# 4 Terminal Design

# 4.1 Terminal Transportation Program

# 4.1.1 Introduction

The desired transportation program for the SITF was presented in Working Paper #5. 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.

# 4.1.2 Summary

The proposed project accommodates the program for all modules, with the exception of heavy rail platforms. 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 project presented here provides adequate heavy rail platforms capacity. More detailed design of the rail layout is beyond the scope of this project.

Program Module	Working Pa		
	Operator Requested Program	Reduced Program Option	Achieved Program
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 <sup>1</sup>	2 x 1,400 ft Center Platforms <sup>1</sup>	1 x 1,175 ft Center Platform 1 x 1,280 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	10 Amtrak Bus Bays 10 Greyhound Bus Bays 4 Shared Bays <b>24 Total Bus Bays</b>
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 2 LRT Layover Tracks
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	350 spaces in Transit Garage and up to 650 shared spaces in Millennia Joint Development Total : Up to 1,000 Parking Spaces
Terminal Building (Transit Program)	54, 570 SF (net transit program space)	54, 570 SF (net transit program space)	60,632 SF (net transit program space) <sup>2</sup>

#### Table 4.1.1 Achieved Transportation Program

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

2. See 4.2 Terminal Building Program section for more information

# 4.2 Terminal Building Program

# 4.2.1 Introduction

The desired operator-requested transportation program for the SITF was presented in Working Paper #5 and is shown in Table 4.2.1. The Terminal Building Program is based on information provided by Amtrak and Greyhound. Square footages are for interior conditioned spaces and exclude exterior public areas and circulation spaces. The unit space requirements used by the operators to develop this program generally conform to industry standard space planning assumptions. As noted on p. 50 of Working Paper #5, the Terminal Building Program will be reviewed as the proposed project is developed in the design process to reflect site constraints and opportunities, phasing requirements, and other design considerations, such as changes in security requirements, transportation technology, and operations.

Working Paper #5 outlines a range of joint development programs within the SITF Terminal Building of 10,000 to 73,000 sq. ft. for public space and special use offices, as well as an additional 17,000 SF of transit-serving retail space and a destination restaurant. Potential public program and office elements include public space uses (Chamber of Commerce facilities, cultural museum, tourism facilities, government offices) and special use offices.

# 4.2.2 Summary

The Terminal Building is comprised of the relocated Historic Depot and the new Terminal Extension. Joint Development is located in the Terminal Building and the Transit Garage facing 4<sup>th</sup> Street. The proposed project exceeds the operator-requested Terminal Building Program for passenger waiting, meets the requested program for ticketing, and is within 92% of the requested allotments for baggage, passenger amenities, and administration and employee space. Further refinements to the current design can bring program target if necessary. Reductions to the passenger waiting area are also possible, but may require a reduction in the building footprint or changes to operational layouts to meet the program target. The need to work within the restrictions of the existing Historic Depot space layout creates a challenge in meeting exact program requirements in some areas.

Program Module	Working Operator Requ	Paper #5 ested Program	Achieved Program	
Ticketing	Amtrak	1,780 SF	Amtrak	1,780 SF
Includes ticket counters and gueuing	Greyhound	880 SF	Greyhound	880 SF
only	Total	2,660 SF	Total	2,660 SF
Baggage	Amtrak	5,360 SF	Amtrak	4,894 SF
Includes baggage and package service	Greyhound	890 SF	Greyhound	864 SF
	Total	6,250 SF	Total	5,758 SF
Waiting	Amtrak (seating)	11,000 SF	Amtrak (seating)	11,000 SF
Includes seating and immediate	Amtrak (standing)	2,400 SF	Amtrak (standing)	7,295 SF
circulation area	Greyhound	4,720 SF	Greyhound	6,851 SF
	Total	18,120 SF	Total	25,146 SF
Passenger Amenities	Amtrak	4,620 SF	Amtrak	4,919 SF
Includes restrooms, information,	Greyhound	5,970 SF	Greyhound	5,534 SF
telephones, passenger-oriented retail,	Regional Transit	100 SF	Regional Transit	100 SF
operator-run food service, rental car	Total	10,690 SF	Total	10,553 SF
counters, ATMs, vending, telephones,				
custodial, and allowance for circulation.				
Customer service counter only for RT				
Administration and Employee	Amtrak	12,550 SF	Amtrak	12,304 SF
Includes offices, crew base, cash rooms,	Greyhound	3,800 SF	Greyhound	3,716 SF
break room, storage	Regional Transit	500 SF	Regional Transit	495 SF
	Total	16,850 SF	Total	16,515 SF
Total Terminal Building Transit		54,570 SF		60,632 SF
Program				
Joint Development		27,000 – 73,000 SF	Terminal Building	22,762 SF
			Transit Parking Garage	13,373 SF
			Total	36,135 SF
Terminal Utilization			Assignable A	Area 83,394 SF
Does not include Transit Parking Garage			Gross Building A	Area 126,537 SF
Joint Development			Effici	ency 66%

#### Table 4.2.1 Achieved Terminal Building Program

# 4.3 Terminal Building Design Concept

# 4.3.1 Summary

The Terminal Building is comprised of two integrally related components: the Historic Depot and the new Terminal Extension. The Southern Pacific Depot will be relocated approximately 350 feet north along the

historic 4th Street axis and will serve as the primary entrance, gateway, and core facility of the new SITF. The Terminal Extension is located directly behind the Depot and is reminiscent of the grand train sheds of the historic rail stations of the past. The extension is designed as a grand vaulted space sliced at an angle to resolve the change in geometry between the Historic Depot and street grid to the south and the angle of the relocated heavy rail lines, passenger platforms, and intercity bus bays to the north.

The Depot building will be restored, retaining and reviving historic functions including passenger waiting and ticketing, as well as a restored passenger dining room. The primary historic passenger sequence through the main entry and waiting area will be restored, and a new entrance from the LRT platforms will be created. The upper floor will be restored with administrative offices for the transit operators.

The Terminal Extension will contain a grand waiting hall conceived as an extension of the historic passenger waiting room sequence. A secondary entrance for daily commuters is located in the new extension and provides direct access to the shared transit parking in the Millennia development. Ticketing and baggage is located in an enclosure that has separate operational zones for Amtrak and Greyhound, while allowing for shared or adjacent uses of ticketing and baggage facilities. Joint development and passenger amenities are located on the periphery of the Historic Depot and the new extension, permitting shared use and easy access for passengers from all points of the Facility. A second-floor joint development bar and café above the ticketing and baggage areas offers transit patrons views of the passenger trains, the Railyards, and the proposed Railroad Technology Museum. The Terminal Extension includes a "vegetated roof", or "green roof", consisting of a light-weight planting and waterproofing system over the structural deck that will be long-lasting, highly energy efficient, help mitigate site run-off issues, and provide a striking view from the upper levels of the surrounding development.

Passenger rail security standards are currently being developed and will likely evolve over the life of the project. The SITF was designed in consultation with the rail operators to provide flexible security options for the operators. Secured passenger access and waiting areas are provided in the new extension for Greyhound, Amtrak Thru-way, and heavy passenger rail operations. Access to intercity buses and heavy rail is controlled by security points at either end of the ticketing counters. Access to the intercity buses is through multiple portals on the north side of the terminal extension, and heavy rail access is through a generous underground concourse accessible from the main waiting area in the new extension and equipped with a moving walkway. A separate waiting area for Greyhound is provided in the west end of the Terminal Extension, and can be access controlled. LRT is located immediately to the east of the Terminal Building, and local buses are located to the west in a dedicated bus area. Passenger pick-up and drop-off, paratransit, shuttle service, and taxis are located in a landscaped forecourt immediately in front of the Depot.

The Terminal Extension is designed in anticipation of high-speed rail (HSR) service at the site. A connection from the Terminal Extension to a future HSR passenger concourse above the proposed passenger platforms is possible on the second level, above the ticketing and baggage area.

The Terminal Building is designed to offer multiple, direct, and convenient pedestrian and bicycle connections to the surrounding community, to the proposed Railyards development, and to transit and commuter parking. See Section 3.4 for additional information.

Transit parking is provided in two locations: south of the Terminal at the corner of 4th and H Streets, in a transit parking and joint development garage, and to the east in the proposed Railyards development. A total of 1000 spaces are provided. Both locations offer excellent opportunities for shared parking with the surrounding development. In addition to the transit parking, parking for the REA Building and the Depot site joint development is provided in the parking structure.

Figures 4.3.1 through 4.3.8 illustrate the design.

















# 4.3.2 Terminal Building Design Description

The relocated Historic Depot will be the southern face of a new Terminal Building with a new extension to the north. Since the designated SITF extension site is triangular the shape of the depot extension adapts to this geometry to make a compact facility with improved function. The extension relates to the scale of the Historic Depot. The peak of the barrel vault roof matches the high point of the current Depot. The depot extension is barely visible from the front of the Historic Depot. The new Terminal Extension is spanned by trusses and topped by a planted barrel vault with linear skylights. Daylighting and sunshading is provided by strip skylights above the trusses, a large northern glazed curtain wall with vertical sunscreens and a glazed east wall shaded by a large roof overhang. Elements such as the bus canopy are designed to shade the glazing and further reduce heat gain and glare. The roof plane is cut on the diagonal to conform to the site geometry, creating a curved northern façade and interior spatial variety. The transparency of this façade makes views to the trains a major part of the experience of visiting the SITF, while admitting ample north light.

The building materials have been selected with both lifecycle cost and sustainable design principles in mind. Exterior materials such as perforated copper, metal and glass curtain wall, and metal sun shades will age gracefully with little maintenance. Interior materials such as terrazzo flooring and metal and rubber wainscoting are design for long life, heavy use and minimal maintenance. The green roof is an appropriate choice for several reasons: it will assist in mitigating site drainage constraints, provide additional insulation to the terminal to reduce operating costs, and will help relieve the heat island effect of the terminal area, thus improving the passenger experience. Other options for the terminal extension roof include integral photovoltaic panels (PV panels) or a standing-seam metal roof. A variety of design features such as canopies, overhangs, and sunshades reduce heat gain, redirect daylight to the interior and give the facades a human scale. Large expanses of glass have been located for maximum visual effect and to admit daylight while minimizing heat gain and glare. For example the large expanse of north facing glazing in the terminal extension provides direct visual and physical access to the transit areas and provides views to the historic shops complex and the eventual planned high speed rail lines and admits generous daylight for reduced energy consumption. In the evenings, the building lights will be visible from the freeway, the shops complex, and the proposed Railyards development project, and will send the message that the SITF is open for business.

The Historic Depot will be restored with particular attention to the ground floor public areas. Finishes and materials will be original or compatible. See the Historic Resources section for additional information.

# 4.3.3 New Exterior Materials Description

The following is a description of typical materials that may be used for the Terminal Extension of the SITF as illustrated in the previous Figures 4.3.1-4.3.8. These material selections are conceptual and intended to describe the general character and level of finish for key elements of the SITF, and were used as the basis of the conceptual cost estimate. The materials may change as the project design continues to evolve.

# **Exterior Vertical Surfaces:**

- Architectural Exposed Structural Steel supports
- Corrugated perforated copper rainscreen system
- Portland cement plaster
- Complete custom glass curtain wall including supports insulated clear and patterned low-iron ultra-flat glazing within clear anodized aluminum frames w/ some vertical exterior silicone butt joints

- Perforated copper sunscreen panels on metal frame
- All non-copper metals to be painted kynar 500 painted

#### Doors:

- Heavy-duty aluminum framed glass doors with wide stiles as part of exterior curtain wall
- Hollow metal doors, painted to match clear anodized curtain wall frame finish

#### **Exterior Horizontal Surfaces:**

- Vegetated barrel vault roof with insulated strip skylights over roof trusses
- Copper coping
- Standing seam metal canopies
- Custom glass skylight over ramp to lower level
- Built up roof with aggregate cover on accessory roofs

#### 4.3.4 New Interior Materials Description

#### Flooring Surfaces:

- 3-color Terrazzo flooring system in main public areas
- Vinyl composition tile sheet flooring in support spaces (custodial, staff work areas, ticketing)
- Sealed 18" x 18" ceramic tile flooring in bathroom
- Sealed concrete floor in baggage areas
- Non-slip sealed ceramic tile in food prep areas

#### **Base Materials:**

- 42" high rubber and metal corrugated wainscoting in main public areas
- Rubber base in carpet areas
- Rubber base at resilient flooring areas
- Ceramic tile base at ceramic tile flooring areas

#### Interior Vertical Surfaces:

• Painted gypsum wall board at partitions and furred wall surfaces

- Wood veneer plywood panels w/ wood trim in selected areas
- Perforated corrugated copper at selected surfaces
- Clear anodized aluminum door and window frames, self-trimming
- Solid core wood doors with sealed wood veneer finish surface
- Custom glass guardrails with stainless steel handrails and stainless steel top cap

#### **Ceiling Surfaces:**

- Painted exposed acoustical metal decking in main public area
- Suspended acoustical tile ceiling in staff work areas
- Gypsum Board soffits at bridges and underpass

#### Lighting:

- Truss-mounted metal halide lights and metal halide pendants in main waiting area
- 2x2 fluorescent lights in staff work areas (w/ T-5 lamps for energy efficiency)
- Recessed cove fluorescent strip lighting at pedestrian concourse
- Recessed compact fluorescent down lights at built-in casework
- Exterior accent flood lighting

#### **Custom Casework:**

- Ticket counter with sealed wood veneer vertical surfaces and stone surfaces
- Standard cabinets and casework with sealed wood veneer vertical surfaces and plastic laminate countertop Bathroom countertop solid surfaces

#### Hardware:

• Stainless Steel, No. 4 Finish

#### **Toilet Partitions:**

• Painted metal partitions, floor supported

#### Vertical Transportation:

- Hydraulic elevators
- Escalators
- Moving walkways

# 4.4 Structural Systems

## 4.4.1 Introduction

This section describes the major structural systems for the principal components of the SITF based on the early architectural design concepts. It includes a description of the moving and the seismic retrofit of the relocated Depot, the new Terminal Extension, and the pedestrian concourse to the heavy rail tracks.

## 4.4.2 Historic Depot Relocation and Seismic Retrofit

The Depot building is a three-story concrete frame building with masonry infill. The building is well suited for moving because it has a basement, a complete three dimensional building frame system and concrete flat slab at the First Floor level. It has approximately 135 pile caps, a total weight of approximately 13,500 kips and has column loads ranging from 65 to 225 kips.

Prior to moving the building, all seismic strengthening work will be completed. This will make the building more resistant to strains that may occur during moving. The railroad tracks and other obstacles north of the Depot will be moved. New permanent terminal structures at the north side of the new Depot location will be constructed prior to the move and will be used to accommodate passenger functions during the relocation of the existing Depot. The ground over which the building will be moved will be leveled and compacted to provide a firm runway. It is assumed temporary concrete strips will be cast in the ground to assure excessive deformation of the soil does not occur. The new partial basement and foundation system will be constructed prior to the move. The building will likely be supported on precast concrete piles at its new location.

At the new location, a new reinforced concrete slab will be cast at an elevation of approximately eight feet below grade to provide a jacking platform and to facilitate movement of equipment and materials with buggies, etc.

A grid work of reinforced concrete beams will be cast under the existing First Floor slab to provide jacking points away from the existing basement columns and perimeter walls. Where extremely important finishes exist, such as the mural in the waiting room, localized strengthening will be provided as needed to mitigate unacceptable cracking.

The building will be raised about 8 to 10 feet with a system of inter-connected hydraulic jacks. As columns and walls are unweighted with the jacks, they will be saw cut. When the building is entirely supported on the jacks, it will be raised and pulled across the runway on Hilman rollers, which will roll over a steel plate track. When the building reaches the new location, it will be lowered onto the new basement columns and walls. The procedure will be the reverse of the raising operation at the existing site. At its new location, the building will have a crawl space approximately four foot clear, for constructability purposes. A portion of the building footprint will have a basement if required for mechanical systems.

Conventional seismic retrofitting of the Historic Depot is required. The strengthening involves wall to diaphragm connections, diaphragm and collector strengthening and a limited amount of shotcreting of the masonry infill walls. The seismic strengthening at the roofs was recently completed.

# 4.4.3 Terminal Building Extension

The structural system for the Terminal Extension can be subdivided into three categories: The foundation system, the gravity system and the lateral system.

#### **Foundation System**

The foundation system per the preliminary investigation of existing soil conditions and foundation system in the vicinity could be deep piles and pile caps tied together with reinforced concrete slab on grade. The depth and

the allowable loads for the piles shall be part of the geotechnical investigation which would be undertaken for the final design. Some exploratory soil borings would be required within the footprint of the Terminal.

#### **Gravity System**

The gravity system at the roof consist of a 3" metal deck with 3 ¼" lightweight concrete fill supported on structural steel beams and trusses, which in turn are supported on steel columns. The metal deck will be an acoustic deck allowing it to be exposed and at the same time providing for better sound insulation. The deck is fastened to the steel beams via welded shear studs and the concrete fill is reinforced with nominal steel reinforcing. The curved sod roof construction over the concrete fill consists of a lightweight garden roof with an approximate weight of 50 PSF. The roof framing purlins are spaced at 10' on center, which are supported on trusses, spaced at around 40' on center. The length of the trusses varies from 80' to 190'. The depth of the bow trusses vary with the maximum depth at mid-span for the longest span truss to be around 15'. One end of the truss has a constant elevation whereas the other end elevation varies such that the shorter the span the higher the elevation. This allows all the trusses to have the same radius for the top chord and the sod roof but the bottom chord of the truss will be tilted and the tilt angle varies at every bay. This works very well since the deepest truss will be for the longest span. Skylights are anticipated on the sloped roof, horizontal cross bracing will be added at skylights to create a rigid diaphragm. The mezzanine floor construction would be similar metal deck and concrete fill supported on wide flange steel framing members.

#### Lateral System

The lateral system to withstand seismic and wind forces would consist of structural steel buckling restrained braces. This type of brace has a superior performance in earthquake as compared to the regular concentric braced frame. The brace is made from steel plates in cruciform shape with either a pipe or tube steel casing, the space between the brace plate and casing is filled with mortar with a sliding surface at the brace plates. The brace being designed not to buckle has an added advantage for this terminal building, since there is a tall glass curtain wall next to the braced frame. The buckling of the brace could create a life safety issue if it were to break the curtain wall glass. The brace location will have to respect the architectural planning and at the same time be such that it is distributed uniformly over the plan, tying into the sloped roof. The metal deck with concrete fill at the roof will act as a rigid diaphragm helping to distribute the lateral forces to the braced frame.

#### 4.4.4 Pedestrian Concourses

A pedestrian concourse connects the Terminal building to the heavy rail tracks, and may be extended north to the Railroad Technology Museum. The top of the concourse will be placed as close to the grade as possible allowing for ballast at the rail. The concourse has a span of approximately 30 feet. The structural system for the pedestrian concourse is essentially a rigid concrete box. A potential second pedestrian/bicycle concourse may be included in the project to provide access across the tracks. The structural system for this concourse is assumed to be the same as the concourse inside the Terminal.

# 4.5 Historic Preservation

# 4.5.1 Introduction

The Sacramento Intermodal Transportation Facility (SITF) project includes the following historic resources: the Southern Pacific Railroad Company's Sacramento Depot (SPRD) [now Union Pacific], the Railway Express Agency Building (REA), the Subway Tunnel, Passenger Platforms and Umbrella Sheds. The Historic Depot, designed by architects Bliss and Faville, and the REA Building were completed in 1926. The Depot is a three-story concrete-frame building with masonry infill and brick and terra cotta facing. The REA Building is a load-bearing masonry structure, built by contractor W. C. Keating to harmonize with the main terminal building. A

wing which once enlarged the footprint of the REA Building has previously been demolished. The Historic Depot's passenger waiting room is barrel vaulted, finished with painted plaster and imitation Caen Stone, and has a large mural entitled "Breaking Ground at Sacramento" by John A. MacQuarrie. The Subway Tunnel was constructed during the same time period and provides access from the Historic Depot Building to the three loading platforms adjacent to the train tracks. The platforms have protective metal coverings ('Umbrella Sheds'). The Southern Pacific Railroad Sacramento Valley Depot and the Railway Express Agency buildings are listed together in the national Register of Historic Places, the California Register of Historical Resources, and the Sacramento Register listing of Landmarks, Historic Districts and Contributing Resources.

Archeological resources associated with the project site include the "China Slough" which is enclosed by H, 5th, 6th and I Streets. This site contains archeological deposits from Sacramento's mid-19th century Chinese district. Additional archeological resources include the floodplain along the American River, which contains documented prehistoric village sites. Because successive episodes of fluvial deposition may have buried earlier prehistoric components to considerable depths, the likelihood of encountering prehistoric sites is still a possibility, despite historic and modern urban development. These archeological resources are potentially eligible to be listed in the National Register of Historic Places.

#### Setting and Context

The setting of Sacramento at the confluence of the American and Sacramento Rivers and the interdependence between the city and the development of transcontinental railroads are discussed in Technical Report #1, 21 July 2003. In addition, the Report shows the location of several earlier depots, including those for the Central and Southern Pacific, at the northwest corner of the city in or near China Slough. It is not the purpose of this discussion to elaborate on this and the information contained in the National Register nomination forms prepared for the Historic Depot in 1974-1975, except to note that the zone of the city occupied by the Depot, in close proximity to the historic core and with strong axial relationship to Capitol Mall, is appropriate as the setting for an expanded transit hub that continues to center upon the Railway Depot.

#### The Sacramento Intermodal Transportation Facility (SITF) Project

The current Depot and track configuration does not meet the functional and operational needs for future freight, passenger rail and intermodal transit operations. These operational needs are discussed in detail in Working Paper #8, February 6, 2004. Three alternative rail alignments were considered and evaluated in conjunction with the alternatives analysis in Working Paper #8. The evaluation showed that a northern track alignment best met the transportation and development goals of the SITF project as outlined in the Paper. It was decided that the main freight and passenger lines and associated passenger rail platforms will be relocated north to the location of the original main freight lines. As a result, the SITF project will move the Historic Depot approximately 350 ft. north along an extension of the 4th Street axis to maintain its proximity to the new northern track alignment. A Terminal Extension will be built between the relocated Historic Depot and new track alignment to accommodate the increased terminal building program. There is currently no building between the Depot and the tracks. The REA Building will remain in its current location and will be incorporated into new commercial/cultural/ community development.

Moving a historic building is a complex matter, because architectural, spatial and functional relationships that had characterized the building in its original placement could be altered. In the case of this project, many of the defining features of the surrounding context have already been removed or altered, diminishing the integrity of the original building placement. These alterations include the closure of the 4th Street approach axis, the demolition of the original entry plaza and landscaping, the construction of the I-5 freeway on-ramp immediately in front of the Depot, changes to the approach and circulation patterns around the building (including surrounding the structure with parking), demolition of a portion of the original context, and partial demolition of

the platform Umbrella Sheds. While these site integrity issues exist, the Depot currently maintains its alignment with the tracks, platforms and tunnels and its relationship with the REA Building to the East.

In addition, the program needs of a wide array of transit services dictate a new track alignment to accommodate heavy rail, future high speed rail, local rapid transit, bus (local and intercity), bicycle and pedestrian movement.

During the SITF design process, multiple design options were explored, including three options which retained the historic depot in its original location. Evaluation of the alternatives led to the adoption of the current plan as the only alternative that successfully met the operational needs and performance requirements of the SITF while retaining the Depot as the core element of the SITF. The Principles of Agreement entered into on May 17, 2001 by the City, SORD, and the Sacramento Intermodal Transportation Alliance (SITA) allowed a change in track alignment as recommended in Working Paper #8, and also directed that the Historic Depot should be retained as the "grand pedestrian gateway and core facility for the Intermodal Station." An extensive public and stakeholder outreach process since 2001 has demonstrated public and city support for relocating the Depot as part of the proposed project.

To the extent that balancing these various project goals and objectives is a challenge, development of alternatives to the proposed projects is also difficult. However, measures to mitigate the unavoidable adverse effects caused by the move may be possible to develop.

## 4.5.2 Review Process

The process for reviewing the SITF project impacts on and preservation of historic resources involves the following:

 Clarify the boundaries of the historic property to clarify the National Register listing nomination form. This process should clarify whether the "5 acres" mentioned in the original nomination form includes the Subway Tunnel, Passenger Platforms and Umbrella Sheds. It is possible that additional site area/resources could be added to the National Register listing.

Involved parties – State Historic Preservation Officer (SHPO), property owners, the State Historic Resources Commission (SHRC) the City of Sacramento, and the public. This amendment to the nomination form is prepared by SHPO, who may be aided by the project team. If approved by the SHRC, it is submitted to the Keeper of the Register for final approval.

2. Determine if there are any archeological resources attributed to the SITF site and if they are eligible for listing on the National Register of Historic Places. A test site is suggested as part of the assessment of cultural resources to be affected by the project, in addition to a literature search.

Involved parties – SHPO, SHRC, the City of Sacramento, and property owner. SHPO or preparers should have first-hand knowledge of the relevant archeological and historical literature and of archeological resources similar to the property being nominated or have the assistance of persons who do.

- 3. Initiate the Section 106 process of the National Historic Preservation Act. Identify the lead Federal agency involved with the SITF project. This Federal agency must initiate the Section 106 process by:
  - Gathering information to decide which properties in the project areas are listed in or eligible for the National Register of Historic Places.
  - Determining how historic properties and archeological resources might be affected.
  - Exploring alternatives to avoid or reduce harm to historic properties and archeological resources.
  - Reaching an agreement with the SHPO [and possibly the Advisory Council on Historic Preservation (ACHP)] on measures to deal with any adverse effects or obtain advisory comments from the ACHP, which are sent to the head of the agency.

Involved parties – Federal Agency involved, SHPO, ACHP, possibly additional consulting parties, public, and possibly the Interior's Departmental Consulting Archeologist.

4. Concurrent with the Section 106 process, initiate the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) review processes, which determine the environmental impact of the proposed project through an Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) respectively. NEPA and CEQA also require identification of historic resources, assessment of impacts of the project on the resources, and both require consideration of alternatives to the proposed project. Alternatives under NEPA my include consideration of other locations.

Involved parties – Federal Agency, SHPO, City of Sacramento, consulting parties and the public

- 5. Gain approval from the U.S. Department of Transportation. The Federal Highway Administration (FHWA) and/or the Federal Transit Administration (FTA) must show the project meets the requirements of Section 4(f) of the Department of Transportation Act of 1966. The 4(f) is a separate section within an Environmental Assessment (EA) or Environmental Impact Statement (EIS). It should include the following information:
  - Description of the proposed project and an explanation of the purpose and need for the project.
  - Description of the resources. Resources are determined by the FHWA (or FTA) after considering existing information, the views of the SHPO and the Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation".
  - Impact of the project on the resources.
  - Avoidance alternatives.
  - Measures to minimize harm.
  - Coordination.

Involved parties – SHPO, Federal Highway Administration and/or Federal Transit Administration, SHPO, Department of Transportation.

6. City Preservation Review – After all environmental reviews have been completed/certified, he City of Sacramento Design Review and Preservation Board must review and approve any proposed work affecting significant features and characteristics of historic resources. The review considers if the proposed work complies with the Secretary of the Interior's Standards for Treatment of Historic Properties and other requirements or policies of the City. Initiating early review and comments from the City of Sacramento is recommended. If the owner of the historic resource is the City of Sacramento, the Board's action is a recommendation, not a decision.

Involved parties - City of Sacramento

7. Building Department Review - The State Historic Building Code applies to the Historic Depot

Involved parties - City of Sacramento Building Department

## 4.5.3 Importance of Historic Preservation Review

Review of this project with reference to its effect upon historic resources is only one interrelated aspect of a wider project review that should result in community backing and state/federal support. When the project is examined according to various preservation standards, it should be kept in mind that these standards all point to the same goal: that of retaining those aspects of historic buildings, structures, or properties that make us value them in the first place. Because it will not be possible to insert a complex, intermodal transit facility into a previously built historic complex without some change to the district and some loss of individual features, the reviews described here become important, because without them the environment cannot be shown to be protected and federal funds will not flow to the project.

At city level, control over historic resources is exercised by the City of Sacramento through its Historic Preservation Ordinance. The ordinance establishes a Design Review and Preservation Board that may

"approve, approve with conditions and/or mitigation measures, or disapprove applications for development projects;" and may "evaluate and comment upon proposals and environmental reviews pending before other public agencies affecting the physical development, historic preservation and urban design in the city." The ordinance establishes a Preservation Director, appointed by the city manager with certain authority and to assist the Board in performance of its historic preservation duties. The role of the Design Review and Preservation Board and/or City Council, is twofold for this project: considering environmental impact and protecting the historic resource through review of alterations, restoration or rehabilitation work, new additions and site design.

At the State Level, the Office of Historic Preservation, within the Department of Parks and Recreation, implements the policies of the State of California and the United States government concerning historic preservation. A State Historic Preservation Officer [SHPO] is appointed by the governor. Under the California Environmental Quality Act, the SHPO may comment on any environmental impact report prepared in the state that concerns historic resources. And, under federal regulations pursuant to Section 106 of the National Historic Preservation Act [NHPA] of 1966, as amended, the SHPO becomes a central figure in effecting an agreement between participating parties when federal funds are being utilized, where there is a federal undertaking, and National Register properties (listed or eligible for listing) are being affected.

At federal level, NHPA establishes an Advisory Council on Historic Preservation. This council, with members serving ex officio or appointed by the president, exercises broad oversight of matters concerning the nation's historic resources, particularly those listed in the National Register of Historic Places. If, as part of a negotiation conducted by the City of Sacramento, SHPO and affected federal agencies, no Memorandum of Agreement can be finalized, the Advisory Council may comment or participate.

The flow chart included as Figure 1 considers only historic preservation review, not all possible review, under the city's Historic Preservation Ordinance, the state's California Environmental Quality Act, and the federal requirements pursuant to Section 106 of the National Historic Preservation Act. Note that the community must fix upon a design first. Then, certain portions of environmental review can be coterminous with Section 106 review, particularly in that any alternatives considered under one process will probably be appropriate for the other.

See Figure 4.5.3 for an illustration of the historic review process



## 4.5.4 Evaluation

The evaluation of a proposed project's impacts on historic resources will consider the following issues:

- The Secretary of the Interior's Standards for the Treatment of Historic Properties. These Standards are specifically cited by CEQA and by the city's Historic Preservation Ordinance as those by which the impact of a rehabilitation design are to be measured. In addition, they have common acceptance nationwide as the standardized way that alterations to historic buildings can be evaluated.
- Section 106 of the National Historic Preservation Act, 36 CFR 800.5 Assessment of Adverse Effects. These standards of assessment, contained in federal regulations that support NHPA, parallel other evaluations of effect contained in environmental law.
- The role of the Historic Depot and REA Building within the new SITF.
- National Register Criteria Listing Regulations. These regulations are important because they touch on the continued eligibility of Register-eligible, moved buildings. Both the City of Sacramento and State of California have register criteria similar to the National Register.
- National Environmental Protection Act (NEPA) and CEQA (California Environmental Quality Act) requirements for environmental protection and review.
- Requirements of the Sacramento Historic Preservation Ordinance, including Landmark eligibility criteria and the Secretary of the Interior's Standards for the Treatment of Historic Properties.
- Use of the State Historic Building Code to provide for the preservation of historic fabric on qualified historic buildings.

The eligibility of any archeological resource on the project site for listing in the National Register of Historic Places still needs evaluation. The potential archeological resources may be judged under Criteria D of the National Register, defined as:

"The quality of significance in American history, architecture, archeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and that have yielded, or may be likely to yield, information important in prehistory or history."

If archeological resources are successfully nominated to the National Register, their management and protection are guided by the following:

- Section 106 of the National Historic Preservation Act and the 1980 amendments, including Section 110.
- The Archeological and Historic Preservation Act.
- The Archeological Resources Protection Act.

# 4.5.5 The Secretary of the Interior's Standards for the Treatment of Historic Properties

The Secretary of the Interior's Standards are used by the State of California and the City of Sacramento. A determination will need to be made regarding the most appropriate treatment to use for this property, which may the Rehabilitation treatment. The following ten standards for Rehabilitation are used to evaluate historic resources that are to be rehabilitated. Following each standard, a discussion of its applicability to the current SITF design is given.

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

Discussion: Adherence to this Standard is one of the most powerful arguments in favor of moving the Historic Depot. By moving the Depot and maintaining its relationship with the tracks, it will be possible to continue using the building "as it was historically." A Depot that provides ticketing, baggage service, and traveler amenities needs to be adjacent to trains and other transit modes. Note that rather than being immediately 'adjacent' to the tracks, there will be a major new addition to the Depot, located between the Depot and the newly aligned tracks. In addition, the physical and spatial relationship between the Depot and the REA Building would not be moved as part of this project.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

Discussion: Moving the building will remove it from its original foundation and basement and will alter its setting. As discussed above, certain aspects of the Depot's present setting have lost integrity, and it may be possible to reinstate certain qualities of the original site design by performing the move. Still, the historic character of the Depot and REA Buildings will change with the Depot's move since the REA Building was built alongside and in the same design style as the Depot. Moving freeway access, extending the axis of Fourth Street, and re-establishing the landscaped plaza that once fronted the Depot would be examples of such reinstatement. It would be the intention of the SITF design to re-establish the character of the building's setting in its new position, without mimicking historical conditions or creating a false sense of history [see Standard 3 below].

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

Discussion: Care will be taken not to create a false sense of history in designing the future setting of the building. That is, the new design will not be designed to be identical with historic conditions, but to echo them with complimentary visual language.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

Discussion: All such changes will be retained. [The design is not developed enough at this time to give appropriate examples in this and the following paragraphs.]

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

Discussion: These features will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

Discussion: These methods will be followed.

7. Chemical of physical treatments, if appropriate, will be undertaken using the gentles means possible. Treatments that cause damage to historic materials will not be used.

Discussion: These methods will be followed.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Discussion: These methods will be followed.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

Discussion: The proposed addition to the Historic Depot, together with the design of platforms that serve projected means of transit, will necessarily be tailored to today's requirements and therefore will be "differentiated from the old." Certain spatial relationships, such as that between the Depot and the REA Building, will be altered, as discussed under Standard 2. It should be possible to evolve a visual language that takes into account the materials, features, size, scale and proportion of the existing Depot and that incorporates the new aspects of the facility successfully.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Discussion: In California, it is generally considered acceptable to strengthen buildings seismically without observing the requirement that such alterations be removable. The Depot building will certainly be separate and independent from the terminal addition and from any track or platform alterations that occur over time. If removed, the terminal addition would leave the Depot essentially unaltered. The contemplated building move, however, will not be reversible and will need to be reviewed in that light.

## 4.5.6 Evaluation Criteria, Section 106, 36 CFR, Part 800.5

(i) Physical destruction of or damage to all or part of the property;

Discussion: Adverse effect. Demolition of the Subway Tunnel and Passenger Platforms. Removal and salvage of Umbrella Sheds.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines.

Discussion: No adverse effect.

(iii) Removal of the property from its historic location.

Discussion: Adverse effect. The Historic Depot will be relocated to the north and made part of an expanded Terminal Building. But NOTE: Depot will not be removed from its overall site and its former relationship to tracks will be maintained.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.

Discussion: Adverse effect. The Historic Depot and REA Building will be separated, changing their original relationship. Although the Historic Depot in its new location retains its use and a similar relationship with the railroad tracks, the new SITF structure is built between Depot and tracks, somewhat altering this relationship. Demolition of the Subway Tunnel and Passenger Platforms. Removal and salvage of Umbrella Sheds.

 Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features; Discussion: No adverse effect. It would be the intention of the SITF design to maintain the property's significant historic features, and to introduce other elements that are compatible.

 (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

Discussion: No adverse effect. In fact, the property will be the object of significant improvement, and the neglect experienced under railroad ownership will be reversed.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Discussion: Ownership of the SITF site has not been determined at the time of this writing.

## 4.5.7 National Register Listing Regulations

De-listing of a property in the National Register can occur if "the property has ceased to meet the criteria for listing in the National Register because the qualities which caused it to be originally listed have been lost or destroyed, or such qualities were lost subsequent to nomination and prior to listing".

Going forward, it will be necessary to show that moving the Depot will *not* cause it to "cease to meet the criteria for listing in the National Register." Under the present National Register nomination, the building is listed as significant in the areas of architecture, commerce, and transportation. These qualities can be maintained with the Depot in its new [moved] position. The architecture of the building will still be perceptible in the new position, and its setting may offer qualities more similar to its original context than its present impaired surroundings provide. Because the moved terminal will continue in its original use, the building's connection to commerce and transportation will be maintained.

Moving the Historic Depot and the demolition of the Subway Tunnel, Passenger Platforms and Umbrella Sheds, can all be reasons for de-listing if the Keeper of the National Register does not give prior approval.

The process of relocating a property in the National Register should be in accordance with 36 CFR, Part 60 if the property is to remain listed. 36 CFR, Part 60 states, in summary:

- National Register properties should be moved only when there is no feasible alternative for preservation.
- If the State or Federal agency wishes the property to remain in the National Register during and after the move, the State or Federal agency must submit documentation prior to the move which should discuss 1) reason for the move, 2) the effect on the property's historical integrity, and 3) the new setting and general environment of the proposed site, including evidence that the proposed site does not possess historic significance that would be adversely affected by the intrusion of the structure. Any such proposal submitted by the State must be approved by the State review board and will continue to follow normal review procedures.
- If the National Register approves the proposal, the property will remain on the National Register during
  and after the move unless the integrity of the property is in some unforeseen manner destroyed. If the
  National Register does not approve of the proposal, the property will be automatically deleted from the
  National Register when moved. If the State or Federal agency has proof that previously unrecognized
  significance exists, or has accrued, the State or Federal agency may resubmit a nomination for the
  property.

If a property is deleted from the National Register, the State or Federal agency can reenter the property in the Register by nominating it again on new forms.

It is important that the Depot and associated resources *not* be de-listed from the Register because of the responsibility placed on federal agencies by the NHPA "prior to the approval of the expenditure of any Federal funds...to take into account the effect of the undertaking on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register."

## 4.5.8 City of Sacramento Historic Preservation Ordinance

The Sacramento Historic Preservation Ordinance applies the Secretary of the Interior's *Standards* and other goals and policies when reviewing a development project. The relocation of a Landmark or Contributing Resource may be approved if the Board makes one or more of the following findings:

 Based upon sufficient evidence, including evidence provided by the Applicant, the property retains no reasonable economic use, taking into account the condition of the structure, its location, the current market value, the costs of rehabilitation to meet the requirements of the building code or other city, state or federal law;

Discussion: The question of comparative economic use is one that other consultants to the project will have to take up. It should be possible to show that the most logical economic use of the Depot is one which is most closely allied to its original purpose and role.

- That the demolition or relocation of the Landmark or Contributing Resource is necessary to proceed with a project consistent with and supportive of identified goals and policies of the General Plan or applicable community or specific plan(s);
- 3. In the case of an application for a permit to relocate, that the building may be moved without destroying its historic or architectural integrity and importance; or

Discussion: Preliminary investigations indicate that the Historic Depot is well suited to the proposed move, and will likely suffer little if any damage to key historic features, details, and materials.

4. That the demolition or relocation of the Landmark or Contributing Resource is necessary to protect or to promote the health, safety or welfare of the citizens of Sacramento, including the need to eliminate or avoid blight or nuisance, and the benefits of demolition or relocation outweigh the potential effect on the achievement of the goals and policies of this Chapter.

Discussion: Again, we assume that broad community discussion and support has already taken place, and that the move of the resource is desired.

## 4.5.9 Mitigation Measures

The following are proposed mitigation measures to compensate, in part, for moving the Historic Depot Building.

- 1. Maintaining the historic function of the Historic Depot as a train facility.
- 2. Recording the Historic Depot complex to Historic American Buildings Survey (HABS) standards, to document the historic Southern Pacific Railroad Company's Sacramento Depot prior to moving the building, and to document any dependent structures, such as the REA Building, Subway Tunnel, Passenger Platforms and Umbrella Sheds. As part of this effort, a record of the evolution of the site, including changes to the site plan and prior depots, would be prepared.
- Opening 4<sup>th</sup> Street at "I" Street and extending 4<sup>th</sup> Street onto the SITF site, simulating the Historic Depot's original public point of entry and formal relationship to downtown Sacramento as the northern terminus of 4<sup>th</sup> Street.
- 4. Creating a new civic setting for the historic Depot and the REA Building by making a generously scaled landscaped public open space centered on 4<sup>th</sup> Street, between "I" Street and "H" Streets, and at the south front façade of the Historic Depot and the west façade of the REA Building. The open space will be appropriately scaled to create a sense of entry for the SITF.

- 5. Defining the open space with Joint Development on "I" Street, flanking 4<sup>th</sup> Street, the Historic Depot to the north and the REA Building on the east. Providing a new context for the REA Building as a participant in the of the civic space.
- 6. Rehabilitating the Historic Depot, compliant with the Secretary of the Interior's *Standards for Rehabilitation*.
- 7. In the Historic Depot's Intermodal Terminal addition to the north, incorporating and featuring the Historic Depot's historic north façade, which will be visible at the addition's interior.
- 8. Preserving the historic glazed metal canopy/enclosure at the Historic Depot's northeast end, incorporated into the Terminal Extension design.
- 9. The restored Historic Depot/ Terminal Extension would include an area(s) for Cultural Exhibit(s).
- 10. Historic Umbrella Sheds will be salvaged, restored and reused, where appropriate. At present these are expected to be incorporated into bus platforms.

# 4.5.10 Moved Buildings

There is a long history of moving buildings in the United States, dating from the 19th century and the development of the mechanical means to lift and draw large loads. The following is a sampling of recent moves involving historic buildings. The interested researcher should refer to the publications of the International Association of Structural Movers, Lexington, SC.

Building Title	Weight	Year Moved	Mover
Shubert Theater, Minneapolis, MN	2908 T	1999	Stubbs Bldg. Movers, Long Lake, MN
			Expert House Movers, Virginia Beach, VA
			Int'l Chimney Corp., Buffalo, NY
Lighthouse, Cape Hatteras, Buxton, NC		2000	Int'l Chimney Corp., Buffalo, NY
Building 51, Newark Int'l Airport, Newark, NJ			Expert House Movers, Virginia Beach, VA
(3 wings)	1300 T	2000	
	4500 T	2000	
	1300 T	2000	
Canton Junction RR Station, Canton Junction, MA	600T	1999	Int'l Chimney Corp., Buffalo, NY

## Table 4.5.10. Recently Moved Historic Buildings

# 4.5.11 Summary

The SITF project will re-use and rehabilitate the Historic Depot. The REA Building will be rehabilitated in a concurrent project.

The SITF project 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 Building.

The SITF project uses the unique historic architectural and cultural features of the Historic Depot to maximize transit-serving joint development opportunities.

The SITF project proposes demolition of the Subway Tunnel and Passenger Platforms. Umbrella Sheds will be restored and reused by the owner and some may be incorporated into the SITF project, where appropriate. A new subway tunnel will be built to connect the depot and extension to the new passenger rail platform.

The central issue relative to historic preservation is the moving of the Historic Depot. Though Section 106 Evaluation Criteria – as well as preservation practice – discourage moving buildings, National Park Service Bulletin 15, "How to Apply the National Register Criteria for Evaluation," does state that "a property removed from its original or historically significant location can [still] be eligible if it is significant primarily for architectural value or it is the surviving property most importantly associated with a historic person or event."

Further clarification of the boundaries of the National Register property may show that the Depot, though it is to be moved, will remain adequately associated with its historic site. The original National Register nomination forms, prepared in 1975, state that the significance of this property lies in Architecture [Criterion C], Commerce [Criterion A] and Transportation [Criterion A]. Summary Pros and Cons of the SITF Project

#### Positive

- Historic Depot is appropriately used as the passenger Terminal. REA Building is reopened for retail and commercial uses.
- Except for basement, the Historic Depot's original design and materials are restored or repaired.
- The relationship between the train tracks and Historic Depot is retained, but there will be a major new addition between the depot and the tracks.
- Passengers enter trains through historic progression of spaces starting from the main Historic Depot entrance, through the waiting room, into the new Terminal Extension. Due to operational, safety and security concerns the path of passengers to the tracks will no longer be directly from the building, but via ramps and an underground concourse. No one will be able to walk out to the tracks from the Terminal Extension Building the way they can now.
- The original Historic Depot site becomes open to new commercial / cultural / community / development projects.

Negative - Detrimental effects to the Historic Depot and REA Building

- Separation between the Historic Depot and REA Building changes their original relationship.
- The integration of other transit facilities may alter the appearance of the Historic Depot.
- Demolition of the Subway Tunnel, Passenger Platforms and removal and salvage of Umbrella Sheds diminish the integrity of the registered property.