources could not be fully identified and resolved with the available information. Information on column locations for elevated roadways at the Interstate 5 interchange was provided by Caltrans in hard copy form, and was manually transferred to the CAD base. It is recommended that a comprehensive survey be completed prior to subsequent

design efforts.

The design of the roadways complies with the City of Sacramento Design and Procedures Manual, Street Design Standards Section 15 where possible. However, the new streets will be located in two sub districts with special street sections: Sub District 2 Southern Pacific Railyards and Richards Boulevards and Sub District 3 Central City. Available standards for these sub districts are limited. To the greatest extent possible street geometry was designed to be consistent with existing adjacent streets, including pavement widths and curb radii.

4.2.1 Move the Depot Pedestrian Circulation

The proposed Move the Depot design for the SITF and adjacent areas seeks to maximize opportunities for pedestrian access. Once the Depot is relocated, the total pedestrian travel distance from the center of the Depot's waiting room to the rail platforms is approximately 675 feet (see Figure 3.5 on page 26). New access opportunities have been identified on all sides of the facility. These include significantly improved connections to the central business district, Old Sacramento and the Sacramento River Trail, integration with the Railyards Development, and potential for a tunnel connection under the heavy rail tracks to the north. Figure 4.2.1 illustrates pedestrian circulation at the SITF for the Move the Depot scheme.

The improved pedestrian facilities include new sidewalks, new off-street connections, and additional street crossing opportunities.

A new pedestrian and bicycle tunnel, West Tunnel, has been proposed in both schemes to be constructed under the realigned heavy rail tracks. This tunnel would be located west of the SITF and north of the current California State Railroad Museum. This tunnel would improve linkages between downtown, the SITF and the proposed Sacramento Riverfront Park, as well as provide a direct connection between the existing California State Railroad Museum and the proposed Railroad Technology Museum. The 7th Street Underpass is to be reconfigured and will include a pedestrian/bicycle tunnel on the west side of the roadway.

Prior to the beginning of construction of the SITF a new signalized pedestrian crossing of I Street on the 4th Street axis will be completed as a separate project independent of the final design chosen. The provision of a safe pedestrian crossing of I Street is considered to be a highly desirable improvement over the existing condition. 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.

Shifting the rail tracks north on the site enables construction of the 5th and 6th Street roadway crossings over the tracks without negatively affecting the existing road/sidewalk/pedestrian/bikeway system. The northern track shift permits design of the new portions of 5th and 6th streets with vertical profiles (roadway grades) that are compliant with the Americans with Disabilities Act and that tie into the existing grades surrounding the site. A pedestrian only connection will also connect the site with G Street through the Railyards Development.

4.2.2 Move the Depot Bicycle Circulation

There is potential to increase the usage of bicycles for access to the SITF. Both the Capitol

Corridor and San Joaquin rail services provide onboard bicycle racks. Bicycles can also be accommodated on Regional Transit (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. Increasing bicycle usage at the SITF will help reduce traffic and associated environmental impacts as well as help limit automobile parking requirements. Figure 4.2.1 illustrates bicycle circulation at the SITF for the Move the Depot option.

The Move the Depot designs and adjacent transportation network provides improved bicycle access to the facility and closes a gap in the regional bicycle network by providing a connection between the Sacramento River Bikeway, Old Sacramento, the SITF and streets to the east. The Sacramento Bikeway Master Plan indicates existing and proposed bikeways in the immediate vicinity of the SITF.

Existing Bikeway:

- Sacramento River Bikeway (Class 1)

Proposed Bikeways:

- 2nd Street
- 5th Street (north of H Street and across the railroad tracks)
- 6th Street (north of H Street)
- 7th Street (north of H Street)
- H Street

The proposed Move the Depot option assumes bicycle lanes are provided on westbound H Street (between Jibboom Street and 5th Street), eastbound H Street (between Jibboom Street and 6th Street), and 7th Street (north of F Street). Bicycle lanes are also possible on 6th Street north of H Street, depending on the ultimate cross section implemented with the Railyards Development.

As noted in the previous section, a new tunnel that would serve both pedestrians and bicycles is currently being planned by the city and will be constructed under the realigned heavy rail tracks between the Railyards Development and the Sacramento River Bikeway. As conceptually represented on Figure 4.2.1, this tunnel would be located west of the SITF, underneath I-5 and north of the California State Railroad Museum. The exact tunnel alignment will be determined as part of the Phase 1 Rail Relocation project. When constructed, this tunnel will improve linkages between downtown, the SITF and the proposed Sacramento Riverfront Park, as well as provide a direct connection between the existing California State Railroad Museum and the proposed Railroad Technology Museum.

Bicycle parking at SITF will include bicycle racks as well as provision for a bike station with attended parking and other services for bicyclists within the Historic Depot. Bike parking would be conveniently located near the primary bicycle access point to the SITF, the passenger pick-up/drop-off curb entrance from H Street. Bicycles would be allowed to be transported through the terminal building to passenger trains consistent with Amtrak's policies for bicycles.

4.2.3 Move the Depot Transit Circulation

The SITF will be served by heavy passenger rail, light rail, local buses and intercity buses. Figure 4.2.2 illustrates transit circulation at the SITF for the Move the Depot option.

4.2.3.1 Heavy Rail

The heavy rail alignment is located along the north edge of the site closer to the Railyards Building. The proposed four passenger tracks serve two island platforms. The passenger tracks connect to two UP main lines, one located north of the passenger tracks and one located to the south. A third UP line would be possible on the north side of the rail alignment extending to the east. Passenger trains accessing the SITF site to and from the west will use the existing I Street Bridge, since there are currently no plans to replace the existing I Street Bridge. Trains accessing the site from the east will cross over the 7th Street underpass.

The heavy rail alignment allows for the future implementation of High Speed Rail (HSR). The Sacramento line of HSR would terminate at the SITF. It would utilize new, elevated tracks above the existing heavy rail alignment connecting into the SITF site from the east.

4.2.3.2 Light Rail Transit (LRT)

Regional Transit has recently completed an extension to the Light Rail Transit (LRT) into the existing depot and is currently planning a further extension project to extend LRT to the north as part of the Downtown Natomas Airport (DNA) Line. Light rail using Truxel Road was selected by the RT board as the locally proposed project in December, 2003. Construction on the DNA extension projected in 2009 with operations commencing on its initial segment in 2010.

The LRT will include double tracks and two side platforms. Through the SITF planning process, a preferred alignment has been identified that would utilize H Street to access the SITF to and from the south, connecting to the LRT tracks on 7th and 8th Streets south of H Street. One track is already in place on H Street from the Amtrak Extension project, and a second track would be added as part of the DNA project.

The LRT platforms at the SITF will be located on the east side of the Terminal in a north-south orientation. In the Move the Depot option, the platforms will be located between the Terminal building and the proposed Railyards Development, west of the 5th Street extension. North of the platforms, the LRT alignment will turn back to the east and connect to 7th Street at F Street using the proposed transit way under the Railyards Development. Portions of the tracks and transit way would be under the proposed Railyards project. On 7th Street, the LRT alignment would continue north, crossing under the heavy rail tracks using the reconfigured 7th Street underpass. The specific arrangement of the 7th Street underpass, including LRT, is to be determined by the City of Sacramento and Regional Transit.

The proposed LRT configuration will meet the requested program for LRT platforms, will allow LRT to operate off street in the vicinity of the SITF, and will provide a direct pedestrian connection between the Terminal Buildings and the LRT platforms.

4.2.3.4 Intercity Bus

Intercity bus service at the SITF will be provided by Amtrak Thruway and Greyhound Lines. For the Move the Depot option, the intercity bus boarding bays will be located immediately north of the Terminal Extension south of the relocated heavy rail tracks. Buses will access bays via 3rd and H Street and will depart using the SITF transit way to 7th and F Street. This transit-only roadway will serve LRT and local buses in addition to intercity buses, and is shown on Figure 4.2.2.

Intercity buses are assumed to exit I-5 at the J Street interchange, turn north on 3rd Street and cross H Street to enter the transit way. This is a direct route that minimizes turns and travel on downtown streets. Buses leaving the SITF will use the transit way to 7th and F Street and then turn right onto 7th Street, turn right at I Street, connect to I-5 off I Street.

4.2.3.5 Local Bus

Local bus service at the SITF will be provided by Regional Transit and other bus transit operators. The local bus boarding area will consist of 12 bus bays with 6 bays located on H Street (4 in eastbound direction and 2 in westbound direction) and 6 bays located on 4th Street (3 in northbound direction and 3 in southbound direction).

Buses can access the bays via 3rd and H Street, 4th and I Street and 5th and H Street. Buses can also use the transit way to access H Street. Buses can exit the SITF via 3rd and H Street, 4th and I Street and 5th and H Street as well as using the transit way to 7th and F Street.

4.2.4 Move the Depot Auto Circulation

4.2.4.1 Street Access

The proposed SITF options include several improvements to the roadway system. These improvements provide additional capacity to serve the SITF and Railyards Development and additional access opportunities to properties in the area while creating attractive street environments for all modes of transportation. Figure 4.2.3 illustrates the principal access routes to the SITF for private vehicles for the Move the Depot option.

The design extends the downtown grid system to the north and west with new segments of 3rd, 4th, and H Streets. Collectively, the new street connections will provide several access options to the SITF, as well as redundancy in the street network that will help distribute traffic impacts and permit continued operation in the event of street closures or other incidents.

Figure 4.2.3 illustrates primary traffic circulation routes for the Move the Depot option. The H Street extension will serve as the primary access point to the SITF. H Street will be two-way west of 5th Street. 5th Street would be converted to two-way operation south of I Street. Vehicles traveling to the SITF from the south will use 3rd Street, 4th Street or 5th Street to reach H Street. Vehicles traveling from the north will use 5th Street. Vehicles approaching from the north on 6th Street or 7th Street will have two route choices: G Street to 5th Street to H Street, or I Street to 4th or 5th Street to H Street. Vehicles leaving the SITF traveling south will use 3rd Street or H Street to 6th Street or 7th Street. Vehicles traveling north will use 5th Street, 6th Street or 7th Street via H Street. Primary access from I-5 will be via the J Street off ramps via 3rd Street or 5th Street. Primary access to I-5 will be via 5th Street to I Street and the I-5 on ramps.

4.2.4.2 Parking

Parking for the proposed SITF options will consist of surface parking lots under the I-5 structure and parking garages. The Intermodal planning team recommends that a managed parking district be established to regulate the parking supply and pricing for the area. This is particularly important for the proposed SITF parking option as it is dependent on parking facilities that are shared with adjacent development. The parking district shall set parking pricing policies, define employee cash out programs (where monthly cash payments are provided to employees in lieu of free parking), provide parking enforcement and oversee a project area transportation demand management program. The City should condition development in the Intermodal Planning Area on the provision of shared parking arrangements between private development and the SITF.

Parking for the Move the Depot Option is proposed in two locations on the SITF site, accommodating up to 500 spaces:

- A parking structure shared with joint development located north of H Street between 3rd and 4th Streets, which could accommodate up to 320 transit parking spaces on 4 levels. Access to the parking structure is proposed off the extension of 3rd Street. Located adjacent to the SITF the parking structure provides close convenient access to the facilities. This will be the primary parking area for SITF users and will include long term parking.
- Surface parking is located underneath I-5 between the I Street Bridge access and the relocated heavy rail tracks and can accommodate up to 180 parking spaces. Primary access to the parking lot is proposed off H Street and a secondary access is from 2nd Street.

A parking structure shared with the Railyards Development is located north of the relocated heavy rail tracks adjacent to 5th Street that could accommodate additional parking spaces for station users. It is assumed that the primary access will be off Stevens Street with pedestrians accessing the SITF via the pedestrian tunnel underneath the relocated heavy rail tracks. Whilst the location of this parking structure is less obvious for unfamiliar SITF users, its location will be an attractive option to commuters as it is conveniently located adjacent to the heavy rail tracks. Utilization by commuters is more appropriate, as the demand patterns will likely be complimentary to those of the retail and entertainment uses in the Railyards Development. If there becomes a need to relieve parking demand on the SITF site, it may be necessary to introduce commuter orientated incentives to use this parking facility, such as monthly passes.

4.3 Move the Depot Transit Program

The desired transportation program for the SITF was presented in Section 5 of Working Paper #5 and is presented in this report in Table 4.3.1. The transit program was divided into modules for different transportation modes and operators. The program for each module requested by the 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 (LRT)
- Private Vehicle, Taxi, and Shuttle Service Pick-Up and Drop-Off
- Parking
- Terminal Building (Transit Program)

Pedestrians and bicycles are not identified as a specific program module, however their requirements are identified in the project goals and objectives, and are accommodated in the proposed design. The SITF program does not include specific provisions for high speed rail operations, however the design of the SITF anticipates the eventual inclusion of high-speed rail service in the location of the heavy rail alignment and platform arrangements, and in the layout of the Terminal Building.

Transit Program Summary

The Move the Depot option can accommodate the program for all modules, with the exception of heavy rail platforms and on site parking. As noted in Working Paper #8, p. 36, and in discussions with the rail operators, it has been determined that the provision of heavy rail platforms approximately 1,200 feet long will likely be acceptable if specific issues can be resolved in detailed design. These include the provision of track segments that extend beyond the platforms by sufficient length to accommodate longer passenger trains (such as Amtrak long-distance trains) without impacting signals on adjacent tracks. It is therefore assumed that the proposed schemes presented here provide adequate heavy rail platforms capacity. More detailed design of the rail layout is beyond the scope of this project.

As noted in Section 4.2.4, additional parking will be available in a proposed parking structure located north of the heavy rail tracks.

Move the Depot Option

Table 4.3.1 Move the Depot Achieved Transit Program

Program Module	Working Paper # 5 Program		"Move the Depot" Scheme Achieved Program
	Operator Requested Program	Reduced Program Option	
Freight Track	Up to 3 Tracks	Up to 3 Tracks	Up to 3 Tracks
Passenger Tracks and Platforms	2 x 1,400 ft Center Platforms ¹	2 x 1,400 ft Center Platforms ¹	1 x 1,210 ft Center Platform 1 x 1,275 ft Center Platform
Intercity Bus	12 Amtrak Thruway Bus Bays 14 Greyhound Bus Bays 26 Total Intercity Bus Bays	8 Amtrak Thruway Bus Bays 10 Greyhound Bus Bays 4 Shared Bays 22 Total Bus Bays	12 Amtrak Thruway Bus Bays 10 Greyhound Bus Bays ² 22 Total Intercity Bus Bays
Local Transit Bus	14 Local Transit Bus Bays	12 Local Transit Bus Bays	12 Local Transit Bus Bays
Light Rail / DNA Project	2 LRT Tracks with Platforms 2 LRT Layover Tracks	2 LRT Tracks with Platforms 2 LRT Layover Tracks	2 LRT Tracks with Platforms ³
Pick-Up and Drop-Off	18 Total Pick-Up/Drop-Off and Taxi Spaces	18 Total Pick-Up/Drop-Off and Taxi Spaces	24 Total Pick-Up/Drop-Off and Taxi Spaces
Transit Parking	1,027 Parking Spaces	600 Parking Spaces	500 Parking Spaces
Terminal Building (Transit Program)	54, 570 SF (net transit program space)	54, 570 SF (net transit program space)	58,670 SF (net transit program space)

Notes: ¹ Assumes off-site layover is not provided

² Greyhound revised requested program to 10 bus bays, February 2008

³ LRT Layover tracks not required, February 2008

4.4 Move the Depot Terminal Design

Once the depot is relocated, it will serve as the anchor of the new transit facility. Illustrated in Figures 4.1.4, 4.1.5, and 4.1.6, the new terminal extension behind the Historic Depot will be adjacent to regional transit bus arrival and departure areas and the heavy rail tracks. An open air plaza will connect the terminal extension to the Historic Depot. This partially covered plaza is envisioned as a landscaped courtyard and outdoor waiting area that will engage with the surrounding passenger oriented joint development.

The Historic Depot will be rehabilitated, seismically retrofitted, moved to new foundations and creatively adapted to support joint development amenity spaces. The grand waiting room will be the portal where passengers purchase tickets, check baggage, make other travel arrangements and get information about Sacramento. The former double height dining room will also be rehabilitated and adapted to take advantage of its frontage on the transit plaza. The Amtrak baggage area will be efficiently reduced in size to allow for an additional joint development amenity space to activate the plaza. Both Greyhound and Amtrak administrative offices are planned for the second level and will be closely located to their respective ticketing counters on the first floor.

The new terminal extension is planned to provide controlled access where necessary: Amtrak areas are located to the east near the ramp connection to the train platforms and the Greyhound areas to the west, close to their ticketing and offices. This extension building will house the current operator requested program in the most efficient manner. The pre-boarding waiting areas will have views to the buses, and trains beyond.

Similarly to the design concept in TR#11, the passenger ramp that connects the rail platform and the terminal extension is a key design element and defining feature of the transit plaza. The Amtrak pre-board waiting area is defined by this ramp and has the potential for the architectural spaces of the terminal extension to be integrated with the ramp at varying levels as it ascends. The joint development area at the east end could be a café/bar area where patrons await the arrival of their guests, seated at terraced levels of café tables and landscaped seating areas. As passengers leave the terminal extension and descend the ramp, they will have an uninterrupted view of their train arriving and the Railyards beyond.

The covered open air plaza delineates an “outside room” and ties both the new and old terminals together. The materials of the plaza will be durable, yet of a quality and scale of an interior finish. The landscaped courtyards and seating areas would be available to both passengers waiting for their connections and the public visiting the joint development restaurant and café.

The LRT defines the eastern edge of the transit plaza with the rails and platforms integrated with the grade of the plaza. Bike access and Amtrak baggage handling occur along this edge. The local buses are located along H and 4th Streets, directly in front of the Depot for ease of connection. Transit parking is shared with the new 5th and 6th Street garage and the new joint development garage adjacent to the SITF. The second level of the new transit terminal is available for joint development and/or future expansion of the SITF offices and administration space.

4.4.1 Passenger & Baggage Flow

In the Move the Depot scheme the Depot serves as the main portal for passengers arriving and departing the SITF. The grand waiting hall in the Depot will remain as the historic waiting room and place of orientation for travel patrons. Baggage for both Amtrak and Greyhound customers will be checked in at their respective counters in the Depot.

The main flow of passenger circulation passes through the Depot and fans out to the pre-boarding areas for each particular mode of transit: Greyhound and Amtrak waiting rooms, the LRT platforms, and the Amtrak train platforms. The ramp leading to the train platforms is the strongest directional path as the trains will have the highest volume of passengers and is the farthest away. This tunnel will also permit public circulation across the tracks in addition to platform access. In front of the Depot (H and 4th Streets), the local buses will drop off or pick up passengers from the new SITF. The plaza space connecting the Depot and the new terminal extension is an active space that facilitates the passenger connections both visually and physically between the train, bus, and light rail transit modes.

The transport of baggage for Amtrak patrons is still evolving with the development of the project. For the purposes of this report, Amtrak baggage will be collected in the east wing of the Depot and transferred to baggage carts at grade along the east side of the Depot adjacent to the southern end of the LRT platform. The baggage cart's travel path is restricted to the west side of the LRT platform until the Transit Way where baggage is delivered to the Amtrak buses (accessing them from the rear), or an at grade crossing to the train platforms. Measures to limit conflicts between baggage carts and pedestrians, such as channelization, will be incorporated into the final design.

4.4.2 Sustainable Design

A key component to the conceptual design of the SITF is the integration of sustainable design principles and maximizing opportunities to feature innovative "green" thinking. Coupled with the city's objective to achieve LEED Silver, the SITF is a prime project for the City of Sacramento to showcase and represent a forward thinking California that is investing in mass transit as the future.

While reusing the Depot is inherently a sustainable gesture, there are ample opportunities for the rehabilitation to have a sustainable focus. The following are some thoughts on sustainable design opportunities for the Move the Depot Scheme:

- Passive cooling strategies with new terminal extension could utilize passive cross ventilation with strategic windows and vents to move air across the building, a green roof to reduce solar heat gain through the day, and solid structure that cools the building by means of thermal mass properties
- Shade trees and water features keep plaza surface and air cool
- Utilize light colored materials with a high albedo (light reflectance) for the plaza paving to keep

the plaza cool during the day.

- Select landscape that is drought resistant native vegetation, use impervious paving to allow rainfall to penetrate through to the ground, and recycle grey water for landscape in plaza and other non-potable uses
- With a lowered energy consumption by means of maximizing daylight (direct and indirect) and employing passive cooling strategies, the addition of on site solar power generation could potentially render the new SITF a zero energy project.

4.5 Terminal Building Program

The transportation program for the SITF was developed with operator requirements and presented in Working Paper #5 in October 2003 and refined in Technical Report #11 in October 2004 and shown in this report in Table 4.4.2. This program was reverified in this scope with all of the transit operators and agency stakeholders in order to capture the most up to date requirements for the SITF and guide the development of the two concept schemes. As of the date of this Technical Report, there is no change from the program space requirements listed in Technical Report #11, Table 4.2.1.

For the purposes of this report, the operator requested program was used to size the new terminal extension and provide a general plan for the reuse of the Historic Depot. Both schemes are developed to a master plan level and utilize the operator requested program in gross areas to propose diagrammatic circulation flow, location of program components and their adjacencies. The table below describes the program achieved in general terms. Fine tuning the efficiencies and footprints of each program component would be part of subsequent design work.

Move the Depot Option

Table 4.4.2 Move the Depot Achieved Terminal Building Program

Program Module	WP #5 & TR #11 Operator Requested Program		Move the Depot Scheme Achieved Program	
	Ticketing & Baggage Includes ticket counters, queuing, baggage and package service	Amtrak Greyhound Total	7,140 SF 1,770 SF 8,910 SF	Amtrak Greyhound Total
Waiting Includes seating and immediate circulation area	Amtrak (seating) Amtrak (standing) Greyhound Total	11,000 SF 2,400 SF 4,720 SF 18,120 SF	Amtrak Depot Greyhound Total	11,000 SF 5,000 SF 4,700 SF 20,700 SF
Passenger Amenities Includes restrooms, information, telephones, passenger-oriented retail, operator-run food service, rental car counters, ATMs, vending, telephones, custodial, and allowance for circulation. Customer service counter only for RT	Amtrak Greyhound Regional Transit Total	4,620 SF 5,970 SF 100 SF 10,690 SF	Depot Amenity New Terminal Amenity JD Amenity Total	3,770 SF 3,200 SF 11,500 SF 18,470 SF
Administration and Employee Includes offices, crew base, cash rooms, break room, storage	Amtrak Greyhound Regional Transit Total	12,550 SF 3,800 SF 500 SF 16,850 SF	Amtrak Greyhound Regional Transit Total	15,000 SF 5,600 SF 1,000 SF 21,600 SF
Total Terminal Building Transit Program	54,570 SF		58,670 SF (does not include Joint Development amenity)	



Figure 5.1 View towards depot from future location of train platform.

5 Don't Move the Depot Option

In this concept, the Historic Depot will not be moved but will remain the ceremonial entrance to the transit facility. Since the tracks are to be re-aligned to meet the demands of modern rail, the distance from the Depot to the rail platforms will increase. This planning strategy requires a terminal extension from the depot to the platforms, which in this case would be a linear concourse that links the Historic Depot with the realigned tracks.

Although the Historic Depot will remain in its current location, it will now be approximately 800 feet from the newly realigned heavy rail tracks, as shown in the Site Plan, Figure 5.1.1. The Historic Depot will become the formal entry to the new terminal extension. The new extension will physically connect to all modes of transit, as well as to the adjacent joint development, city streets and neighborhoods. As a result, the actual distances passengers walk to access transit service or make connections will vary considerably. This concept recalls the form of grand train stations built at the turn of the 20th century, with a main headhouse and linear concourse, except that the rail tracks will be located perpendicular to the concourse.

The Depot retains its historic function as a transit terminal and is enhanced by a large public plaza that incorporates the REA building and extensive joint development opportunities. The

massing concept, represented in Figure 5.1.2, is for new structures close to the depot to be low scale to complement the scale of the Depot and REA building. Higher density mixed-use joint development will be located in the northwestern quadrant of the site, and will link the new terminal extension to joint development. Access to the primary public parking garage is via linkages through the joint development as shown in Figure 5.1.3.

The scale of the new concourse sets the stage for a significant architectural project that would, with the Historic Depot, set the tone for the new transit district.

5.1 Site Design

The Historic Depot will remain in its original location and become the portal of the new transit district. The density strategy locates higher density development at the northwest part of the site and a lower density zone parallel to I Street allowing some “breathing room” for the Depot to be viewed from many vantage points and accessed from multiple directions by the public. This ensemble of the two historic structures - REA building and Depot - will create a cultural enclave.

The master plan for the district is envisioned as three basic zones: a transportation zone (the SITF and its related circulation area), a low density “public/cultural” zone, and a higher density “urban mixed use” zone programmed with joint development such as retail, residential, hotel and parking. Mixed use zones are present in both schemes but are planned differently to address the development issues and opportunities of the basic uses, the complexity of the site and the formality of the Depot’s historic context. A key distinction of this scheme is the overlap of zones at the Depot, highlighting its multiple functions as a transit facility, mixed use development and cultural resource. The planning zones will be configured as follows in the Don’t Move the Depot scheme:

Low Density Zone

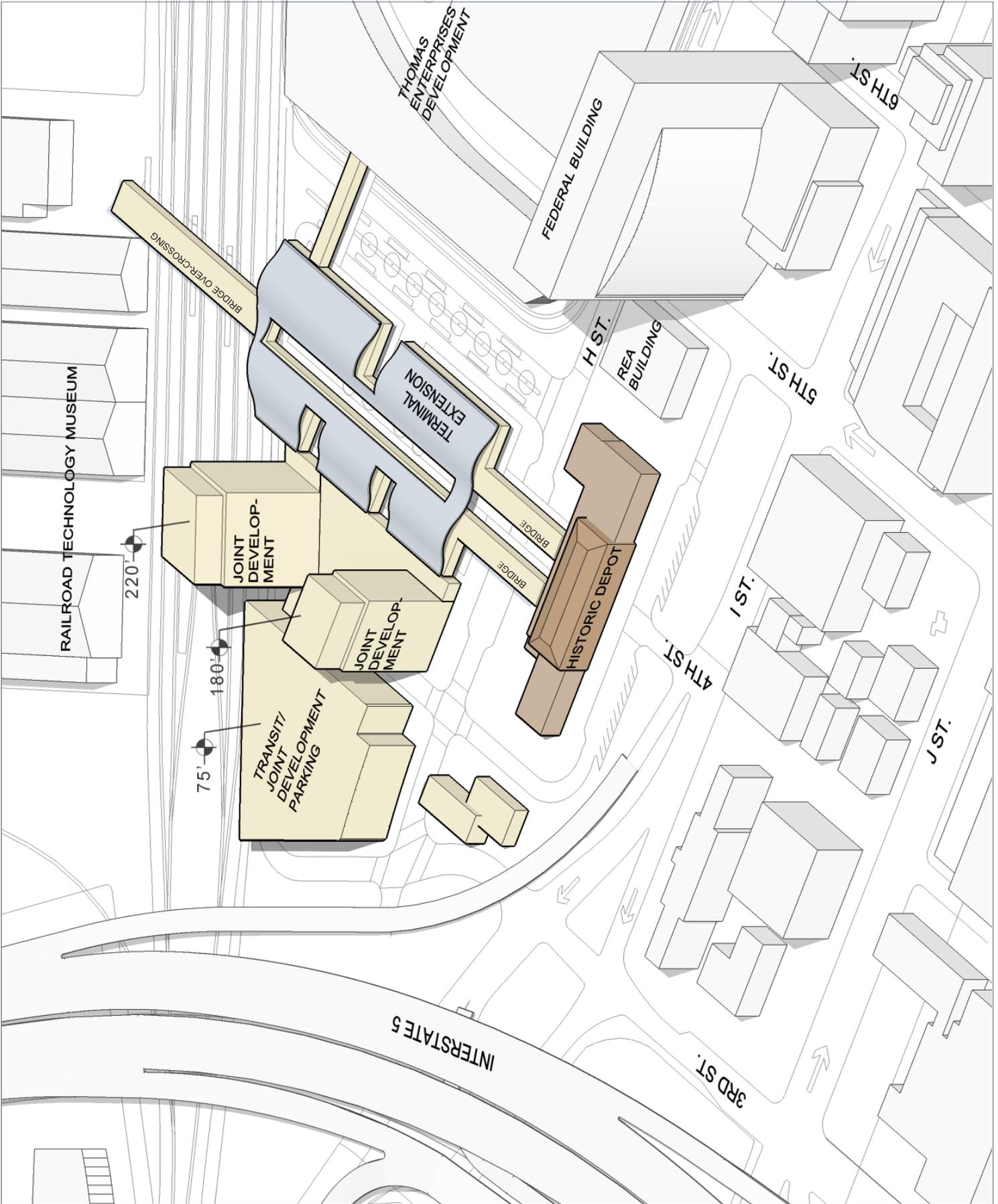
A lower density ‘cultural’ zone is located between and parallel to H and I Streets. It includes the Depot, REA Building and a small site to the west of the Depot that could be designated as a joint development opportunity or as a cultural facility and will contribute to the public open space in this area. The Depot and REA Building will have generous public plazas that provide the primary public space in the district. Both wings of the Depot have the potential to be creatively reused for joint development opportunities that support and enliven the surrounding public plaza. The eastern wing could be adapted to house a multitude of small local shops that face the plaza, while the former dining room to the west could be refurbished and expanded to anchor the large plaza and activate the cultural facility across the street. A coordinated hardscape and landscape design approach will unify this zone bringing activity and sunlight to this cultural setting. The impression of this area will be one of buildings in a plaza.

High Density Zone

The two blocks to the north of H Street and west of the Terminal are envisioned as the higher density joint development areas. The larger block adjacent to I-5 and the relocated rail tracks is envisioned as a major parking structure that is of sufficient size to support the SITF and the

adjacent joint development. Ground level retail or commercial uses will occur along H Street and the parking that these uses will generate has been factored into the parking study.

The block immediately west of the SITF is envisioned as a mixed-use joint development opportunity that capitalizes on the SITF passenger and pedestrian traffic. Though most of the parking in the district will be housed in the adjacent garage parcel, the lower levels of this block could be utilized for dedicated car storage such as car sharing or rental car outlets for both visitors and residents. Another means of energizing the mixed use would be to provide a link at the level of the concourse to facilitate and direct the flow of SITF passengers and joint development occupants so that they patronize the retail and commercial uses at this level. An ideal use in this location would be a multiplex cinema located on an upper floor of the podium between the towers. As a destination, the multiplex could serve as a magnet for the retail destinations as well. The urban design diagram shows a massing concept with a slender tower at each end of the block to allow for a mid-block rooftop open space that corresponds to the concourse level. This can serve as an amenity space for both towers and also allows sunlight to penetrate the SITF.



SACRAMENTO RIVER



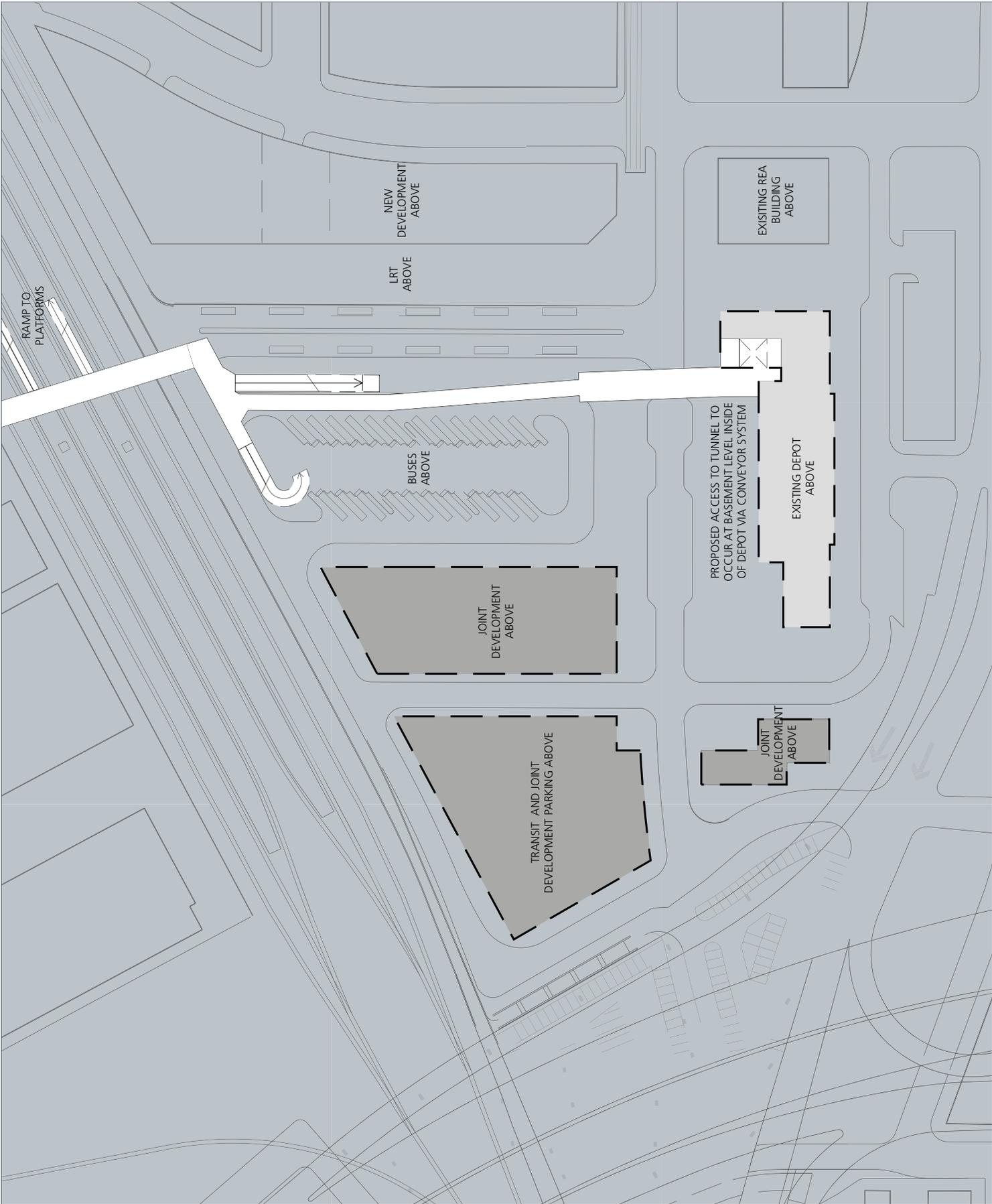
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

Don't Move the Depot - Site Parking Diagram
Figure No. 5.13
Scale: 1" = 300'

Client: City of Sacramento
Consultant Team: Perkins+Will/ARUP, Faithful + Gould, Simpson Gumpertz & Heger, Inc.



ARUP
PERKINS
+ WILL



SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

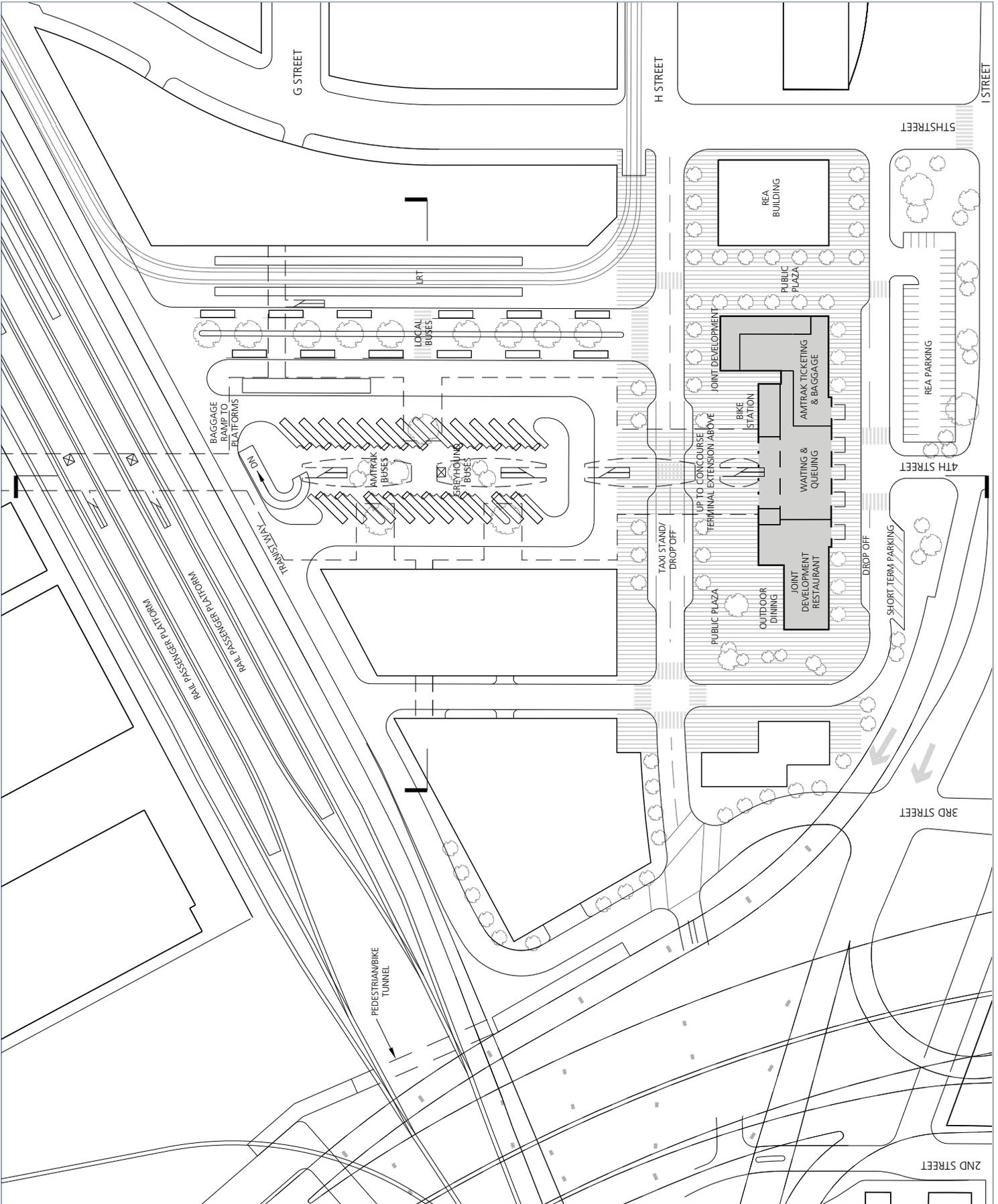
Don't Move the Depot - Subgrade Level Plan
 Figure No. 5.14
 Scale: 1" = 150'

Client: City of Sacramento
 Consultant Team: ARUP, Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.



ARUP
 PERKINS
 + WILL





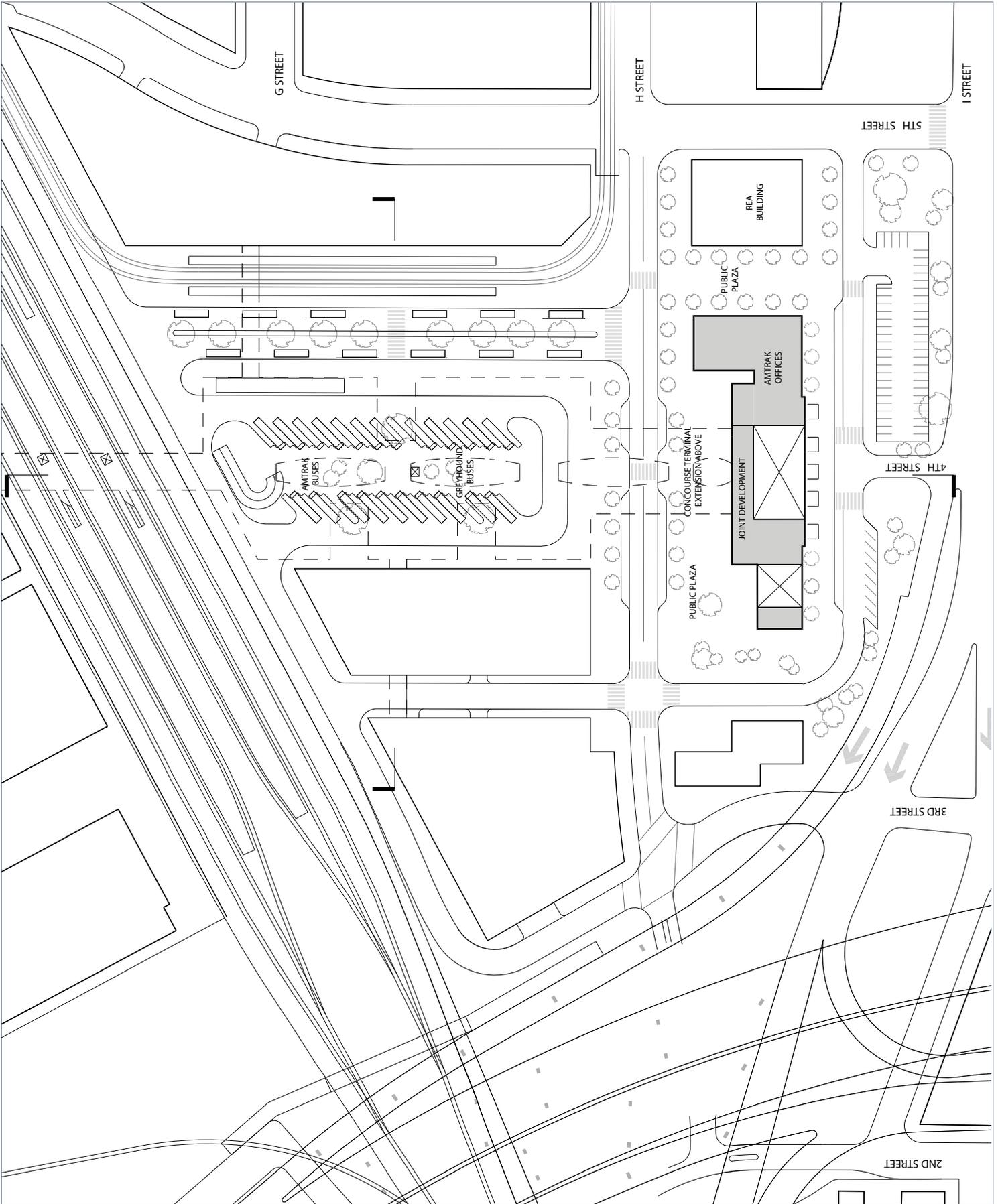
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

Don't Move the Depot - Ground Level Plan
Figure No. 5.1.5
Scale: 1" = 150'

Client: City of Sacramento
Consultant Team:
Perkins+Will/ARUP
Faithful + Gould
Simpson Gumpertz & Heger, Inc.



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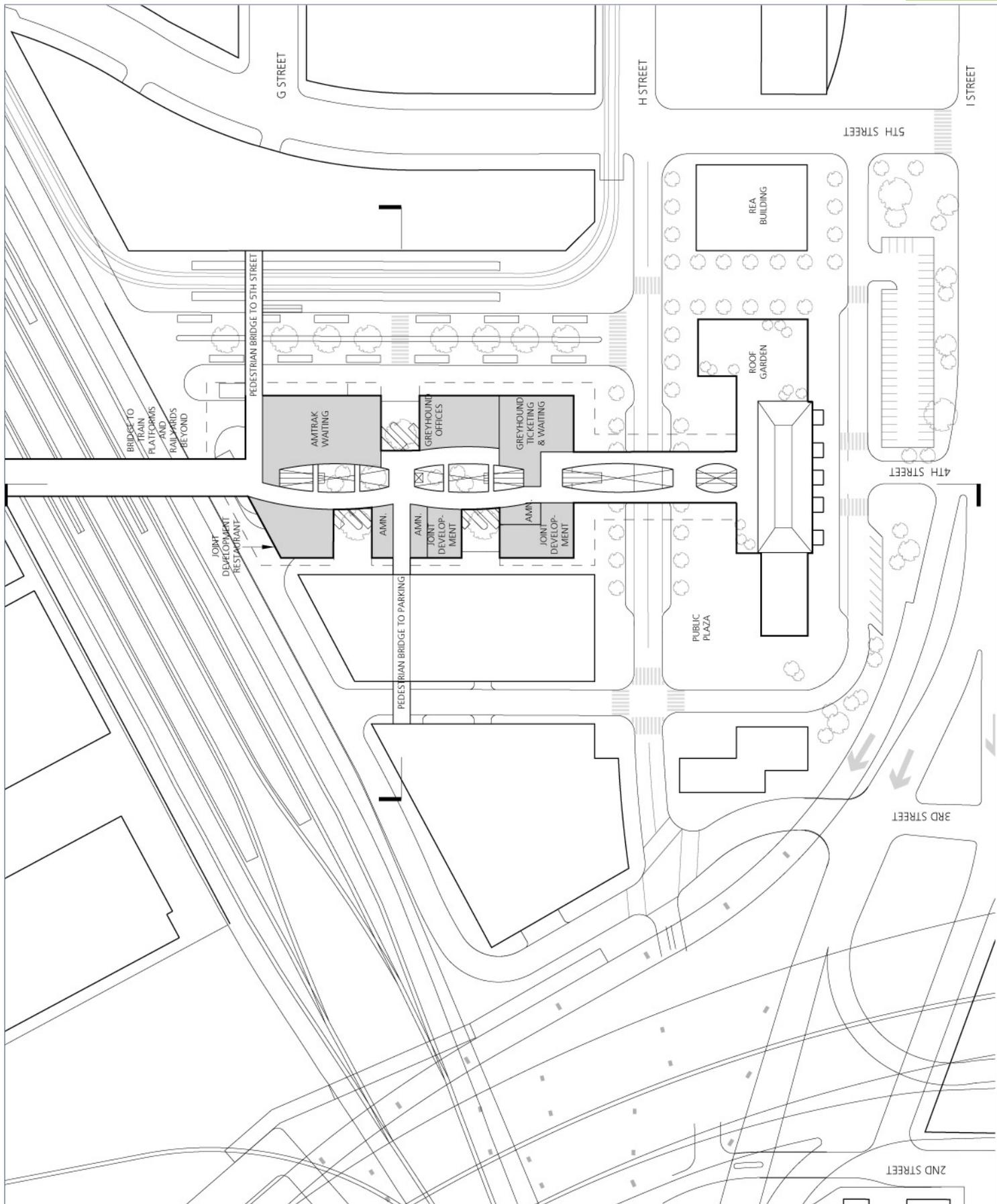
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY

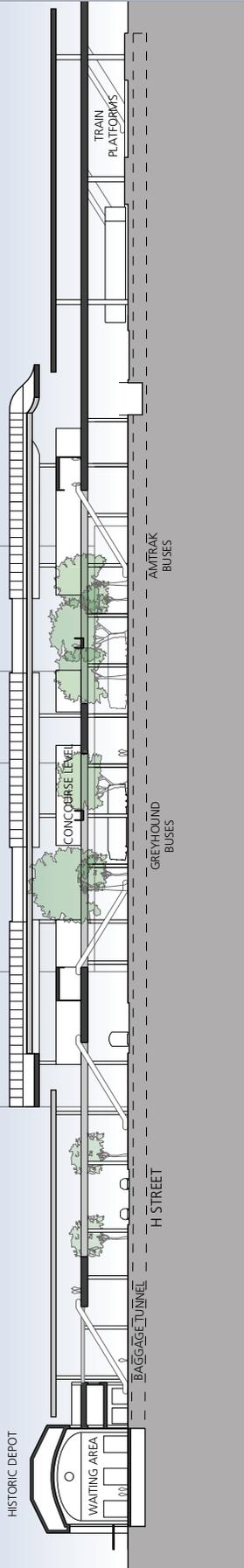
Don't Move the Depot - Second Level Plan
Figure No. 5.1.6
Scale: 1"=150'

Client: City of Sacramento
Consultant Team:
Perkins+Will/ARUP
Faithful & Gould
Simpson Gumpertz & Heger, Inc.

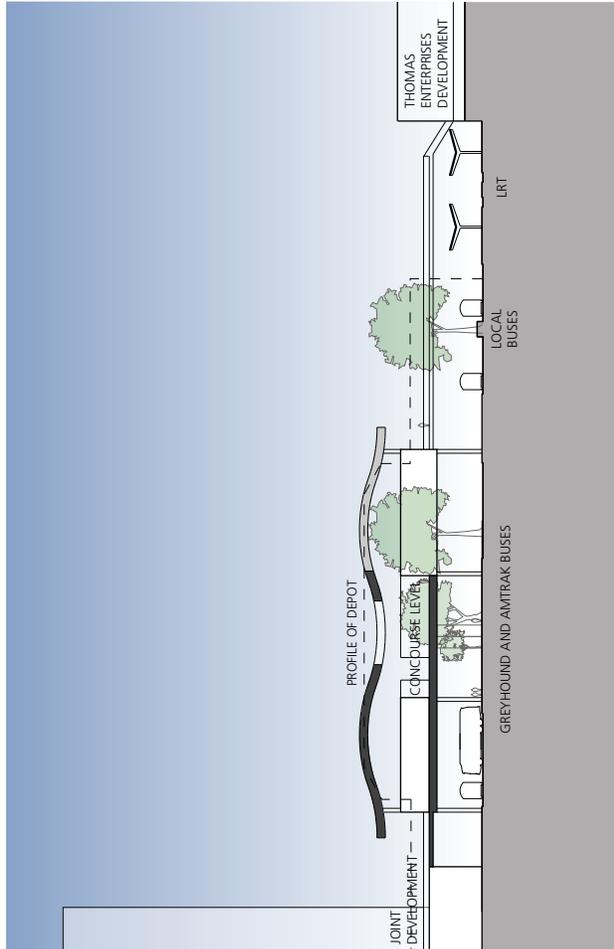


ARUP
PERKINS
+ WILL





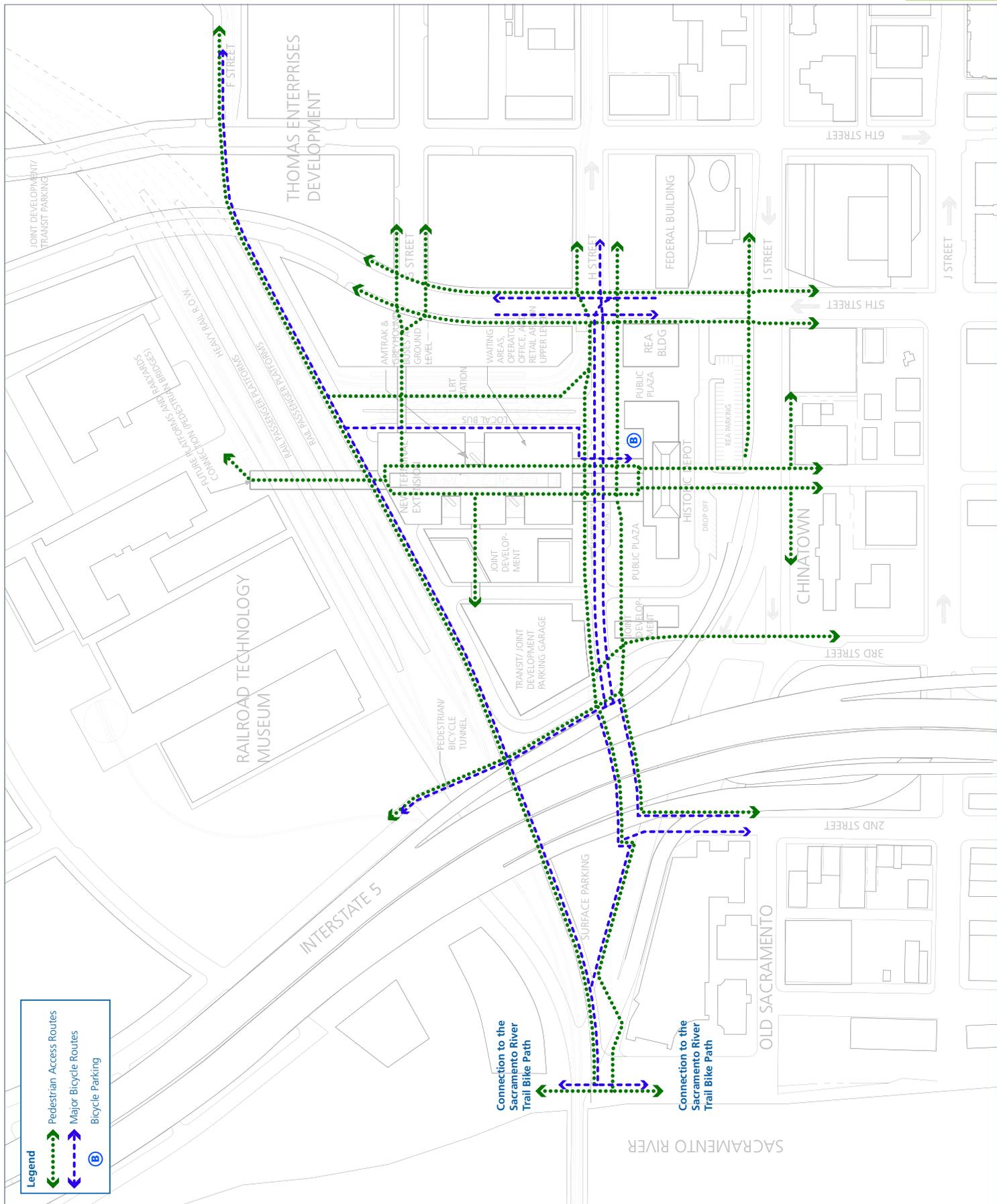
SECTION N-S



SECTION E-W

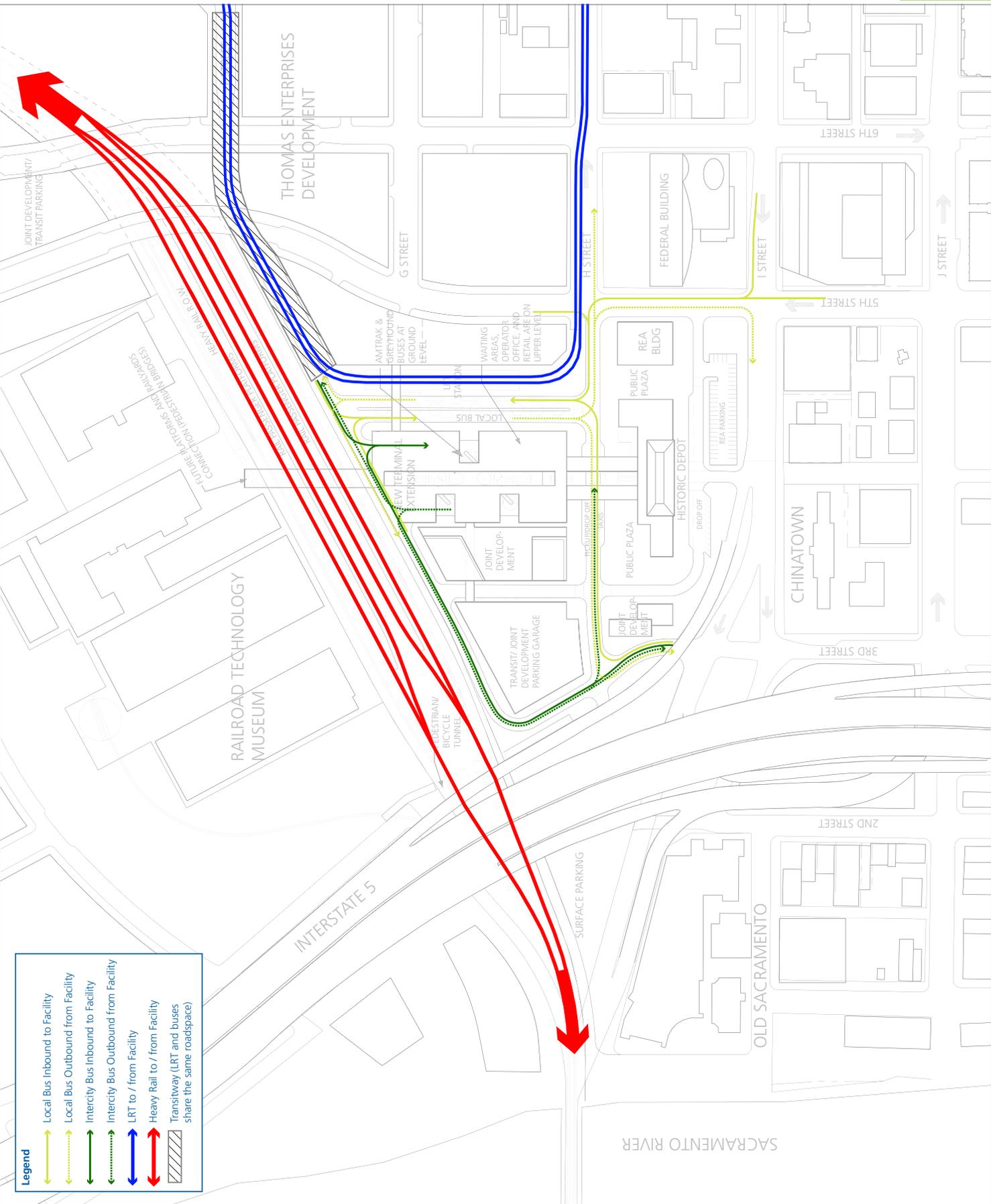
Legend

- Pedestrian Access Routes
- Major Bicycle Routes
- Bicycle Parking



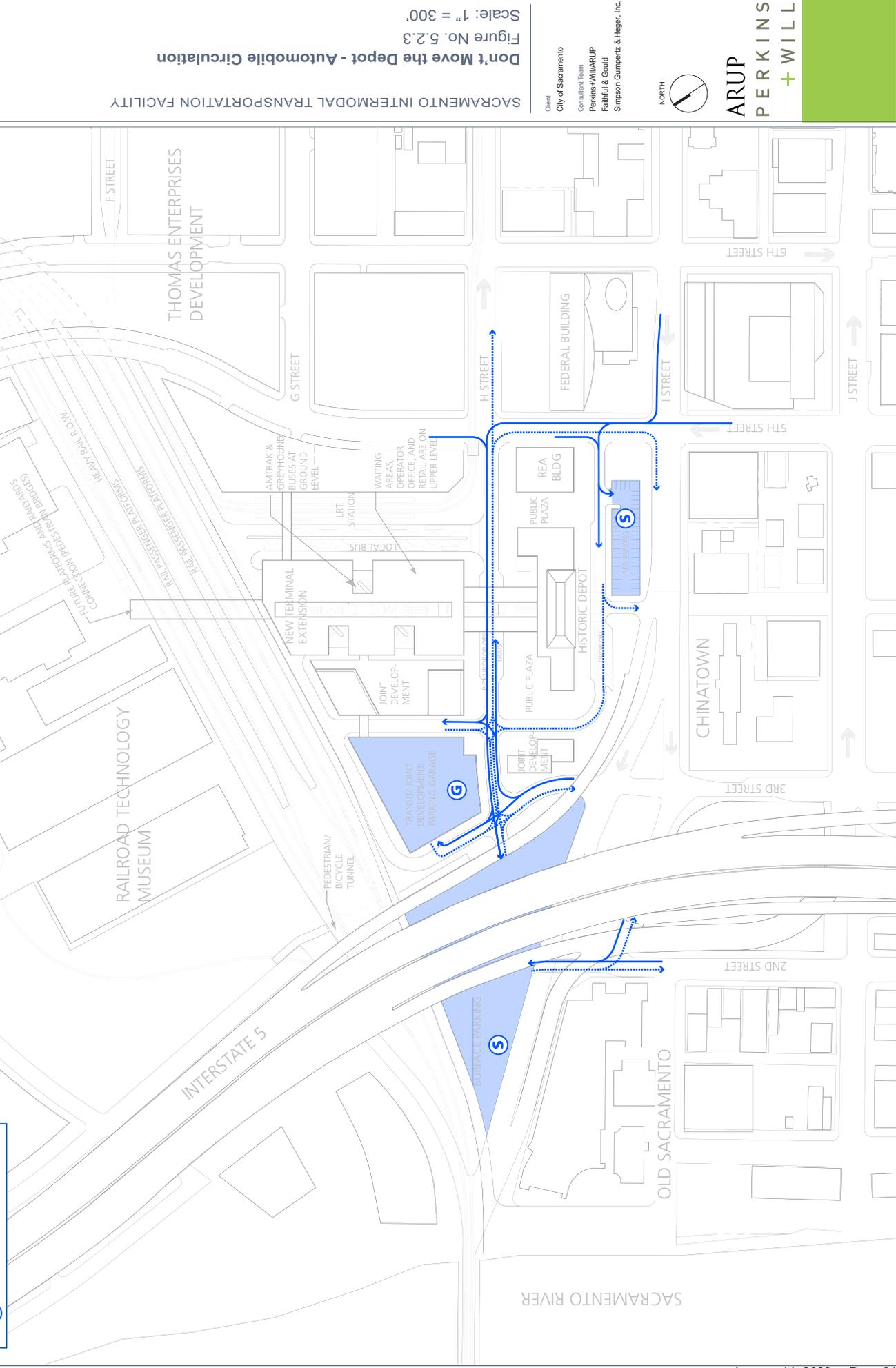


SACRAMENTO INTERMODAL TRANSPORTATION FACILITY



Legend

- Local Bus Inbound to Facility
- Local Bus Outbound from Facility
- Intercity Bus Inbound to Facility
- Intercity Bus Outbound from Facility
- LRT to / from Facility
- Heavy Rail to / from Facility
- Transitway (LRT and buses share the same roadspace)



5.2 Don't Move the Depot Circulation

The proposed Don't Move the Depot option includes some modifications to existing roadways as well as new roadway segments. The design extends the downtown grid system to the north and west with new segments of 3rd and H Streets. As part of the proposed Railyards Development project, 5th and 6th Street will also be extended to the north and ramp over the realigned heavy rail tracks. Similarly, modifications to existing segments of F, H, 7th and 8th Streets have been incorporated to accommodate the extension of light rail.

In addition to extending the downtown street grid northward, the new road systems serving the site also improve connectivity between Downtown and the northern portion of the Railyards Development and on to the Richards Boulevard area.

The study area for development of roadway plans was bounded by 2nd Street to the west, J Street to the south, 8th Street to the east, and the heavy rail tracks to the north.

In several locations within the study it was not possible at this point to identify the specific street configuration due to unresolved issues and the fact that the street configurations are beyond the scope of this study. These locations are identified below.

Railyards Development Area. The Railyards Development area is located north of H Street, east of the SITF, and west of 7th Street. The configuration of the roadways within this area are integral with the Railyards Development. Initial roadway concepts have been provided which have been illustrated on the plans. However, the final configuration of these roadways will be subject to additional design by the developer and subject to review by the City as part of the development application.

3rd and I Street. A separate study is currently underway to look at the possibility of providing a new intersection at 3rd and I Street. This design incorporates this new intersection and would likely be completed during Phase 3 of the construction process.

7th Street Underpass. The 7th Street Underpass below the heavy rail tracks needs to be reconfigured to provide additional roadway capacity to serve area development, to accommodate light rail and to provide pedestrian and bicycle connections. The configuration of this underpass is currently under development.

7th Street LRT Bypass. The design of the proposed LRT bypass track on 7th Street has not been determined to date. This track will be designed during RT's DNA preliminary engineering phase.

ADA Compliant Sidewalks. The design of ADA compliant sidewalks where street grades are changed and/or steep will be addressed during detailed design.

The accuracy of the design at this phase is limited by the topographic survey data available at the time of study. Topographic information was provided by two sources: UP/Millennia and Regional Transit. Information from these sources cover portions of the study area, but a comprehensive survey of the entire study area was not available. Differences in datum or coordinate systems between the two sources could not be fully identified and resolved with the available information. Information on column locations for elevated roadways at the Interstate 5 interchange was provided by Caltrans in hard copy form, and was manually transferred to the CAD base. It is recommended that a comprehensive survey be completed prior to subsequent design efforts.

The design of the roadways complies with the City of Sacramento Design and Procedures Manual, Street Design Standards Section 15 where possible. However, the new streets will be located in two sub districts with special street sections: Sub District 2 Southern Pacific Railyards and Richards Boulevards and Sub District 3 Central City. Available standards for these sub districts are limited. To the greatest extent possible street geometry was designed to be consistent with existing adjacent streets, including pavement widths and curb radii.

5.2.1 Don't Move the Depot Pedestrian Circulation

The Don't Move the Depot design and adjacent areas seek to maximize opportunities for pedestrian access. Comparatively to the Move the Depot Option, once the Depot remains in place, the pedestrian travel distance from the center of the Depot's waiting room to the rail platforms is now 835 feet (see Figure 3.6 on page 26). This is an additional stretch of 160 feet pedestrians would have to travel if arriving at the front of the Historic Depot. New access opportunities have been identified on all sides of the facility. These include significantly improved connections to the central business district, Old Sacramento and the Sacramento River Trail, integration with the Railyards Development, and a tunnel connection under the heavy rail tracks to the north linking the northern and southern sides of the rail corridor. Figure 5.2.1 illustrates pedestrian circulation at the SITF for the Don't Move the Depot.

The improved pedestrian facilities include new sidewalks, new off-street connections, and additional street crossing opportunities.

A new pedestrian and bicycle tunnel, West "Second Street" Tunnel, will be constructed as part of the track relocation project under the realigned heavy rail tracks. This tunnel would be located west of the SITF and north of the current California State Railroad Museum. This tunnel would improve linkages between downtown, the SITF and the proposed Sacramento Riverfront Park, as well as provide a direct connection between the existing California State Railroad Museum and the proposed Railroad Technology Museum.

Prior to the beginning of construction of the SITF a new signalized pedestrian crossing of I Street on the 4th Street axis will be completed. The provision of a safe pedestrian crossing of I Street is considered to be a highly desirable improvement over the existing condition. 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.

Shifting the rail tracks north on the site enables construction of the Fifth and Sixth Street roadway crossings over the tracks without negatively affecting the existing road/sidewalk/pedestrian/bikeway system. The northern track shift permits design of the new portions of 5th and 6th streets with vertical profiles (roadway grades) that are compliant with the Americans with Disabilities Act and that tie into the existing grades surrounding the site. With the new 5th and 6th Street crossings, pedestrians will have good above grade access to the historic shops and the proposed Railyards Development north of the new track alignment. A pedestrian only connection will also connect the site with G Street through the Railyards Development located on the south side of the rail corridor.

5.2.2 Don't Move the Depot Bicycle Circulation

There is potential to increase the usage of bicycles for access to the SITF. Both the Capitol Corridor and San Joaquin rail services provide onboard bicycle racks. Bicycles can also be accommodated on Regional Transit (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. Increasing bicycle usage at the SITF will help reduce traffic and associated environmental impacts as well as help limit automobile parking requirements. Figure 5.2.1 illustrates bicycle circulation at the SITF for the Don't Move the Depot scheme.

The designs of the SITF and adjacent transportation network provides improved bicycle access to the facility and closes a gap in the regional bicycle network by providing a connection between the Sacramento River Bikeway, Old Sacramento, the SITF and streets to the east. The Sacramento Bikeway Master Plan indicates existing and proposed bikeways in the immediate vicinity of the SITF.

Existing Bikeway:

- Sacramento River Bikeway (Class 1)

Proposed Bikeways:

- 2nd Street
- 5th Street (north of H Street and across the railroad tracks)
- 6th Street (north of H Street)
- 7th Street (north of H Street)
- H Street

The proposed SITF options assume bicycle lanes are provided on westbound H Street (between Jibboom Street and 5th Street), eastbound H Street (between Jibboom Street and 6th Street), and 7th Street (north of F Street). Bicycle lanes are also possible on 6th Street north of H Street, depending on the ultimate cross section implemented with the Railyards Development.

As noted in the previous section, new pedestrian and bicycle tunnel is currently being planned and will be constructed under the realigned heavy rail tracks between the Railyards Development and the Sacramento River Bikeway. As conceptually represented on Figure 5.2.1, this tunnel would be located west of the SITF, underneath I-5 and north of the California State Railroad Museum. The exact tunnel alignment will be determined as part of the Phase 1 Rail Relocation project. When constructed, this tunnel will improve linkages between downtown, the SITF and the proposed Sacramento Riverfront Park, as well as provide a direct connection between the existing California State Railroad Museum and the proposed Railroad Technology Museum. A new north-south connection will also be constructed as part of the 7th Street underpass reconfiguration providing pedestrian and bicycle access.

Bicycle parking at SITF in both options will include bicycle racks as well as provision for a bike station with attended parking and other services for bicyclists within the Historic Depot. Both bike parking options would be conveniently located near the primary bicycle access point to the SITF,

the passenger pick-up/drop-off curb entrance from H Street. Bicycles would be allowed to be transported through the terminal building to passenger trains consistent with Amtrak's policies for bicycles.

5.2.3 Don't Move the Depot Transit Circulation

The SITF will be served by heavy passenger rail, light rail, local buses and intercity buses. Figure 5.2.2 illustrates transit circulation at the SITF for the Don't Move the Depot scheme.

5.2.3.1 Heavy Rail

The heavy rail alignment is located along the north edge of the site and its layout and configuration is the same for both schemes. The facilities include trackwork and passenger facilities and will be developed as part of Phase 1 track relocation. The proposed four passenger tracks serve two island platforms. The passenger tracks connect to two UP main lines, one located north of the passenger tracks and one located to the south. A third UP line would be possible on the north side of the rail alignment extending to the east. Passenger trains accessing the SITF site to and from the west will use the existing I Street Bridge, since there are currently no plans to replace the existing I Street Bridge. Trains accessing the site from the east will cross over the 7th Street underpass.

The heavy rail alignment allows for the future implementation of High Speed Rail (HSR). The Sacramento line of HSR would terminate at the SITF. It would utilize new, elevated tracks above the existing heavy rail alignment connecting into the SITF site from the east.

5.2.3.2 Light Rail Transit (LRT)

Regional Transit has recently completed an extension to the Light Rail Transit (LRT) into the existing depot and is currently planning a further extension project to extend LRT to the north as part of the Downtown Natomas Airport (DNA) Line. Light rail using Truxel Road was selected by the RT board as the locally proposed project in December, 2003. Construction on the DNA extension is projected in 2009 with operations commencing on its initial segment in 2010.

In the SITF area, the LRT will include double tracks and two side platforms. Through the SITF planning process, a preferred alignment has been identified that would utilize H Street to access the SITF to and from the south, connecting to the LRT tracks on 7th and 8th Streets south of H Street. One track is already in place on H Street from the Amtrak Extension project, and a second track would be added as part of the DNA project.

For the Don't Move the Depot option LRT platforms at the SITF will be located on the east side of the Terminal in a north-south orientation. The platforms will be located between the Terminal building and the proposed Railyards Development, west of the 5th Street extension. North of the platforms, the LRT alignment will turn back to the east and connect to 7th Street at F Street using the proposed transit way under the Railyards Development. A single side of the station will be provided as part of the intermodal project and the other side will be provided by Regional Transit. Portions of the tracks and transit way would be under the proposed Railyards project. On 7th Street, the LRT alignment would continue north, crossing under the heavy rail tracks using the reconfigured 7th Street underpass. The specific arrangement of the 7th Street underpass, including LRT, is to be determined by the City of Sacramento and Regional Transit.

The proposed LRT configuration will meet the requested program for LRT platforms, will allow LRT to operate off street in the vicinity of the SITF, and will provide a direct pedestrian connection between the Terminal Buildings and the LRT platforms.

5.2.3.1 Intercity Bus

Intercity bus service at the SITF will be provided by Amtrak Thruway and Greyhound Lines. The intercity bus boarding bays are located north of H Street, on the ground floor underneath the terminal extension. Buses can access bays off the transit way, which will be connected north of the parking access on 3rd Street and 7th and F Street. This transit-only roadway will serve LRT and local buses in addition to intercity buses.

Intercity buses are assumed to exit I-5 at the J Street interchange, turn north on 3rd Street and cross H Street to enter the transit way. This is a direct route that minimizes turns and travel on downtown streets. Buses leaving the SITF will use the transit way to 7th and F Street and then turn right onto 7th Street, turn right at I Street, connect to I-5 off I Street. Alternatively, buses can use the transit way and then turn left onto H Street, turn right at 5th Street, turn right on I Street and connect to I-5.

5.2.3.2 Local Bus

Local bus service at the SITF will be provided by Regional Transit and other bus transit operators. The local bus boarding area in the Don't Move the Depot option is located between the new terminal extension and the proposed LRT platforms. Bus bays are orientated in a north-south direction with 6 bus bays in the northbound direction and 6 bus bays in the southbound direction.

Buses can access the bays directly off H Street or via the transit way connecting with 3rd and H Street and 7th and F Street.

5.2.4 Don't Move the Depot Auto Circulation

5.2.4.1 Street Access

The proposed SITF options include several improvements to the roadway system. These improvements provide additional capacity to serve the SITF and Railyards Development and additional access opportunities to properties in the area while creating attractive street environments for all modes of transportation. Figure 5.2.3 illustrates the principal access routes to the SITF for private vehicles for the Don't Move the Depot option.

The ultimate design extends the downtown grid system to the north and west with new segments of 3rd and H Streets. The new street connections will provide two major access options to the SITF via 3rd and 5th Streets.

Figure 5.2.3 illustrates primary traffic circulation routes for the Don't Move the Depot option. The H Street extension will serve as the primary access point to the SITF. H Street will be two-way west of 5th Street. 5th Street would have two-way operation between I Street and H Street. Vehicles traveling to the SITF from the south will use 3rd Street or 5th Street to reach H Street. Vehicles traveling from the north will use 5th Street. Vehicles approaching from the north on 6th Street or 7th Street will have two route choices: G Street to 5th Street to H Street, or I Street to 4th or 5th Street to H Street. Vehicles leaving the SITF traveling south will use 3rd Street or H Street

to 6th Street or 7th Street. Vehicles traveling north will use 5th Street, 6th Street or 7th Street via H Street. Primary access from I-5 will be via the J Street off ramps via 3rd Street or 5th Street. Primary access to I-5 will be via 5th Street to I Street and the I-5 on ramps.

5.2.4.2 Parking

Parking for the proposed SITF options will consist of surface parking lots under I-5 structure and parking garages. The Intermodal planning team recommends that a managed parking district be established to regulate the parking supply and pricing for the area. This is particularly important for the proposed SITF parking option as it is dependent on parking facilities that are shared with adjacent development. The parking district shall set parking pricing policies, define employee cash out programs (where monthly cash payments are provided to employees in lieu of free parking), provide parking enforcement and oversee a project area transportation demand management program. The City should condition development in the Intermodal Planning Area on the provision of shared parking arrangements between private development and the SITF.

Parking for the Don't Move the Depot Scheme is proposed in two locations, accommodating approximately 926 spaces:

- A parking structure shared with joint development located north of H Street between 3rd and 4th Streets, which could accommodate up to approximately 746 transit parking spaces on 6 levels. Access to the parking structure is proposed off the extension of 3rd Street. Located adjacent to the SITF the parking structure provides close convenient access to the facilities via elevated walkways between the parking structure and new terminal extension. This will be the primary parking area for SITF users and will include long term parking.
- Surface parking is located underneath I-5 between the I Street Bridge access and the relocated heavy rail tracks and can accommodate approximately 180 parking spaces. Primary access to the parking lot is proposed off H Street and a secondary access is from 2nd Street.
- A surface parking lot in front of the depot building will accommodate approximately 40 spaces primarily for REA parking.

A parking structure shared with the Railyards Development is proposed to be located north of the relocated heavy rail tracks adjacent to 5th Street that could accommodate additional parking spaces for station users. It is assumed that the primary access will be off Stevens Street with pedestrians accessing the SITF via the passenger platform tunnel underneath the relocated heavy rail tracks. While the location of this parking structure is less obvious for unfamiliar SITF users, its location will be an attractive option to commuters as it is conveniently located adjacent to the heavy rail tracks. Utilization by commuters is more appropriate, as the demand patterns will likely be complimentary to those of the retail and entertainment uses in the Railyards Development.

5.3 Don't Move the Depot Transit Program

The desired transportation program for the SITF was presented in Section 5 of Working Paper #5 and is presented in this report in Table 5.3.1. The transit program was divided into modules

for different transportation modes and operators. The program for each module requested by the 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 (LRT)
- Private Vehicle, Taxi, and Shuttle Service Pick-Up and Drop-Off
- Parking
- Terminal Building (Transit Program)

Pedestrians and bicycles are not identified as a specific program module, however their requirements are identified in the project goals and objectives, and are accommodated in the proposed design. The SITF program does not include specific provisions for high speed rail operations, however the design of the SITF anticipates the eventual inclusion of high-speed rail service in the location of the heavy rail alignment and platform arrangements, and in the layout of the Terminal Building.

Transit Program Summary

The Don't Move the Depot option accommodates the program for all modules, with the exception of heavy rail platforms and on site parking. As noted in Working Paper #8, p. 36, and in discussions with the rail operators, it has been determined that the provision of heavy rail platforms approximately 1,200 feet long will likely be acceptable if specific issues can be resolved in detailed design. These include the provision of track segments that extend beyond the platforms by sufficient length to accommodate longer passenger trains (such as Amtrak long-distance trains) without impacting signals on adjacent tracks. It is therefore assumed that the proposed schemes presented here provide adequate heavy rail platforms capacity. More detailed design of the rail layout is beyond the scope of this project.

As noted in Section 5.2.4, additional parking will be available in a proposed parking structure located north of the heavy rail tracks. Therefore the proposed parking provisions in this option would be feasible.

Don't Move The Depot Option

Table 5.3.1 Don't Move the Depot Achieved Transit Program

Program Module	Working Paper # 5 Program		Don't Move the Depot Achieved Program
	Operator Requested Program	Reduced Program Option	
Freight Track	Up to 3 Tracks	Up to 3 Tracks	Up to 3 Tracks
Passenger Tracks and Platforms	2 x 1,400 ft Center Platforms ¹	2 x 1,400 ft Center Platforms ¹	1 x 1,210 ft Center Platform 1 x 1,275 ft Center Platform
Intercity Bus	12 Amtrak Thruway Bus Bays 14 Greyhound Bus Bays 26 Total Intercity Bus Bays	8 Amtrak Thruway Bus Bays 10 Greyhound Bus Bays 4 Shared Bays 22 Total Bus Bays	12 Amtrak Thruway Bus Bays 10 Greyhound Bus Bays ² 22 Total Intercity Bus Bays
Local Transit Bus	14 Local Transit Bus Bays	12 Local Transit Bus Bays	12 Local Transit Bus Bays
Light Rail / DNA Project	2 LRT Tracks with Platforms 2 LRT Layover Tracks	2 LRT Tracks with Platforms 2 LRT Layover Tracks	2 LRT Tracks with Platforms ³
Pick-Up and Drop-Off	18 Total Pick-Up/Drop-Off and Taxi Spaces	18 Total Pick-Up/Drop-Off and Taxi Spaces	18 Total Pick-Up/Drop-Off and Taxi Spaces
Transit Parking	1,027 Parking Spaces	600 Parking Spaces	926 Parking Spaces
Terminal Building (Transit Program)	54, 570 SF (net transit program space)	54, 570 SF (net transit program space)	55,870 SF (net transit program space)

Notes: ¹ Assumes off-site layover is not provided

² Greyhound revised requested program to 10 bus bays, February 2008

³ LRT Layover tracks not required, February 2008

5.4 Don't Move the Depot Terminal Design

The essential concept for this option is to efficiently move passengers clearly and directly across the distance created when the rail tracks are re-aligned. The new terminal extension concourse is located at an upper level and bridges between the Depot and realigned tracks (see Figure 5.1.7) and provides access to buses and LRT at grade below (see Figure 5.1.5). It also provides secondary connections to an adjacent parking structure and the 5th and G street pedestrian access.

The Depot will retain Amtrak ticketing and baggage functions and be adaptively reused for joint development. The second level of the Depot, (see Figure 5.1.6) will also be programmed as office space for transit administration. The passenger drop off and short term parking in front of the Depot will help direct passengers not familiar with Sacramento to the station facilities. Commuters and other local passengers, on the other hand, have the option of accessing the new terminal extension from a multitude of access points, effectively shortening the distance to their connections.

H Street will be extended behind the Depot and below the new concourse level. The new street alignment will allow for a large taxi-drop off zone and additional passenger drop-off/pick-up zones. The concourse of the new terminal extension could potentially connect at the roof level of the Historic Depot. Previously unused, the flat area of the Depot's roof is an opportunity that could be transformed into a roof garden with great views of the new SITF, the Railyards, and downtown.

Escalators and elevators at both sides of H Street will bring passengers to the concourse level where most of the transit program is planned (see Figure 5.1.8). The basic diagram of the concourse is an open air bridge with enclosed transit waiting areas and administration space on one side and passenger oriented joint development on the other. In between, the bridge opens up to allow passengers to visually and physically access the bus connections below and to allow natural light to penetrate to the ground level. The concourse deck and great shed roof above, would both be engineered to exhaust diesel fumes from the buses idling at the ground level.

These openings break up the length of the concourse and help create two distinct zones for Amtrak and Greyhound that will clarify way finding for passengers. Smaller pedestrian bridges will provide direct connections from the passenger waiting areas to the passenger amenities across the voids. The left side of the concourse is a straight and clear route from the Depot to the pedestrian overcrossing which provides connections to the passenger platforms and railyard in addition to the pedestrian tunnel completed in Phase 2.

A key aspect of the concourse is the strategic use of large tree canopies to create an elevated park and enliven the public open space. The great shed roof is notched to create light wells at the large tree locations and along the central spine; a large skylight spanning the entire length will bring natural light to the main thoroughfare. Large canopy trees are also planned along the median of the local bus area, continuing the distinctive Sacramento streetscape.

Another key aspect of the new terminal design is the great shed roof that shelters the entire

concourse and is conceived of as a signature architectural feature. This great roof also operates as a highly engineered component that keeps the concourse level areas ventilated, cooled, and exhausts fumes and provides sound attenuation from the buses at ground level.

5.4.1 Passenger & Baggage Flow

This scheme differs substantially from the Move the Depot scheme in that passengers have the ability to access the concourse from multiple locations: adjacent parking and joint development from the west, local light rail and buses connections at grade, a pedestrian bridge from 5th and G Streets, the Railyards Development and public parking from the north, and the Depot. The concourse level, which could be limited to passengers only, is a physical bridge to all of these points and with a higher vantage point, allows passengers visual access to their connections and the city beyond.

Staffed Amtrak ticketing and baggage counters are located in the Depot and electronic ticketing stations are anticipated to be utilized at the concourse level. Passengers and tourists unfamiliar with the SITF will be able to easily navigate the station with the Depot as the grand Amtrak entrance while local commuters will be able to make their connections effectively and efficiently through the multiple access points.

Amtrak baggage will be transported from the Depot via a tunnel under H street (see Figure 5.1.4). The existing tunnel will need to be rehabilitated, retrofitted, and extended north to accommodate the baggage cart traffic. The existing ramp up from this tunnel is currently too steep for carts and will have to be either redesigned with a more gradual slope or allow baggage carts to be loaded/unloaded in the basement. The first option would require further design analysis to realign the ramp to work with the new proposed plaza. The second option abandons the ramp to grade entirely and extends the tunnel into the Depot basement for direct access to the baggage area above.

The tunnel under H Street, for the purposes of this report, is shown extending and connecting with the temporary passenger platform tunnel. Access to the Amtrak buses for baggage transfer is achieved with a ramp daylighting at the northern end of the bus boarding median. Another option under consideration is a ramp to grade after passing under H street and accessing the buses and trains at grade.

Greyhound ticketing and baggage program space is located exclusively in the new terminal extension directly above their bus bays. It is also located on H Street for visibility and could conceivably have street signage here as well.

5.4.2 Sustainable Design

A key component to the conceptual design of the SITF is the integration of sustainable design principles and maximizing opportunities to feature innovative “green” thinking. The SITF is a prime project for the City of Sacramento to showcase and represent a forward thinking California that is investing in mass transit as the future.

Sacramento’s arid climate encourages passive design strategies that are fundamental to green

building practices. Sacramento has also adopted the policy of new public projects obtaining LEED (Leadership in Energy and Environmental Design) certification to the level of Silver. The new terminal extension is envisioned as an integrated approach to design, function, and sustainability principles with the following as some thoughts on how these ideals can be applied to the SITF:

- The use of natural daylight and natural ventilation throughout the new extension
- An effective high performance roof that minimizes solar heat gain, ventilates the outdoor spaces below, and provides acoustical insulation - all passive systems that capitalize of natural systems reducing the overall energy cost.
- Shade trees further assist the reduction of direct solar gain on the ground plane during the day yet allow daylight to penetrate the concourse level
- The use of light colored materials with a high albedo (light reflectance) for the roof and plaza paving to assist in the reduction of heat gain during the day and keep the plaza cooler for pedestrians.
- Recycling greywater and capturing rainwater for non-potable uses
- Intelligent building controls monitor both passive and mechanical systems to ensure they operate efficiently and minimize energy use.
- With a lowered energy consumption by means of maximizing daylight (direct and indirect) and employing passive cooling strategies, the addition of onsite solar power generation could potentially render the new SITF a zero energy project.

5.5 Terminal Building Program

The transportation program for the SITF was developed with operator requirements and presented in Working Paper #5 in October 2003 and refined in Technical Report #11 in October 2004. This program was reverified in this scope with all of the transit operators and agency stakeholders in order to capture the most up to date requirements for the SITF and guide the development of the two concept schemes. As of the date of this Technical Report, there is no change from the program space requirements listed in Technical Report #11, Table 4.2.1.

For the purposes of this report, the operator requested program was used to size the new terminal extension and provide a general plan for the reuse of the Historic Depot. Both schemes are developed to a master plan level and utilize the operator requested program in gross areas to propose diagrammatic circulation flow, location of program components and their adjacencies. The table below describes the program achieved in general terms and would require a much more extensive concept design to fine tune the efficiencies and footprints of each program component.

Table 5.5.1 Don't Move the Depot Achieved Terminal Building Program

Program Module	Working Paper #5 & Technical Report #11 Operator Requested Program		Don't Move the Depot Achieved Program	
	Ticketing Includes ticket counters and queuing only	Amtrak Greyhound Total	1,780SF 880 SF 2,660 SF	Amtrak Greyhound Total
Baggage Includes baggage and package service	Amtrak Greyhound Total	5,360 SF 890 SF 6,250 SF		
Waiting Includes seating and immediate circulation area	Amtrak (seating) Amtrak (standing) Greyhound Total	11,000 SF 2,400 SF 4,720 SF 18,120 SF	Amtrak (concourse) Amtrak (depot) Greyhound Total	11,000 SF 3,000 SF 5,000 SF 19,000 SF
Passenger Amenities Includes restrooms, information, telephones, passenger-oriented retail, operator-run food service, rental car counters, ATMs, vending, telephones, custodial, and allowance for circulation. Customer service counter only for RT	Amtrak Greyhound Regional Transit Total	4,620 SF 5,970 SF 100 SF 10,690 SF	Depot Amenity Concourse Amenity Concourse JD Total	1,570 SF 5,600 SF 11,100 SF 18,270 SF
Administration and Employee Includes offices, crew base, cash rooms, break room, storage	Amtrak Greyhound Regional Transit Total	12,550 SF 3,800 SF 500 SF 16,850 SF	Amtrak (depot) Greyhound (concourse) RT (depot) Total	14,000 SF 5,600 SF 500 SF 20,100 SF
Total Terminal Building Transit Program		54,570 SF		55,870 SF (does not include Concourse JD)



Figure 6.1 View towards depot from existing train platform location.

6 Phasing

6.1 Introduction

Conceptual phasing strategies have been developed for construction of the two alternative Intermodal plans and are presented in the following sections. The phasing strategies presented in this document assume a linear sequence on the critical path without overlap of controlling items and with the major work components separated.

It should be noted that the schedule reflects anticipated minimum construction duration only and is based upon Phase 1 construction beginning in the First Quarter 2010. However, the schedule does not take into account the potential for additional unforeseen delays associated with funding availability, approvals, regulatory clearances, design, bidding, staffing availability or changing City priorities. Meeting the schedule will require a continuous, coordinated and focused effort to resolve outstanding issues and complete necessary pre-construction activities at each Phase.

Several factors could affect the final phasing strategy and schedule, such as available funding and the schedules of the Railyards development or the LRT DNA extension for example. It has been assumed that Phase 2 work will begin immediately after Phase 1 has been completed, however, it is unlikely that Phase 3 work will have the necessary funding in place to begin immediately after Phase 2.

Prior to developing this conceptual phasing strategy, various requirements, objectives, and

assumptions were identified. The parameters are outlined in this section and are followed by a description of the conceptual phasing strategy for the two alternative Intermodal plans.

6.1.1 Requirements

The following requirements have been identified and used while developing the phasing strategy:

- Maintain transit operations at the Intermodal for heavy rail, LRT, buses, passenger vehicles, pedestrians, and bicyclists
- Maintain access to the REA building, Railroad Museum, and I-5 ramps
- Provide sufficient parking for Intermodal and REA buildings
- Early construction phases should allow for either alternative plan to proceed

6.1.2 Objectives

The following objectives have been identified and used while developing the phasing strategy:

- Accommodate incremental expansion of the Intermodal
- Minimize the need for temporary facilities
- If the Move the Depot is selected, perform the move as early as possible
- Maximize flexibility with respect to adjacent projects
- Seek to maintain a minimum of 180 parking spaces for transit uses and a minimum of 40 parking spaces for the REA building
- Provide for the possibility for early construction of the joint development parcels to allow a revenue stream to be generated for the Intermodal

6.1.3. Assumptions

The following assumptions were used while developing the phasing strategy for both the Move and Don't Move schemes unless noted otherwise:

Schedule

- The heavy rail realignment is assumed to begin construction in the First Quarter 2010
- Linear sequence to the critical path without overlap of controlling items

Funding

- Funding will not be initially available for the entire project and the major work components will typically occur sequentially either directly or with gaps
- However if funding is available, it may be feasible to combine the major work components in certain phases

Land Acquisition

- Land required to build the Intermodal and associated roadway connections and public open spaces will be available as a result of property acquisition with the property owner(s)
- Land acquisition will be complete prior to construction beginning

Heavy Rail Realignment

- Realigning the existing heavy rail tracks is required to initiate the Intermodal project as well as the Railyards Development.
- The following Intermodal components would be provided with the proposed track realignment and design would need to be coordinated with Intermodal plans:
 - New platforms
 - Pedestrian / baggage access to platforms via a passenger platform tunnel
 - Baggage access and “red cap” access for disabled travelers via either an at-grade or below-grade crossing at the west side of the platform.
- The following Railyards projects would need to be coordinated with the proposed track realignment:
 - 5th and 6th Street foundation overpasses and crossing structures
 - 7th Street pedestrian / bicycle tunnel
 - West (2nd Street) pedestrian/ bicycle underpass from Old Sacramento to Central Shops areas

Railyards Development

- Requires track relocation prior to construction
- Railyards Development is expected to begin construction in 2009
- The first phase of development is expected to begin north of the heavy rail tracks
- Entitlement and California Environmental Quality Act (CEQA) process completed in December, 2007

LRT DNA Extension, Short Term Project

- First phase is from Depot/H & 7th Street Area to Richards Boulevard
- Operational in 2010 at the earliest
- Relocation of the LRT platform (with short crossover transition) at the Intermodal could be completed in advance of the DNA extension

Greyhound

- Greyhound facility located off-site until new Terminal Extension is completed

REA Building

- Access to the Intermodal site from 5th Street can be via the REA property

Streets and Circulation Components

- 5th Street is converted to two-way operation between H and I Streets prior to start of Intermodal construction
- Signalization of 4th and I Street expected to begin construction Summer 2009

Assumptions for Moving the Historic Depot (*Applies to Move the Depot Scheme only*)

Refer to Section 8.2 in this document for descriptions of the structure itself and the methodology for moving the structure. The following items would be completed prior to moving the Depot:

- Completion of the Terminal Extension (new terminal facility) with temporary access arrangement
- Seismic strengthening work completed with the Historic Depot closed and passengers using the new Terminal Extension (this work could be undertaken sooner as a separate project with Historic Depot remaining operational during the work)
- Completion of the new foundation system for the Historic Depot at the relocated site
- The LRT Amtrak extension relocation, removal of other obstructions and ground preparation would be completed prior to the move

Additional Assumptions

- The remediation of the ground under the existing tracks can be phased to allow access across the work areas
- Upgrade and relocation of on-site utility systems are assumed to be complete as required during each sub phase
- Upgrades to any of the off-site utility systems are not considered

6.2 Phasing Strategy

The phasing will be undertaken in 4 main phases and sub phases within each main phase. The main phases are summarized below:

- Pre Construction Phase (*common to both schemes*)
- Phase 1 – Rail Relocation Phase (*common to both schemes*)
- Phase 2 – Sacramento Valley Station Improvements (*common to both schemes*)

- Phase 3 – Intermodal Construction and Joint Development (*Each scheme has its own phasing plan for work undertaken in Phase 3*)

The phasing strategy for pre construction and phases 1 and 2 are common to both the move and don't move schemes. This period of construction is comprised of 5 sub phases (2 under Phase 1 construction and 3 under Phase 2 construction) and a pre construction starting condition that is considered to be the existing condition prior to construction of Phase 1. Figures 6.2.1 to 6.2.12 present the major items of work and the Intermodal operations for each phase. The phasing allows for either scheme to be selected in Phase 3 with the added benefit of improving operations at the Intermodal facility until a final scheme is selected / can begin construction. Access to the station and transit operations are maintained throughout all of the construction phases. The construction duration up to the completion of Phase 2 is just under 4 years, which includes the rail relocation and Sacramento Valley Station Improvements. It is optimistic in that it assumes funding, approvals, project resources, etc. are in place and optimally coordinated. Further detailed descriptions and schedules for these phases are as follows:

6.2.1 Pre-Construction Starting Condition (*common to both schemes*)

This is considered to be the existing condition for development of the subsequent Intermodal phasing. It is estimated that this will be prior to the First Quarter 2010 and includes the following major components of project development:

- Environmental Approval
- Funding Procurement for initial phases that are being delivered (*for Phase 1 and possibly some components of Phase 2*)
- Right-of-way control
- Final Design for Phase 1
- UPRR and PUC coordination
- Utility coordination

During this phase, the Depot, heavy rail, light rail, passenger vehicles, pedestrians, and bicyclists operate and access the facility as existing. Amtrak Thruway and RT buses use their existing bus facility at the Historic Depot. Greyhound is assumed to be located off-site. The phasing plan presented assumes the buses circulate in the same manner as they do today.

6.2.2 Phase 1 – Track Relocation (Related project by others) (*common to both schemes*)

6.2.2.1 Sub phase 1A (*See Figure 6.2.1*) – During this phase the new 2nd Street pedestrian/ bicycle tunnel, 7th Street pedestrian/bicycle tunnel and passenger platform tunnel are constructed followed by construction of the new heavy rail tracks. The duration of this phase is estimated to be 12 months from First Quarter 2010 to First Quarter 2011 and includes the following major components:

- Additional West (2nd Street) pedestrian/bicycle tunnel from 2nd Street in the vicinity of Old Sacramento to extend diagonally under I-5 and relocated rail tracks to the Central Shops area
- Foundations for the 5th and 6th Street over crossings
- A temporary covering and at-grade walkway and ramp between passenger platform tunnel and the existing Depot, together with temporary landscaping associated with the new covered at-grade walkway
- Passenger platform tunnel connecting between the covered walkway on the southern side of the relocated tracks via access ramp and Central Shops / Market Plaza Area on the northern side via ramp and stairs. The northside vertical access may be constructed during this phase, however, it is unlikely that this will be open to the public with no Railyards Development in this area at this stage.
- Heavy rail track realignment including installation of new freight tracks, new passenger tracks and associate equipment
- Double sided passenger platforms and canopies
- At-grade or below-grade service access pathway and non-public crossings at the western side of the platforms

During this phase the transit operations continue to function as the Pre-Construction Staging Condition. At the end of this phase, when the heavy rail realignment is complete, heavy rail traffic (passenger and freight) would be switched to the new alignment and the new passenger platforms would be utilized.

6.2.2.2 Sub phase 1B (See Figure 6.2.2) – During this phase the existing mainline tracks and passenger platforms will be removed. The duration of this phase is estimated to be three months from First Quarter 2011 to Second Quarter 2011 and the items of work are:

- Existing heavy rail removal and any necessary soil remediation

During this phase the heavy rail operates on its new alignment and transit operations continue to function as the Pre-Construction Staging Condition. Pedestrians access the new heavy rail tracks by crossing the LRT and former heavy rail tracks via the existing crossing point and using the at-grade walkway and passenger platform tunnel to reach the new platforms.

The construction components of this phase of the work are the same for both the Move and the Don't Move schemes.

6.2.3 Phase 2 – Sacramento Valley Station Improvements *(common to both schemes)*

6.2.3.1 Sub phase 2A (See Figure 6.2.3) – After the existing heavy rail is removed and remediated, the LRT Amtrak Extension can be relocated to its ultimate location on the east side

of the Intermodal. Once the Intermodal portion of the LRT DNA extension is completed and operational, the LRT Amtrak extension can be removed. The existing surface parking lot adjacent to and under I-5 can be reconfigured and expanded and the area between the new heavy rail tracks and the old tracks can be resurfaced and configured for interim surface parking. The duration of this phase is estimated to be 6 months from the Second Quarter 2011 to the Fourth Quarter 2011 and includes the following major components:

- Relocate LRT Amtrak extension to east side of Intermodal consisting of single track on grade and single platform (a related project by RT would upgrade the LRT station and tracks to meet DNA line requirements, i.e. double track)
- Remove LRT Amtrak extension
- Install new intermediate surface parking and reconfiguration of existing surface parking
- Addition of bicycle parking and bicycle station improvements

During this phase all transit operations function as Phase 1B. At the end of this phase LRT operations on the Amtrak extension would be transferred to the new facilities on the east side of the Terminal Extension.

6.2.3.2 Sub phase 2B (See Figure 6.2.4) – During this phase a tunnel extension will be constructed connecting the passenger platform tunnel constructed in Phase 1A with the existing tunnel at the Depot. Once the new tunnel is constructed, the local bus facility can be constructed west of the LRT. The duration of this phase is estimated to be 6 months from Fourth Quarter 2011 to Second Quarter 2012 and includes the following major components:

- Construction of tunnel connection serving baggage and between existing Depot and new passenger platform tunnel under tracks
- Construction of the local bus facility with temporary Amtrak bus bays
- The passenger walkway between the Historic Depot and the passenger platform tunnel will be improved to include an architectural covering, enhanced landscaping and lighting features.

During this phase all transit operations function as Phase 2A except for the LRT, which operates on the new extension.

6.2.3.3 Sub phase 2C (See Figure 6.2.5) – Once the new local bus facility has been completed and operational, the area surrounding the Depot can be reconfigured. During this phase the extension of H Street (on site circulation) can be constructed together with the new private vehicle and taxi drop off at the front of the building. During this time areas of the Depot can be further renovated while the building is still operational. The duration of this phase is estimated to be 18 months from Second Quarter 2012 to Fourth Quarter 2013 and includes the following major components:

-
- On site circulation
 - Electrical system upgrade and modernization
 - Private vehicle/taxi drop off construction
 - Public plaza construction
 - Landscaping around the Depot

During this phase all transit operations function as Phase 2B except for local and Amtrak bus operations, which operate in the new bus facility.

6.2.4 Phase 3 – Intermodal Improvements (Don't Move the Depot Scheme)

Note: It is likely that full funding may not be in place at the end of Phase 2 to allow Phase 3 construction to follow immediately.

6.2.4.1 Don't Move the Depot Scheme Sub phase 3A (See Figure 6.2.6) – After the development of on-site circulation, walkway enhancements, and the renovation of the Depot are completed, the new Intermodal Terminal Extension can be constructed along with the Westside access roadway. The duration of this phase is estimated to be 36 months and includes the following major components:

- Terminal Extension (new facility)
- Westside Access Roadway
- Renovation of the Historic Depot in a staged construction process

During this phase all transit operations function as Phase 2C.

Once this phase is completed the Intermodal will be functional in its ultimate configuration. The terminal extension will be a multi-level facility with Greyhound and Amtrak intercity buses at ground level with ticketing, baggage, passenger waiting and administration areas on the upper level.

6.2.4.2 Don't Move the Depot Scheme Sub phase 3B (See Figure 6.2.7) – Sub Phase 3B is the construction of the new parking structure in addition to the construction of the joint development parcel. The duration of this phase is estimated to be 12 months and includes the following major components:

- Parking Structure
- Joint development - Although joint development does not form part of this project, it would still be possible to develop separately at this stage.

During this phase all transit operations function as Phase 3A.

6.2.4.3 Don't Move the Depot Scheme Sub phase 3C (See Figure 6.2.8) – Sub Phase 3C is the construction of the bridge connection between the New Terminal Extension and the heavy rail platforms in addition to the final renovation of the Historic Depot. The duration of this phase is estimated to be 36 months and includes the following major components:

- Construction of the bridge connection between the new terminal extension over the heavy rail tracks to the platforms.
- Final renovation of the Historic Depot

During this phase all transit operations function as Phase 3B.

6.2.5 Phase 3 – Intermodal Improvements (Move the Depot Scheme)

Note: It is likely that full funding may not be in place at the end of Phase 2 to allow Phase 3 construction to follow immediately.

6.2.5.1 Move the Depot Scheme Sub phase 3A (See Figure 6.2.9) – After the development of on-site circulation and the renovation of the Depot are completed, preparations for the new Intermodal Terminal Extension can begin. During this phase, temporary boarding areas are constructed for both Intercity and local buses. The temporary boarding areas will be constructed on the west side of the expanded surface parking lot. The duration of this phase is estimated to be 6 months and includes the following major components:

- Construction of a temporary boarding area for intercity buses
- Construction of a temporary boarding area for local buses
- Construct Westside access roadway

During this phase all transit operations functions as Phase 2C.

6.2.5.2 Move the Depot Scheme Sub phase 3B (See Figure 6.2.10) – Once the temporary boarding areas for local and intercity buses are completed, work can begin on reconstructing the pedestrian access ramp to the passenger platform tunnel, followed by construction of the permanent intercity boarding bays and the terminal extension building. The duration of this phase is estimated to be 18 months and includes the following major components:

- Reconfiguration of the passenger platform tunnel access ramp and removal of the previous access ramp
- Construction of the final intercity bus boarding area
- Construction of the terminal extension building
- Landscaping and hardscaping adjacent to the new terminal extension

During this phase all transit operations function as Phase 3A with the exception of intercity and local buses which operate out of the temporary boarding areas.

6.2.5.3 Move the Depot Scheme Sub phase 3C (See Figure 6.2.11) – Once the new Intermodal facilities are completed and operational, the Depot and new foundation can be prepared for the move. After the Depot has been moved, the private vehicle / taxi drop-off and the remainder of the H Street extension can be completed. The duration of this phase is estimated to be 15 months and includes the following major components:

- Foundation for new location of Depot
- Seismic retrofit and structural improvements to the Depot (*Separate project by City*)
- Prepare the Depot for move
- Move the Depot to new location
- Complete canopy extension over the plaza area between new Terminal Extension and relocated Depot
- Renovation of relocated Depot
- Completion of private vehicle/taxi drop off and H Street extension

During this phase the transit operations function from the terminal extension building, with intercity buses in their ultimate configuration. Local buses would continue to use the temporary boarding area.

6.2.5.4 Move the Depot Scheme Sub phase 3D (See Figure 6.2.12) – This phase completes the remaining components of the ultimate Intermodal including parking structure and joint development. The duration of this phase is estimated to be 24 months and includes the following major components:

- Relocate local buses to curb side bays on 4th and H Street extensions
- Remove temporary passenger vehicle and RT bus pick up/drop off area
- Construct parking structure
- Complete plaza adjacent to REA building
- Install landscaping south of H Street
- Construct joint development (as a separate project)

Once this phase is completed the Intermodal will be functional in its ultimate configuration. The existing Historic Depot building will be relocated and rehabilitated. Intercity boarding will be located between the Historic Depot and the relocated heavy rail tracks with intercity waiting areas in the new terminal extension and ticketing and baggage operations in the Historic Depot. The terminal will be well supported with joint development located south of H Street extension and west of the terminal extension.

Notes
Phase 1A includes the construction of the following components:

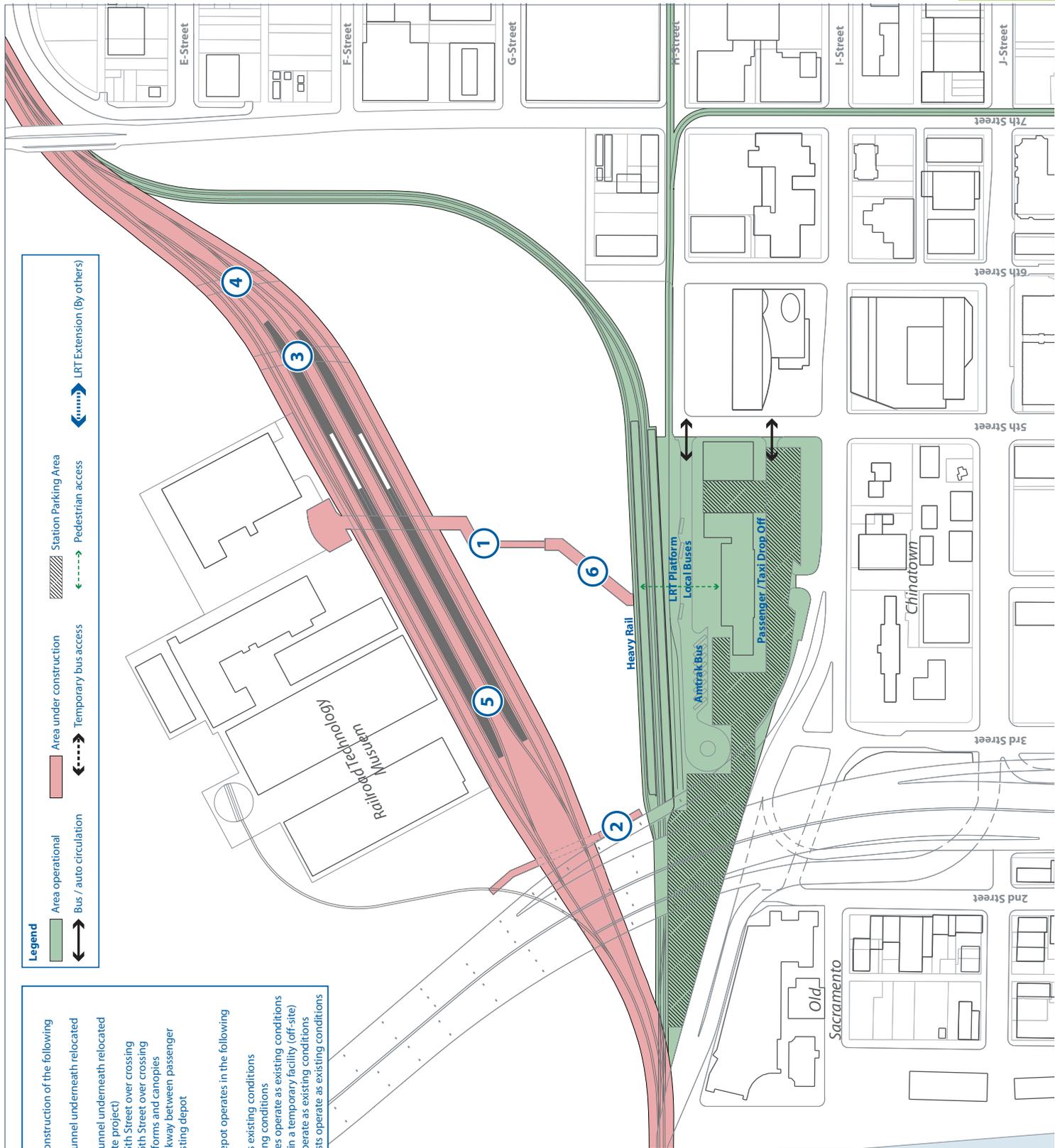
- 1) Passenger platform; tunnel underneath relocated heavy rail tracks
- 2) Bicycle / pedestrian tunnel underneath relocated heavy rail tracks (separate project)
- 3) Foundations for the 5th Street over crossing
- 4) Heavy rail tracks, platforms and canopies
- 5) At grade covered walkway between passenger platform tunnel and existing depot

Functionality
During this phase the depot operates in the following configuration:

- Heavy rail operates as existing conditions
- LRT operates as existing conditions
- Amtrak and local buses operate as existing conditions
- Greyhound operates in a temporary facility (off-site)
- Passenger vehicles operate as existing conditions
- Pedestrians and cyclists operate as existing conditions

Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)



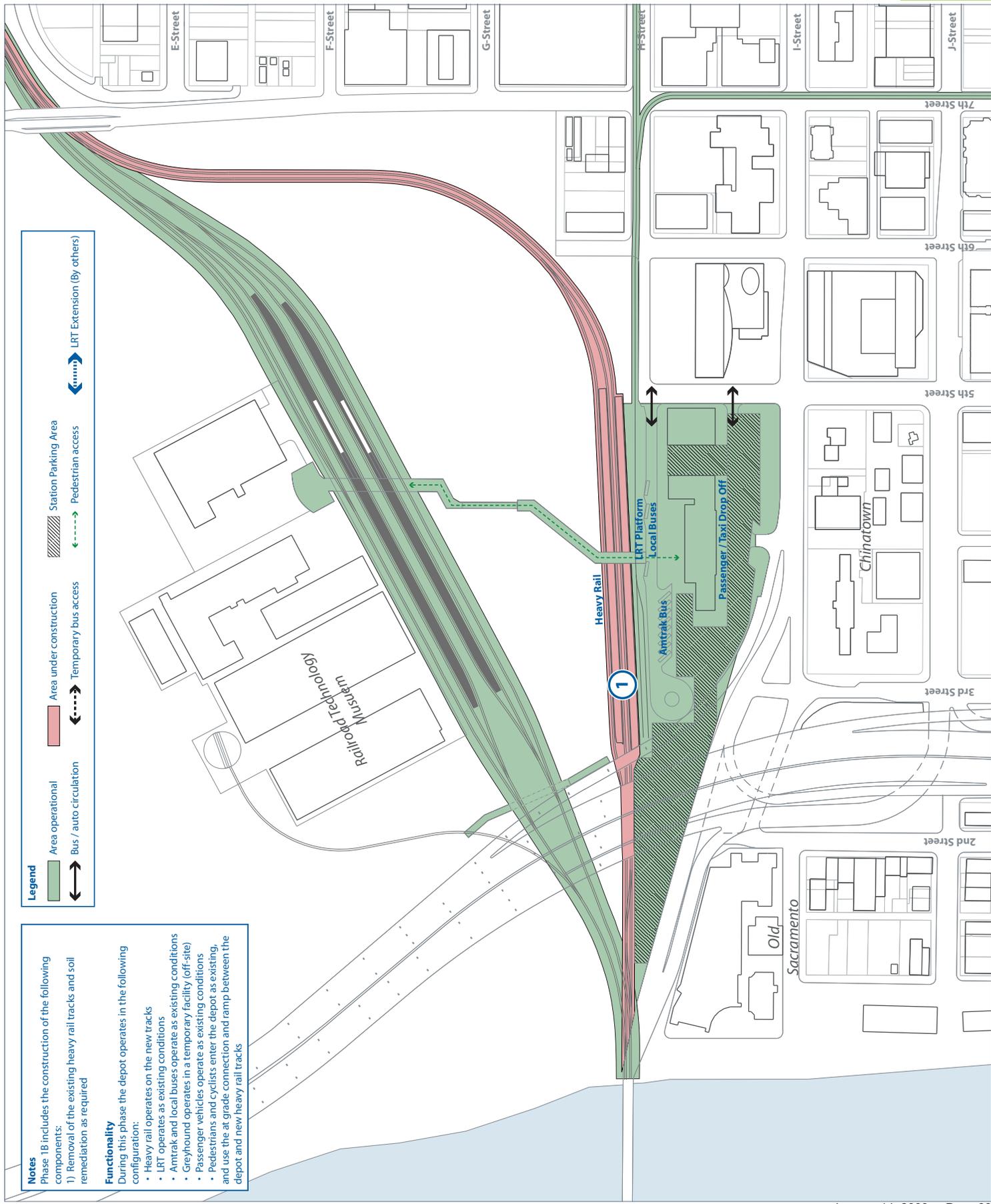
Notes
Phase 1B includes the construction of the following components:
1) Removal of the existing heavy rail tracks and soil remediation as required

Functionality
During this phase the depot operates in the following configuration:

- Heavy rail operates on the new tracks
- LRT operates as existing conditions
- Amtrak and local buses operate as existing conditions
- Greyhound operates in a temporary facility (off-site)
- Passenger vehicles operate as existing conditions
- Pedestrians and cyclists enter the depot as existing, and use the at grade connection and ramp between the depot and new heavy rail tracks

Legend

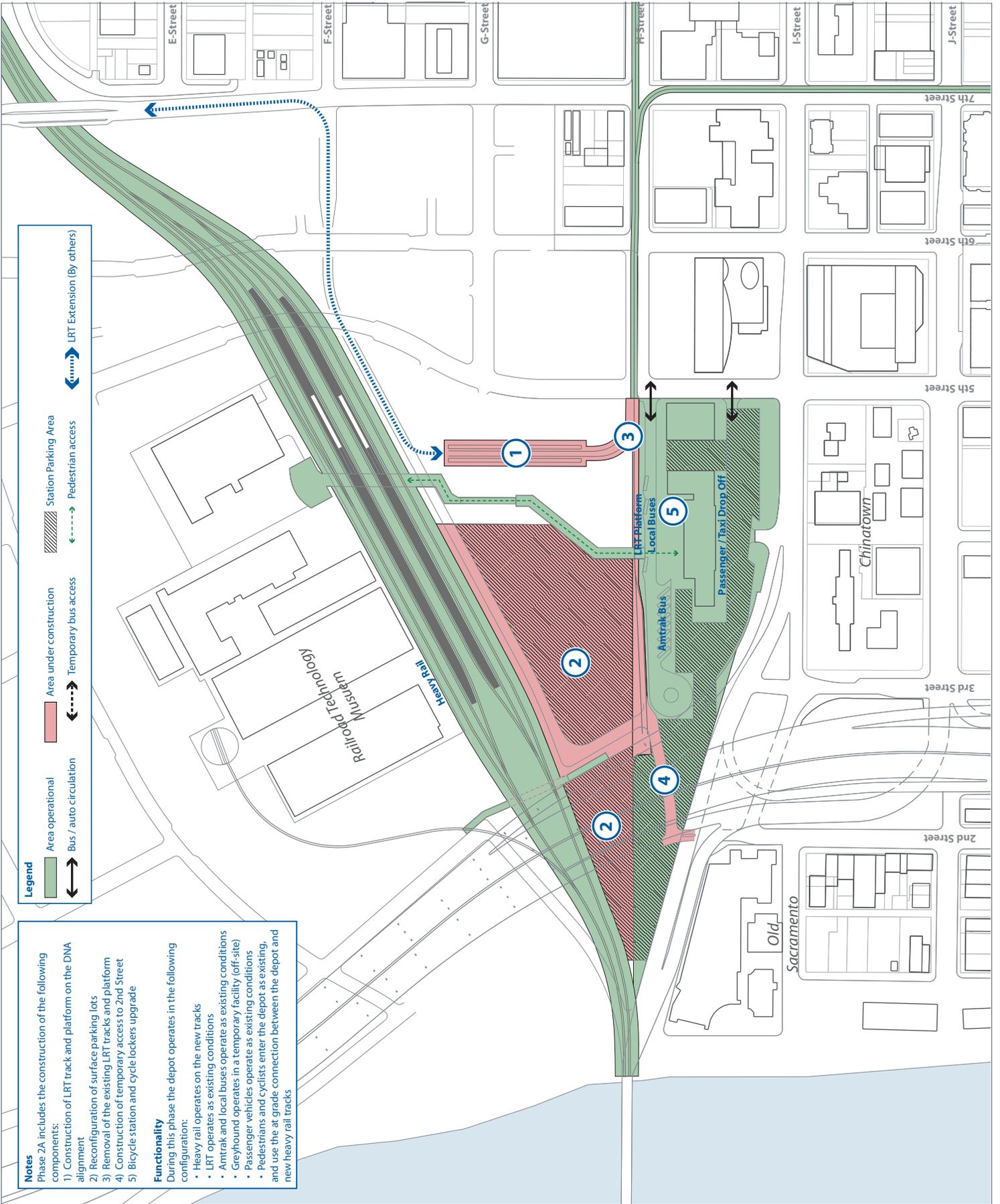
- Area operational
- Area under construction
- Bus / auto circulation
- Station Parking Area
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)



SACRAMENTO INTERMODAL TRANSPORTATION FACILITY
 Phase1 Track Relocation - Sub phase 1B
 Figure No. 6.2.2
 Scale: NTS

Client: City of Sacramento
 Consultant Team: Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.

ARUP
 PERKINS
 + WILL



Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)

Notes
 Phase 2A includes the construction of the following components:
 1) Construction of LRT track and platform on the DNA alignment
 2) Reconfiguration of surface parking lots
 3) Removal of the existing LRT tracks and platform
 4) Construction of temporary access to 2nd Street
 5) Bicycle station and cycle lockers upgrade

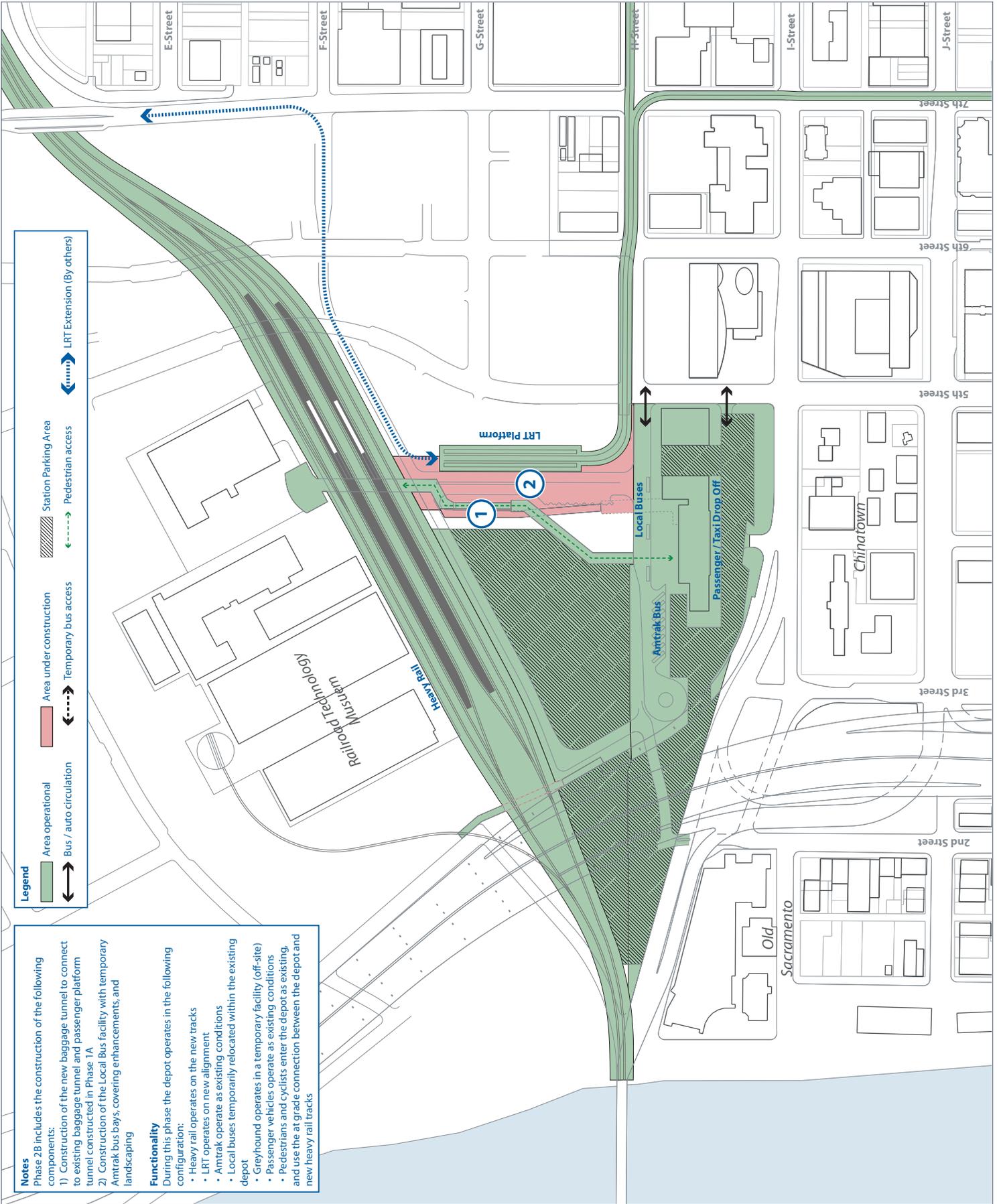
Functionality
 During this phase the depot operates in the following configuration:
 • Heavy rail operates on the new tracks
 • LRT operates as existing conditions
 • Amtrak and local buses operate as existing conditions
 • Greyhound operates in a temporary facility (off-site)
 • Passenger vehicles operate as existing conditions
 • Pedestrians and cyclists enter the depot as existing, and use the at grade connection between the depot and new heavy rail tracks

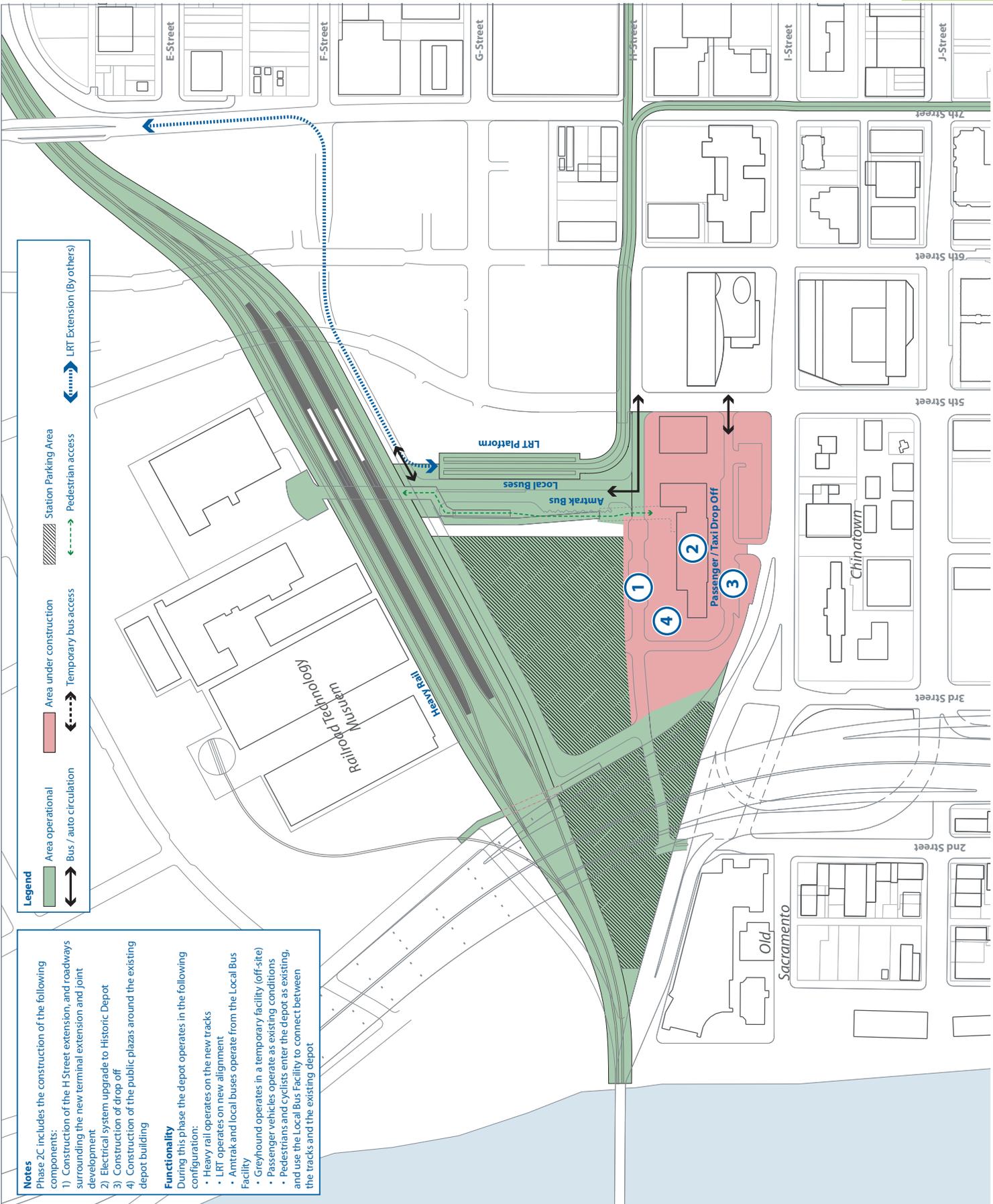
Notes
 Phase 2B includes the construction of the following components:
 1) Construction of the new baggage tunnel to connect to existing baggage tunnel and passenger platform
 2) Construction of the Local Bus facility with temporary Amtrak bus bays, covering enhancements, and landscaping

Functionality
 During this phase the depot operates in the following configuration:
 • Heavy rail operates on the new tracks
 • LRT operates on new alignment
 • Amtrak operate as existing conditions
 • Local buses temporarily relocated within the existing depot
 • Greyhound operates in a temporary facility (off-site)
 • Passenger vehicles operate as existing conditions
 • Pedestrians and cyclists enter the depot as existing, and use the at grade connection between the depot and new heavy rail tracks

Legend

- Area operational
- Area under construction
- Bus / auto circulation
- Station Parking Area
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)





Notes
 Phase 2C includes the construction of the following components:
 1) Construction of the H-Street extension, and roadways surrounding the new terminal extension and joint development
 2) Electrical system upgrade to Historic Depot
 3) Construction of drop off
 4) Construction of the public plazas around the existing depot building

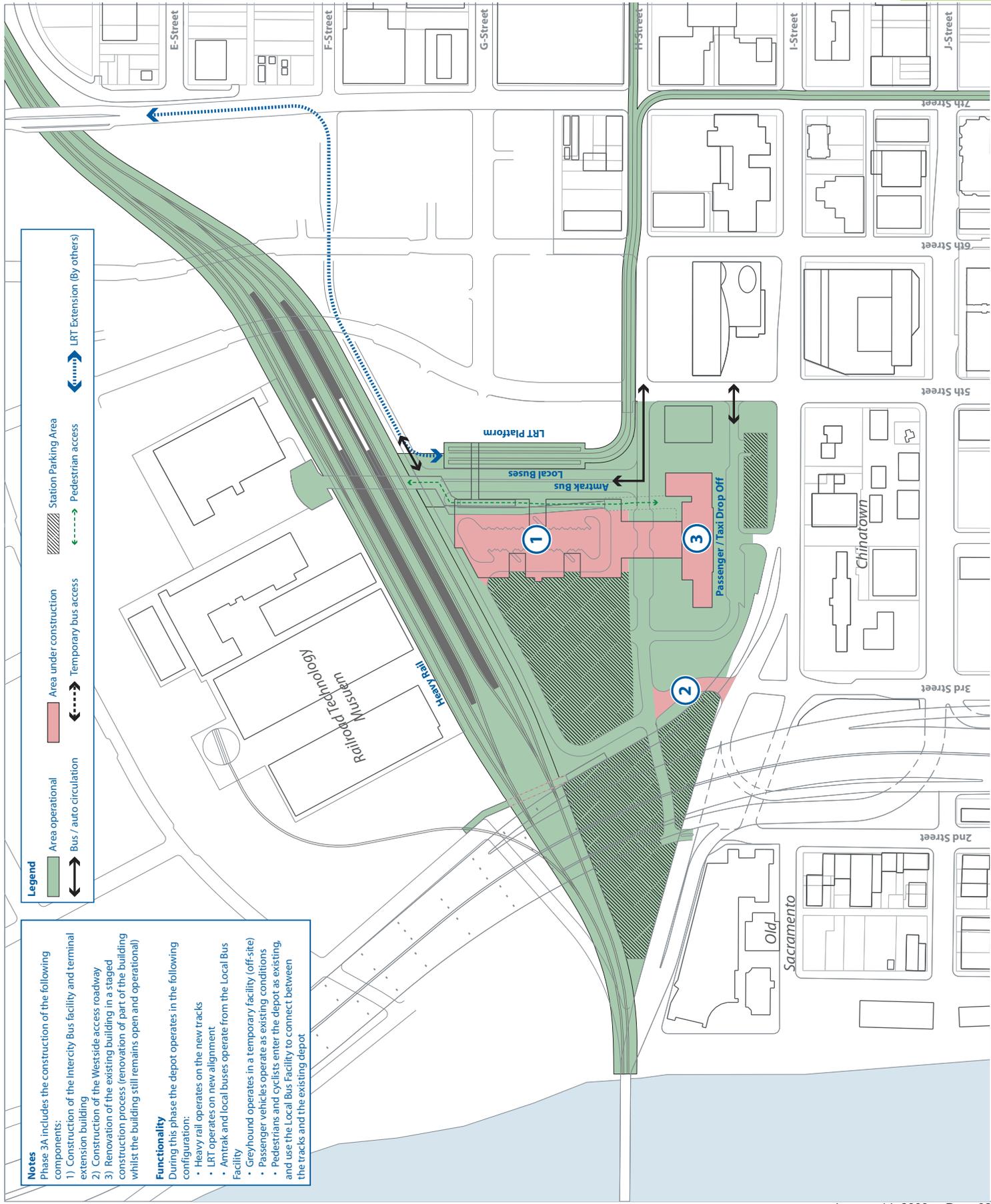
Functionality
 During this phase the depot operates in the following configuration:
 • Heavy rail operates on the new tracks
 • LRT operates on new alignment
 • Amtrak and local buses operate from the Local Bus Facility
 • Greyhound operates in a temporary facility (off-site)
 • Passenger vehicles operate as existing conditions
 • Pedestrians and cyclists enter the depot as existing, and use the Local Bus Facility to connect between the tracks and the existing depot

Notes
 Phase 3A includes the construction of the following components:
 1) Construction of the Inter-city Bus facility and terminal extension building
 2) Construction of the Westside access roadway
 3) Renovation of the existing building in a staged construction process (renovation of part of the building whilst the building still remains open and operational)

Functionality
 During this phase the depot operates in the following configuration:
 • Heavy rail operates on the new tracks
 • LRT operates on new alignment
 • Amtrak and local buses operate from the Local Bus Facility
 • Greyhound operates in a temporary facility (off-site)
 • Passenger vehicles operate as existing conditions
 • Pedestrians and cyclists enter the depot as existing, and use the Local Bus Facility to connect between the tracks and the existing depot

Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)

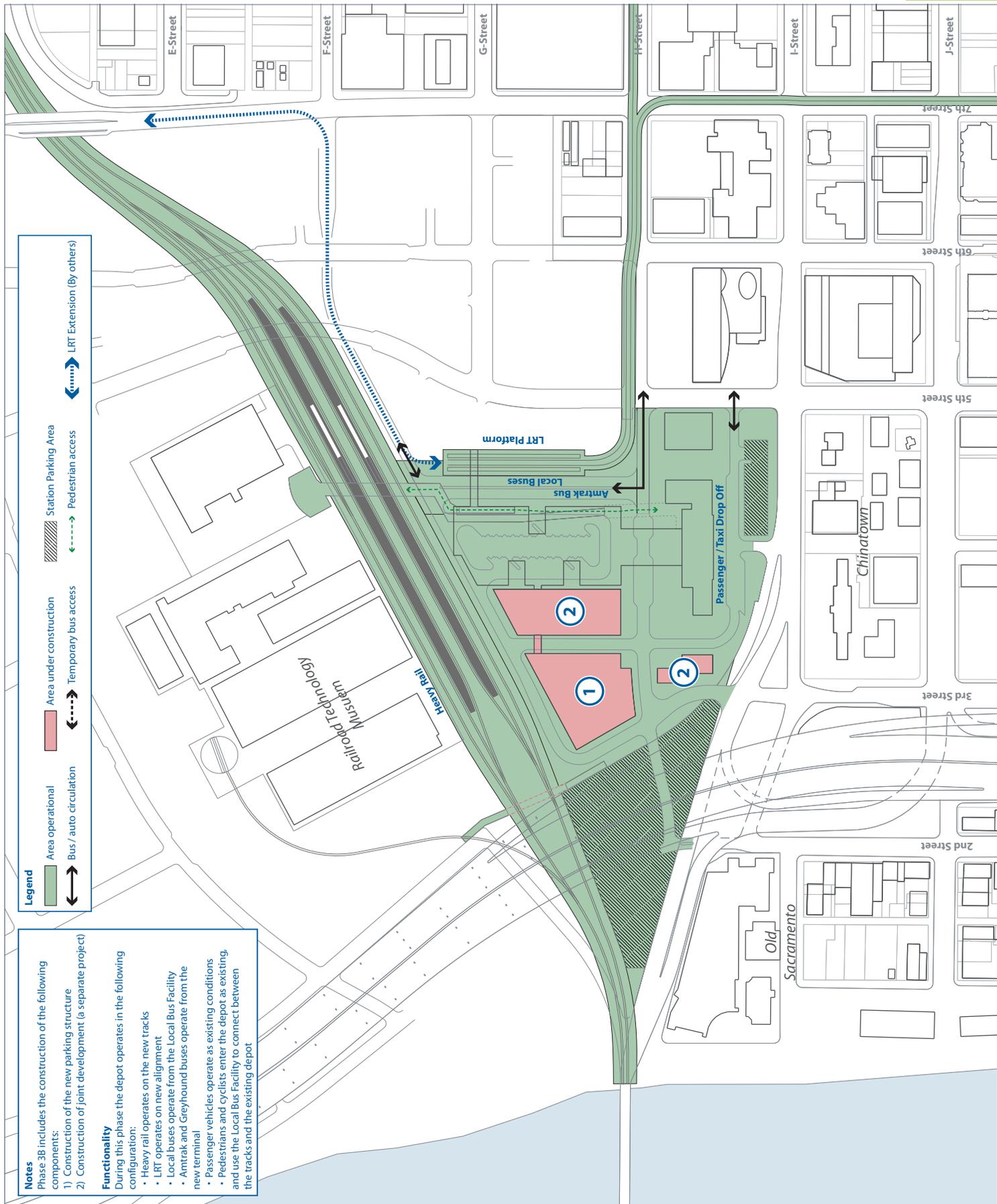


Notes
 Phase 3B includes the construction of the following components:
 1) Construction of the new parking structure
 2) Construction of joint development (a separate project)

Functionality
 During this phase the depot operates in the following configuration:
 • Heavy rail operates on the new tracks
 • LRT operates on new alignment
 • Local buses operate from the Local Bus facility
 • Amtrak and Greyhound buses operate from the new terminal
 • Passenger vehicles operate as existing conditions
 • Pedestrians and cyclists enter the depot as existing, and use the Local Bus Facility to connect between the tracks and the existing depot

Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)



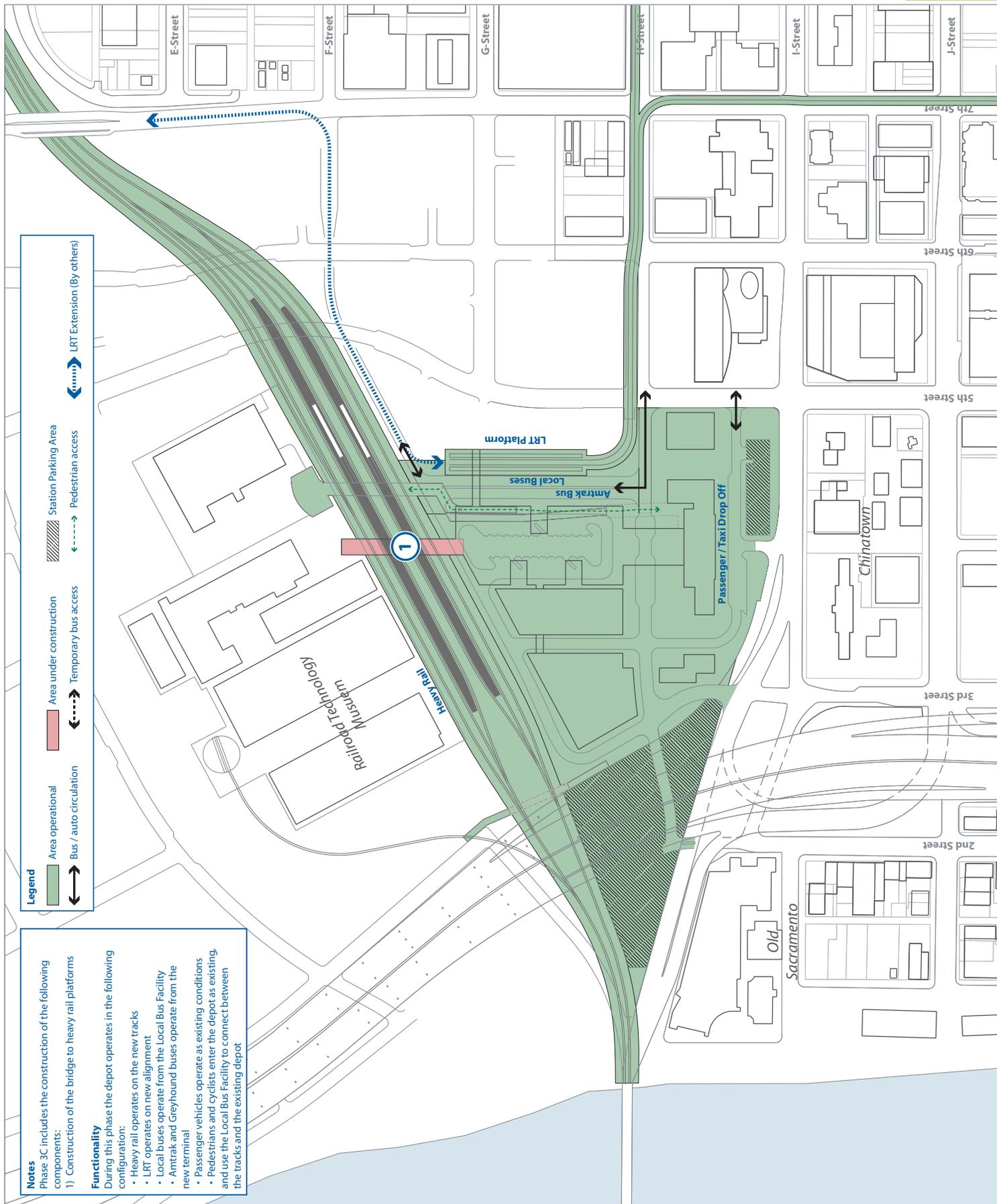
SACRAMENTO INTERMODAL TRANSPORTATION FACILITY
 Figure No. 6.2.7
 Scale: NTS
 Phase 3 Intermodal Improvements (Don't Move the Depot) Sub phase 3B

Notes
 Phase 3C includes the construction of the following components:
 1) Construction of the bridge to heavy rail platforms

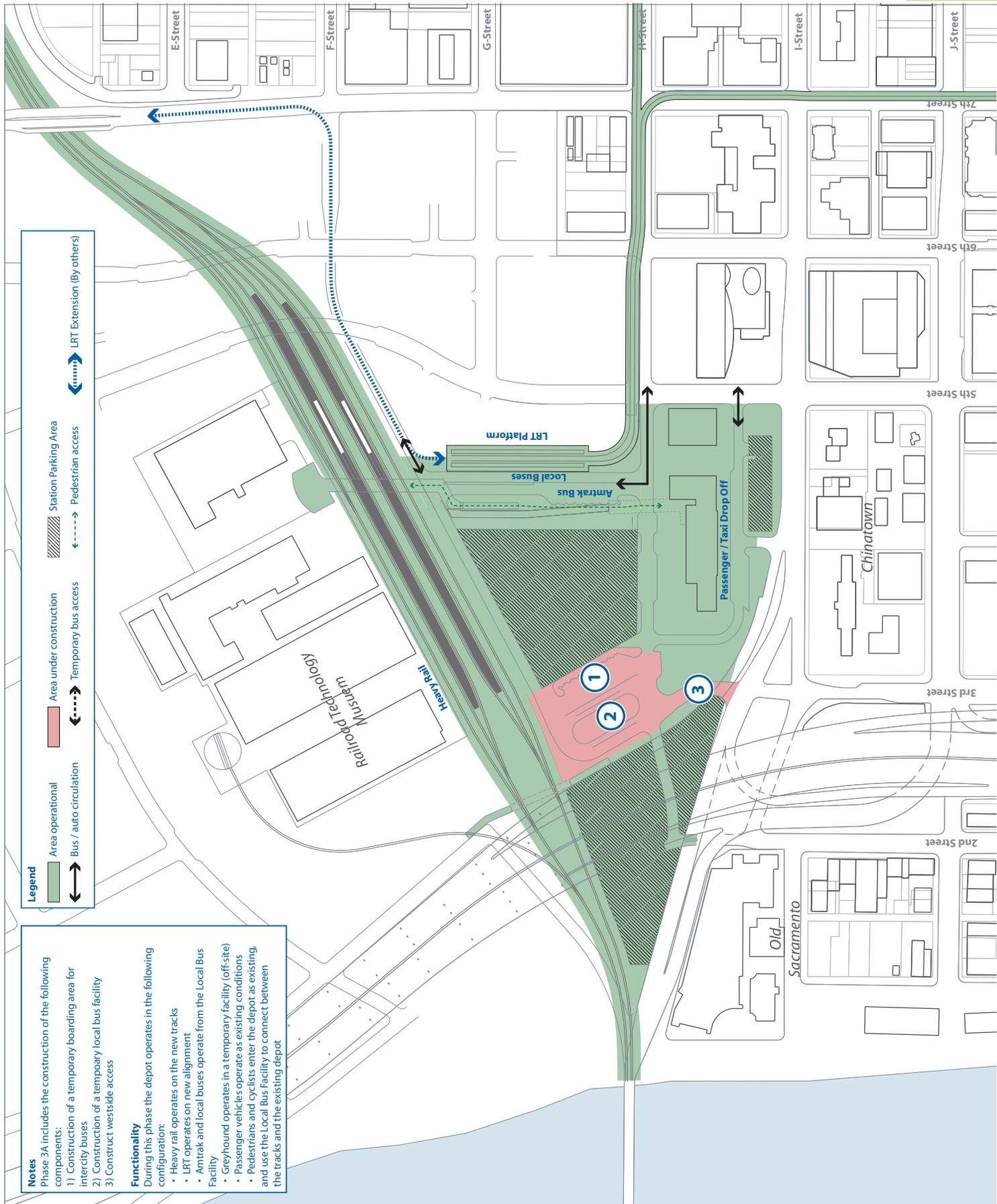
- Functionality**
 During this phase the depot operates in the following configuration:
- Heavy rail operates on the new tracks
 - LRT operates on new alignment
 - Local buses operate from the Local Bus Facility
 - Amtrak and Greyhound buses operate from the new terminal
 - Passenger vehicles operate as existing conditions
 - Pedestrians and cyclists enter the depot as existing, and use the Local Bus Facility to connect between the tracks and the existing depot

Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)



SACRAMENTO INTERMODAL TRANSPORTATION FACILITY
 Figure No. 6.2.8
 Scale: NTS
 Phase 3 Intermodal Improvements (Don't Move the Depot) Sub phase 3C



Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Amtrak Bus
- Local Buses
- LRT Platform
- Heavy Rail
- Railroad Technology Museum
- Chinatown
- Old Sacramento
- Passenger / Taxi Drop Off
- 2nd Street
- 3rd Street
- 5th Street
- 6th Street
- 7th Street
- E-Street
- F-Street
- G-Street
- H-Street
- I-Street
- J-Street

Notes
 Phase 3A includes the construction of the following components:
 1) Construction of a temporary boarding area for intercity buses
 2) Construction of a temporary local bus facility
 3) Construct westside access

Functionality
 During this phase the depot operates in the following configuration:
 • Heavy rail operates on the new tracks
 • LRT operates on new alignment.
 • Amtrak and local buses operate from the Local Bus Facility
 • Greyhound operates in a temporary facility (off-site)
 • Passenger vehicles operate as existing conditions
 • Pedestrians and cyclists enter the depot as existing, and use the Local Bus Facility to connect between the tracks and the existing depot

Notes
 Phase 3B includes the construction of the following components:

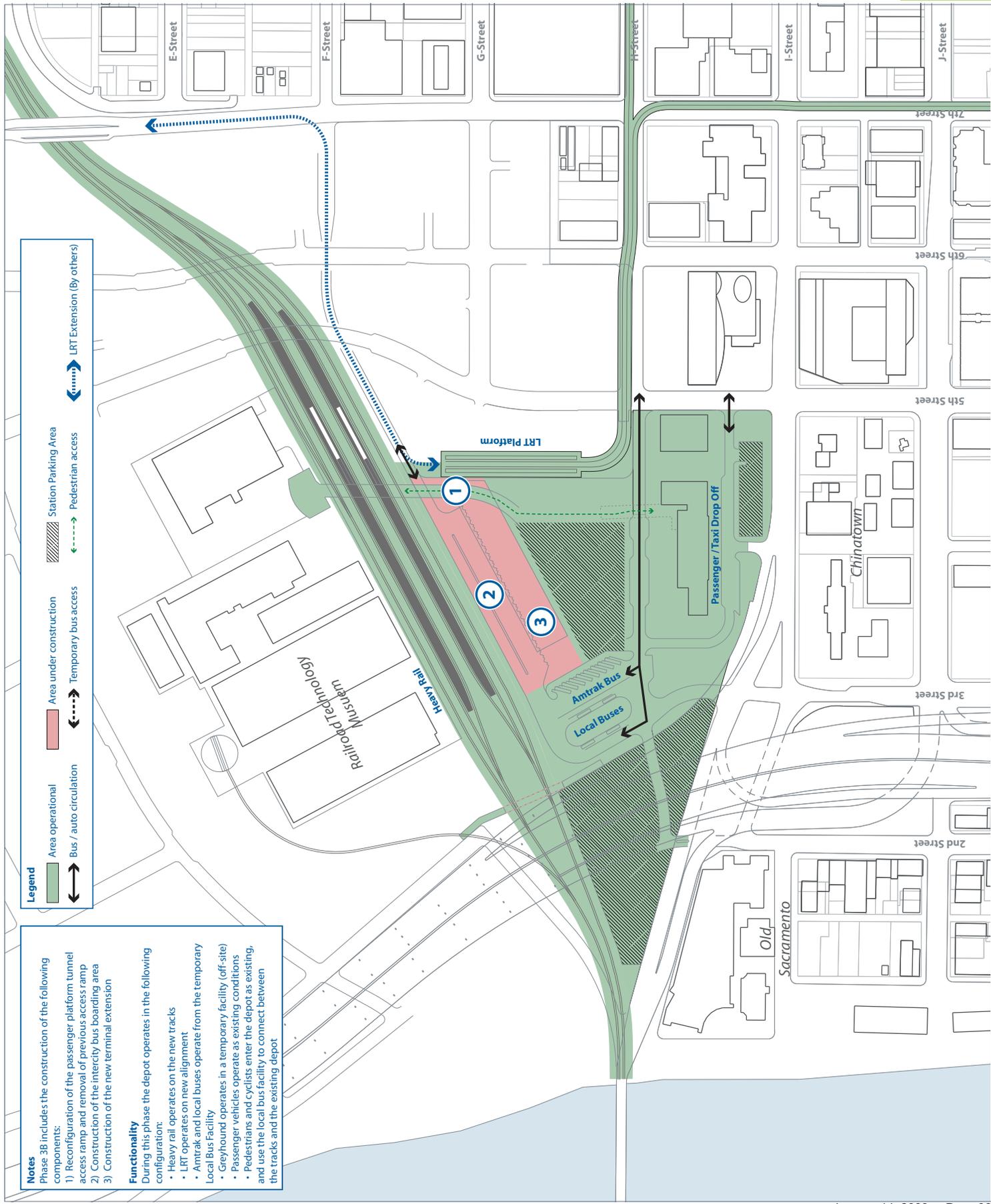
- 1) Reconfiguration of the passenger platform tunnel access ramp and removal of previous access ramp
- 2) Construction of the intercity bus boarding area
- 3) Construction of the new terminal extension

Functionality
 During this phase the depot operates in the following configuration:

- Heavy rail operates on the new tracks
- LRT operates on new alignment
- Amtrak and local buses operate from the temporary Local Bus Facility
- Greyhound operates in a temporary facility (off-site)
- Passenger vehicles operate as existing conditions
- Pedestrians and cyclists enter the depot as existing, and use the local bus facility to connect between the tracks and the existing depot

Legend

	Area operational		Area under construction		Station Parking Area
	Bus / auto circulation		Temporary bus access		Pedestrian access
					LRT Extension (By others)



Notes
Phase 3C includes the construction of the following components:

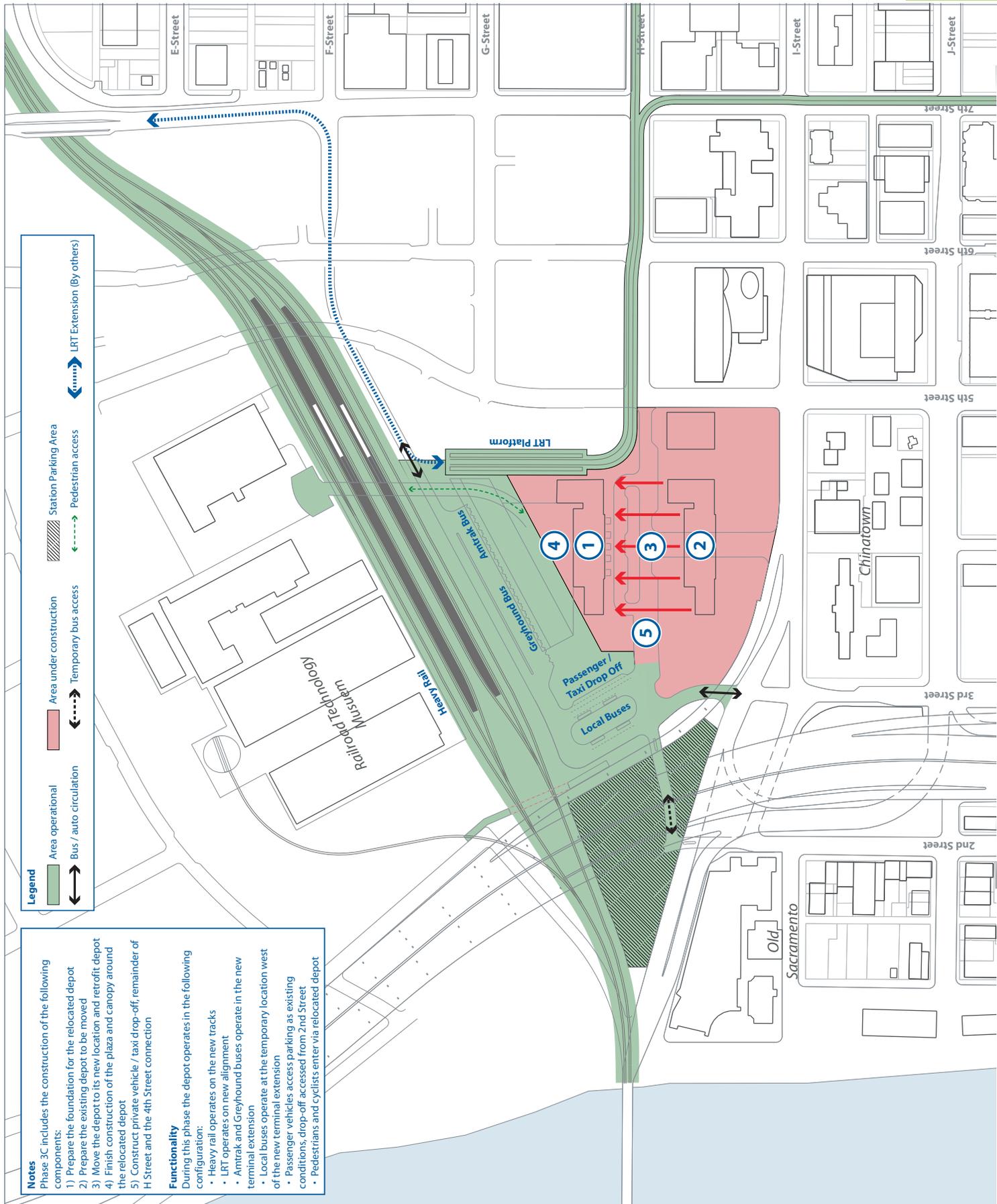
- 1) Prepare the foundation for the relocated depot
- 2) Prepare the existing depot to be moved
- 3) Move the depot to its new location and retrofit depot
- 4) Finish construction of the plaza and canopy around the relocated depot
- 5) Construct private vehicle / taxi drop-off, remainder of H Street and the 4th Street connection

Functionality
During this phase the depot operates in the following configuration:

- Heavy rail operates on the new tracks
- LRT operates on new alignment
- Amtrak and Greyhound buses operate in the new terminal extension
- Local buses operate at the temporary location west of the new terminal extension
- Passenger vehicles access parking as existing conditions, drop-off accessed from 2nd Street
- Pedestrians and cyclists enter via relocated depot

Legend

- Area operational
- Area under construction
- Bus / auto circulation
- Temporary bus access
- Station Parking Area
- Pedestrian access
- LRT Extension (By others)



Notes
Phase 3D includes the construction of the following components:

- 1) Remove temporary private vehicle / taxi drop off and construct joint development
- 2) Construct parking structure and joint development (separate project)
- 3) Construct joint development (separate project)

Functionality

During this phase the depot operates in the following configuration:

- Heavy rail operates on the new tracks
- LRT operates on new alignment
- Amtrak and Greyhound buses operate in the new terminal extension
- Local buses operate on 4th Street and H Street
- Passenger vehicles access via H Street
- Pedestrians and cyclists enter via relocated depot

Legend

- Area operational
- Area under construction
- Station Parking Area
- Bus / auto circulation
- Temporary bus access
- Pedestrian access
- LRT Extension (By others)



SACRAMENTO INTERMODAL TRANSPORTATION FACILITY
 Figure No.6.2.12
 Scale: NTS
 Phase 3 Intermodal Improvements (Move the Depot) Sub phase 3D

Client: City of Sacramento
 Consultant Team: Perkins+Will/ARUP, Faithful & Gould, Simpson Gumpertz & Heger, Inc.



ARUP
 PERKINS
 + WILL



Figure 7.1 Historic Depot Main Hall

7 ROM Cost Estimate

This section provides the conceptual cost estimate for both the “Move the Depot” and the “Don’t Move the Depot” Options presented in this report. The cost model developed for Working Paper #10 has been utilized for these comparative Rough Order of Magnitude (ROM) estimates. The project team used the following assumptions and qualifications in the development of the ROM estimates:

- The estimates do not include financing costs
- The estimates are based upon conceptual master plan drawings and the phasing scenarios presented in this report
- The cost of the seismic upgrade work to the existing Depot building is based upon a previous seismic upgrade study performed by SGH and have been escalated to the timeframe of the ROM cost estimates.

- Joint development parcels are considered separate projects and not included. Parking for the SITF that could be shared with Joint Development is shown in the estimate in its entirety for clarity.
- Utility relocations have not been calculated explicitly, however the relocation allowances have been made on historical cost data from similar site development projects.

Escalation

Escalation is included in this cost model is based on 6.0% per annum, with each work item escalated to the appropriate mid-point of construction.

Contingencies

The unit costs for the construction of the work includes a 10% contingency to allow for the development of the design and the overall estimate also includes a scope contingency (20% of construction costs), which is to provide an allowance for possible revisions to scope and changes in the bidding market.

Associated Costs (Non-Construction)

Pre-construction costs include such items as design fees, surveys, fees and charges, environmental studies, owner costs during the design phase, and other pre-construction project costs not included in the construction costs (land costs are excluded). Some pre-construction costs apply to the overall project and would be incurred prior to initiation of any work on site. Examples of Project-Level Pre-Construction Costs include program-level environmental impact studies and overall project schematic design work. Project-Level Pre-Construction costs are estimated to be 5% of the construction costs for each phase, and are assumed to be incurred during the Project Development Phase.

Other pre-construction costs apply to specific construction phases and would be incurred prior to initiation of the associated phase. Examples of Phase-Specific Pre-Construction costs include specific project-level environmental and detailed design. Phase-Specific Pre-Construction costs are estimated to be 20% of the construction cost for each phase, and are assumed to be incurred prior to the construction phase.

Construction stage associated costs include design team supervision costs, other supervision costs for the owner, change orders, and other project costs during construction not included in the construction bids. Construction stage associated costs are estimated to be 10% of the construction cost for each phase and are assumed to be incurred concurrently with the construction.

Note that these soft costs items in the estimate are allowances, and actual items for soft costs have not been identified by the owner or individually estimated.

Cost Summary

Table 7.1.1 below presents a summary of the ROM costs as prepared by Faithful & Gould. A more detailed breakdown of costs can be found in the Appendix in Section 9.3.

Table 7.1.1 Rough Order of Magnitude Cost Estimate Summary

	Move the Depot	Don't Move the Depot
Phase 1 Cost Estimate	<i>(Cost by others)</i>	<i>(Cost by others)</i>
Phase 2		
Sub-phase 2A	\$10.6 million	\$10.6 million
Sub-phase 2B	\$13.5 million	\$13.5 million
Sub-phase 2C	\$15.0 million	\$15.0 million
Phase 2 Cost Estimate Total	\$39.1 million	\$39.1 million
Phase 3		
Sub-phase 3A	\$4.7 million	\$175.1 million
Sub-phase 3B	\$93.6 million	\$44.0 million
Sub-phase 3C	\$123.5 million	\$23.0 million
Sub-phase 3D	\$41.0 million	n/a
Phase 3 Cost Estimate Total	\$262.8 million	\$242.1 million

Alternative Construction Phasing Sequence

As discussed in Section 3, funding for the Intermodal Transportation Facility will likely take many years to complete. As a result, a second alternate construction phasing sequence has been developed for inclusion in the Environmental Assessment. The alternative phasing sequence has been developed for Phase 2 – Sacramento Valley Station Improvements and both of Phase 3 concepts. The alternative aims to address the concerns of acquiring funding for construction of the new terminal extension and subdivides the phases to limit the cost of the individual sub phases. Table 7.1.2 summarizes the alternative sequence for Phase 2 and the major construction components under each sub phase.

Table 7.1.2 Phase 2 Alternative Construction Phasing Sequence

Sub Phase	Major Construction Components
Sub Phase 2A	<ul style="list-style-type: none"> • Construction of LRT track and platform • Configuration of surface parking lots including transitway • Removal of old LRT tracks and platform • Temporary Access to 2nd Street • Bicycle station improvements
Sub Phase 2B	<ul style="list-style-type: none"> • Upgrade of the Electrical System and Code Improvements at the Historic Depot
Sub Phase 2C	<ul style="list-style-type: none"> • Construction of the baggage tunnel extension
Sub Phase 2D	<ul style="list-style-type: none"> • Construction of the local bus facility and interim Amtrak bus bays • Extend pedestrian walkway and remove temporary walkway from Phase 1
Sub Phase 2E	<ul style="list-style-type: none"> • Extend H Street and roadways surrounding the site • Construction of the drop-off at the front of the Historic Depot
Sub Phase 2F	<ul style="list-style-type: none"> • Construction of the plaza and landscaping surrounding the Historic Depot

The main advantage of subdividing Phase 2 is that smaller amounts of funding can be obtained to complete each sub phase allowing the project to progress. Table 7.1.5 provides a summary of the Phase 2 construction phasing alternatives ROM Costs.

Table 7.1.3 and 7.1.4 provide a summary of the Phase 3 alternative construction phasing sequence major construction components as presented in the Environmental Assessment for the Don't Move the Depot and Move the Depot concepts.

Table 7.1.3 Phase 3 Don't Move the Depot Alternative Construction Phasing Sequence

Sub Phase	Major Construction Component
Sub Phase 3A	<ul style="list-style-type: none"> • Construction of new terminal extension excluding pedestrian bridge to passenger platforms • Construction of the Westside Access roadway connection • Renovation of Historic Depot in staged process
Sub Phase 3B	<ul style="list-style-type: none"> • Construction of new parking structure
Sub Phase 3C	<ul style="list-style-type: none"> • Construction of pedestrian bridge between terminal and passenger platforms • Final renovation of the Historic Depot

Table 7.1.4 Phase 3 Move the Depot Alternative Construction Phasing Sequence

Sub Phase 3A	<ul style="list-style-type: none"> • Construction of the interim boarding area for intercity buses • Construction of the interim local bus facility • Construction of the Westside Access roadway connection
Sub Phase 3B	<ul style="list-style-type: none"> • Reconfiguration of the platform tunnel access ramp • Construction of the intercity bus boarding area • Construction of the new terminal extension
Sub Phase 3C	<ul style="list-style-type: none"> • Prepare the foundation for the relocated Historic Depot • Renovation of the Historic Depot • Prepare the Historic Depot to be moved • Move the Historic Depot to it's new location and retrofit • Finish construction of the plaza and canopy surrounding the relocated Historic Depot • Construction of the private vehicle / taxi drop-off and the remainder of H Street
Sub Phase 3D	<ul style="list-style-type: none"> • Remove interim drop-off areas and construct the new parking structure

Table 7.1.5 presents the construction costs for the two alternatives as presented in the Environmental Assessment.

Table 7.1.5 Alternative Construction Phasing Sequence ROM Costs

Sub Phase	Don't Move the Depot Alternative Construction Sequence ROM Cost	Move the Depot Alternative Construction Sequence ROM Cost
Sub Phase 2A	\$10.3 million	\$10.3 million
Sub Phase 2B	\$4.9 million	\$4.9 million
Sub Phase 2C	<i>(\$10.2 million) – See Note f</i>	<i>(\$10.2 million) – See Note f</i>
Sub Phase 2D	\$3.4 million	\$3.4 million
Sub Phase 2E	\$3.3 million	\$3.3 million
Sub Phase 2F	<i>(\$6.7 million) – See Note f</i>	<i>(\$6.7 million) – See Note f</i>
Phase 2 Funded Cost	\$21.9 million	\$21.9 million
Sub Phase 3A	\$175.0 million	\$4.7 million
Sub Phase 3B	\$49.7 million	\$93.6 million
Sub Phase 3C	\$27.2 million	\$122.6 million
Sub Phase 3D	N/A	\$41.0 million
Phase 3 ROM Cost	\$251.9 million	\$261.9 million
Notes:		
a) Components are assumed to be constructed sequentially except for components 2C and 2F		
b) In estimate, phases are assumed to follow prior phases, but this is subject to change		
c) Estimates include design, bidding, construction, inspection, contingency, administration, etc.		
d) Escalation to projected mid-point of construction; assumed at 6% per year.		
e) Estimates are based on work prepared for Technical Report #13, Intermodal Alternatives Study.		
f) Components 2C and 2F are in the environmental study but are not in the proposed construction project (the total of which is within available funding shown in the area's Metropolitan Transportation Program). Additional funding is needed to construct them.		

The difference in the ROM cost estimates presented earlier in this Section and those presented in TR#13 are based upon small adjustments to the construction schedule and the associated increase in escalation costs associated with the construction component. However it is important to note that these are rough order of magnitude costs and the two alternatives are still within the same range. As the project progresses and more detailed work is undertaken, these costs can be further refined.



Figure 8.1 SITF Design Charrette with City of Sacramento Staff and SMWW/Arup.

8 Evaluation

8.1 Site Planning and Architecture

The two options present completely different site strategies: The “Move the Depot” option treats the Historic Depot as the centerpiece and “heart” of a new transit district that surrounds and supports it, while the “Don’t Move the Depot” option entails a large scale, urban and transportation infrastructure that serves as the connective tissue between the new transit district and the city. The primary difference between these two strategies is the relative scale of the two transportation facilities and how each fits into the future vision of Sacramento. Both options achieve the critical objective of retaining the Historic Depot as the focal point of the Depot District but in different ways. Moving the Depot closer to the relocated rail tracks ensures its primary long term use as a train station. The “Don’t Move the Depot” option relies upon the transformation of the Depot into a civic building that will need to accommodate other functions in addition to its role as part of the transit facility. To be financially and programmatically sustainable, it will need uses that attract the public for reasons other than transportation connections. Intercity rail ticketing and baggage service would remain in the Depot, although commuter rail and Greyhound passengers could enter the terminal extension building without using the Depot.

The “Don’t Move the Depot” option requires a large-scaled facility to link the Depot to the tracks. With the Depot as the “head house”, the new facility would be a significant architectural feature of Sacramento. The success of this option is dependent on reaching a critical mass of passengers and the public at large which would justify the size of the facility and its ongoing lifecycle costs. With the advent of High Speed Rail using the Intermodal as its northern terminus and if the transit

ridership continues growing, this critical mass could be achievable. If not, the large scale of the facility relative to the projected transportation usage in Sacramento has the potential to make the facility feel vacant and oversized.

The “Move the Depot” option, while still a generous facility, is more compact and appropriately scaled to Sacramento transportation levels and to the character of the existing Depot. The “Move the Depot” option promotes a renaissance of the historic train station operations however, it does dislocate it from its original location on I Street and its relationship to the REA Building. The new location, while nestled closer to the tracks, pushes the Depot farther away from downtown and away from its current prominent location.

Joint Development

“Don’t Move the Depot” is a considerably stronger option with regard to joint development integration within the new terminal extension and the greater master plan. The new terminal creates strong linkages between the Thomas Development, the Railyards, public parking to the north and west and new joint development blocks. It achieves this because the site strategy of the concourse option is a series of bridges physically connecting all of the surrounding sites like a web over the transit hub that feeds them.

“The Move the Depot” option in contrast, has joint development areas that are less easily accessed or desirable due to the location of the RT buses on critical street frontages and awkward vehicular access due to the Interstate 5 on ramp. The joint development opportunities on both blocks are handicapped by the same difficult street access and the critical visual connection to the Depot.

8.2 Transit Function

Physical Program

The “Don’t Move the Depot” option meets or exceeds the minimum required transit program (Reduced Program Option) for all components. The “Move the Depot” option meets or exceeds the program requirements for all components with the exception of automobile parking. This option allows for approximately 500 parking spaces compared to the Reduced Program Option target of 600 spaces.

Future High Speed Rail is not precluded with either option. However, the “Move the Depot” option is less readily able to accommodate High Speed Rail than the “Don’t Move the Depot” option. The “Don’t Move the Depot” Option, with its larger terminal building and upper level circulation areas, could link directly to a future elevated High Speed Rail passenger concourse over the tracks.

Ticketing and Waiting

The two options utilize different ticketing strategies: the “Move the Depot” option centralizes the ticketing in one location (the Depot) and the waiting in another location (the terminal extension), the “Don’t Move the Depot” option relies on multiple ticket areas, including staffed Amtrak ticketing in the Depot and Greyhound ticketing with their waiting area in the terminal extension building. Although both options will likely employ electronic ticketing, the “Don’t Move the Depot”

option relies heavily on this technology to effectively shorten the distance for passengers arriving from different access points. With careful signage and wayfinding techniques the potential for passenger confusion can be mitigated in the “Don’t Move the Depot” option.

The separation of the Amtrak waiting area from the ticketing in the Depot is a detractor to the “Don’t Move the Depot” option”. Though electronic ticketing will be available, there is potential for a duplication of the ticketing program to prevent the backtracking of patrons. Through the use of electronic ticketing at the platform, regular patrons will be unaffected by the distance between the tracks and the Depot, but most likely will avoid the Depot altogether.

Passenger Amenities

Both options feature passenger amenities and passenger oriented joint development in the central core of the facilities. For the “Move the Depot” option, the amenities serving the facility are grouped around the central plaza where most of the activity will take place. For the “Don’t Move” option, the amenities are arranged along one side of the concourse. Though the potential for more joint development amenity space is available in the “Don’t Move the Depot” option, the “Move the Depot” option’s clustered arrangement at ground level may contribute to a more vibrant public space.

Baggage

Initial discussions with the operators have shed light on the pros and cons for each option in regards to baggage. The “Don’t Move the Depot” option being inherently farther from the tracks could present passenger confusion and dissatisfaction in dropping off and retrieving baggage in the Depot. This option is successful in separating the movement of baggage and equipment from the passenger path, however this also would ultimately result in higher costs to the operators to move baggage due to the longer travel distances and vertical circulation.

The “Move the Depot” option, though a shorter distance, moves baggage alongside the LRT platform and has increased risk of pedestrians and baggage carts crossing paths. Baggage would not move vertically, but does require baggage to cross the tracks at-grade (though this limitation could be eliminated by the service tunnel discussed in the Foreword). Initial studies have looked at the ramifications of the passengers and baggage handlers sharing the same tunnel and though there is enough space to segregate the space, it greatly diminishes the ramp design and connection to the plaza.

Parking

Though both options allow for significant amounts of parking, the “Don’t Move the Depot” option has the ability to provide more parking in close proximity to the facility. The “Don’t Move the Depot” option includes approximately 926 parking spaces while the “Move the Depot” option includes approximately 500 parking spaces.

The “Don’t Move the Depot” site plan creates an area adjacent to the I-5 on ramp that is suited for a large parking garage but not desirable for most other uses. The parking structure in this location has the advantages of being quite large, positioned on the edge of the Depot District (reducing visual impacts and traffic in the central portion of the district, yet it would directly serve

the Intermodal Facility and the future joint development. The joint development parcel directly adjacent to the Intermodal facility has the capacity to contain additional parking as well.

Moving the Depot towards the tracks opens up more developable space in the Depot District but the space is difficult to efficiently plan with regard to parking. The parking garage directly adjacent to the Depot is restricted in size and will need to be carefully planned and designed to work in concert with the architecture of the Depot. A shared parking garage with the joint development across H Street would provide a limited parking supply for the Intermodal Facility. The low density block east of 4th Street does not lend itself to a parking structure given the presence of the REA building and the desire to maintain the framed view of the Depot from the corner of 5th and I Streets.

Both options assume additional parking could be available in a planned public parking structure north of the relocated heavy rail tracks.

8.3 Circulation

Private Vehicle Access and Circulation

The two design options present common traffic circulation, including the extension of the historic grid with the extension of H Street, a transit way south of the relocated heavy rail tracks and connections with F Street and 3rd Street (with the related Westside Access project).

However, the “Move the Depot” option provides marginally better private vehicle access because of the addition of the 4th Street extension that provides access between I Street and H Street.

As has been discussed in earlier paragraphs, the “Don’t Move the Depot” option has considerable walking distances from the Historic Depot front door to the relocated passenger rail platforms. The “Don’t Move the Depot” option provides a secondary drop off location along H Street that aims to reduce the distance between the drop off areas and the passenger rail platforms, for those passengers that do not need to enter the Historic Depot to collect / purchase tickets or check / pick up luggage.

Transit Access and Circulation

The two options present very different concepts with regard to access and circulation between different transit modes. The “Move the Depot” option facilitates the transfer and access connections to the transit by locating the various transit modes around the central hub plaza. The covered plaza area also acts as a convenient and pleasant waiting space for all passengers.

One of the distinct disadvantages to the “Move the Depot” option is the limited access opportunities for Intercity buses to and from the transit way. In order to accommodate the required number of intercity bus bays, an intercity bus turnaround area is not provided. This requires intercity buses to enter from 3rd Street and exit to 7th Street (via F Street)

By arranging the intercity bus bays in the Don’t Move Option into a “horse-shoe” arrangement underneath the terminal extension, this provides greater flexibility for access opportunities for the

intercity buses allowing them to travel in either direction along the transit way.

Pedestrian and Bicycle Access

By retaining the Historic Depot in its current location, the connections between the Central Business District and the Depot area remain strongest in the “Don't Move the Depot” option, while also improving the connections between Old Sacramento, and the Sacramento River Trail. The “Don't Move the Depot” option also has the advantage of both a bridge and a tunnel across the heavy rail tracks, allowing for maximum operational flexibility while maintaining public access. By raising the pedestrian connections to the upper level, pedestrians are fully segregated from transit, private vehicle and baggage movements. However, one of the major disadvantages to providing the main pedestrian connections on the upper level is that passengers are required to make large vertical transitions to access the waiting areas and boarding platforms.

The actual difference between the total length of passenger travel from Depot waiting room to the passenger platforms is approximately 160 feet. Though this distance is less than a typical city block, it still represents a sizeable difference between the two options. However, this comparison assumes rail passengers are arriving at the front of the Historic Depot when in fact there are multiple access points which reduce the distance. The “Move the Depot” option, however, benefits from shorter walking distances within the terminal.

Although both options require vertical changes to occur to access the platforms, the amount of height differential required is greater for passengers using the bridge in the “Don't Move the Depot” option than in “Move the Depot” option with its tunnel under the tracks. It should be noted, however, that the tunnel could still be made available to passengers in the “Don't Move the Depot” option, providing a route between the platforms and the RT bus area with minimized vertical circulation.

The bicycle access plans for both the options are very similar, both have the ability to access the tracks via the future passenger tunnel and both have convenient bicycle parking and a bicycle station. However the “Move the Depot” option presents a distinct advantage to bicyclists wishing to use the heavy rail waiting area or other amenities inside the Intermodal facility, as they would not have to change levels to reach the upper concourse / waiting area.

8.4 Implementation

The “Move the Depot” presents a distinct disadvantage as it is reliant on sequential projects that prevent the development of the Depot District until they are complete. As described in the Technical Issues Study in the Appendix of this report, the physical move of the Depot requires a great amount of the site to remain flat, bare, and essentially undeveloped to facilitate the physical relocation of the Depot. This need considerably reduces the area for on-site parking and constricts vehicular access to the site. It also conflicts with the need for the Depot to remain an active train and bus station and causes the entire site to remain in multiple temporary conditions until the final relocation of the Depot.

The requirement of maintaining a viable train station throughout the years of construction causes project costs to increase because temporary facilities and roadways must be constructed then removed for later phases. Some improvements planned for the depot in the interim, such as upgrades to the electrical system, will need to be postponed or provided again after the move. Per the Technical Issues Study,

other improvements such as seismically upgrading the Depot can be planned to strengthen the building for the move and minimize the duplication of investment. In addition, the Depot's move path and eventual location causes the Depot District to essentially operate around a construction site for many years. It also does not permit any major joint development of any open space until the Depot has moved to its final location.

The "Don't Move the Depot" option is quite different. It is not as tied to the sequence of phases, has flexibility for different smaller projects to occur independently if not concurrently with each other, and allows the joint development parcels to start immediately and independently of the Intermodal Facility. However, the majority of the cost of this option is attributed to the construction of the new terminal extension which is one phase (though, upon further study and planning, this phase has the potential to be further broken down.)

8.5 Cost

The overall costs to construct either option, per the ROM Cost Estimate in Section 7 are comparable at approximately \$280 - 300 million (including escalation). Phases 1 and 2 are the same for either option. The difference between the two options would therefore be the difference between the Phase 3 costs for each (\$263 million for the Move the Depot option and \$242 million for the Don't Move the Depot option). The parking structures included in each option could potentially be incorporated into joint development projects, which could shift as much as \$27 million of the construction cost to the private sector for either option. The rehabilitation costs for the Depot itself are similar in both options.

The Move the Depot option carries significant costs for the actual move and associated work (approximately one third of the total project cost) as well as for temporary facilities required to maintain operation during interim construction phases. In contrast, The Don't Move the Depot option has higher costs for the construction of the terminal extension component of the project, as well as a pedestrian bridge that is unique for this option.

At this conceptual stage in the project, one conclusion that can be drawn is that moving the Depot represents a large investment by the city. However, if the Depot remains in its existing location, the need for a larger terminal extension building results in similar overall ROM costs for both options.

8.6 Summary

The following table summarizes the key advantages (✓) and disadvantages (✗) of the two options.

Table 8.6.1 Evaluation Summary

Category	“Move the Depot” Option	“Don’t Move the Depot” Option
Site Planning and Architecture	<ul style="list-style-type: none"> ✓ Depot has more passenger activity and retains historic function of primary ticketing and waiting area ✓ More compact and appropriately scaled ✗ Weaker joint development site strategy ✗ Dislocates Depot from REA Building and away from its current prominent location 	<ul style="list-style-type: none"> ✓ Depot remains in its historic context ✓ Stronger joint development strategy ✗ Scale may be oversized for projected passenger levels and public usage.
Transit Function	<ul style="list-style-type: none"> ✓ Centralized ticketing and passenger facilities ✓ Shorter travel distances for baggage ✗ Does not provide the desired number of parking spaces ✗ Baggage movement may conflict with pedestrian circulation 	<ul style="list-style-type: none"> ✓ Multiple access points to the Intermodal Facility ✓ Baggage movement separated from passenger movement ✓ Better accommodates future High Speed Rail ✗ Staffed rail ticketing and baggage services located long distance away from waiting area
Circulation	<ul style="list-style-type: none"> ✓ Includes 4th Street extension, increasing connectivity ✓ Shorter passenger walking distances and less vertical level changes ✗ Intercity bus access routes are limited 	<ul style="list-style-type: none"> ✓ More flexibility for intercity bus access ✗ Longer passenger walking distances and greater vertical level changes for passengers using waiting areas and amenities

Implementation	<ul style="list-style-type: none"> ✘ More complex phasing strategy requiring more temporary construction ✘ Cannot develop joint development parcels until after Depot has moved ✘ Restricted site access and limited areas for on site parking during project phases ✘ Potential for duplication of interim Depot improvements 	<ul style="list-style-type: none"> ✓ Easier phasing strategy ✓ Joint Development parcels can be developed independently of SITF
Cost	<ul style="list-style-type: none"> ✘ Physical move of the Depot represents a sizeable amount of total cost 	<ul style="list-style-type: none"> ✓ Minimal investment in temporary facilities ✘ Larger terminal extension increases project cost

8.7 Recommendations

The two options represent two different visions for the transportation facility, each creating high-quality transportation facilities. As summarized above, each option has its own distinct advantages and disadvantages. The “Move the Depot” option would create a compact facility with the Historic Depot at its heart, with optimized intermodal connectivity and unique urban design opportunities resulting from the extension of 4th Street. However, this option is more difficult to phase over time and results in less desirable joint development parcels. Most importantly, the proposal to move the Historic Depot, while physically feasible, creates risks for the project. Additional investigation completed subsequent to the issue of Technical Report 11 indicates that moving the Depot has a strong likelihood of affecting the integrity of the historic setting due to the physical relocation of a historic resource. On the other hand, the “Don’t Move the Depot” option does not carry these risks, and has the following advantages:

- Depot remains in its historic context
- Improved bus circulation and a single zone for RT buses and light rail
- Better accommodates High Speed Rail and transit growth
- Easier incremental phasing strategy
- Minimize need for temporary facilities
- Better joint development opportunities

Don't Move The Depot/ Move the Depot Option

For these reasons the “Don't Move the Depot” option is recommended for future consideration. Challenges associated with this alternative will need to be addressed during subsequent design efforts. These relate to retaining transit function in the Historic Depot, accommodating passenger vertical circulation, and addressing the large scale and potential need for phased construction of the terminal extension.

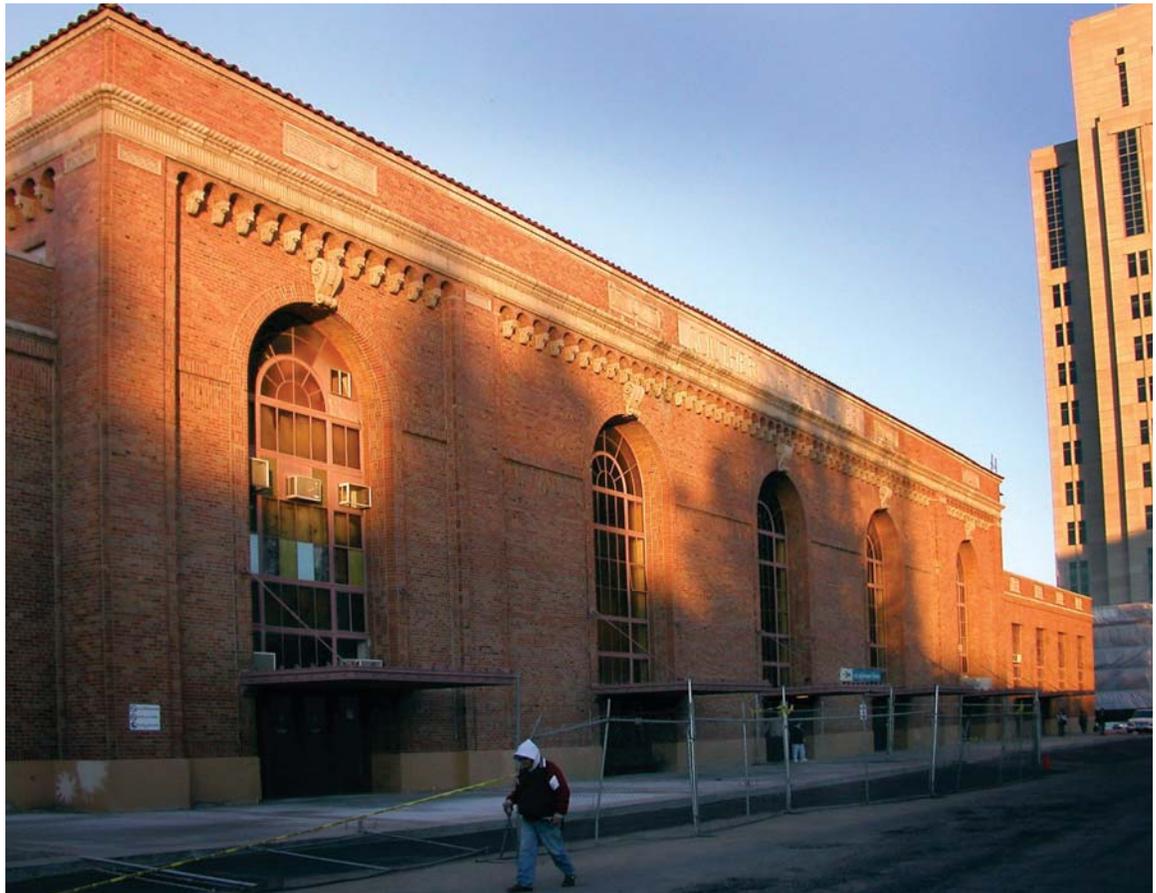
9 Appendix

- 9.1 Architectural Precedents
- 9.2 Relocation of the Sacramento Valley Station Technical Issues Study
Prepared by SGH
- 9.3 Rough Order of Magnitude Cost Estimate Breakdown
Prepared by Faithful & Gould

Architectural Precedents



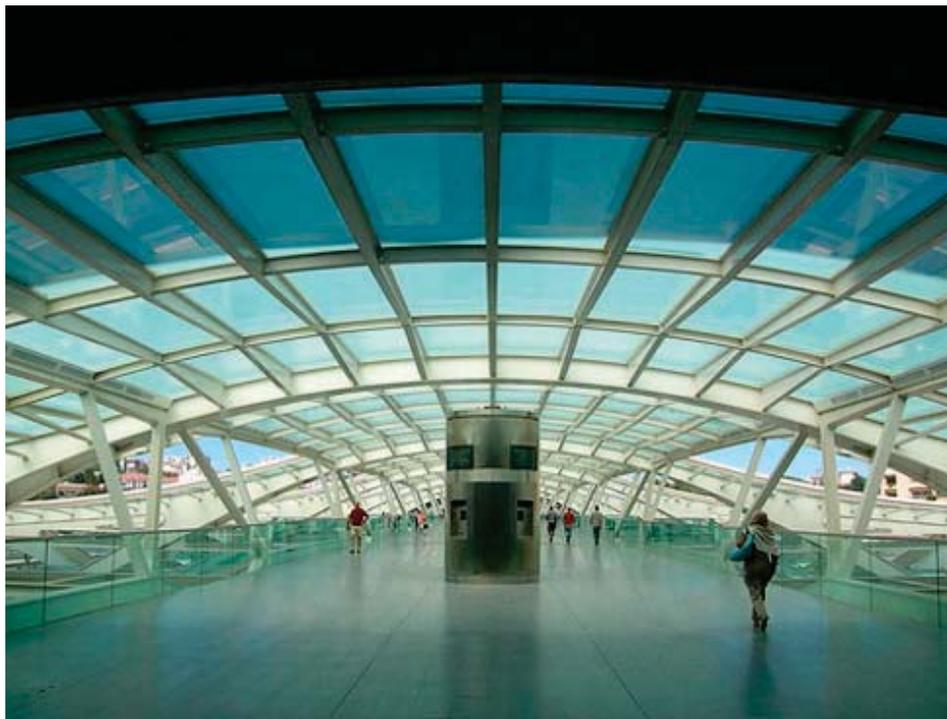
The following is a selection of images grouped together by architectural thoughts and ideas on the SITF. They are not focused on a particular scheme and are intended to be applied to the project as a whole. Most of these precedent images are of similar transportation facilities from around the world and others are of buildings that are examples of a particular architectural characteristic that is being presented and discussed. These images are intended to enrich the concepts presented in this report and provide a visual reference for the SITF project.



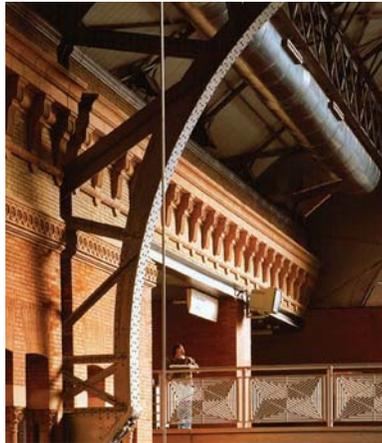
Clockwise from top:
 Amtrak train at
 Sacramento Depot;
 Sacramento Valley Station
 today

Sense of Arrival

A transit facility is also a gateway to the city it serves. It is often the first and last moment of a passenger's experience in a city. It is also an urban celebration of the modes of public transit whether it be trains, buses, light rail, or airplanes. It is a destination for people who use it and also for those who simply want to share in the experience and excitement of traveling.

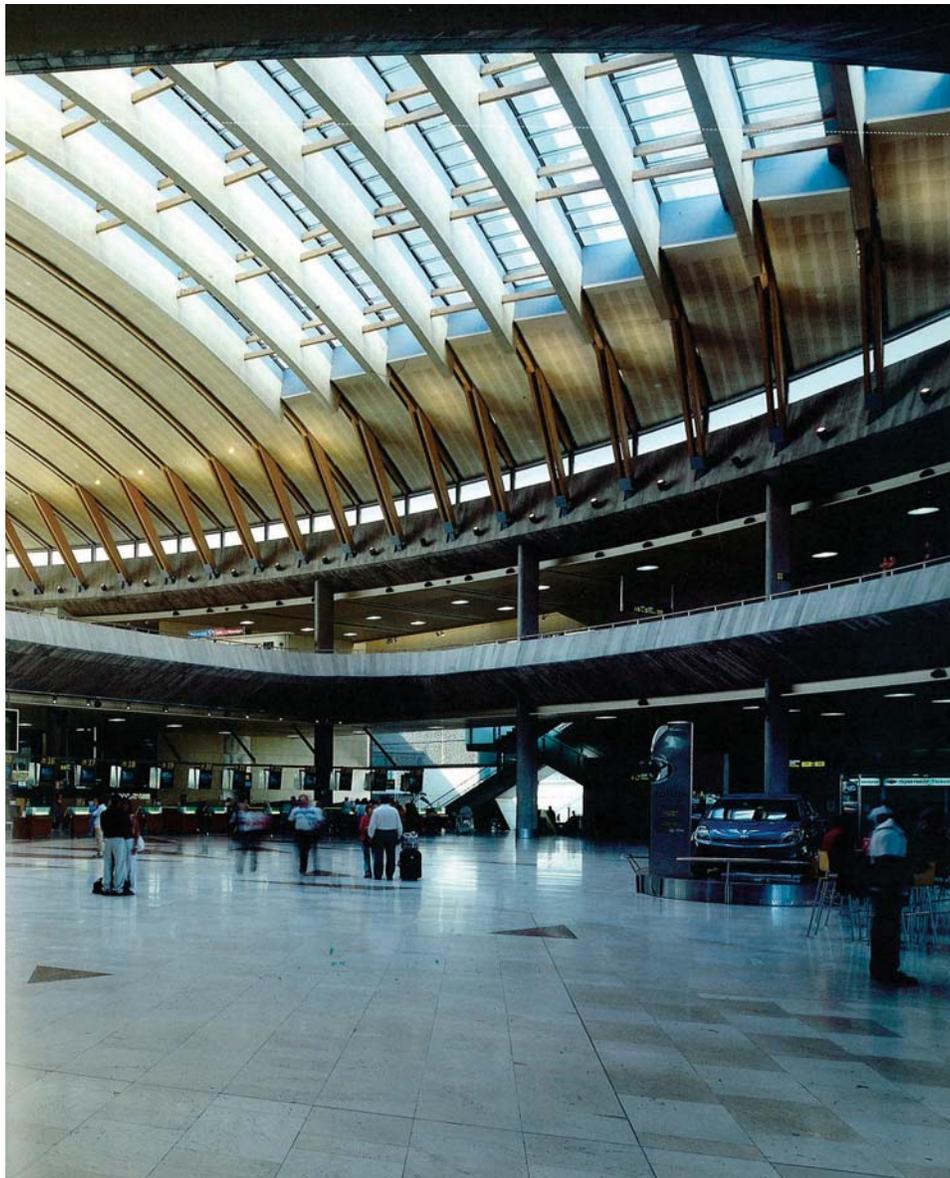


Clockwise from top:
 Grand Central Station,
 New York; Eurostar Sta-
 tion London, England;
 Atoocha Station, Madrid
 Spain; Transit Station,
 Japan



Expression of Structure

Large column free areas necessary for transit facilities are often defined by the structural members spanning across the space. The scale of these structural elements can be quite spectacular and contribute greatly to the character of the space. The expression of structure is also a means of making the building design legible, publicly understood, and celebrated simultaneously.

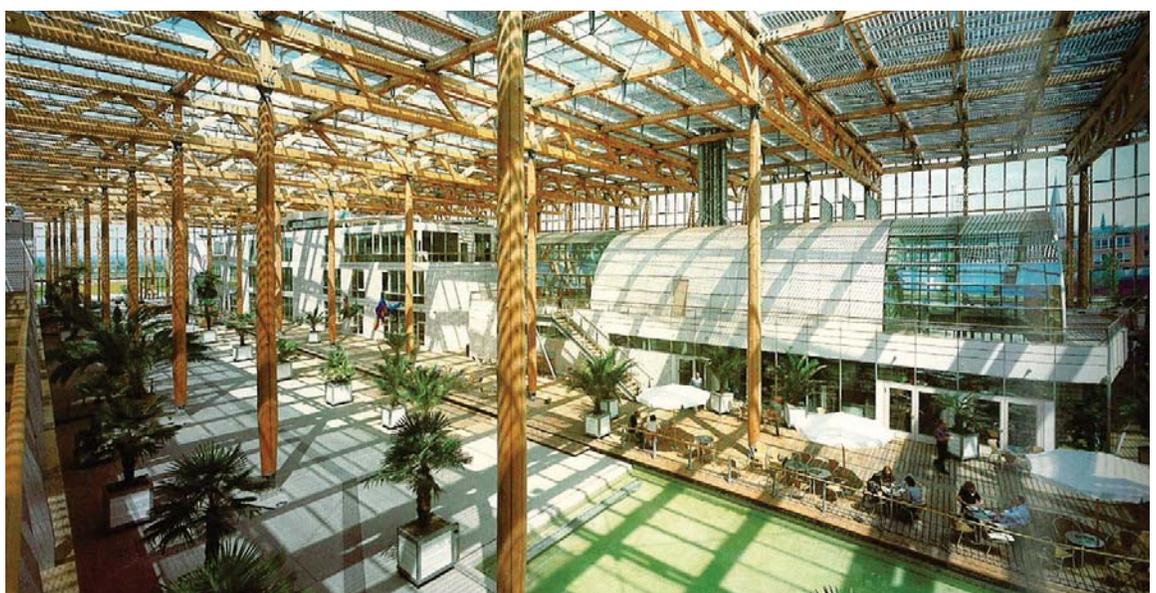


Clockwise from top:
 Atoocha Station, Madrid,
 Spain; Tenerife North
 Airport, La Laguna,
 Tenerife



Roof as Membrane

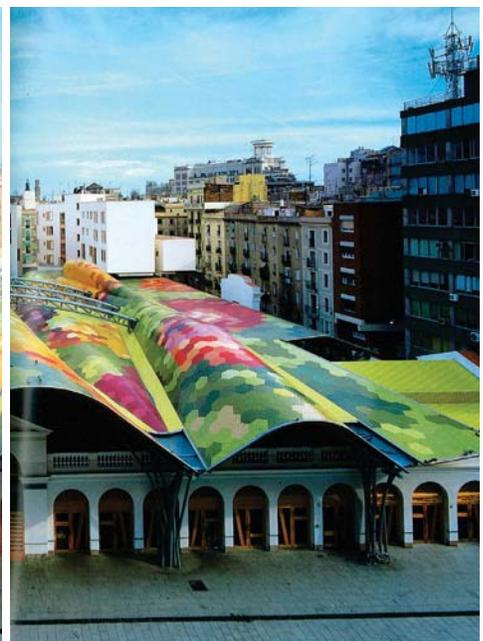
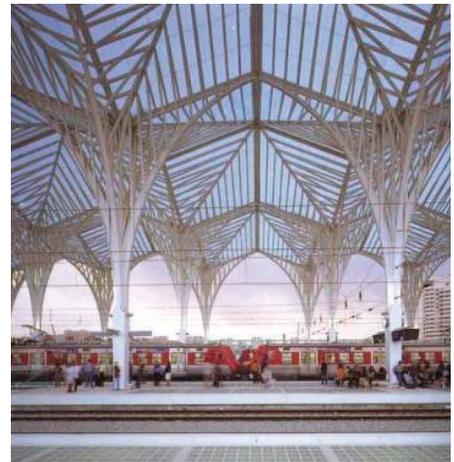
Roofs can be both a sheltering element and a connective tissue between two buildings. The transparency shown in these images is more appropriate for colder climates than Sacramento but they effectively show the elegance a light handed approach to sheltering space and connecting to an established building.



Clockwise from top:
 St. Thomas Hospital,
 London, England; National Maritime Museum
 Greenwich, England;
 Mont Cenis Academy
 Hernesodingen, Germany;
 British Museum,
 London, England;

Roof as Landscape

The roof plane is an often overlooked amenity for the building it serves and the adjacent buildings looking upon it. It could be reclaimed as open occupiable space for building users or it could simply be a green roof that passively insulates the spaces below. The roof plane can also be a sculptural element that creates a visually exciting landscape with color, pattern and form.



Clockwise from top:
Rue De Suisse Housing Paris, France;
Oriente Station, Lisbon, Portugal;
Santa Caterita Market Barcelona, Spain

Pedestrian Bridges

Pedestrian bridges and concourses can be occupiable spaces as well as a means of transporting people. They present opportunities to be both a visually dynamic element and provide views. Transparency, illumination, and inventive uses of materials can also be used to assist wayfinding for passengers and create dramatic pathways.

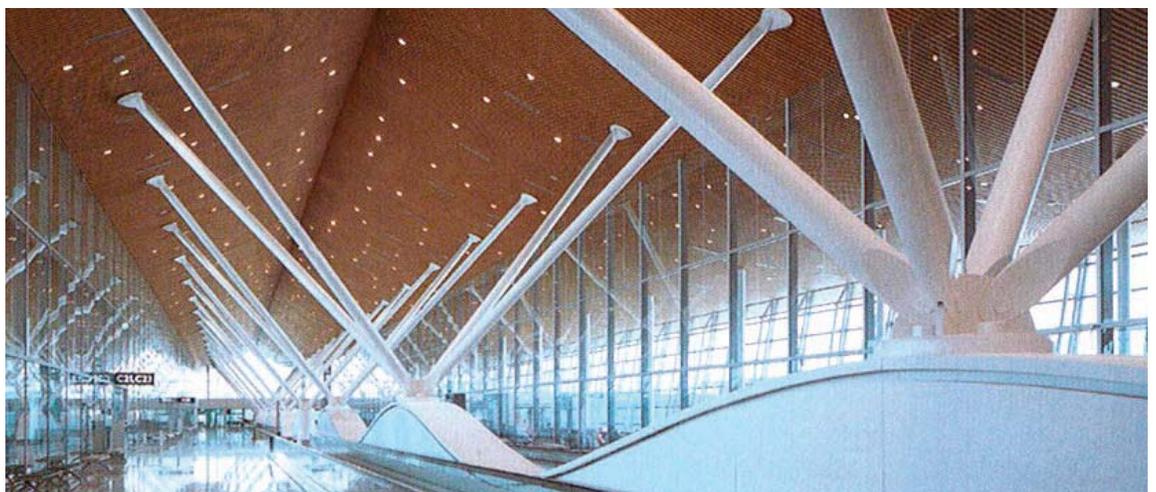
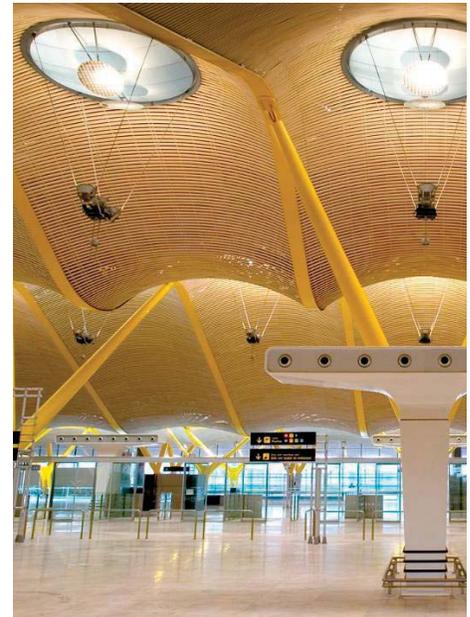


Clockwise from top:
Portland International
Airport Portland, Oregon;
Cologne/Bonn Airport
Cologne, Germany;
Transbay Terminal
Competition, San Francisco



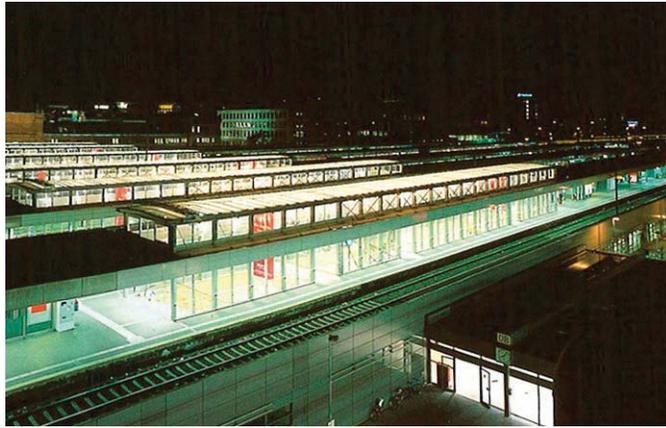
Interior Materiality

The underside of a roof is also an opportunity for an expressive use of materiality. Smaller scaled materials such as wood or bamboo bring a human scale to great spans. They also contribute to a softening effect that can make an open air space feel like an interior room. Cladding the underside of a roof can also provide a layer of insulation and contribute to sound attenuation.



Clockwise from top:
 Santa Justa Station,
 Seville, Spain; Barajas
 Airport, Madrid, Spain;
 Kuala Lumpur Airport,
 Kuala Lumpur, Malaysia

Building as Beacon



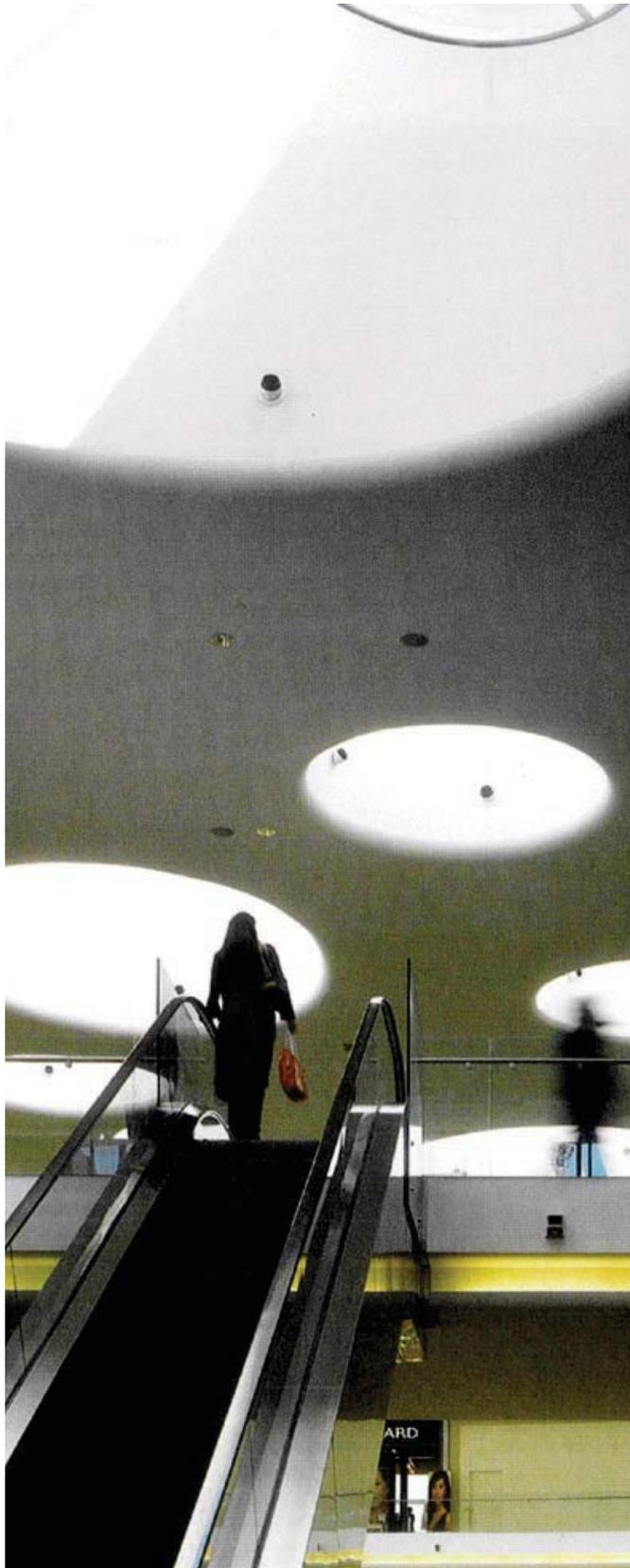
Illumination at night can enhance and activate the downtown area. It both beckons people to populate evening amenities such as restaurants and bars and it also ensures safety in a facility that is open afterdark. Creative lighting can make selective elements glow from within or dramatically uplift facades. A mix of smaller more human scaled lighting can bring a sense of festivity and delight as well to a public space that is programmed with nighttime activities.



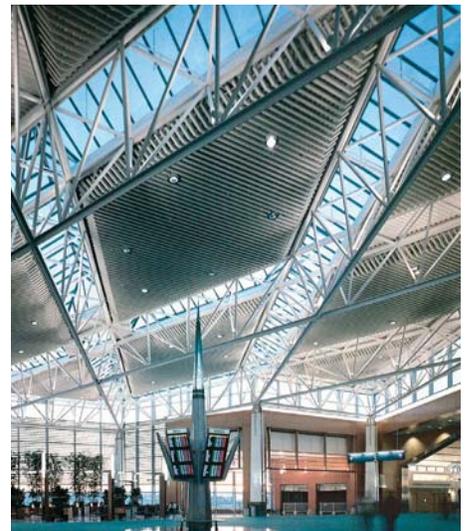
Clockwise from top:
Hanover Station, Hanover, Germany; Public art light installation, Turin, Italy; Tazawako Station, Tazawako-cho, Japan; Winter Garden & Galleries, Sheffield, England

Natural Light

Bringing natural light into the facility enlivens and animates spaces as the light changes throughout the day and throughout the year. The quality of this light and the ability to see the sky above bring a much needed humanistic dimension to a space. Utilizing natural light can be tremendously energy efficient and it is also an opportunity to bring sculptural dimension to the roof plane.



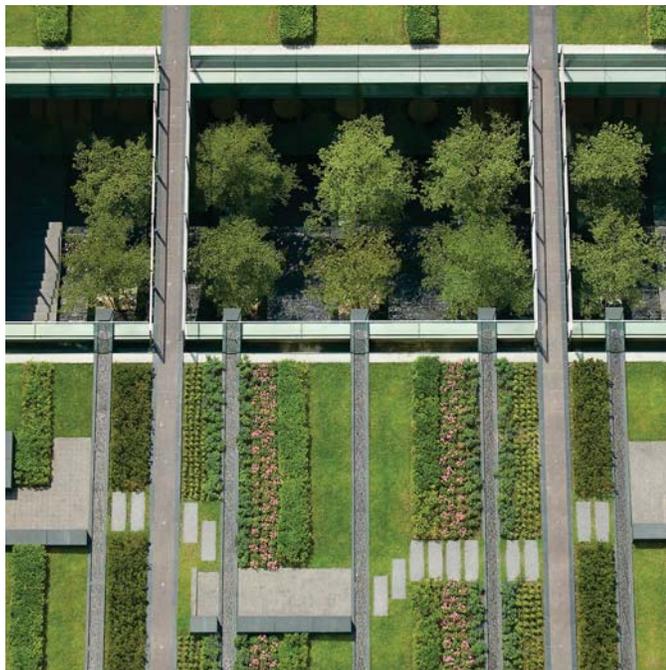
Clockwise from top:
 Portland International Airport, Portland, Oregon; Jubilee Line Extension, London, England; Shopping Centre, (location unknown)





Sustainability

The Sacramento climate is well suited for passive design strategies that are fundamental to green building practices. Harnessing cool air currents from the Sacramento River, maximizing shading with tree canopies and roofs, using the sun for daytime lighting and energy generation are just some of the opportunities to integrate environmental design principles into the project and reduce overall energy consumption of the SITF.



Event Space

Large public spaces, particularly historic spaces are wonderful venues for non-transit oriented public events. These events draw the locals to come and enjoy the station they may not normally frequent. Public art installations can link the facility with other city institutions and evening events such as private galas, art and fashion shows, and music concerts can bring activity to the facility when transit business is dormant.



Clockwise from top:
Union Station GenArts
Fashion Show, Chicago,
Illinois; Union Station
Private Event, Los An-
geles, California; Union
Station Restaurant,
Washington D.C.; Union
Station public art instal-
lation, Toronto, Canada



Enlivening Plazas

Public plazas anchored by a great civic building should be people collectors but are often, unfortunately vast open spaces with little to offer or encourage people to stay. Programming these spaces with farmers markets, art fairs, in combination with outdoor dining activate these spaces. Paving and landscape can also contribute to demarcating the plaza area.



Clockwise from top:
Farmer's Market at the
Ferry Building, San
Francisco, CA; paving
pattern, San Diego, CA;
outdoor dining in Placa
Real, Barcelona, Spain

Adaptive Reuse

With creativity and respect, historic structures can be adapted for new uses to spectacular effect. Historic buildings often have unique spaces and expressive structural elements that in conjunction with great new design create textured and culturally rich spaces.



Clockwise from top:
 Atoocha Station
 Gardens, Madrid, Spain;
 Pier 1 reused as office
 space for SFPort, San
 Francisco, CA; Market
 Hall in the Ferry Build-
 ing, San Francisco, CA