

## 4.7 HISTORIC RESOURCES

This section evaluates potential impacts of Alternatives A and B to historic properties along Flower Street and in Little Tokyo. The Final EIS identified the baseline condition for historic resources within a Project Area of Potential Effects (APE). The Flower Street and Little Tokyo areas, which together comprise the APE of the two alternatives evaluated in this SEIS, were included in the Project APE. As the baseline condition is essentially unchanged since approval of the Final EIS, it is used herein for the current impact assessment. Historic resources were defined as built environment, archaeological, and paleontological resources. The affected environment for archaeological resources and paleontological resources was considered further only for potential additional impacts related to the change in the vertical limits of excavation under Alternative B (excavation under Alternative A would remain within the limits of the Project APE). In this SEIS, only built environment historic resources located in the APE of the two alternatives have been revisited for potential project impacts or effects. The current study describes the built environment historic properties within the SEIS Study Area, a subset of the Project APE located along Flower Street and in Little Tokyo.

The SEIS is intended to meet the requirements of the court order (as discussed in Chapter 1) to provide information on the construction method alternatives that were previously withdrawn from consideration. There is no change to the APE of the Project. However, information on the SEIS and the construction method alternatives and their potential impacts to historic resources will be provided to SHPO. There are no changes to the APE relating to the tunneling method alternatives nor is there potential for Alternatives A and B to have impacts on historic properties that may be different from those identified in the Final EIS for the Project. The Final EIS states that in areas where new underground tunnel boring machine segments will be constructed, mitigation for impacts to paleontological resources will not be feasible and thus construction and cumulative impact will be significant and unavoidable.

For archaeological resources, five possible resources are identified in the Project Area in the Final EIS, including the Los Angeles Zanja System which crosses Flower Street south of 9th Street. Along Flower Street segment of the Regional Connector project, possible archaeological impacts are not anticipated to occur due to the ground conditions, which consist of fill from other downtown locations to support development in this portion of the street corridor. This corridor has been heavily-developed since the early 1920s, which also would have destroyed any archeological resources that may have been located in the area. From a historic resource perspective, the former Pacific Electric tunnel will be negatively impacted by any underground project on Flower Street. However, any additional impacts on archaeological resources as identified in the Final EIS would be resolved with implementation of the established mitigation measures in the Memorandum of Agreement (MOA) between Metro and the State Historic Preservation Officer (SHPO), in the Mitigation Monitoring and Reporting Program (MMRP) for the Project (see Section 8, Mitigation Monitoring and Reporting Program, of the Final EIS/EIR), and in the Cultural Resources Mitigation Management Plan (CRMMP).

The potential impacts on historic properties that are further considered are those caused by noise and vibration generated from the construction and operation of the project. As Alternatives A and B propose different construction methods and some modifications to the vertical and horizontal alignment along Flower Street, the potential impacts of these alternatives on historic properties may be different from those identified in the Final EIS for the Project. Supplemental noise and vibration analysis for these tunneling method alternatives has been performed as discussed in Section 4.4, Noise and Vibration Technical Report. In addition, analysis for potential impacts on visual quality caused by the two tunneling method alternatives was conducted as discussed in Section 4.1, Visual Quality.

This section references the mitigation measures for historic properties under NHPA Section 106 in the MOA between Metro and SHPO, and mitigation measures carried forward and included in the MMRP for the Project (see Section 8, Mitigation Monitoring and Reporting Program, of the Final EIS) and in the CRMMP for historic properties under NHPA and NEPA.

#### **4.7.1 Affected Environment**

##### **4.7.1.1 SEIS Study Area**

FTA and Metro, with concurrence from SHPO as part of Section 106 consultation, established the original Area of Potential Effect (APE) to ensure identification of historic properties under NEPA and NHPA that may be directly or indirectly affected by the project. The APE was analyzed in the Final EIS. Changes to the APE relating to the Project and the tunneling method alternatives have been submitted to SHPO.

Because the tunneling method alternatives propose different construction methods within the same project location, the SEIS Study Area is a focused sub-area within the APE where those changed construction methods would be used. Figures 4.7-1 and 4.7-2 show the SEIS Study Area within a portion of the APE. The map illustrates the project APE with the boundaries of the “direct APE” and an “indirect APE” to show the limits of ground disturbance and adjacent areas in the project vicinity that may be impacted. This differentiation is only for informational purposes, as the established APE included both the direct and indirect areas. The direct APE is the area where resources would be physically impacted by construction activities, while the indirect APE includes the larger area where project impacts might include pollutant noise and vibration impacts to historic properties, changes to their visual or historic setting, or limitations on access during construction. The maps also show the location of built environment resources that were identified as historic properties under NEPA and NHPA in the Final EIS.

##### **4.7.1.2 Built Environment Resources**

Sixteen historic properties that were identified by the Project analysis are located within the SEIS Study Area. These were identified and evaluated through intensive survey. An analysis of the potential adverse effects to historic properties under NHPA was also conducted in support of the Final EIS. On June 1, 2010, SHPO concurred with FTA’s determination of eligibility and finding of effects. The built environment technical studies and SHPO correspondence that supported these results are contained in the Final EIS. For the current analysis, because the results of the Project analysis are less than five years

old, and there have been no apparent changes to the historic properties in the APE, the affected environment in the Project analysis is used as the baseline in the SEIS analysis.

The SEIS Study Area contains 16 historic properties (15 of which are individual buildings or structures) that are either listed in or determined eligible for listing in the NRHP (Table 4.7-1). This includes the Little Tokyo Historic District, of which ten contributing buildings are located within the SEIS Study Area (see Figure 4.7-2). Therefore, there are 16 historic properties composed of 25 historic buildings or structures within the analysis area.

#### **4.7.2 Environmental Consequences**

The following analysis examines potential adverse effects of the tunneling method alternatives to historic properties. The Regulatory Framework for the analysis can be found in Appendix B - Regulatory Framework. This analysis also incorporates the findings of the Section 4.7 Noise and Vibration, from the Final EIS, to inform the assessment of potential impacts and effects related to ground borne vibration (GBV) and ground borne noise (GBN) on historic properties and it also incorporates the findings of the visual quality analysis related to potential visual intrusion on historic properties.

Figure 4.7-1: SEIS Study Area – Flower Street

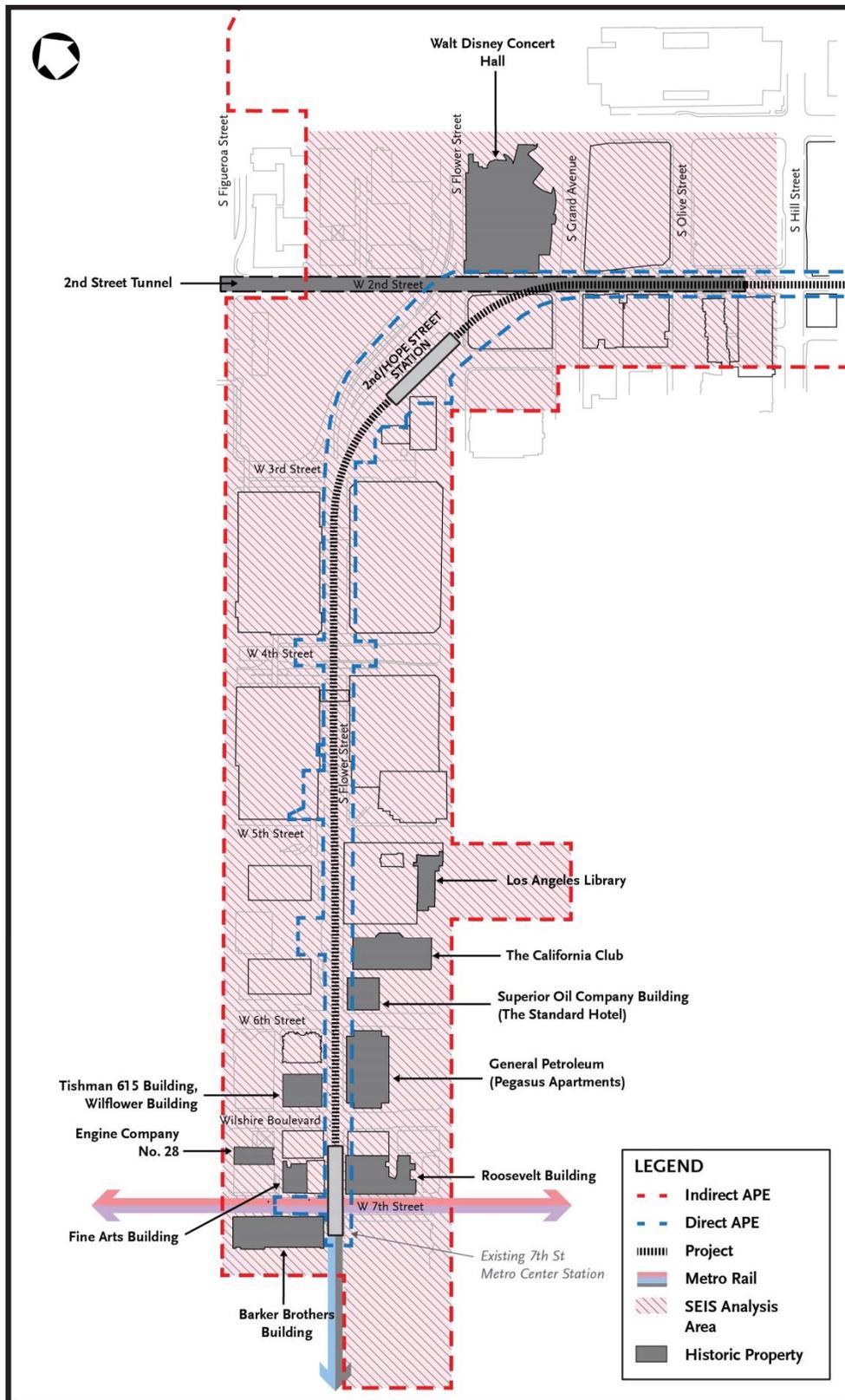
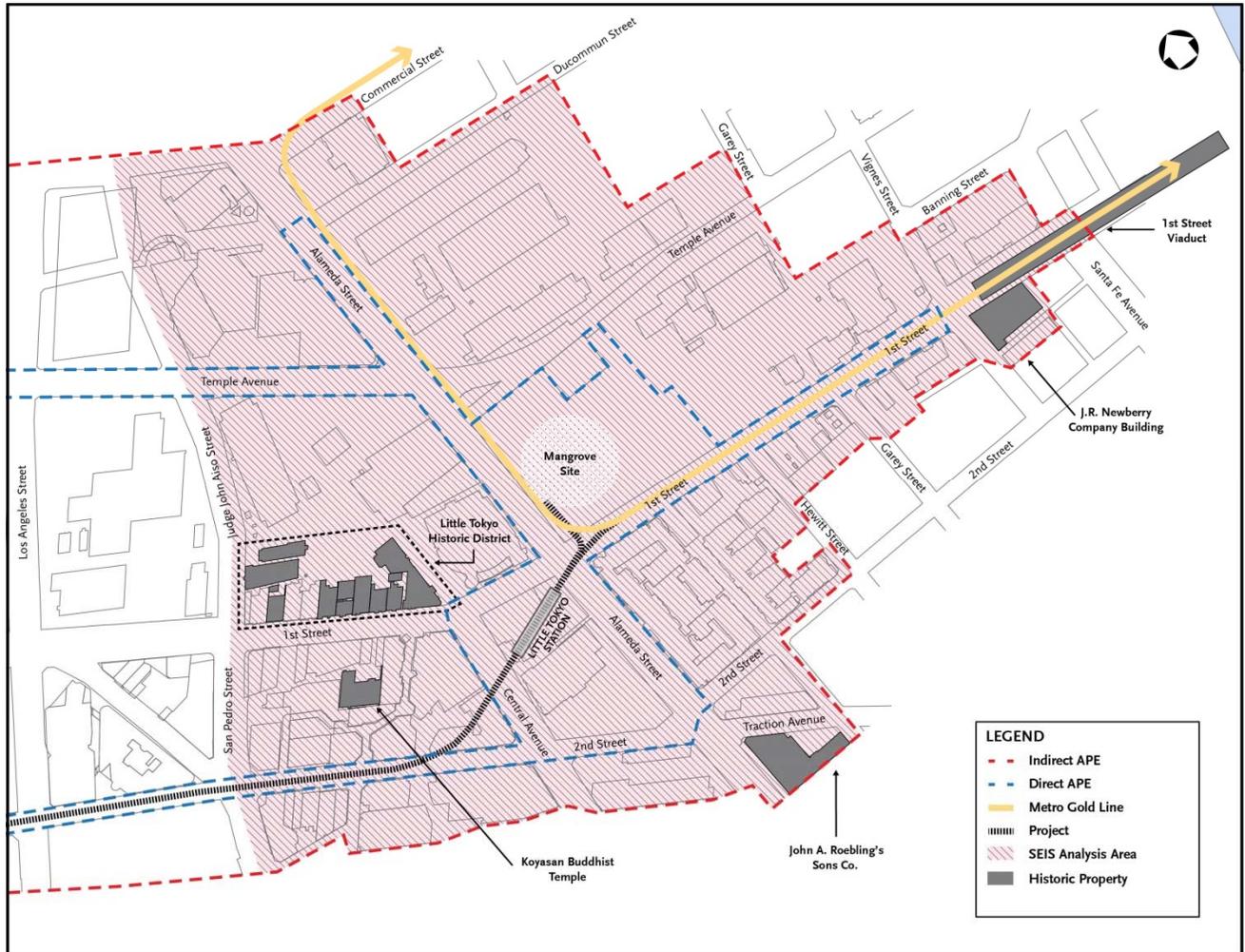


Figure 4.7-2: SEIS Study Area – Little Tokyo



**Table 4.7-1: Historic Properties within the SEIS Study Area**

Resource Name	Address	NRHP Eligibility	Distance to the Alignment
Barker Brothers	818 West 7th Street	Eligible	30 ft
Fine Arts Building	811 W. 7th Street	Eligible	76 ft
Engine Company No. 28	644 S. Figueroa Street	Listed	206 ft
Roosevelt Building	727 West 7th Street	Listed	5 ft
General Petroleum-Mobil Oil Building	612 South Flower Street	Listed	10 ft
Tishman 615 Building, Wildflower Building	811 Wilshire Blvd.	Eligible	27 ft
Superior Oil Company Building	550 South Flower Street	Listed	13 ft
The California Club	538 South Flower Street	Eligible	38 ft
Los Angeles Central Library	630 West 5th Street	Listed	255 ft
2nd Street Tunnel, Bridge (tunnel) #53C 1318	2nd Street, between Grand Avenue and Figueroa Street	Eligible	Crosses over alignment
Walt Disney Concert Hall	111 South Grand Avenue	Eligible	77 ft
Little Tokyo Historic District (10 contributing buildings, below)	Various (bounded by San Pedro Street, 1st Avenue, and Central Avenue)	Listed (National Historic Landmark)	
<i>Japanese Union Church of Los Angeles</i>	<i>120 North San Pedro Street</i>	<i>Listed</i>	<i>658 ft</i>
<i>San Pedro Firm Building</i>	<i>108-116 North San Pedro Street</i>	<i>Listed</i>	<i>585 ft</i>
<i>Mark Kuwata Real Estate</i>	<i>301 East 1st Street, 104-106 North San Pedro Street, 104-106 Judge John Aiso Street</i>	<i>Eligible</i>	<i>472 ft</i>
<i>1-3 story commercial building, Anzen Hardware</i>	<i>309-313 East 1st Street</i>	<i>Listed</i>	<i>472 ft</i>
<i>1-3 story commercial building, Little Tokyo Hotel</i>	<i>325 East 1st Street</i>	<i>Listed</i>	<i>448 ft</i>
<i>1-3 story commercial building, Ace Japanese Restaurant</i>	<i>331-335 East 1st Street</i>	<i>Listed</i>	<i>453 ft</i>
<i>A. Sperl Building</i>	<i>337-339 East 1st Street</i>	<i>Listed</i>	<i>440 ft</i>
<i>3+ story commercial building, Daimora Hotel</i>	<i>341-345 East 1st Street</i>	<i>Listed</i>	<i>421 ft</i>
<i>Far East Café Building</i>	<i>347-353 East 1st Street</i>	<i>Listed</i>	<i>300 ft</i>
<i>Former Nishi Hongwanji Buddhist Temple</i>	<i>119 North Central Avenue</i>	<i>Listed</i>	<i>181 ft</i>
Koyasan Buddhist Temple	342 East 1st Street	Eligible	105 ft
John A. Roebling's Sons Co.	216 South Alameda Street	Eligible	828 ft
J.R. Newberry Company Building	900 East 1st Street	Eligible	170 ft
1st Street Viaduct	1st Street between Vignes Street and Mission Road	Eligible	1,173 ft

Note: The California SHPO concurred with FTA's determination of eligibility for these properties on June 1, 2010.

No changes to the proposed demolition, partial take, subsurface easement, or alteration of a historic property is anticipated within the SEIS Study Area under the Project and two tunneling method alternatives. Short-term impacts from construction including dirt, unintended damage, traffic congestion, limited parking and access, and visual changes are anticipated to be temporary. The Project analysis indicated that Metro would employ BMPs to minimize these changes and they should be short-term. These conditions are the same under the tunneling method alternatives. Cumulative impacts to built environment historic properties are not anticipated to change from the Project conditions, and can be found in Section 4.19 Cumulative Impacts, in the Final EIS.

### **Noise and Vibration**

Historic properties that are close to the cut and cover construction activities and which may be affected by construction-related vibration include:

- Barker Brothers
- Roosevelt Building
- General Petroleum-Mobil Oil Building (The Pegasus Apartments)
- Superior Oil Building (The Standard Hotel)
- The California Club
- Los Angeles Central Library
- 2nd Street Tunnel
- Walt Disney Concert Hall

In the Project analysis, detailed potential GBN impacts resulting from the operation of the Project were identified at the Walt Disney Concert Hall, in addition to other sensitive historic buildings. Both “frequent” one Light Rail Transit (LRT) vehicle pass-by scenarios and “occasional/infrequent” two LRT vehicle pass-by scenarios would occur, generating GBN levels that would potentially exceed the FTA annoyance criterion for the Walt Disney Concert Hall. Project operation would result in GBV levels that would not exceed the FTA criteria for the most sensitive use at the Walt Disney Concert Hall. Mitigation measures were confirmed to reduce the GBN impact. Moderate noise effects/impacts from other project activities would not exceed the FTA criteria; therefore, no adverse effects to historic properties are anticipated from project operations in the Project analysis after implementation of confirmed mitigation measures in the MOA and MMRP.

### **Visual Quality**

The Project analysis concluded that the construction activities occurring aboveground would only temporarily alter the visual character and setting of historic properties along Flower Street and in Little Tokyo. Temporary construction staging locations and equipment would be visible, but would not have a permanent adverse effect that would diminish the integrity of the historic properties. Therefore, there would be no adverse effects from visual intrusion related to the construction of the project.

### **Differential Settlement**

The Project analysis identified cut and cover and TBM construction activities may have potential differential settlement impacts on historic properties/historic resources. According to the Description

of Construction in the Final EIS, buildings situated near cut and cover and tunneling excavation that would be susceptible to differential settlement include:

- Superior Oil Company Building (now The Standard Hotel)
- The California Club
- 2nd Street Tunnel
- Walt Disney Concert Hall
- Former Nishi Hongwanji Buddhist Temple (Little Tokyo Historic District)

The MOA and the MMRP outline several mitigation measures related to the protection of historic properties including measures to address potential noise and vibration and differential settlement.

#### **4.7.2.1 Alternative A – EPBM/Open Face Shield/SEM Project Profile**

The two tunneling method alternatives would be built entirely with tunneling construction techniques and, based on the Final EIS findings, would have significant and unavoidable impacts on paleontological resources. Under Alternative A, which has a vertical profile similar to the Project, in areas where new underground EPBM/Open Face Shield/SEM segments would be constructed, mitigation for impacts to paleontological resources will not be feasible and thus construction impacts will be significant and unavoidable.

Nevertheless, any new impacts along the Flower Street segment Alternative A would not be adverse with the implementation of mitigation measures included in the Final EIS and the protocols defined in the project Paleontological Monitoring and Mitigation Plan.

##### **4.7.2.1.1 Construction Impacts**

###### **Noise and Vibration**

Under Alternative A, the construction noise levels are predicted to be 3 to 6 dBA greater than the levels predicted under the Project due to the presence of grouting along Flower Street (see Section 4.4, Noise and Vibration). No exceedances of the vibration damage threshold of 0.5 in/sec for sensitive properties or 0.2 in/sec for fragile historic properties are predicted.

###### **Differential Settlement**

As discussed in Section 4.5 Geotechnical, Subsurface and Seismic Hazards, significant risk of ground loss and excessive settlement due to the open-face Shield and SEM tunneling will remain even when jet grouting is employed to improve the ground conditions along Flower Street. The risk of tunnel collapse cannot be ruled out. This is because grout columns do not always overlap in practice and there is no guarantee that all of the ground within the columns will be adequately grouted. Groundwater inflows and ground loss can still occur which could damage utilities and existing buildings, basements, structures and provide a safety threat to workers, the public, and building operations.

## **Visual Quality**

As discussed in Section 4.1 Visual Quality, although Alternative A would noticeably reduce visual quality or alter the viewing context of historic properties along Flower Street due to the presence of large and tall grouting equipment, the impact would be temporary and would not result in an adverse effect once construction equipment was removed.

### **4.7.2.1.2 Section 106 Effects Analysis for Historic Properties**

Alternative A does not pose any additional effects to historic properties in the SEIS Study Area. The resulting impacts and effects would be essentially the same as previously analyzed. There would be no additional adverse effects with implementation of confirmed mitigation measures identified in the MMRP and MOA Implementation of the MMRP and MOA would specify the requirements for pre- and post-construction surveys, geotechnical investigations, building protection measures, and TBM specifications. Mitigation measures for noise and vibration during operation and construction would further reduce potential effects to historic properties so they fall below FTA impact threshold criteria for noise and vibration. If these mitigation measures are properly implemented, construction of this alternative would not directly alter a characteristic of these historic properties in a manner that would diminish the integrity of the historic properties' location, design, setting, materials, workmanship, feeling, or association.

Alternative A would have adverse impacts on paleontological and archaeological resources that would not be feasible to mitigate, and thus the construction and cumulative impact will be adverse and unavoidable.

### **4.7.2.2 Alternative B – EPBM/SEM Low Alignment**

#### **4.7.2.2.1 Construction Impacts**

The two tunneling method alternatives would be built entirely with tunneling construction techniques and, based on the Final EIS findings, would have significant and unavoidable impacts on paleontological resources. Alternative B would potentially have greater impact on paleontological resources than the Project due to a deeper vertical profile that would be 45 or 65 feet deeper, respectively, along the Flower Street segment and 32 feet deeper, respectively, at the 2nd/Hope Station location. On the basis of current geologic maps, the surface geology underlying the Flower Street segment is almost entirely Younger Quaternary alluvial-fan deposits of low paleontological sensitivity. However, these deposits likely overly Older Quaternary alluvial deposits of Pleistocene age with the potential to contain significant vertebrate fossils. The potential sensitivity of these deposits increases with depth. Therefore, the potential for Alternative B to impact significant paleontological deposits is greater than that of the Project. In addition, the mapped surface geology underlying the 2nd/Hope Station location is a composite of paleontologically sensitive Puente and Fernando Formations bordered by Older Quaternary alluvium to the east. Both the Puente and Fernando Formations were identified in the Final EIS as having high paleontological sensitivity with the potential to contain marine and terrestrial mammals and other significant fossils. Deeper excavations into these formations have the potential to impact significant paleontological resources that would not be impacted by the shallower excavations planned for the Project.

Nevertheless, any new impacts along the Flower Street segment and at the planned 2nd/Hope Station location caused by the deeper vertical profile proposed for Alternative B would not be adverse with the implementation of mitigation measures included in the Final EIS and the protocols defined in the project Paleontological Monitoring and Mitigation Plan.

### **Noise and Vibration**

Under Alternative B, the construction noise levels are predicted to be 6 to 7 dBA greater than the noise levels predicted under the Project due to the presence of grouting activity along Flower Street. . No exceedances of the vibration damage threshold of 0.5 in/sec for sensitive properties or 0.2 in/sec for fragile historic properties are predicted.

### **Differential Settlement**

Qualitatively, EPBM-bored tunneling typically causes less differential settlement impact on adjacent buildings and structures than cut and cover construction. Therefore, the extension of the EPBM-bored tunnel to south of 5th Street under this alternative would reduce the differential settlement impacts on some historic properties located adjacent to this EPBM-bored tunnel section (but would be adjacent to cut and cover section under the Project). However, significant risk of ground loss and excessive settlement due to SEM tunneling will remain even when jet grouting is employed to improve the ground conditions along Flower Street. The risk of tunnel collapse cannot be ruled out. This is because grout columns do not always overlap in practice and there is no guarantee that all of the ground within the columns will be adequately grouted. Groundwater inflows and ground loss can still occur which could damage utilities and existing buildings, basements, structures and provide a safety threat to workers, the public, and building operations.

### **Visual Quality**

Under Alternative B, a larger amount of excavated materials from the Flower Street portion of the project would be handled from Little Tokyo. Unlike the Project, the construction of Alternative B would also include the use of jet grouting equipment associated with the SEM construction technique proposed along Flower Street from south of 5th Street to just south of 6th Street. Highly visible jet grouting equipment would be located generally along the eastern traffic lanes of Flower Street, from south of 5th Street to 6th Street. Although Alternative B construction would noticeably reduce visual quality or alter the viewing context of historic properties, it would be a temporary impact, and would not result in an adverse effect once construction equipment was removed.

#### **4.7.2.2.2 Section 106 Effects Analysis for Historic Properties**

Alternative B does not pose any additional impacts or effects to historic properties in the SEIS Study Area. The resulting impacts and effects would be essentially the same as previously analyzed and identified for the Project. There would be no additional adverse effects with implementation of confirmed mitigation measures identified in the MMRP and MOA. Implementation of the MMRP and MOA would specify the requirements for pre- and post-construction surveys, geotechnical investigations, building protection measures, and TBM specifications. Mitigation measures for noise and vibration during operation and construction would further reduce potential effects to historic

properties so they fall below FTA impact threshold criteria for noise and vibration. If these mitigation measures are properly implemented, construction of this alternative would not directly alter a characteristic of these historic properties in a manner that would diminish the integrity of the historic properties' location, design, setting, materials, workmanship, feeling, or association.

Alternative B would have adverse impacts on paleontological and archaeological resources that would not be feasible to mitigate, due to the use of EPBM for a longer segment along Flower Street versus Alternative A in addition to the deeper vertical depth, and thus the construction and cumulative impact will be adverse and unavoidable.

#### **4.7.3 Mitigation Measures**

Implementation of mitigation measures CR/B-1 through CR/B-6, CR/A-1 through CR/A-6, CR/P-1 through CR/P-6, from the Final EIS for the Project would apply for Alternatives A and B. Below is a summary of these mitigation measures and a detailed description can be found in Appendix G:

- CR/B-1: Appropriate documentation and co-ordination with historic resource archives to adversely affected properties/resources
- CR/B-2: Surveying of historic properties and/or resources within 21 feet of vibration producing construction
- CR/B-3: Review of historical protection measures by qualified architectural historian
- CR/B-4: Reference to MOA and specific requirements for historic properties adversely impacted
- CR/B-5: Removal and incorporation of historic buildings for 1st/Central Station
- CR/B-6: Proper protection from dirt for adjacent historic properties
- CR/A-1: Construction personnel to be trained by qualified lead archaeologist
- CR/A-2: Presence of archaeological monitor during ground-disturbing activities
- CR/A-3: Native American cultural resources consultant to be present during ground-disturbing activities
- CR/A-4: Halting of work should human remains be found during ground-disturbing activities
- CR/A-5: Preparation of an Archaeological Resource Management Report with findings
- CR/A-6: Appropriate identification and documentation program for any disturbance of historic resources
- CR/P-1: Preparation of a Paleontological Monitoring Report by a qualified paleontologist with monitoring specifications
- CR/P-2: Monitoring of Puente Formation, Fernando Formation, and Quaternary alluvium and deposits during construction
- CR/P-3: The use of field data forms at fossil locals for samples and collections
- CR/P-4: Testing for microfossils at Puente Formation and Fernando Formation
- CR/P-5: Recovered fossils to be listed in database and repositioned at the Natural History Museum (NHM) of Los Angeles
- CR/P-6: Paleontologist to prepare final monitoring and mitigation report