

CHAPTER 5—SECTION 4(f) EVALUATION

In March 2012, the Federal Transit Administration (FTA) and the Los Angeles County Metropolitan Transportation Authority (Metro) issued the *Westside Subway Extension Final Environmental Impact Statement/Environmental Impact Report* (Final EIS/EIR) (Metro 2012j), which included, as Chapter 5, the Section 4(f) evaluation for the project (now referred to as the Westside Purple Line Extension). The FTA issued the Record of Decision (ROD) on August 9, 2012. At that time, FTA determined that the construction of the tunnels under the school would not result in a use of the Section 4(f) recreational facilities at Beverly Hills High School (BHHS), consistent with the guidance included in the 2005 U.S. Department of Transportation (USDOT) Section 4(f) Policy Paper (USDOT 2005), which was updated in 2012. According to the Section 4(f) Policy Paper, in Section 3.3.3.1, tunneling is an option to consider for avoidance of a property. The policy paper states, in Question 28, that Section 4(f) applies to tunneling only if the tunneling:

- Disturbs archaeological sites on or eligible for the National Register of Historic Places (NRHP) which warrant preservation in place;
- Causes disruption which would permanently harm the purposes for which the park, recreation, wildlife, or waterfowl refuge was established; or
- Substantially impairs the historic values of the historic site.

No archaeological sites had been identified at the BHHS campus, and in consultation with the California State Historic Preservation Officer (SHPO) under Section 106 of the National Historic Preservation Act, it was determined that the Westside Purple Line Extension Project would not adversely affect the historic qualities of buildings at BHHS that caused it to be on or eligible for the NRHP. The final Section 4(f) evaluation documented that the Westside Purple Line Extension Project would not permanently harm or otherwise substantially impair the recreational activities, features, or attributes that qualify the BHHS property for protection under Section 4(f).

The August 2016 Final Decision on Motions for Summary Judgment and Ruling in Regards to Remedies (Final Decision) of the United States District Court for the Central District of California (District Court) in *Beverly Hills Unified School District v. Federal Transit Administration, et al.*, CV 12-9861-GW (SSx) directed FTA to assess the use of BHHS under Section 4(f) due to the planned tunneling. Therefore, this Section 4(f) evaluation examines the potential use of the BHHS that results from the planned tunneling under the property. This analysis also examines potential use of Section 4(f) resources near the construction staging areas at Century City Constellation Station and the project design refinements for Section 2 of the Westside Purple Line Extension Project. The alignment and construction staging locations and activities at Wilshire/Rodeo Station remain the same as described in the Final EIS/EIR relative to Section 4(f) resources; therefore, the effects and the uses under Section 4(f) may be found in the Final EIS/EIR and those areas are not discussed in this analysis.

5.1 Section 4(f) Regulatory Framework

Section 4(f) of the Department of Transportation Act of 1966 (49 United States Code (USC) 303), in pertinent paragraphs, provides the following:

- (c) Approval of programs and projects. Subject to subsection (d), the Secretary may approve a transportation program or project (other than any project for a

park road or parkway under Section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

FTA has developed and promulgated joint regulations with the Federal Highway Administration (FHWA) implementing and interpreting Section 4(f) (23 Code of Federal Regulations (CFR) 774). In addition to the Section 4(f) regulations, FTA has adopted FHWA's Section 4(f) Policy Paper (USDOT 2012) to guide Section 4(f) analyses. The analysis in this Draft Supplemental Environmental Impact Statement (Draft SEIS) and Section 4(f) Evaluation has been conducted in accordance with 23 CFR 774, the Section 4(f) Policy Paper, and direction from the District Court to consider the subsurface easement required for the tunnels under BHHS as a permanent incorporation of land.

5.1.1 Types of Properties Protected by Section 4(f)

The Section 4(f) regulations (23 CFR 774.17) state that a Section 4(f) property means publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance.

The regulations further clarify that consideration under Section 4(f) is not required when the official(s) with jurisdiction over a park, recreation area, or wildlife and waterfowl refuge determine that the property, considered in its entirety, is not significant. In the absence of such a determination, the Section 4(f) property will be presumed to be significant. For historic sites, the Section 4(f) requirements apply only to historic sites listed in or eligible for the NRHP unless the Administration determines that the application of Section 4(f) is otherwise appropriate. Section 4(f) applies to all archeological sites listed in or eligible for inclusion on the NRHP, including those discovered during construction, except as set forth in 23 CFR 774.13(b).

5.1.2 Section 4(f) Use

The Section 4(f) regulations (23 CFR 774.17) indicate that, with certain identified exceptions, a "use" of Section 4(f) property occurs:

- 1) When land is permanently incorporated into a transportation facility;
- 2) When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determined by the criteria in Section 774.13(d); or
- 3) When there is a constructive use of a Section 4(f) property as determined by the criteria in Section 774.15.

Permanent Incorporation

Land is considered permanently incorporated into a transportation project when it has been purchased as right-of-way or sufficient property interests have otherwise been acquired for the purpose of project implementation. For example, a subsurface easement required for the purpose of project construction or that grants a future right of access onto a Section 4(f) property, such as for the purpose of routine maintenance by the transportation agency, would be considered a permanent incorporation of land into a transportation facility.

Temporary Occupancy

Examples of temporary occupancy of Section 4(f) land include right-of-entry, project construction, a temporary easement, or other short-term arrangement involving a Section 4(f) property. A temporary occupancy will not constitute a Section 4(f) use when all of the conditions listed in 23 CFR 774.13(d) are satisfied:

- 1) Duration must be temporary (i.e., less than the time needed for construction of the project), and there should be no change in ownership of the land;
- 2) Scope of the work must be minor (i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal);
- 3) There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;
- 4) The land being used must be fully restored (i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project); and
- 5) There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

In situations where the above criteria cannot be met, the temporary occupancy will be a use of Section 4(f) property and the appropriate Section 4(f) analysis, coordination, and documentation will be required (refer to 23 CFR 774.13(d)). In those cases where a temporary occupancy constitutes a use of Section 4(f) property and the *de minimis* impact criteria are also met, a *de minimis* impact finding may be made. *De minimis* impact findings should not be made for temporary occupancy that does not constitute a use of Section 4(f) property.

Constructive Use

A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished [23 CFR 774.15(a)].



The FTA has determined that a constructive use occurs when (23 CFR 774.15(e)):

- The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a property protected by Section 4(f), such as:
 - ▶ Hearing the performances at an outdoor amphitheater
 - ▶ Sleeping in the sleeping area of a campground
 - ▶ Enjoyment of a historic site where a quiet setting is a generally recognized feature or attribute of the site's significance
 - ▶ Enjoyment of an urban park where serenity and quiet are significant attributes
 - ▶ Viewing wildlife in an area of a wildlife and waterfowl refuge intended for such viewing
- The proximity of the proposed project substantially impairs esthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the property. Examples of substantial impairment to visual or esthetic qualities would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historic building, or substantially detracts from the setting of a Section 4(f) property which derives its value in substantial part due to its setting;
- The project results in a restriction of access which substantially diminishes the utility of a significant publicly owned park, recreation area, or a historic site;
- The vibration impact from construction or operation of the project substantially impairs the use of a Section 4(f) property; or
- The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife and waterfowl refuge adjacent to the project.

The FTA has determined that a constructive use does not occur when (23 CFR 774.15(f)):

- Compliance with the requirements of 36 CFR 800.5 for proximity impacts of the proposed action, on a site listed on or eligible for the National Register, results in an agreement of "no historic properties affected" or "no adverse effect";
- The impact of projected traffic noise levels of the proposed highway project on a noise-sensitive activity do not exceed the FHWA noise abatement criteria as contained in Table 1 in part 23 CFR 772, or the projected operational noise levels of the proposed transit project do not exceed the noise impact criteria for a Section 4(f) activity in the FTA guidelines for transit noise and vibration impact assessment;
- The projected noise levels exceed the relevant threshold in paragraph (f)(2) of [23 CFR 774.15] because of high existing noise, but the increase in the projected noise levels if the proposed project is constructed, when compared with the projected noise levels if the project is not built, is barely perceptible (3 dBA [A-weighted decibels] or less);
- There are proximity impacts to a Section 4(f) property, but a governmental agency's right-of-way acquisition or adoption of project location, or the Administration's approval of a final environmental document, established the location for the proposed transportation project before the designation, establishment, or change in the significance of the property. However, if it is reasonably foreseeable that a

property would qualify as eligible for the National Register prior to the start of construction, then the property should be treated as a historic site for the purposes of this section; or

- Overall (combined) proximity impacts caused by a proposed project do not substantially impair the activities, features, or attributes that qualify a property for protection under Section 4(f);
- Proximity impacts will be mitigated to a condition equivalent to, or better than, that which would occur if the project were not built, as determined after consultation with the official(s) with jurisdiction;
- Change in accessibility will not substantially diminish the utilization of the Section 4(f) property; or
- Vibration levels from project construction activities are mitigated, through advance planning and monitoring of the activities, to levels that do not cause a substantial impairment of protected activities, features, or attributes of the Section 4(f) property.

The Section 4(f) Policy Paper (USDOT 2012) provides additional guidance about constructive use. As defined in regulation, constructive use occurs when the proximity impacts of a project on an adjacent or nearby Section 4(f) property, after incorporation of mitigation, are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs when the protected activities, features, or attributes of the Section 4(f) property are substantially diminished. As a general matter, this means that the value of the resource, in terms of its Section 4(f) purpose and significance, will be meaningfully reduced or lost. The degree of impact and impairment must be determined in consultation with the officials with jurisdiction in accordance with 23 CFR 774.15(d)(3). In those situations where a potential constructive use can be reduced below a substantial impairment by the inclusion of mitigation measures, there will be no constructive use and Section 4(f) will not apply. If there is no substantial impairment, notwithstanding an adverse effect determination (under Section 106), there is no constructive use and Section 4(f) does not apply. The District Court has upheld that constructive use does not apply to temporary impacts that would not have a lasting effect beyond the period of construction.

***De Minimis* Impact**

An impact to a Section 4(f) property may be determined to be *de minimis* if the transportation use of the Section 4(f) property, including incorporation of any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures), does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f). For historic sites, *de minimis* impact means that the Administration has determined, in accordance with 36 CFR part 800, that no historic property is affected by the project or that the project will have “no adverse effect” on the historic property in question. For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

5.1.3 Prudent and Feasible Avoidance Alternatives

If a project would use a Section 4(f) resource and the use is not *de minimis*, that project can only be approved by determining that (1) there is no prudent and feasible avoidance alternative, and (2) the project includes all possible planning to minimize harm resulting from the use (23 CFR 774.3). A *de minimis* impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation, or enhancement measures), results in either (23 CFR 774.17):

- A Section 106 finding of no adverse effect on a historic property or no historic properties affected; or
- A determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f).

When the use is not *de minimis*, the first step in meeting the requirements for approval is to develop and consider avoidance alternatives.

An avoidance alternative is one that completely avoids the use of Section 4(f) resources. Per the Section 4(f) Policy Paper (USDOT 2012), “[A] project alternative that avoids one Section 4(f) property by using another Section 4(f) property is not an avoidance alternative.” An avoidance alternative must first be evaluated to determine whether it is prudent and feasible. FTA Section 4(f) regulations list a series of factors to consider in determining whether an alternative is prudent and feasible. A feasible and prudent avoidance alternative is defined in 23 CFR 774.17 as:

- 1) A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.
- 2) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.
- 3) An alternative is not prudent if:
 - a) It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
 - b) It results in unacceptable safety or operational problems;
 - c) After reasonable mitigation, it still causes:
 1. Severe social, economic, or environmental impacts;
 2. Severe disruption to established communities;
 3. Severe disproportionate impacts to minority or low income populations; or
 4. Severe impacts to environmental resources protected under other Federal statutes;
 - d) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
 - e) It causes other unique problems or unusual factors; or

- f) It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

5.1.4 All Possible Planning to Minimize Harm

All possible planning, defined in 23 CFR 774.17, means that all reasonable measures identified in the Section 4(f) evaluation to minimize harm or mitigate for adverse impacts and effects must be included in the project. All possible planning to minimize harm does not require analysis of feasible and prudent avoidance alternatives, since such analysis already occurred in the context of searching for feasible and prudent alternatives that avoid Section 4(f) properties altogether.

Minimization of harm may entail both alternative design modifications that reduce the amount of Section 4(f) property used and mitigation measures that compensate for residual impacts. Minimization and mitigation measures should be determined through consultation with the official with jurisdiction.

Mitigation measures involving public parks, recreation areas, or wildlife or waterfowl refuges may involve a replacement of land and/or facilities of comparable value and function or monetary compensation to enhance the remaining land.

Mitigation of historic sites usually consists of those measures necessary to preserve the historic integrity of the site and agreed to in accordance with 36 CFR 800 by FTA, the California SHPO, and other consulting parties. In any case, the cost of mitigation should be a reasonable public expenditure in light of the severity of the impact on the Section 4(f) property in accordance with 23 CFR 771.105(d).

5.1.5 Least Overall Harm

If there is no feasible and prudent Section 4(f) avoidance alternative, FTA may approve only the alternative that causes the least overall harm as defined in 23 CFR 774.3(c)(1) as the alternative that:

- 1) Causes the least overall harm in light of the statute's preservation purpose. The least overall harm is determined by balancing the following factors:
 - a) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
 - b) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
 - c) The relative significance of each Section 4(f) property;
 - d) The views of the official(s) with jurisdiction over each Section 4(f) property;
 - e) The degree to which each alternative meets the purpose and need for the project;
 - f) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
 - g) Substantial differences in costs among the alternatives.
- 2) The alternative selected must include all possible planning, as defined in 23 CFR 774.17, to minimize harm to Section 4(f) property.

A least overall harm analysis balances these factors to eliminate the alternative(s) that, on balance, present the greatest harm in light of the Section 4(f) statute’s preservationist perspective. Many of the factors included in the least overall harm standard duplicate the factors in the prudence test.

For more information about Section 4(f) requirements, refer to the FHWA and FTA Section 4(f) regulations in 23 CFR 774 and the FHWA Section 4(f) Policy Paper (USDOT 2012).

5.2 Description of Section 4(f) Resources

Table 5-1 and Figure 5-1 show and summarize Section 4(f) resources within Century City and west Beverly Hills that are near Section 2 of the Project and that could be affected by either Section 2 of the Project or alternatives to the Project that are considered to avoid or reduce harm to Section 4(f) properties. These resources include both historic properties and publicly-owned parkland and recreational facilities that are open to the public. The bike lane on Santa Monica Boulevard is a transportation facility and not a Section 4(f)-protected resource. The remainder of this section describes the Section 4(f) resources.

Table 5-1. Section 4(f) Resources in the Century City and West Beverly Hills Vicinity

Resource	Section 4(f)-protected activities, features, or attributes
Perpetual Savings Bank	Historic property
Beverly Hills High School	Historic property
AAA Building	Historic property
Century Plaza Tower	Historic property
Century Plaza Hotel	Historic property
Los Angeles Country Club (South Course)	Historic property
The Barn	Historic property
Beverly Hills High School Recreational Facilities	Publicly owned recreational facilities open to the public
Roxbury Memorial Park	Publicly owned city park



Figure 5-1. Section 4(f) Resources in the Century City and West Beverly Hills Vicinity

5.2.1 Perpetual Savings Bank Historic Property

The Perpetual Savings Bank and Plaza is located at 9720 Wilshire Boulevard and currently operates as the Pacific Mercantile Bank (Figure 5-2).



Figure 5-2. Perpetual Savings Bank Building

Description of Property

The Perpetual Savings Plaza is located at 9720 Wilshire Boulevard in a densely developed urban setting. It is a New Formalism-style commercial building. It is set back approximately 30 feet from Wilshire Boulevard, occupying the rear half of the lot. The building is nine stories with a rectangular plan. The building features a flat roof with a parapet and glass curtain walls of fixed metal-framed sashes enframed in a concrete grille of flaring arches (14 arched bays on each floor of primary north façade). The primary façade is symmetrical with the main entrance centered on the first floor. The building appears to be unaltered and in excellent condition. The parking garage to the south and the round fountain to the north of the building demonstrate the same architectural style and may be related features.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The Perpetual Savings Bank Building is eligible for listing in the NRHP under Criterion C as a building that significantly embodies the distinctive characteristics of the New Formalism architectural style. The FTA notified the California SHPO of its determination

of eligibility on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011. The New Formalism style, popular from 1960 to the present, is characterized by strict symmetry; flat projecting rooflines; suggestion of classical columns (piers) and entablatures; smooth wall surfaces, often elegantly sheathed in stone; high-quality materials; delicacy of all details with no heavy, monumental qualities; grilles of polished metal, concrete, and stone; and formal landscaping including pools, fountains, and frequent use of integrated sculpture. The property retains its integrity of location, design, setting, materials, workmanship, and feeling.

5.2.2 Beverly Hills High School (BHHS) Historic Property

BHHS is located at 241 Moreno Drive and is eligible for listing in the NRHP under Criterion C for its architectural significance (Figure 5-3 and Figure 5-4).

Description of Property

BHHS (APN 4319001900) is located in an urban residential setting. The FTA notified the California SHPO of its determination of eligibility on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011. BHHS is eligible for listing in the NRHP under Criterion C for its architectural significance (Figure 5-3 and Figure 5-4). The historic property boundary documented in the eligibility determination includes all parts of the campus east of Heath Avenue; therefore, Section 4(f) is applicable to the portion of the BHHS campus east of Heath Avenue as a historic property (Figure 5-5).

The school is a French Eclectic-style collection of educational buildings. The complex occupies the east side of the parcel (east of Health Avenue) and has an east-facing orientation. It is two stories with a roughly U-shaped plan that encompasses a large central lawn. Access to the property is from Moreno Drive by way of a flight of steps featuring metal crossed and circular patterned railings. The buildings, which include the original 1927 school and later architecturally compatible additions, feature moderately pitched, hipped roofs covered with composite shingles, and dormer vents. The window bays are regularly arranged and filled with metal-frame sash windows. The walls are clad in stucco and brick with quoins. The primary façade is asymmetrical with multiple entries framed by cast-concrete surrounds with segmental pediments. A square tower with a round clock and finial is centrally located on the façade. On the south side of the parcel is a cylindrical-roofed swimming pool known as the Swim-Gym. The projecting end areas of the pool building have rounded corners, horizontal bands, glass-block windows, and coping above the windows. The buildings retain a high level of integrity and are in excellent condition. There are new classrooms and a science center outside of the boundary of the historic property to the west of Health Avenue, a private street that divides the parcel and is the western boundary of the historic property (FTA 2011).



Figure 5-3. Section 4(f) Properties Associated with BHHS



BHHS, under renovation August 2016

Figure 5-4. Beverly Hills High School



Figure 5-5. Current Features of BHHS

The buildings were constructed in 1927 by the Los Angeles High School District. In 1936-1937, the main school building underwent earthquake renovation due to the 1933 Long Beach earthquake. The Swim-Gym was built in 1939-1940. Major additions (including the north wing to the main building, a five-story building with classrooms, and a two-level parking garage) were constructed in 1967-1970 and were designed by Rowland H. Crawford. In 2005-2007, the Science and Technology Center designed by LPA was added (Metro 2011n).

The historic property boundary, defined as the parcel containing the buildings associated with BHHS, was evaluated for NRHP eligibility as a single historic property in 2010. This approach was taken because of the shared ownership, collective educational uses, and physical proximity of the buildings on the property. The parcel contains a 1927 academic school building (with a late 1960s addition) and a 1939-1940 Swim-Gym recreational building. An additional classroom building (Building A) and parking garage built from 1967-1970 and a science and technology center constructed between 2005 and 2007 are located on a separate parcel to the west across Heath Avenue and are not eligible for the NRHP. They are not built in the same period of historic significance and do not contribute to the NRHP eligibility of the BHHS campus. The 1927 academic building and the Swim-Gym were determined to be eligible for the NRHP under Criterion C and were collectively designated as BHHS. These buildings are distinct, with differing styles that convey the two eras in which they were built. Each would be individually eligible for the NRHP under Criterion C. However, together they are both historic elements of the BHHS. Because of their physical proximity and historic association with BHHS, they were designated as a single, unified historic property. The overall campus-like setting of the high school is a character-defining feature of the BHHS historic property.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

BHHS (APN 4319001900) is eligible for listing in the NRHP under Criterion C for the main school building's architectural significance as a building that embodies the distinctive characteristics of the French Eclectic and Streamline Moderne architectural styles. French Eclectic, popular between 1915 and 1945, is characterized by tall, steeply pitched hipped roofs, eaves commonly flared upward at the roof-wall junction; brick, stone, or stucco wall cladding; and sometimes decorative half-timbering. Streamline Moderne, popular from 1920 to the commencement of World War II, is characterized by stucco box massing, often with rounded corners and even, rounded parapets; emphasis is on the horizontal through the use of banded surfaces and windows; curved projecting wings; glass brick; round windows (ship portholes); steel (ship) railing; and brightly colored vitreous light. The Swim-Gym is a good example of the work of Stiles O. Clements, a master architect. Buildings B, E, F, and H (Figure 5-5) are contributing resources to the historic property (Beverly Hills Unified School District (BHUSD) 2015).

BHUSD Strategic and Long Range Facilities Master Plan

BHUSD completed a *Facilities Master Plan* (BHUSD 2010) and a *Strategic and Long Range Facilities Master Plan* (BHUSD 2012) that identified several changes to the BHHS campus (Figure 5-6). Proposed architectural changes include demolition of the existing Building H, demolition of the existing Building E, and construction of a new Athletics Building C with four floors of subsurface parking at the location of the existing tennis courts (BHUSD 2014b). The plans also include substantial internal changes and modernization of other buildings on campus. The seismic evaluation completed of Building B (Domestic Science) indicates that after modification and seismic upgrade it will be used for a combination of classroom and administrative offices (BHUSD 2014a). Temporary classrooms (Figure 5-7) have been installed south of Building A (Figure 5-5) to replace instruction space during modernization activities, which are scheduled to end the first quarter of 2020. These temporary classrooms are proposed to eventually be replaced with new tennis courts and a half-field soccer field (BHUSD 2016). These changes were planned and are being undertaken by BHHS and are not related to the Westside Purple Line Extension. This analysis assumes that while the changes to the BHHS campus being undertaken by the BHUSD would remove two buildings that the BHUSD identified as historic (Buildings E and H), they would not change the historic integrity of the remaining historic buildings (Buildings B and F). Based on the campus modernization schedule, Buildings E and H are expected to be removed by 2020. Therefore, this Section 4(f) analysis considers the remaining historic buildings (Buildings B and F) as Section 4(f) properties, but does not consider Buildings E and H, which are being removed by BHUSD.

5.2.3 AAA Building Historic Property

The AAA Building is a Modern-era articulated concrete structure located at 1950 Century Park East (Figure 5-8).

Description of Property

The AAA Building is a rectangular-massed, Modern-era articulated concrete structure enclosing a three-story glass-walled inner structure. The building's office space is located within the glass-walled inner structure that is free from supporting framing members because the exterior concrete frame supports the building structure. The narrow ends of the main block provide the main entrance on the west elevation and the tangentially attached parking garage on the east elevation. The concrete frame walls on the north and south elevations have arched openings that admit ample light into the interior space, and the ends of the arched frames appear to be supporting the long horizontal concrete beams on each level of the front (west) façade. The front entrance is located in a three-story glass wall recessed behind an opening between the rough-surfaced, solid concrete end walls of the front elevation. The building does not appear to have been altered and is in excellent condition.



Figure 5-6. Proposed Changes to BHHS included in Master Plan



BHHS, temporary classrooms photographed May 2016

Figure 5-7. Temporary Classrooms at BHHS



Figure 5-8. AAA Building

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The AAA Building was constructed with an articulated concrete frame designed by Welton Becket and Associates for the Century City District Office of the Automobile Club of Southern California. The building was constructed in 1963 using pre-stressed concrete construction. In 1965, it was designated one of the ten most outstanding examples of pre-cast construction in the United States. The concrete frame is not delicate or artistically turned, giving it a Brutalist appearance.

Welton Becket, as part of his company Welton Becket and Associates, was one of—if not the most—influential architects of commercial architecture in Southern California from his arrival in Los Angeles in 1929. Becket's works include the Capital Records Building, the Dorothy Chandler Music Pavilion, and the Cinerama Dome. The AAA Building is a modest commercial building that was constructed on commission from the Automobile Club of Southern California and is situated on the edge of the towering articulated steel and glass curtain-walled buildings of Century City. The AAA Building was constructed with the exterior concrete frame carrying the structural load so that the inner glass-walled space is nearly free of support members in the open space. Trees were planted along the length of the building, allowing a view of openness and nature from the interior office space. It is currently occupied by the Meridian Sports Club.

The AAA Building was determined eligible for listing in the NRHP under Criterion C as a building that embodies the distinctive characteristics of a Modern-era Brutalist style building. The FTA notified the California SHPO of its determination of eligibility on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011.

5.2.4 Century Plaza Tower Historic Property

Century Plaza Tower (Figure 5-9) is located at 2029 Century Park East in the Century Park Commercial development.



Figure 5-9. Century Plaza Tower

Description of Property

Century Plaza Tower is in the Century Park Commercial development, within a heavily developed urban commercial setting. A twin building (2049 Century Park East), which is outside the project's area of potential effect, mirrors this building to the immediate south. The building is a Modern-era style commercial skyscraper that occupies the center of the lot. It is 44 stories, including the ground-floor pedestal, with a triangular plan. The building features a flat roof, 23 vertical bays on each side that are filled with aluminum frame, fixed-pane window sashes, and concrete and steel cladding. The façades are symmetrical with a front entrance on Century Park East. The entries are slightly recessed and filled with metal frame glass pane doors. The original lobby, which was open, was enclosed in mullion-free glass at some point. The building appears otherwise unaltered and is in excellent condition.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The Century Plaza Tower (at 2029 Century Park East) is eligible for listing in the NRHP under Criterion C as a building that significantly embodies the distinctive characteristics of Modern-era architectural style and as the work of master architect Minoru Yamasaki. Tower entrances and lobbies were renovated in 2008 (Century Park 2016). The FTA notified the California SHPO of its determination of eligibility on September 16, 2011,

and the California SHPO concurred with the determination on December 8, 2011. The building was constructed from 1973 to 1975 and is less than 50 years old; however, it has been determined to meet Criterion Consideration G for exceptional importance.

5.2.5 Century Plaza Hotel Historic Property

The Century Plaza Hotel (Figure 5-10) is located at 2025 Avenue of the Stars.



Figure 5-10. Century Plaza Hotel

Description of Property

The Century Plaza Hotel is located in a heavily developed urban commercial setting. It is a Modern-era style hotel with the front elevation facing northeast. It is 20 stories with a curved rectangular massing. The building features a flat, overhanging roof ornamented by an aluminum panel entablature with an abstracted egg-and-dart design. The longitudinal sides consist of a rhythmic series of bays of recessed concrete hotel room balconies with metal railings that are separated by vertical concrete privacy walls. The floors of the balconies are rectangular with concave corners and the rooms have sliding glass doors and fixed metal window sashes. The ends of the building have three bays. The middle bays feature balconies and the side bays are covered in aluminum panels. The southwest elevation features two towers evenly spaced in the center and clad with rectangular aluminum panels. Both protrude from the roof. The northern tower is flush with the wall surface, while the rectangular tower on the south protrudes about five panels from the wall surface. The primary façade (northeast elevation facing Avenue of the Stars) is symmetrical with a central, four-story glazed, multi-bay entrance under a non-historic age canopy and through non-historic age doors. A pool and gymnasium (probably non-original or heavily remodeled original garden structure) are at the rear of the property (southwest and west of building). In front (northeast) of the building is a

plaza with pedestrian access to the plaza fountain on Avenue of the Stars. The building appears to be minimally altered and is in good condition.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The Century Plaza Hotel is eligible for listing in the NRHP under Criterion C as a building that significantly embodies the distinctive characteristics of the Modern-era of architecture and as the work of master architect Minoru Yamasaki. The FTA notified the California SHPO of its determination of eligibility on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011. It is the only Modern-era hotel building in Century City and one of the few Yamasaki designs in the Los Angeles area. The building was constructed in 1965-1966 and was less than 50 years old when evaluated; however, it was determined to meet Criterion Consideration G for exceptional importance.

The hotel closed in March 2016 for a major renovation. It is planned to be reopened as a luxury hotel in 2018 (Westside Today 2016).

5.2.6 Los Angeles Country Club (South Course) Historic Property

The Los Angeles Country Club (LACC) is a private, members-only golf club located at 10101 (Figure 5-11).

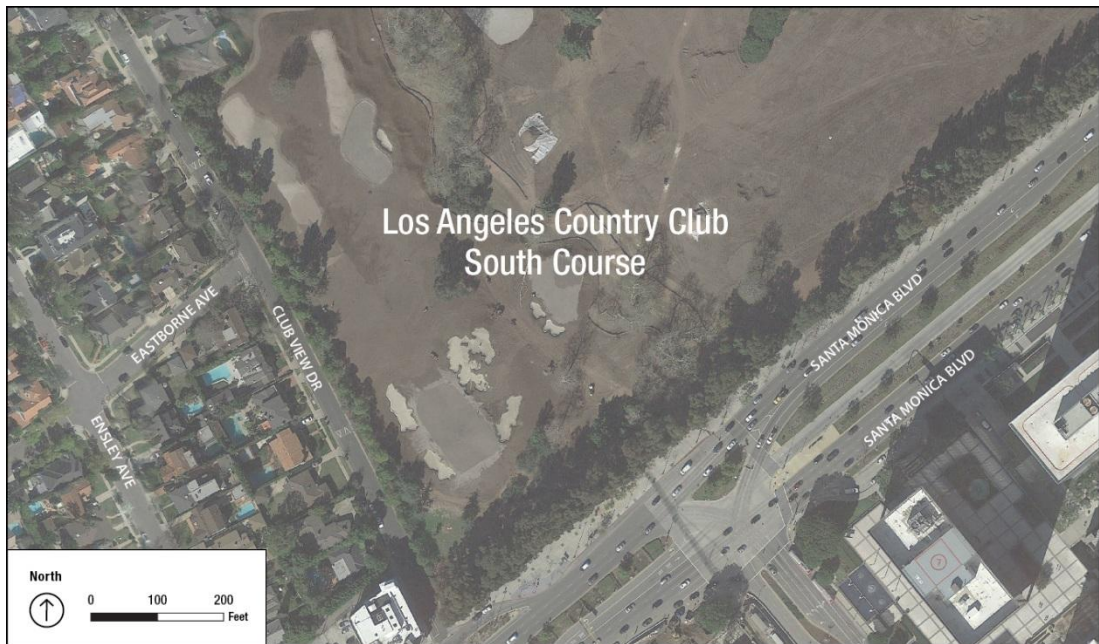


Figure 5-11. Los Angeles Country Club

Description of Property

The LACC was established in 1897. LACC constructed its current buildings and the North and South Golf Courses at its present location in 1911. The North and South Golf Courses were designed by the golf course designers George C. Thomas (1873-1932) and William P. Bell (1886-1953). Historic aerial photographs dating to 1950 and information from the LACC confirm that the landscape of the southwest area of the South Course has been relatively unchanged for 100 years. The layout of the tees, fairways, bunkers, sand traps, landscape, foliage, and greens is the same as designed by Thomas and Bell in 1911.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The LACC is not publicly owned nor is it open to the general public; therefore, the property does not qualify as a Section 4(f) recreational resource. The southwest area of the Los Angeles County Club South Course is eligible for listing in the NRHP under Criterion C. This portion of the property is considered a Section 4(f) historic resource.

The North and South Golf Courses at LACC were designed by the famous golf course landscapers George C. Thomas and William P. Bell in 1911, based upon information provided by Russ Myers, Director of Golf Courses and Grounds at LACC. Thomas is renowned among golf enthusiasts for being a bold golf course design strategist, creating holes with beauty and originality. In the early 1900s, golf courses had to be constructed by hand, so the natural contour of the landscape where the course was to be sited had to be incorporated into the design. Thomas also designed the golf course at the Bel Air Country Club (Los Angeles), Riviera Country Club (Los Angeles), and Ojai Valley Inn (Ventura County). The brilliance of Thomas's and Bell's work is evident in the fact that many of their course designs are still in use 100 years after their construction.

The southwest area of the Los Angeles County Club South Course is eligible for listing in the NRHP under Criterion C as a historic landscape by master designers that significantly embodies the distinctive characteristics of a professionally designed golf course (landscape) over 50 years old. The FTA notified the California SHPO of its determination of eligibility on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011.

The Los Angeles Country Club is beginning a restoration of the South Course that will implement course design elements that were planned in the 1920s (LA Times 2015). These changes are not related to the Westside Purple Line Extension and are not expected to change the eligibility of the property.

5.2.7 The Barn Historic Property

The Barn is located at 10300 Santa Monica Boulevard and is currently used as a private residence (Figure 5-12).



Figure 5-12. The Barn

Description of Property

The Barn is located in a heavily developed urban residential setting. The commercial and residential building resembles a New England barn. It occupies the majority of the parcel and has main elevations facing Fox Hills Drive and Santa Monica Boulevard. It is two stories with an L-shaped plan. The building features a moderately pitched, cross-gable, asphalt-shingle roof with a small eave overhang and exposed rafters. The roof has non-historic skylights and roof vents. In general, the window bays are regularly arranged and filled with grille-covered window sashes on the ground story; wood frame, three-over-two double-hung window sashes on the second floor; and metal frame, square window sashes on the north elevation's gable. The building is clad in wood clapboard siding with end boards. The primary façade is symmetrical with entry from Fox Hills Drive. The entrance contains non-historic plywood panels attached to the sides of a large, deeply recessed square entry and a small flight of tiled steps. A second entry from Santa Monica Boulevard is a recessed entrance with end boards and a casement style, multi-light window sash. Above the second entry is a large dormer with a square, multi-light

window sash. The remaining ground floor doors have been filled with plywood panels. The building appears to be minimally altered and is in excellent condition.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The Barn is eligible for listing in the NRHP under Criterion B, Consideration G of the NRHP, as a building that is associated with the lives of persons significant in our past. The FTA notified the California SHPO of its determination of eligibility on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011. The building is associated with the later career of architect Archibald Quincy Jones, who is important to the history of modern architecture in Southern California. Jones bought the property in 1965, and it was his residence and studio from 1965 until his death in 1979, during the historically significant part of his career that focused on large institutional projects. Jones is also well known for his modern tract housing for Joseph Eichler in the Bay Area and other residential work. During the time Jones lived and worked at this property, he completed several important projects, including buildings at the University of California's Irvine, Riverside, Los Angeles, and San Diego campuses and at the University of Southern California (LA Conservancy).

5.2.8 Beverly Hills High School Recreational Facilities

Recreational facilities at BHHS are used by the public during periods when they are not in use for school purposes (Figure 5-5). The public use of school recreational and other facilities occurs under a joint powers agreement between the City of Beverly Hills and BHUSD that was first executed in 1978. Only the recreational facilities open to the public are protected as a recreational resource under Section 4(f).

Description of Resource

The southern portion of the BHHS campus includes both existing (Figure 5-5) and planned (Figure 5-6) recreational facilities with public use. Under the current joint powers agreement between the City of Beverly Hills and BHUSD, dated January 10, 2012, supplemented February 19, 2013, and extended on June 21, 2016 until June 30, 2017, the City of Beverly Hills Community Services Department uses the high school fields for registered participation of youth and adult soccer, tennis, and youth football. The high school gymnasiums, Swim-Gym, and wrestling room are also used for city programs. The high school track is also open for weekend recreational use, and the sports fields are open for other group use by permit (BH 2011). Until 2016, there was a combination soccer and lacrosse field south of Building A. In spring of 2016, this field was converted to use as temporary classrooms and is not currently in recreational use.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

Under 23 CFR 774.11(d), where Federal lands or other public land holdings are administered under statutes permitting management for multiple uses, and, in fact, are managed for multiple uses, Section 4(f) applies only to those portions of such lands that function for, or are designated in the plans of the administering agency as being for, significant park, recreation, or wildlife and waterfowl refuge purposes. The Section 4(f) Policy Paper (USDOT 2012) provides guidance on when Section 4(f) applies to public school recreational facilities. The guidance defines the term "playground" to refer to the



area of the school property developed and/or used for public park or recreational purposes, such as baseball diamonds, soccer fields, tennis courts, track and field facilities, and other features, such as jungle gyms or swing sets. This can also include open space or practice fields if those areas serve a park or recreation function. The guidance states, in part, that when a public school playground is open to the public and serves either organized or substantial walk-on recreational purposes that are determined to be significant, it will be subject to the requirements of Section 4(f). The guidance explains that Section 4(f) would apply if the public recreation area permits visitation of the general public at any time during the normal operating hours. Section 4(f) would not apply when visitation is permitted to a select group only and not to the entire public.

The guidance clarifies cases where a school board may have authorized another public agency (e.g., the city park and recreation department) to control the facilities after school hours. In such cases, the public agency with authority to control the playground would be considered an official with jurisdiction with regard to any after-hours use of the playground. Section 4(f) would apply to the playground areas only and not the entire campus unless the school and campus are also significant historic properties. The historic property associated with BHHS was described separately above, addressing this element of the guidance.

The City of Beverly Hills Community Services Department and BHUSD are the agencies with jurisdiction over the public recreational activities and areas of the BHHS campus. The joint powers agreement between the City and the BHUSD makes available the outdoor athletic fields and play yards, including the BHHS sport fields and tennis courts, for use by the community and for registered participants of youth and adult soccer, tennis, and youth football programs. The track is open for weekend recreational use, and the sports fields are open for other group use by permit. The City and BHUSD had previously commented that these facilities are considered significant local recreational resources. Therefore, they are being considered as Section 4(f) recreational resources.

Public access to the high school gymnasiums, Swim-Gym, and wrestling room facilities is limited to those who apply for a permit through the BHUSD under Civic Center Rentals or those who register in the programs offered through the City of Beverly Hills Community Services Department. The visitation and use of these facilities are not for walk-on recreational purposes and are limited to select groups only and are not open to the entire public. Nonetheless, because of the prior comments from the officials with jurisdiction, these facilities are considered Section 4(f) recreational resources for the purposes of analysis in this SEIS.

BHUSD Strategic and Long Range Facilities Master Plan BHUSD completed a *Strategic and Long Range Facilities Master Plan* (BHUSD 2012) that identified several changes to the BHHS campus (Figure 5-6). The changes to the campus will remove sports fields and courts that are currently used by the public for recreation. In spring 2016, the soccer and lacrosse practice field south of Building A was converted into temporary classrooms (Figure 5-5). The existing tennis courts located along South Moreno Drive north of the Swim-Gym will be removed and replaced by Building C, shown in Figure 5-6. The Master Plan shows the replacement of the tennis courts and creation of a half-field

soccer field in the area of the former lacrosse practice field south of Building A. A new gymnasium building is planned at the location of the existing tennis courts, north of the Swim-Gym (BHUSD 2016). The existing track and football field will be reconstructed to the east of its current location, with new baseball and softball fields taking up a portion of the current location. Based on the schedule for campus modernization, the half-field soccer field would be constructed above the tunnels at some point during the Westside Purple Line Extension Project construction. The BHHS campus improvements are scheduled to continue construction through 2020 (BHUSD 2016).

Section 4(f) would apply to the recreational facilities that are open for public use. Based on the timing of campus modernization, none of the existing sports facilities located above the tunnel alignment would be in service at the time of project construction. Sports fields south of the tunnel alignment would continue to be available for public use during project construction. It is assumed that the future facilities would be operated under similar provisions as the BHHS existing facilities currently operating under the joint-powers agreement; therefore, the analysis considers the future half-field soccer field, future tennis courts, and future gymnasium building as Section 4(f) recreational resources for the purposes of the analysis (Figure 5-6).

According to the Section 4(f) Policy Paper and consistent with 23 CFR 774.11(d), for properties managed for multiple uses, Section 4(f) applies to only those portions of such lands which function for, or are designated in the plans as being for, significant park and recreation. In this case, the playgrounds (the area of the school property developed and/or used for public park or recreation purposes such as baseball diamonds, soccer fields, tennis courts, track and field facilities, and other features such as jungle gyms or swing sets) are considered recreational resources under Section 4(f). Future development rights, including the development of subsurface parking for a property with multiple uses, are not a Section 4(f)-protected feature (USDOT 2012); however, the current tunnel design would allow for construction of up to four floors of underground parking on a mat foundation with approximately 10 feet of clearance to the top of the tunnels. Future plans for parking would not be protected under Section 4(f) because the primary purpose of future parking improvements is to provide parking for BHHS staff and students and is not dedicated for recreational use. Section 4(f) would apply to the recreational areas only and not the entire campus, except for the areas that are also significant historic sites.

5.2.9 Roxbury Memorial Park

Roxbury Memorial Park is a city park located on the south side of West Olympic Boulevard between South Spalding Drive and Roxbury Drive (Figure 5-13 and Figure 5-14).



Figure 5-13. Roxbury Memorial Park



Figure 5-14. View of Roxbury Memorial Park

Description of Property

Roxbury Memorial Park is an approximately 11-acre city park that provides for recreational activities, including picnicking, a playground, lawn bowling, croquet, basketball, sand volleyball, tennis, baseball, and soccer (BH 2007). The park is open daily from 6 a.m. to 10 p.m. The park also includes a recently constructed community center. A year-round preschool operates out of the Roxbury Clubhouse, located on the east side of the park.

Activities, Features, and Attributes Eligible for Protection under Section 4(f)

The *Park Master Plan-La Cienega Park and Roxbury Park* was adopted in 2007 and included the community center that was constructed in 2014, as well as other changes to the park's configuration and amenities. The primary purpose of Roxbury Memorial Park is as a public park that provides a significant recreational resource in Beverly Hills. As such, the park is protected in its entirety under Section 4(f).

5.3 Evaluation of Use of Section 4(f) Resources

The Project (Figure 5-15) would travel in a tunnel in the vicinity of west Beverly Hills and Century City, approximately 60 to 70 feet beneath two historic properties: BHHS and the AAA Building. BHHS also includes publicly owned lands that are open to the public at certain times for recreational use (Table 5-2). The other Section 4(f) resources discussed in Section 5.2 are not affected by the Project. The Project would not pass beneath these resources and would not affect them at the surface.

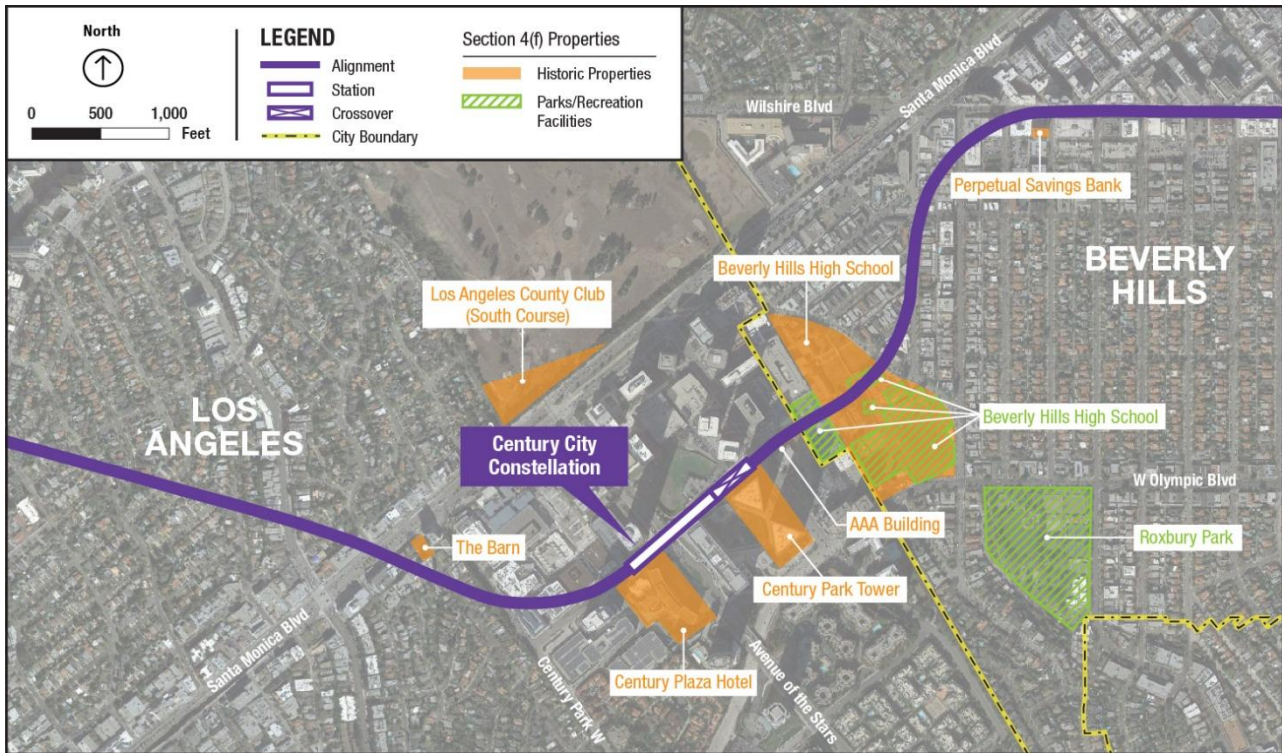


Figure 5-15. Project Features Relative to Section 4(f) Properties

The Final EIS/EIR Section 4(f) analysis also identified the Perpetual Savings Bank and the Barn for subsurface easements; however, easements from those properties would not be required. In the vicinity of the Perpetual Savings Bank, the alignment was shifted slightly to improve curve geometry. Refined analysis of the final design indicates that the tunnels would not pass near but not below the Barn property. There would be no impairment of the activities, features, or attributes that qualify those resources for protection under Section 4(f) and no temporary occupancies of those properties. Therefore, there would be no Section 4(f) use or constructive use.

At the Wilshire/Rodeo Station, the crossover was eliminated and the station box has shifted; however, construction staging and activities generally remain the same as discussed in the Final EIS/EIR. Therefore, the effects and uses under Section 4(f) in those areas remain the same as in the Final EIS/EIR.

Table 5-2. Section 4(f) Resources in the Century City and West Beverly Hills Vicinity Relative to the Project

Property	Section 4(f) Protected Activities, Features, or Attributes	Description of Effect	Preliminary Section 4(f) Finding
Perpetual Savings Bank	Historic property	Transit alignment would not cross property. No incorporation of land. No adverse effect from noise, vibration, or methane gas migration. No adverse effects under Section 106.	No Use
Beverly Hills High School	Historic property	Transit alignment crosses 60 to 70 feet beneath the property in a tunnel. Land would be incorporated below the historic property into a subsurface easement. No physical change at the surface within the boundary of the property would occur. No adverse effect from noise, vibration, or methane gas migration. No adverse effects under Section 106.	<i>De minimis</i> impact
AAA Building	Historic property	Transit alignment crosses 70 feet beneath the property in a tunnel. Land would be incorporated for a construction staging area and land under the property into a subsurface easement. Demolition of non-historic parking garage adjacent to building. No adverse effect from noise, vibration, or methane gas migration. No adverse effect under Section 106.	<i>De minimis</i> impact
Century Plaza Tower	Historic property	Transit alignment would not cross property. No incorporation of land. No adverse effect from noise, vibration, or methane gas migration. No adverse effects under Section 106.	No Use
Century Plaza Hotel	Historic property	Transit alignment would not cross property. No incorporation of land. No adverse effect from noise, vibration, or methane gas migration. No adverse effects under Section 106.	No Use
Los Angeles Country Club (South Course)	Historic property	Transit alignment would not cross property. No incorporation of land. No adverse effect from noise, vibration, or methane gas migration. No adverse effects under Section 106.	No Use

Property	Section 4(f) Protected Activities, Features, or Attributes	Description of Effect	Preliminary Section 4(f) Finding
The Barn	Historic property	Transit alignment would not cross property. No incorporation of land. No adverse effect from noise, vibration, or methane gas migration. No adverse effects under Section 106.	No Use
Beverly Hills High School Recreational Facilities	Publicly owned recreational facilities open to the public	Transit alignment crosses 60 to 70 feet beneath existing and future public sports and recreational uses in a tunnel. Land would be incorporated below the recreational facilities into a subsurface easement. No physical change at the surface within the boundary of the property. No adverse effect from noise, vibration, or methane gas migration.	<i>De minimis</i> impact
Roxbury Memorial Park	Publicly owned city park	Transit alignment would not cross property. No incorporation of land. No adverse effect from noise, vibration, or methane gas migration.	No Use

Note: FTA is in consultation with the California SHPO as of the date of issue of this Draft SEIS

5.3.1 Beverly Hills High School Historic Property

Direct Use

Section 2 of the Project would travel in a tunnel under the BHHS campus (Figure 5-16). The top of the tunnels would be between 60 and 70 feet below the ground surface as it crosses under the campus. There would be no changes to surface features on the high school campus, nor would the project elements be visible from the school campus. The subsurface easement required for the tunnels under BHHS is considered a permanent incorporation of land, and the FTA has preliminarily determined that the project would have a *de minimis* impact under Section 4(f).



Figure 5-16. Project Features Relative to BHHS

As documented in Section 4.15.3 of the Final EIS/EIR (Metro 2012j), construction vibration levels would be less than the levels that could potentially structurally damage fragile structures and would not substantially diminish the utility of the historic buildings (Figure 5-5). Operational ground-borne noise and vibration levels would be less than the FTA noise impact criteria for institutional use and would not affect the ability to continue classroom activities at the high school. At a depth of approximately 70 feet below ground when passing under Building B1, tunneling with a pressurized-face tunnel boring machine would not cause significant ground settlement that would result in structural damage to the historic building, as discussed in Sections 4.15.3 and 8.8.4 of the Final EIS/EIR (Metro 2012j). The expanded analysis of subsurface conditions (refer

to Section 4.3 and Section 4.5.5 of this Draft SEIS) indicates that tunneling activities would not increase the risk presented by subsurface gas on the BHHS historic property and the risk of an explosion remains low during both construction and operation of Section 2 of the Project.

Section 4.4 of this Draft SEIS and Section 4.14 of the Final EIS/EIR (Metro 2012j) document that the Project will result in no adverse effect to the historic property. In 2011, the FTA determined that the Westside Purple Line Extension would have no adverse effect under Section 106 on BHHS. In a letter dated December 8, 2011, the California SHPO concurred with the FTA's determination of eligibility and finding of effect for the Project, including no adverse effect to BHHS. There would be no change to the Project's finding of effect under Section 106. Based on this information, the FTA has made a preliminary determination per 23 CFR Section 774.3(b) that the use of the property, in the form of the subsurface easement under the BHHS campus, would have a *de minimis* impact on this Section 4(f) resource when considered as a historic property. FTA is in consultation with the California SHPO regarding this assessment.

Temporary Occupancy

Prior to and during construction, there would be survey and monitoring activities, including surface, ground, and building movement detection and gas monitoring instruments to monitor construction activities; ground improvement (grout injection); geophysical investigations to locate abandoned oil wells; and soil borings that would temporarily occupy portions of the BHHS campus, including historic buildings. The scope of the work is minor and the activities would be temporary, would not change ownership of the land, would have no permanent physical effects, and would not interfere with the use of the facilities. In addition, any alteration to the facilities would be non-destructive and would be fully restored. Metro will coordinate all campus access for investigations and monitoring with BHUSD. Refer to Sections 4.3 and 4.5.5 of this Draft SEIS for a detailed description of the planned investigations and monitoring.

The temporary occupancy of the BHHS campus would meet all of the conditions in 23 CFR Section 774.13(d) and would be so minimal as to not constitute a use within the meaning of Section 4(f).

Constructive Use

A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired (23 CFR 774.15(a)). The Westside Purple Line Extension includes construction of a tunnel in a subsurface easement under BHHS, which, by the definition used in this analysis, would incorporate land from the Section 4(f) property, which is a permanent use. Therefore, since there would be a direct use, by definition, the Westside Purple Line Extension would not have a constructive use of the BHHS property. The proximity effects related to construction and operation of the tunnels beneath the school are included in the Section 4(f) evaluation above as it relates to the direct use of Section 4(f) resources at BHHS.

Even so, this analysis considers potential proximity effects from the construction staging site on Century Park East (Figure 5-16).

Activities occurring on the construction staging site would not substantially impair the historic features and attributes that qualify the property for protection under Section 4(f). A quiet setting is a not generally recognized feature or attribute of the BHHS site's historic significance. The site's historic significance is drawn from the architecture of the buildings. The Swim-Gym and Buildings B, E, F, and H are contributing resources to the historic property. As detailed in Chapter 4 of this Draft SEIS, with mitigation, the activities at the construction staging sites would not generate air pollution, noise, or vibration at the BHHS historic property that would adversely affect the character-defining features of the property within the context of Section 106 (Figure 5-15). As documented in Section 4.15.3 of the Final EIS/EIR (Metro 2012j) and expanded on in Sections 4.2 and 4.5.4 of this Draft SEIS, the vibration impact from construction or operation of the project would not physically damage the historic buildings. Therefore, the project would not substantially impair the Section 4(f) property or substantially diminish the utility of the buildings. Consistent with 23 CFR 774.15(f)(8), vibration levels from project construction activities are mitigated, through advance planning and monitoring of the activities, to levels that do not cause a substantial impairment of protected activities, features, or attributes of the Section 4(f) property. The Final EIS/EIR identified mitigation measures CON-42 through CON-46 to address potential vibration during construction. The surveys and installation of monitoring equipment are discussed above in the Temporary Occupancy section. Access to the BHHS campus would be maintained during construction and operation of the project.

The proximity of the proposed project would not substantially impair aesthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the historic value of the property. The construction staging site is located on commercial property and parking lots and would be separated from the school by a 20-foot high sound barrier. The nearest boundary of the construction staging site to a building (Building B) which contributes to the historic value of the BHHS historic property would be approximately 230 feet (refer to Section 2.3.2 of this Draft SEIS). The location of a proposed transportation facility (the tunnel and station) and construction staging areas would not obstruct or eliminate the primary views of an architecturally significant historical building or substantially detract from the setting of a Section 4(f) property. There is no direct view from the construction staging site or the Century City Constellation station of the historic buildings on the campus. There are intervening buildings, including the temporary classrooms and Buildings A and L of BHHS, between construction staging and the Century City Constellation Station and the historic buildings on the campus. The primary views of the architecturally significant buildings, particularly the Swim Gym and Buildings E and F, would be from Olympic Boulevard to the south and Spalding Drive to the east. Building H and Building E are proposed for demolition by the BHUSD as part of their Facilities Master Plan. Therefore, the construction staging area and the project would not affect the views or adversely affect the setting of the campus. Accordingly, the project would not result in a constructive use of the BHHS as a historic resource.

5.3.2 AAA Building Historic Property

Direct Use

The Project would travel in a tunnel constructed in a subsurface easement under the AAA Building. The top of the tunnels would be approximately 70 feet below the ground surface as it crosses under the building (Figure 5-17). The project would acquire and incorporate land from the AAA Building property for a construction staging area (Figure 2-12). The acquisition would allow Metro to ensure the protection and preservation of the AAA Building. During construction, Metro may use a portion of the building's interior space for a project office, which would not require modifications to the building. The building would be preserved and, once construction is complete, the AAA Building would be made available for other uses. No project features would remain at the surface within the AAA Building property.

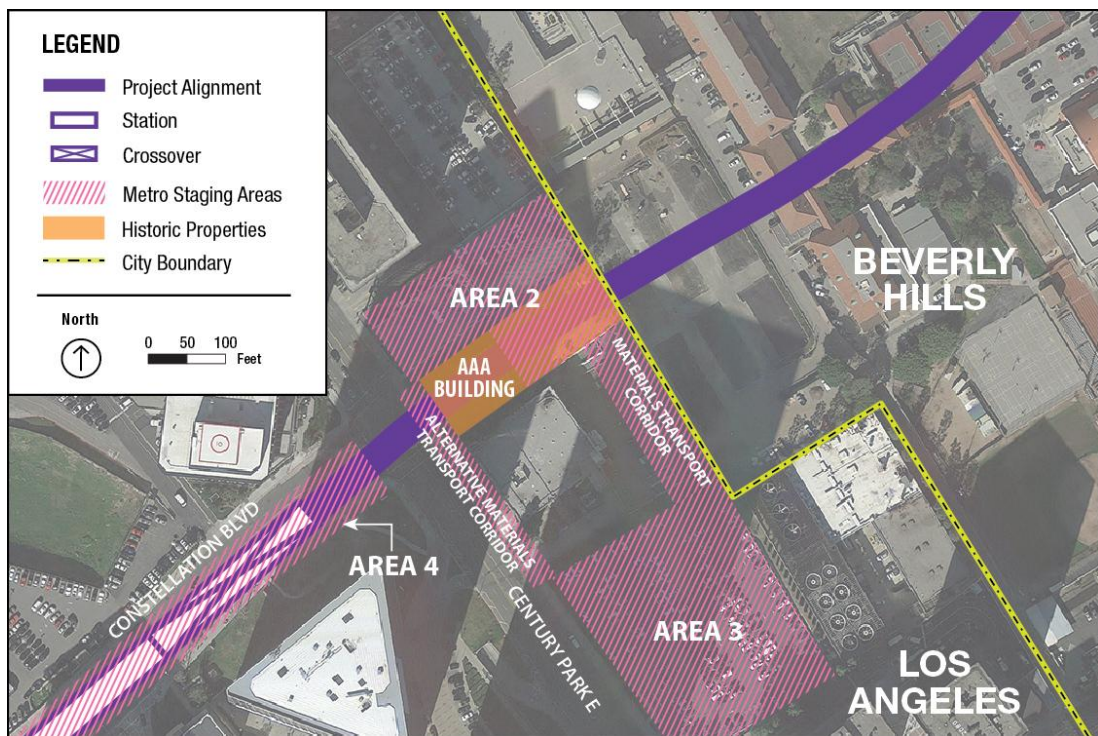


Figure 5-17. Project Features and Construction Staging Areas relative to the AAA Building

As documented in Sections 4.15.3 and 4.6.3 of the Final EIS/EIR (Metro 2012j), construction and operational vibration levels would be less than the levels that could potentially structurally damage fragile structures. As documented in Sections 4.3 and 4.5.5 of this Draft SEIS, with mitigation, the construction and operation of Section 2 of the Project would not increase explosion risk related to methane gas at the AAA Building and the risk of such an explosion would remain low. The Project would not affect the activities, features, or attributes of the building that qualify it for protection under Section 4(f).

In 2011, the FTA determined that the Locally Preferred Alternative would have no adverse effect under Section 106 on the AAA Building. In a letter dated December 8,

2011, the California SHPO concurred with the FTA's determination of eligibility and finding of effect for the project, including no adverse effect to the AAA Building.

The Project would use a portion of the property on which the AAA Building is located as a construction staging site, as described in Section 2.3.2 of this Draft SEIS. The level of detail about construction staging has increased since the Final EIS/EIR (Metro 2012j); therefore, FTA has reassessed project effects related to construction staging as described in Section 2.4.2 of this Draft SEIS. As detailed in Appendix K to the Final EIS/EIR (Metro 2012j), the parking garage, which is located to the east of the AAA Building and does not contribute to the eligibility of the property for the NRHP, would be demolished.

The FTA evaluated the project changes and determined that there would be no change to the Project finding of effect and again consulted with the California SHPO on the determination. FTA is in consultation with the California SHPO regarding this assessment. FTA has made a preliminary determination per 23 CFR Section 774.3(b) that the Project would have a *de minimis* impact on the AAA Building.

Temporary Occupancy

Because Metro is acquiring the AAA Building there would be no temporary occupancy.

Constructive Use

A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired (23 CFR 774.15(a)). The Westside Purple Line Extension would incorporate land from the AAA Building property during construction. Therefore, by definition, the Westside Purple Line Extension cannot have a constructive use of the AAA Building. The temporary effects associated with construction, including impacts associated with the construction staging area on the AAA Building parcel (Figure 5-17), are included in the Section 4(f) evaluation above as it relates to the direct use of the AAA Building property.

5.3.3 Beverly Hills High School Recreational Facilities

Direct Use

This analysis considers the potential effects of construction and operation of the Westside Purple Line Extension on the future half-court soccer field and gymnasium building. The Project would include a tunnel under the BHHS campus (Figure 5-15). The tunnels would cross between 60 and 70 feet below existing tennis courts that are available for use by the public on some days. As described in Section 5.2.8, the tennis courts are being removed during a campus modernization project and will no longer be available to the public at the time of project construction. A new gymnasium building will be constructed in the location of the tennis courts. At the completion of the modernization project, a new half-field soccer field would be constructed above the subsurface easement in the area currently used for temporary classrooms (Figure 5-6). Replacement tennis courts would be constructed south of the tunnels.

The Project would not incorporate land located below the replacement tennis courts. The subsurface easement required for the tunnels under the future half-court soccer field and gymnasium building is considered a permanent incorporation of land.

Project construction for the Westside Purple Line Extension in the vicinity of BHHS is scheduled to begin in 2018 (refer to Section 2.5 of this Draft SEIS); at that time, no high school recreational facilities that are available to the public would exist above the tunnel construction. Based on the schedule for campus modernization, the half-court soccer field and new gymnasium building at BHHS would be constructed above the tunnels at some point during the Westside Purple Line Extension project construction (BHUSD 2014b). The Project would not impair the ability of BHUSD to develop any of their planned recreational facilities.

There would be no changes to the sports and recreational features, nor would the project elements be visible from sports fields since the project consists of tunnels located 60 to 70 feet below those facilities. The maximum operational ground-borne noise level was predicted at 33 dBA, and the maximum operational vibration level was predicted at 64 vibration decibels (VdB) for any location on the BHHS campus, which would be less than the FTA impact criteria for institutional land uses of 40 dBA and 75 VdB at the future half-court soccer field (Table 4-34 of the Final EIS/EIR [Metro 2012]). Section 4.2 of this Draft SEIS provides analysis to confirm that with mitigation ground-borne noise and vibration levels inside the future gymnasium also would be below the criteria. Noise and vibration levels in the future parking garage are not a Section 4(f) consideration.

As detailed in Sections 4.3 and 4.5.5 of this Draft SEIS, construction and operation of the project would not alter methane gas movement within the ground and would not create new preferential pathways for gas within the ground below the recreational facilities. With mitigation identified in this Draft SEIS, there would not be an increase in methane exposure or explosion risk to users of BHHS recreational facilities as a result of the Westside Purple Line Extension.

The Project would not affect public access to or recreational use of the future BHHS sports and recreational facilities, which is the activity, feature, or attribute that qualifies the facilities for protection under Section 4(f) as a publicly owned recreational resource.

Based on this information, the FTA has made a preliminary determination per 23 CFR Section 774.3(b) that the use of the property, in the form of the subsurface easement under the BHHS campus, would have a *de minimis* impact on the Section 4(f)-protected public recreational use of the BHHS sports and recreational facilities.

Temporary Occupancy

No temporary occupancy of recreational facilities, including survey and monitoring activities, would occur when the facilities are open to the public. Project construction would not alter access by the public to any of the BHHS recreational facilities.

Constructive Use

A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the

protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired [23 CFR 774.15(a)]. The Westside Purple Line Extension would construct a tunnel under BHHS, which, by the definition used in this analysis, would incorporate land from the Section 4(f) property. Therefore, since there would be a direct use by definition, the Westside Purple Line Extension would not have a constructive use of the BHHS recreational facilities. The proximity effects related to construction and operation of the tunnels beneath the school are included in the Section 4(f) evaluation above as it relates to the direct use of BHHS recreational facilities.

Even so, this analysis considers potential proximity effects from the construction staging site on Century Park East (Figure 5-16). The nearest boundary of the construction staging site would be approximately 250 feet from the nearest existing recreational facility on the BHHS campus. Temporary classroom buildings are located adjacent to the construction staging site on the former lacrosse practice fields. Based on the construction schedule for campus modernization, the temporary classroom buildings are anticipated to be needed until 2020. Afterwards, a half-court soccer field will be installed. When the half-court soccer field opens, it will be adjacent to the northern construction staging site on Century Park East. As detailed in Sections 2.4 and 2.5 of this Draft SEIS, activity at the construction staging sites would be greatest during the first three years of construction (2018 through 2020), while tunnel construction is occurring. Because tunnel construction activity would generally occur 24-hours a day for six days per week, with hauling of materials occurring during non-peak traffic periods, this analysis considers non-school time periods when the BHHS recreational facilities would be in use by the public.

As discussed in Section 4.5.3 of this Draft SEIS, mitigation would be incorporated to ensure that construction-phase air pollutant concentrations would be less than both the National Ambient Air Quality Standards and California Ambient Air Quality Standards for construction-related pollutants at all BHHS recreational facilities at times when they would be open to the public. As discussed in Section 4.5.4 of this Draft SEIS, mitigation measures would be incorporated so that construction-phase noise levels would not exceed City of Beverly Hills construction noise level limits and the noise level increase would not interfere with the public use and enjoyment of the recreational facilities.

The proximity of the proposed project would not substantially impair aesthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the property. The construction staging site is located on commercial property and parking lots and would be separated from the school by a 20 foot high sound barrier. Construction activities would be visually shielded from public recreational activities at BHHS.

Activities occurring on the construction staging site would not restrict public access to or recreational use of existing or future BHHS sports and recreational facilities.

As documented in Section 4.5.4 of this Draft SEIS, vibration peak particle velocity would be less than 0.07 inch/second at a distance of 100 feet from anticipated construction equipment, while the nearest public recreational use would be approximately 250 feet from the staging site. The vibration impact from construction of the project would not

substantially impair a Section 4(f) property, because the projected vibration levels are low and would not be perceptible. Access to the BHHS campus would be maintained during construction and operation of the project.

The activities at the construction staging sites, after mitigation, would not have a significant adverse effect on air quality, noise, aesthetics, access, or vibration at the BHHS existing or future recreational facilities to the extent that they would substantially interfere with the public recreational use of the facilities (Figure 5-16).

5.3.4 All Possible Planning to Minimize Harm

Although a discussion of all possible planning to minimize harm is not required where a *de minimis* impact determination is made per 23 CFR 774.3(b) and 23 CFR 774.17, this analysis acknowledges that the Project is designed to avoid permanent harm to all Section 4(f) properties in the west Beverly Hills and Century City area. The consideration and implementation of avoidance or mitigation measures reflect all possible planning to minimize harm to Section 4(f) properties. Additional information about the planning and alternative consideration process is included in Section 2.3 of the Final EIS/EIR (Metro 2012j) and Section 2.3 of this Draft SEIS.

To avoid harm to historic resources and recreational facilities, the Project was designed to operate within tunnels, with no project features at the surface within any of the Section 4(f) properties in the west Beverly Hills and Century City area. Between 2007 and 2009, Metro conducted an Alternatives Analysis Study that evaluated multiple modes, both above and below ground, to serve the corridor. At-grade and elevated alignments would have greater adverse effects on properties crossed than a tunnel alignment. With the implementation of the avoidance and mitigation measures described in Chapter 4 of this Draft SEIS and as previously discussed in the Final EIS/EIR, the Project would not result in adverse air quality impacts to public recreational-facility users, ground-borne noise or vibration levels that exceed the FTA impact criteria, nor result in significant ground settlement at any of the Section 4(f) properties during construction or operation of the project. Construction and operation of the Project would not alter methane gas movement below the Section 4(f) properties and would not pose risks to human health or property.

Vibration monitoring would be conducted on historic properties during construction to ensure that damage criteria are not exceeded. As discussed in Section 4.4 of this Draft SEIS, the project includes measures to reduce construction effects to the AAA Building to less than adverse effect. The project includes a 20-foot sound barrier around the construction staging site on Century Park East to minimize noise and visual effects during construction. The barrier would also prevent BHHS students and other individuals from entering the active construction site. Material delivery hours would be scheduled to minimize congestion to surrounding roadways. Metro will require construction equipment to meet stringent emission standards through contract requirements to reduce air pollutant concentrations near the construction staging sites.

To minimize the duration of construction activities, the tunneling equipment is generally operated 24-hours a day for six days per week. Tunnel spoils would be constantly transported by conveyor to Staging Area 3 at 2040 Century Park East (Figure 2-10). As described in the

Final EIS/EIR in Mitigation Measure TCON-2, haul trucks would use designated routes that minimize noise, vibration, and other possible impacts to adjacent businesses, schools, major commercial developments, and residential neighborhoods. Hauling would not be allowed during peak traffic hours and special events, and hauling would be dispatched in a manner to avoid platooning. Because tunnel spoils would accumulate constantly, truck hauling would occur daily.

As described in Section 2.4.2 of this Draft SEIS, the Project would require an approximately 3-acre staging and laydown area to launch the tunneling machines and support the tunneling operations near the Century City Constellation Station.

Both BHUSD and the City of Beverly Hills have expressed concerns with the proximity of the tunnel access shaft to recreational uses on the BHHS campus; therefore, alternative construction approaches that would relocate the tunnel construction access location were considered to determine if they would reduce impacts of the Project. Staging areas 3 and 5 are located too far from the tunnel alignment to be used for access shafts (Figure 2- 8). Staging area 5 also is too small to support an access shaft and is adjacent to high-rise residential uses, which are too tall to be protected with a 20-foot sound barrier. Constructing an access shaft from above the station box within Constellation Boulevard or launching the tunnel boring machine from the Wilshire/La Cienega Station would be alternative construction approaches and are evaluated below.

Access Shaft on Constellation/Century Park East

Access to the tunnels and construction of the Project could be supported from above the station box within Constellation Boulevard (Figure 5-18). This location would require long-term (between 2.5 and 3.5 years) closure of Constellation Boulevard and Century Park East and would delay station completion because the eastern end of the station box would be used to move materials into and out of the tunnels. Pedestrian access also would be disrupted, requiring all pedestrians wishing to use Century Park East to detour around the construction area using Avenue of the Stars. The required roadway closures would be dependent on approvals from the Los Angeles Department of Transportation. Garage access would be maintained to surrounding buildings; however, access to garage entrances on Constellation Boulevard east of Avenue of the Stars would be limited to traffic entering from and exiting to Avenue of the Stars. Century Park East would be closed to through traffic requiring traffic to make U turns when reaching the construction site closures. An overhead conveyor spanning Century Park East and the driveway entrance to the AT&T building would be required to connect the access shaft with Staging Area 3.

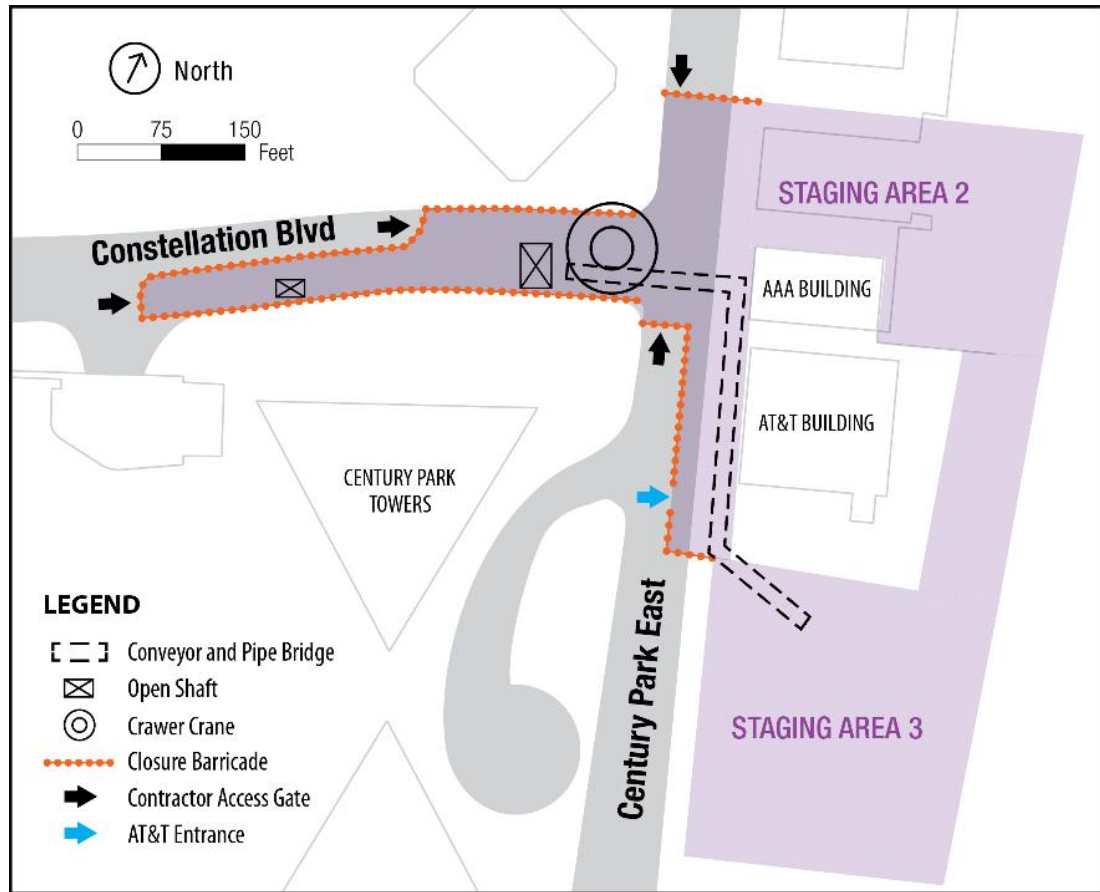


Figure 5-18. Alternative Construction Staging Area for the Project within Constellation Boulevard

Relocating the access shaft would require closure of Constellation Boulevard and Century Park East to traffic and pedestrians for between 2.5 and 3.5 years compared to an approximately 9-month closure of only Constellation Boulevard for the Project (Table 5-3). During the period of roadway closures, traffic using Constellation Boulevard and Century Park East would be detoured to other local streets, increasing roadway and intersection congestion. In addition, local building access would be maintained but rerouted to open streets, resulting in longer travel distances for residential and business access and further increasing traffic volume of the streets and intersections that remain open. This option would decrease construction costs relative to the Project (Table 5-4).

Table 5-3. Comparison of Construction Approach Effects

Alternative	Traffic Closures	Pedestrian Access	Displacements
The Project	Partial closures of Constellation Boulevard for utility relocations and for installing soldier piles; approximately 9-month full closure of Constellation Boulevard for tunneling machine launch and installing and removing street decking	Temporary short-term sidewalk closures with detour to the other side of the street	3 commercial properties: 1940 Century Park East, 1950 Century Park East, and 2040 Century Park East
Access Shaft on Constellation/ Century Park East	Partial closures of Constellation Boulevard for utility relocations and for installing soldier piles; approximately 40-month full closure of Constellation Boulevard for tunneling machine launch, support of tunneling, and installing and removing street decking; approximately 30 month closure of Century Park East for support of tunneling	Approximately 30 month closure of all pedestrian access along Century Park East	3 commercial properties: 1940 Century Park East, 1950 Century Park East, and 2040 Century Park East
TBM Launch Site at La Cienega	Partial closures of Wilshire Boulevard for utility relocations and for installing soldier piles; weekend full closures of Wilshire Boulevard installation and removal of street decking	Temporary short-term sidewalk closures with detour to the other side of the street	Acquisition and displacement of 9 commercial properties, 10 single-family residences, and a recently constructed multifamily residential property

Table 5-4. Comparison of Costs

Alternative	Capital Cost ¹	Difference from the Project
The Project	\$2,411	N/A
Access Shaft on Constellation/Century Park East	\$2,387	-\$23 (-1%)
TBM Launch Site at La Cienega	\$2,564	\$153 (6.3%)

¹Values are in millions (year of expenditure dollars)

Tunnel Boring Machine Launch Site at Wilshire/La Cienega

As described in Section 2.4.2 of this Draft SEIS, the Project would launch the tunneling machines and support the tunneling operations from the construction staging and laydown areas identified in Century City and would tunnel toward the Wilshire/La Cienega Station. An alternative construction approach would be to tunnel from the Wilshire/La Cienega Station to the west.

Tunneling west from the Wilshire/La Cienega Station was not considered in the Final EIS/EIR because sufficient available land is not available in the vicinity of the station to support the tunneling operation. Approximately 3 acres is required to support tunneling

operations. To tunnel west from the Wilshire/La Cienega Station, a launch site would be needed that can connect directly to the tailtracks that are west of the station box to continue the tunnels. The launch site must connect directly to the tunnels, either through a side shaft or through a shaft directly above the tunnels. The least-developed option for a staging site that meets the requirements for size and adjacency would be to acquire two blocks on the south side of Wilshire Boulevard between S. Stanley Drive and S. Willaman Drive (Figure 5-19). This construction approach would require demolition of several buildings, resulting in commercial and residential displacements, to assemble sufficient space for construction staging and tunneling support.

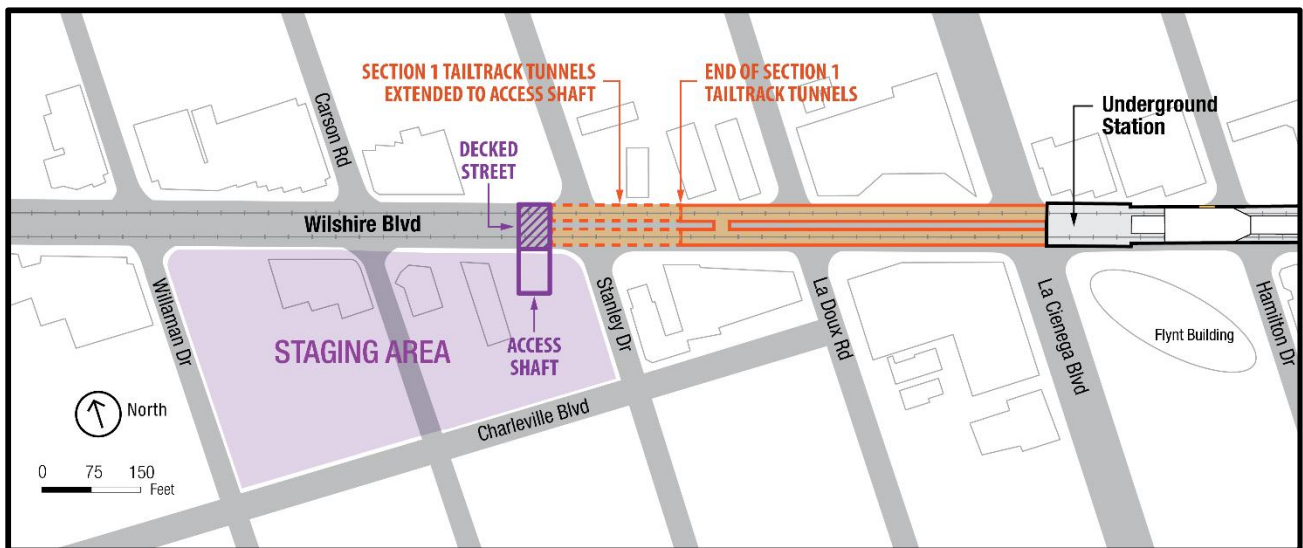


Figure 5-19. Construction Staging Area Required to Launch the Tunnel Boring Machine from Wilshire/La Cienega

Tunneling to the west from the Wilshire/La Cienega Station would require approximately 3 acres for staging adjacent to the launch and access site. The necessary staging area could be provided in the two blocks on the south side of Wilshire Boulevard between S. Stanley Drive and S. Willaman Drive (Figure 5-19). This area is currently a mixture of low-rise commercial and residential uses. The acquisition would displace 9 office and retail properties and 10 single-family residences (Table 5-3). Additionally, a multifamily residential development has been recently completed at the corner of Wilshire Boulevard and S. Stanley Drive. This option would substantially increase construction costs relative to the Project (Table 5-4).

Summary of Construction Approach Analysis

The two alternative construction approaches would have substantial construction-phase impacts on resources not protected by Section 4(f). Compared to the Project, relocation of the access shaft to Constellation Boulevard and Century Park East would require an additional two to three years of complete closure of those roadways. The approach to launch the TBM from the Wilshire/La Cienega Station area would displace 9 commercial properties and 10 single-family residences compared to 3 commercial properties for the Project. The alternative approaches would not minimize harm caused

by the Project, as there is no remaining harm after mitigation for the proposed construction staging site at 1950 Century Park East.

5.4 Avoidance Alternatives

A feasible and prudent avoidance alternative is defined in 23 CFR 774 as an alternative that avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting Section 4(f) properties (refer to Section 5.1.2 of this Draft SEIS/4(f)).

While the consideration of avoidance alternatives is not required for a project with *de minimis* impacts (23 CFR 774.3), this Section 4(f) analysis evaluates alternatives that would avoid Section 4(f) properties in west Beverly Hills and Century City (Figure 5-20) to address direction in the Final Decision, to provide the public with information, and to address concerns from the City of Beverly Hills and the BHUSD.

This section evaluates the feasibility and prudence of the identified avoidance alternatives (Table 5-5). This Section 4(f) evaluation considers a representative range of alternatives that encompasses the alternatives that have been previously identified to serve Century City, including alternative alignments identified after issuance of the ROD, that could reduce adverse effects in west Beverly Hills and Century City. Between 2007 and 2009, Metro conducted an Alternatives Analysis Study that evaluated multiple modes, both above and below ground, to serve the corridor. At-grade and elevated alignments would have greater adverse effects on properties crossed than a tunnel alignment and would not provide an avoidance alternative to tunneling under Section 4(f) properties.

The evaluation of feasibility and prudence is applicable when considering a Section 4(f) avoidance alternative. An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. An alternative is not prudent if:

- It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
- It results in unacceptable safety or operational problems;

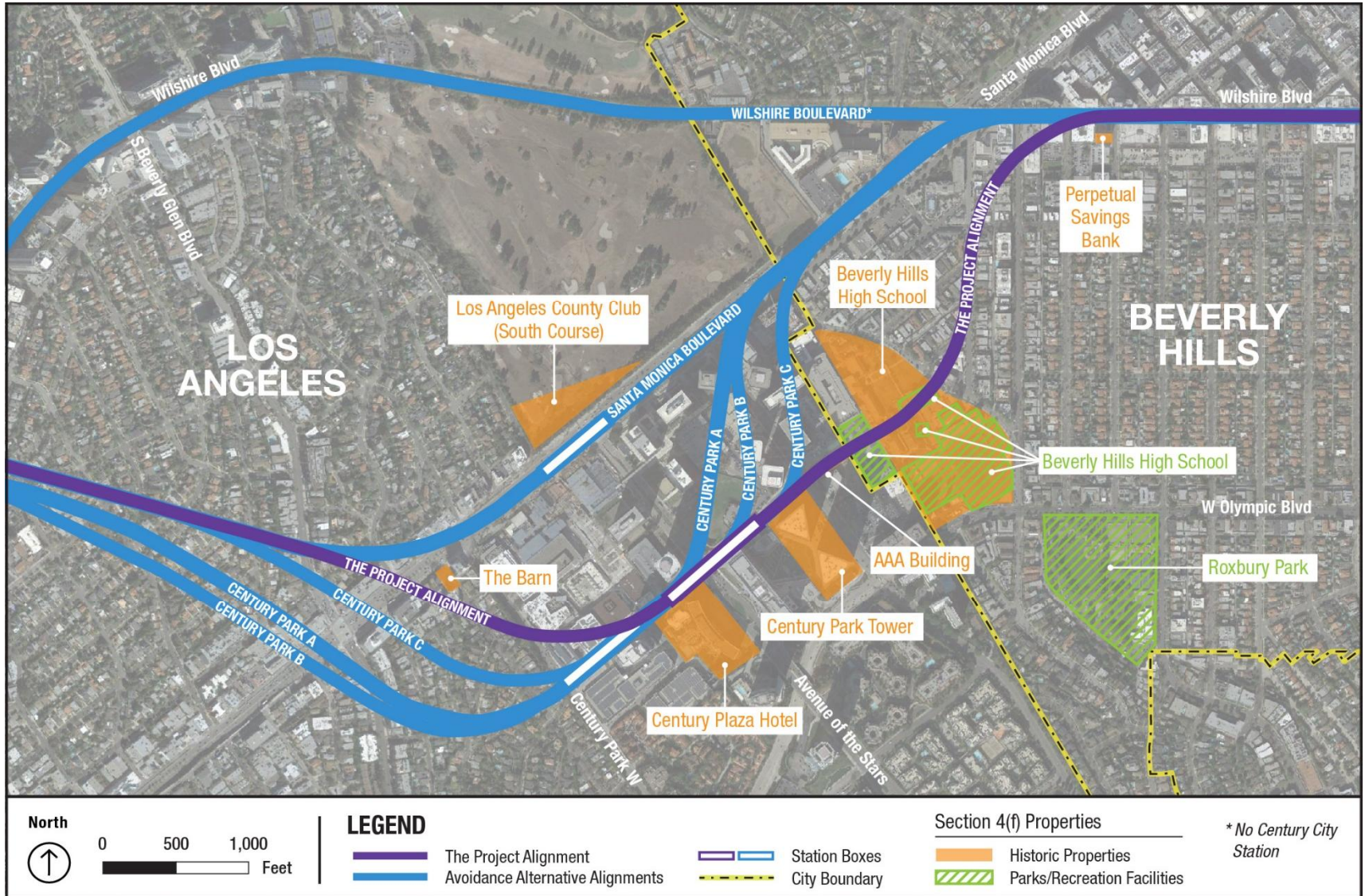


Figure 5-20. Avoidance Alternatives

Table 5-5. Summary Comparison of Avoidance Alternatives

Alternative	Feasibility	Meets the Purpose and Need	Safety and Operational Considerations	Social, Economic, Environmental, and Community Impacts	Costs of an Extraordinary Magnitude	Unique Problems or Unusual Factors	Cumulative Consideration of Factors
Wilshire Boulevard (No Century City Station)	Feasible	Would not meet purpose and need due to loss of 12% of system boardings and reduced transit access to 49,970 jobs in Century City relative to the Project	None	Acquisition of 16 commercial parcels to complete construction resulting in the loss of approximately 46 jobs; reduction of reliable transit access to jobs for low-income transit users; less substantial air quality and energy improvements relative to the Project	\$739 million less than the Project to construct	None	Not prudent because of failure to address purpose and need and social, economic, environmental, and community impacts
Santa Monica Boulevard	Not feasible. High risk of fault rupture would preclude this station being built as a matter of sound engineering judgement	Less effective than Project due to loss of 7% of system boardings relative to the Project	High risk of catastrophic earthquake failure of Century City Santa Monica Station	Acquisition of 16 commercial parcels to complete construction resulting in the loss of approximately 46 jobs	\$21 million less than the Project to construct	Risk of catastrophic earthquake failure of Century City Santa Monica Station	Not prudent because of high risk of catastrophic station failure in an earthquake, reduced ridership, and increased number of displacements
Century Park A	Not feasible to construct if development of 1950 Avenue of the Stars precedes Project construction as a matter of sound engineering judgement	Less effective than Project due to 580 person-hours of daily travel time increase relative to the Project	Substantial risks associated with tunneling under existing high-rise buildings; reduced operating speed; increased long-term operational costs relative to the Project	Acquisition of 18 commercial parcels to complete construction resulting in the loss of approximately 46 jobs; additional construction-phase traffic impacts relative to the Project	Greater than \$239 million more than the Project to construct	Risk of liability for delay if 1950 Avenue of the Stars is delayed until crossover is constructed.	Not prudent because of project timing, increased travel time, increased building damage risk, increased displacements, delayed schedule, and an extraordinary cost increase

Alternative	Feasibility	Meets the Purpose and Need	Safety and Operational Considerations	Social, Economic, Environmental, and Community Impacts	Costs of an Extraordinary Magnitude	Unique Problems or Unusual Factors	Cumulative Consideration of Factors
Century Park B	Feasible	Less effective than Project due to 600 person-hours of daily travel time increase relative to the Project	Substantial risks associated with tunneling under existing high-rise buildings; reduced operating speed; increased long-term operational costs relative to the Project	Acquisition of 17 commercial parcels to complete construction resulting in the loss of approximately 46 jobs; additional construction-phase traffic impacts relative to the Project	\$119 million more than the Project to construct	Substantial risks associated with the construction of 1950 Avenue of the Stars	Not prudent because of increased travel time, increased building damage risk, increased displacements, increased costs, and delayed schedule
Century Park C	Feasible	Less effective than Project due to 680 person-hours of daily travel time increase relative to the Project	Substantial risks associated with tunneling under existing high-rise buildings and the Stone-Hollywood trunk water line; reduced operating speed; increased long-term operational costs relative to the Project	Acquisition of 6 commercial parcels to complete construction resulting in the loss of approximately 15 jobs; increase in construction-phase traffic impacts relative to the Project	\$105 million more than the Project to construct	Public and worker safety risk associated with potential rupture or damage to the Stone – Hollywood trunk water line	Not prudent because of increased travel time, increased building damage risk, increased costs, delayed schedule, and increased construction-phase traffic impacts

- After reasonable mitigation, it still causes:
 - ▶ Severe social, economic, or environmental impacts;
 - ▶ Severe disruption to established communities;
 - ▶ Severe disproportionate impacts to minority or low-income populations; or
 - ▶ Severe impacts to environmental resources protected under other Federal statutes;
- It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- It causes other unique problems or unusual factors; or
- It involves multiple factors in [the list above], that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

The first test for prudence is whether an alternative would compromise the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need. The project's purpose is as follows (refer to Section 2.2 of this Draft SEIS):

- Improve Study Area mobility and travel reliability
- Improve transit services within the Study Area
- Improve access to major activity and employment centers in the Study Area
- Improve opportunities for transit-supporting land use policies and conditions
- Improve transportation equity
- Provide a fast, reliable, and environmentally sound transit alternative
- Meet Regional Transit Objectives through the Southern California Association of Governments' performance indicators of mobility, accessibility, reliability, and safety.

This section considers tunnel alternatives that would not use land from any Section 4(f) resources, and Section 5.5 evaluates a range of tunnel alternatives that would use land from one or more Section 4(f) properties to consider which of those alternatives would cause the least overall harm. For all of the alternatives considered in either Section 5.4 or Section 5.5, no project features would be at the surface within the boundaries of any Section 4(f) property.

5.4.1 Wilshire Boulevard (No Century City Station)

Description of Alternative

Eliminating the station in Century City would allow for a more direct path between the Wilshire/Rodeo and Westwood/UCLA Stations. The most direct alignment would be to follow Wilshire Boulevard (Figure 5-21). Because of the over 2-mile length of the tunnels between the Wilshire/Rodeo and Westwood/UCLA Stations, a ventilation shaft would be required for this alternative and would be provided in the vicinity of the Wilshire Boulevard and Santa Monica Boulevard intersection.



Figure 5-21. Wilshire Boulevard Alternative (No Century City Station)

As described in Section 2.4.2 of this Draft SEIS, a construction staging site of approximately 3 acres is required to launch the tunnel boring machine to the east, support tunnel boring, and receive the tunnel boring machine approaching from the west. The construction staging area must be along the alignment so that it can connect directly to the tunnels under construction. The only identified location between the Wilshire/Rodeo and Westwood/UCLA Stations that is accessible to the tunnel alignment and would provide the needed space is the developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard, extending to South Moreno Drive (Figure 5-22).



Figure 5-22. Construction Staging Areas Required for Wilshire Boulevard Alternative (No Century City Station)

Evaluation of Feasibility

An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. The Wilshire Boulevard Alternative would be feasible to construct.

Evaluation of Prudence

Effectiveness at Meeting Purpose and Need

Century City is a designated urban center in the Los Angeles General Plan. Currently, there are 31,040 jobs and 2,010 residents located within one-half mile of the Century City Constellation Station location, which is projected to grow to 49,970 jobs and 8,010 residents over the planning horizon (Table 2-1). This is the highest concentration of jobs at any station for the Project. Serving Century City is a key element in meeting the Project's purpose to improve access to major activity and employment centers in the Study Area. Under the Project, the Century City Constellation Station would serve 8,566 (17 percent) of the projected 49,340 daily boardings for the completed Project (Table 5-6). This is the second-highest station volume of any station for the Project (Table 3-5 of the Final EIS/EIR [Metro 2012]).

Table 5-6. Comparison of Operating Factors

Alternative	Century City Constellation Daily Station Boardings	Daily System Boardings for the Westside Purple Line	Distance between Wilshire/Rodeo and Westwood/UCLA Stations	Average Operating Speed between Wilshire/Rodeo and Westwood/UCLA Stations	Travel Time between Wilshire/Rodeo and Westwood/UCLA Stations (min:sec)
The Project	8,566	49,340	16,390 feet	43 mph	5:14
Wilshire Boulevard (No Century City Station)	0	43,390	14,622 feet	43 mph	3:54
Santa Monica Boulevard	5,492	45,989	15,570 feet	45 mph	4:56
Century Park A	8,394	48,650	17,160 feet	40 mph	5:51
Century Park B	8,394	48,650	17,320 feet	40 mph	5:52
Century Park C	8,390	48,630	17,120 feet	39 mph	5:57

Under the Wilshire Boulevard Alternative, through trips between the Wilshire/Rodeo and Westwood/UCLA Stations would be shorter and have a faster travel time by roughly one minute and fifteen seconds. However, there would be a loss of trips to and from the Century City Constellation Station and reduced connectivity to major activity and employment centers. Travel forecasting results indicate that by eliminating the Century City Constellation Station, the daily boardings for the completed Project would decrease by 5,850 (12 percent) to 43,490 daily boardings. Eliminating the Century City Constellation Station would be detrimental to meeting the elements of the Project’s purpose to improve mobility, connectivity and access to major activity and employment centers, and transit services within the Study Area.

As shown in Table 4-5 of the Final EIS/EIR (Metro 2012j), 15 percent of the population lives below the poverty level in Los Angeles County. While the Century City Constellation Station area does not have a high concentration of low-income or minority populations in residence, the makeup of workers who use transit to get to their jobs in Century City is very different. According to a forecasting analysis for FTA New Starts reporting, 37 percent of trips from home to work that alight at the Century City Constellation Station would be taken by low-income riders (Metro 2016j). Eliminating the Century City Constellation Station would affect low-income transit users and reduce their ability to access jobs and would be contrary to the Project’s purpose to improve transportation equity.

In eliminating the Century City Constellation Station, the Wilshire Boulevard Alternative would fail to meet key elements of its purpose and need. Because the Wilshire Boulevard Alternative would fail to meet purpose and need, it would not be a prudent alternative to the Project.

Safety and Operational Considerations

The Wilshire Boulevard Alternative would not have substantial safety and operational concerns.

Social, Economic, Environmental, and Community Impacts

Because the Wilshire Boulevard Alternative would operate in a tunnel, it would not physically divide the community, affect community character or cohesion, or require displacements of residential or commercial property along the Wilshire Boulevard Alignment. Elimination of the Century City Station would not offer the benefits on regional air quality and energy consumption relative to the Project because it has less connectivity to major employment and activity centers, which would result in lower ridership and less incentive for the travelling public to shift from automobile trips to transit. It would also have a social, economic, and community effect of eliminating reliable transportation to jobs. As described above, low-income riders, who account for 37 percent of trips from home to work that are forecast to alight at the Century City Station, would lose reliable transit service between home and work. Low-income and minority workers would not benefit from the improved transit service and connections that are offered by the Project.

The construction-phase impacts of the alternatives also would differ substantially. The only identified location adjacent to the tunnel alignment that would provide the needed space to support tunnel boring is the developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard extending to South Moreno Drive. This area currently contains a series of low-rise commercial buildings and parking lots that includes 16 developed commercial properties (Figure 5-22). An access shaft over the tunnel alignment would be constructed on Wilshire Boulevard, connecting to the construction staging area. The tunnel boring machine would excavate east from this location. The shaft would also serve as a receiving shaft for the Section 3 tunnel boring machines connecting from the west. The construction staging would substantially increase the number of business displacements in Century City and west Beverly Hills relative to the Project and jobs would be lost for businesses that cannot relocate within the area (Table 5-7). Specific property details are provided in Appendix C of the Final EIS/EIR under the Century City Santa Monica Station Scenario “A” (Metro 2012j).

Table 5-7. West Beverly Hills and Century City Acquisitions to Support Construction

Alternative	Property Acquisitions	Displacements
The Project	6 parcels	2 public parking lots and 6 individual businesses, and a loss of approximately 15 jobs
Wilshire Boulevard (No Century City Station)	16 parcels	5 vacant or surface parking, 2 multi-tenant office buildings, 32 individual businesses, and a loss of approximately 46 jobs
Santa Monica Boulevard	16 parcels	5 vacant or surface parking, 2 multi-tenant office buildings, 32 individual businesses, and a loss of approximately 46 jobs
Century Park A	18 parcels	7 vacant or surface parking, 2 multi-tenant office buildings, 32 individual businesses, and a loss of approximately 46 jobs
Century Park B	17 parcels	6 vacant or surface parking, 2 multi-tenant office buildings, 32 individual businesses, and a loss of approximately 46 jobs
Century Park C	6 parcels	2 public parking lots and 6 individual businesses, and a loss of approximately 15 jobs

Costs of an Extraordinary Magnitude

Due to the elimination of a station, the Wilshire Boulevard Alternative would have lower capital cost than the Project (Table 5-8). However, this cost estimate includes capital costs only and does not include increased indirect costs resulting from procurement delay, schedule delays, contractor fees, or escalation and increased finance charges.

Table 5-8. Comparison of Capital Costs of Avoidance Alternatives

Alternative	Capital Cost ¹	Difference from the Project ¹
Section 2 of the Project	\$2,411	N/A
Wilshire Boulevard (No Century City Station)	\$1,671	-\$739 (-31%)
Santa Monica Boulevard	\$2,390	-\$21 (-1%)
Century Park A	\$2,650	\$239 (10%)
Century Park B	\$2,530	\$119 (5%)
Century Park C	\$2,516	\$105 (4%)

¹Values are in millions (year of expenditure dollars)

Unique Problems or Unusual Factors

The Wilshire Boulevard Alternative would not have unique problems or factors that would make it not prudent.

Cumulative Consideration of Factors

The Wilshire Boulevard Alternative fails to meet key elements of the Project’s purpose and need. It would have less benefit in regards to improving regional air quality and reducing energy consumption, as well as fewer social, economic, and community benefits of connectivity to jobs for low-income populations. The cumulative consideration of these factors would make the Wilshire Boulevard Alternative not prudent. Since the alternative is not prudent, it was not carried forward for further consideration.

5.4.2 Santa Monica Boulevard

Description of Alternative

The Draft EIS/EIR considered a tunnel under Santa Monica Boulevard through west Beverly Hills and Century City with a station in Century City under Santa Monica Boulevard where it crosses Avenue of the Stars (Figure 5-23). The alternative was described in Section 2.4 of the Draft EIS/EIR (Metro 2010c).

As identified in Section 2.6.4 of the Final EIS/EIR (Metro 2012j), the developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard, extending to South Moreno Drive would be required for construction staging (Figure 5-24).



Figure 5-23. Santa Monica Boulevard Alternative



Figure 5-24. Construction Staging Areas Required for Santa Monica Boulevard Alternative

Evaluation of Feasibility

An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. As described in both the Draft and Final EIS/EIR and detailed further in Section 4.3 of this Draft SEIS, the Santa Monica fault zone is characterized by numerous fault strands in the vicinity of Santa Monica Boulevard, which could pose a surface fault rupture hazard for a station on Santa Monica Boulevard. A fault rupture would cause extensive damage to both the Santa Monica Boulevard Station because there are no known engineering methods available to construct a subway station that could withstand the rupture without collapse. The subway station is a structure subject to nearly continuous human occupancy and therefore would represent a high risk to public safety in the event of collapse of the station. The tunnels can be designed to accommodate the fault rupture without collapse and potential damage is repairable. No feasible mitigation has been identified for the substantial risk of fault rupture at the Century City Santa Monica Station. Sound engineering judgment precludes construction of the station at this location.

Evaluation of Prudence

Effectiveness at Meeting Purpose and Need

One element of the Project's purpose and need is to improve access to major activity and employment centers in the Study Area. The location of the Century City Santa Monica Station would increase walk distance for most users relative to the Project. As a result of the increased walk distance from the station on Santa Monica Boulevard to the center of employment in Century City and total travel time (including both in-vehicle and station access time) for users, the daily station boardings would decrease by 36 percent from 8,566 with the Project to 5,492 with the Santa Monica Boulevard Alternative. Total daily system boardings on the Westside Purple Line Extension would decrease by 3,351 (7 percent) (Table 3-5 in the Final EIS/EIR). While the Santa Monica Boulevard Alternative would be less effective at meeting purpose and need, it would not compromise the Project to such a degree that it would be unreasonable to proceed.

Safety and Operational Considerations

As described in Section 4.3 of this Draft SEIS, the Santa Monica fault zone in the vicinity of Santa Monica Boulevard pose a hazard for a station and subway tunnels in that location. A fault rupture would extensively damage both the Santa Monica Boulevard Station and the tunnels. The tunnels can be designed to accommodate the fault rupture without collapse and are repairable, but stations cannot be designed to accommodate fault rupture without collapse. Because a subway station is a structure subject to nearly continuous human occupancy, and locating a station at Santa Monica Boulevard presents a high risk to public safety in the event of the collapse of the station. No feasible mitigation has been identified for the substantial risk of fault rupture at the Century City Santa Monica Station. The risk of catastrophic failure of the Century City Santa Monica Station would make the Santa Monica Boulevard Alternative not prudent.

Social, Economic, Environmental, and Community Impacts

Because the Santa Monica Boulevard Alternative would operate in tunnels and would therefore avoid surface impacts, as would the Project, the long-term social, economic, environmental, and community impacts would be similar between the alternatives. The increased walk distance to the core of Century City would reduce the number of transit users and result in lost time and productivity, as was discussed related to the effectiveness at meeting purpose and need.

The alternatives also would differ substantially in construction-phase impacts. The construction staging area for the Santa Monica Boulevard Alternative to support tunnel boring is the developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard extending to South Moreno Drive. This area currently contains a series of low-rise commercial buildings and parking lots (Figure 5-22). The construction staging would substantially increase the number of business displacements in Century City and west Beverly Hills and jobs would be lost for businesses that cannot relocate within the area (Table 5-7). Specific property details are provided in Appendix C of the Final EIS/EIR under the Century City Santa Monica Station Scenario “A” (Metro 2012j).

Costs of an Extraordinary Magnitude

The Santa Monica Boulevard Station would cost approximately \$21 million year of expenditure (YOE) dollars less than the Project to construct (Table 5-8).

Unique Problems or Unusual Factors

As identified in Section 4.8 of the Final EIS/EIR (Metro 2012j) and supplemented in Section 4.3 of this Draft SEIS, the safety risks associated with placing an underground station on an active fault are unique to the Santa Monica Boulevard Alternative. No feasible mitigation has been identified for the high risk of fault rupture at the Century City Santa Monica Station.

Cumulative Consideration of Factors

The Santa Monica Boulevard Alternative, when compared to the Project, would increase walk distance for most users of the Century City Santa Monica Station resulting in a 36 percent decrease in boardings at that station and would introduce high risk of catastrophic failure of the Century City Santa Monica Station as a result of fault rupture during an earthquake. The cumulative consideration of these factors would make the Santa Monica Boulevard Alternative not prudent. Since the alternative is not feasible or prudent, it was not carried forward for further consideration.

5.4.3 Century Park A

Description of Alternative

After completion of the Final EIS/EIR, Metro identified several variations on the alignment through Century City. The alignment and station alternatives were presented to the Metro Board of Directors on May 24, 2012, in comparison to the Locally Preferred Alternative identified in the Final EIS/EIR and ROD. The Century Park A Alternative (Figure 5-25) is one of the alternatives identified in the presentation. The Century Park A Alternative would travel below and between the foundations of several high-rise buildings in Century City, including the 38-story Sun America Building, the 24-story 1801 Century Park East, and the 15-story 1800 Century Park East. These buildings have up to five basement levels of parking below ground level.



Figure 5-25. Century Park A Alternative

This alignment requires the crossover structure to be located on the property at 1950 Avenue of the Stars and would require constructing the crossover structure deep enough to accommodate future underground parking at this location. 1950 Avenue of the Stars has been permitted for development of two 47-story towers and one 12-story building or alternatively for a 37-story building and additional low-rise retail space (Century City Center). Anticipating four levels of underground parking and a mat foundation, the station at Constellation and tunnels would have to be lowered by 37 feet compared to the design for the Project to provide the necessary clearance at 1950 Avenue of the Stars. The separate crossover requires an additional tunnel ventilation zone between the Century City Constellation and Wilshire/Rodeo stations with ventilation equipment and

a way to include exhaust and intake air ducts either beneath the parking garage and connecting to the surface or incorporated directly into the future development. The presence of the crossover structure beneath a future high-rise development would require the building developer to design the building foundation to span the crossover structure or to accommodate changes in the engineering properties of the subgrade due to the presence of the crossover structure just beneath the building foundations.

The station would be located at the west end of Constellation Boulevard, which would shift the alignment for the Section 3 tunnels to the west and increase the number of residential properties from which subsurface easements would be required. Moving the station to the west also would affect the proposed station entrance at the northeast corner of Avenue of the Stars and Constellation Boulevard, which is near the center of activity in Century City. Maintaining the station entrance at this location would require an extended corridor beneath Constellation Boulevard to connect the entrance to the station concourse. Alternatively, the station entrance could be moved farther west to the existing bus layover facility at the southeast corner of the intersection of Constellation Boulevard and Century Park West, which would increase walk distances for most station users.

The tunnel alignment for Century Park A would not be accessible from the construction staging sites that are proposed for the Project and located between 1940 and 2040 Century Park East; therefore, an alternative site would be required to launch the tunnel boring machine and support tunnel boring. Similar to the Santa Monica Boulevard Alternative, the developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard extending to South Moreno Drive would be required for construction staging (Figure 5-26).



Figure 5-26. Construction Staging Areas Required for Century Park A and Century Park B Alternatives

Evaluation of Feasibility

The Century Park A Alternative would travel below and between the foundations of several high-rise buildings in Century City. This would create construction challenges and reduce operational efficiency, which are factors in considering the prudence of the alternative.

The track crossover would be located below 1950 Avenue of the Stars. As described in Section 4.5 of this Draft SEIS, the existing entitlements on that site allow for development of a high-rise building within the same timeframe as the completion of Section 2 of the Project. The developer of 1950 Avenue of the Stars has recently indicated that construction will begin before the scheduled construction of the Century City Station.

The crossover would be constructed in an excavated structure, which could not be constructed after completion of a high-rise building on the site. To construct the crossover and tunnels after 1950 Avenue of the Stars finished, Metro would have to construct not only tunnels under a building but a large crossover cavern. The issues with tunneling under high-rise buildings is described in the evaluation of prudence of the alternative because there is substantial safety risk associated with tunneling under high-rise buildings. Construction of a cavern large enough for a crossover under an existing building would also require halting the developer to redesign the building foundations to

span over the cavern. The same costs for redesign and delay of 1950 Avenue of the Stars would apply, and in addition a foundation to span the cavern would be substantially more expensive. The safety risk to workers also increases with this scenario: whereas with a tunnel workers are protected by the tunnel shield, in this case, the cavern would require workers to excavate and support the soil without a shield and under heavily loaded foundations. Because of safety risk to workers and structural risk to the high-rise building above, this option could not be built as a matter of sound engineering judgment. Should the high-rise construction precede construction of the crossover, the track crossover could not be constructed and the Century Park A Alternative would not be feasible. Delaying construction of 1950 Avenue of the Stars until after completion of the crossover structure is considered for prudence in the following sub-section.

Evaluation of Prudence

Effectiveness at Meeting Purpose and Need

Elements of the Project's purpose and need are to improve transit services within the Study Area and provide a fast, reliable, and environmentally sound transit alternative, the Century Park A Alternative would have a greater length and lower average operating speed, which would increase travel time between both the Wilshire/Rodeo and Westwood/UCLA stations and Century City relative to the Project (Table 5-6). The 56,680 passengers that board and alight daily at Century City and stations farther west would experience a collective 580 hours of travel time increase daily compared to the Project. Shifting the station west also would increase walk distance from the station to the center of employment in Century City. While it would be less effective at meeting purpose and need, it would not compromise the project to a degree that it would be unreasonable to proceed.

Safety and Operational Considerations

Due to the longer alignment and the separation between the station and cross-over, the Century Park A Alternative would result in less efficient operations than the Project. Separating the crossover structure from the station creates operational problems as trains entering and leaving the station have to maintain crossover speed for the distance between station and crossover, resulting in an increase in travel time between the Century City Constellation and Wilshire/Rodeo stations. It would add more than half a minute to each transit trip traveling on the Project. The separate crossover would also add an additional ventilation zone to the tunnel reach between Wilshire /Rodeo and Century City Constellation Stations. The additional fans and power requirements would increase operating and maintenance costs. The increased operating time, along with longer alignment (approximately a 5 percent increase in the track distance between the Wilshire/Rodeo and Westwood/UCLA stations) and the additional ventilation zone would increase operation and maintenance requirements for the Century Park A Alternative relative to the Project. The increased operating time, if served with the same vehicle fleet, would decrease the schedule recovery time at the end of each trip, thereby increasing the occurrences of cascading schedule delays. One additional train could be added to the vehicle fleet to



mitigate potential schedule delays; however, that would further increase project capital and operating costs relative to what is included in this analysis.

In addition to operational concerns, substantial structural safety risks are associated with tunneling under high-rise buildings. The response of existing structures to tunneling-induced ground movement depends on the structure type (geometry and structural system) and condition, in addition to other factors such as ground type and distance of the structure above the top of tunnels. Low-rise buildings generally have simple structural systems where any deformation caused by tunneling can be readily assessed and repaired if needed.

Modern mid-rise and high-rise buildings are built with seismic lateral systems that can be difficult to assess because of the way differential settlements affect the bracing. In Los Angeles, most existing buildings will have already experienced seismic events that may have produced deformations in the building structure. The structural systems of buildings are generally not visible for inspection or survey, so it is generally not possible to perform field measurements to determine a building's current geometry compared to its design and determine the safe limit for further stress or displacement. A further complication in assessing current conditions is that as-built drawings of buildings, with actual measurements of the structural frame at the time of construction, are rarely available.

The ability to assess current structural conditions of high-rise buildings is limited; therefore, it is not possible to determine what effect potential ground disturbance from tunneling under a building would have on its condition. Structural damage could require repair or replacement of major structural elements within the building, or in the extreme case of cumulative damage beyond safety limits, demolition of the building.

The Century Park A Alternative would be designed with a minimum clearance distance of 15 feet below existing structures to the top of the tunnels because the alignment is constrained by station depth, vertical curve, and grade limits. To maintain this minimum clearance beneath the foundations of the high-rise buildings and the underground levels of parking, the Century City Station would be approximately 37 feet deeper than required for the Project.

The Century Park A Alternative would be operationally less efficient than the Project and has additional tunneling risks related to safely tunneling under high-rise structures. The safety risks of tunneling under high-rise buildings would make it imprudent to proceed with the alternative.

Social, Economic, Environmental, and Community Impacts

Because the Century Park A Alternative would operate in tunnels and therefore would avoid surface impacts and would serve the same areas as the Project, the long-term social, economic, environmental, and community impacts would be similar between the alternatives. The increased transit travel time for the Century Park A Alternative would result in lost time and productivity for transit users.

The alternatives, however, would differ substantially in construction-phase impacts. The tunnel alignment for Century Park A would not be accessible from the construction staging sites that are proposed for the Project that are located between 1940 and 2040 Century Park East; therefore, an alternative site would be required to launch the tunnel boring machines and support tunnel boring. Approximately 3 acres are required to support tunneling operations, which is more than the available undeveloped or lightly-developed land at the Wilshire/Rodeo Station or the proposed Century City Station location under this alternative. The location above the tunnel alignment with the least development that would provide the needed space is the area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard extending to South Moreno Drive. This area currently contains a series of low-rise commercial buildings and parking lots (Figure 5-26). Because the site is in the center of the reach between stations, the tunnel boring machines would have to be launched first in one direction, then brought back to the launch site and sent in the other direction. This would add several months to the construction period and associated disturbance. The construction staging would substantially increase the number of business displacements in Century City and west Beverly Hills.

In addition, the Century City Station would be approximately 37 feet deeper and shifted to the west compared to the Project, which would increase the disruption during construction. Construction would be nearer residential properties west of Century Park West. Construction would require decking and excavation in front of the entrance to Westfield Mall. It would also require long-term lane closures above the station footprint to provide a staging area for station construction (Table 5-9).

The lengthened construction schedule, combined with the likely multiple-year delay that would result from the need to perform structural assessments on existing high-rise buildings and negotiate subsurface easements with the building owners, would affect the community by delaying realization of the benefits of the Westside Purple Line Extension by approximately two to four years. The two-to-four-year delay related to property acquisition in Section 2 would prevent operation of Section 3 until Section 2 is complete, resulting in an approximately 18-month to three-year delay to Section 3.

Costs of an Extraordinary Magnitude

The costs for the Century Park A Alternative relative to the Project would increase because of the longer alignment, deeper station, schedule delay, depth of the crossover, increased construction duration, and the requirements for alternative tunnel boring machine launch and construction staging areas (Table 5-8). As depth increases, the cost and complexity of excavating from the surface for station and crossover structures increases substantially. An increase in construction costs of \$239 million year of expenditure (YOE) dollars, which is approximately 10 percent of the cost of Section 2 of the Project, would be an increase of extraordinary magnitude and make the Century Park A Alternative not prudent. This cost estimate does not include Metro liability for costs and damages related to delay of 1950 Avenue of the Stars as discussed below.

Table 5-9. Construction Traffic Closure Requirements

Alternative	Century Park East	Constellation Boulevard	Century Park West	Avenue of the Stars	Property Access Closures
The Project	Partial closures for utility relocations and for a material transport corridor between 2040 Century Park East and 1940 Century Park East	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for station excavation and construction. Full weekend closures for installing and removing street decking. Full closure for the assembly and launch TBMs (9 months)	No closures required	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for the installation and removal of street decking. Partial closures for construction of station entrance and appendages.	Full and partial closures will impact entrances to: <ul style="list-style-type: none"> • Customer parking and loading dock at Westfield Mall • Entrance to parking at Sun America • Entrance to future loading dock at 1950 Avenue of the Stars • Watt Plaza Alley and parking structure • Entrance to 10100 Constellation Boulevard parking • Entrance to Century Plaza Hotel parking • Entrance to future parking for New Century Plaza • Entrance to Solar Way • Entrance to AT&T facility at 2010 Century Park East
Wilshire Boulevard (No Century City Station)	No closures required	No closures required	No closures required	No closures required	No closures required
Santa Monica Boulevard	No closures required	No closures required	No closures required	No closures required	No closures required
Century Park A	No closures required	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for station excavation and construction. Full weekend closures for installing and removing street decking. (Note that tunnel activity is based at Santa Monica Blvd.)	Partial closures for utility relocations. Partial closures for ground improvement (grouting). Partial closures for soldier piles. Partial closures for the installation and removal of street decking.	Partial closures for utility relocations. Partial closures for ground improvement (grouting). Partial closures for appendage construction	Full and partial closures will impact entrances to: <ul style="list-style-type: none"> • Customer parking and loading dock at Westfield Mall • Entrance to parking at Sun America • Entrance to Century Plaza Hotel parking • Entrance to future parking for New Century Plaza • Entrance to Solar way

Alternative	Century Park East	Constellation Boulevard	Century Park West	Avenue of the Stars	Property Access Closures
Century Park B	No closures required	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for station excavation and construction. Full weekend closures for installing and removing street decking. (Note that tunnel activity is based at Santa Monica Blvd.)	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for the installation and removal of street decking.	Partial closures for utility relocations. Partial closures for ground improvement (grouting). Partial closures for appendage construction	Full and partial closures will impact entrances to: <ul style="list-style-type: none"> • Customer parking and loading dock at Westfield Mall • Entrance to parking at Sun America • Entrance to Century Plaza Hotel parking • Entrance to future parking for New Century Plaza • Entrance to Solar way
Century Park C	Partial closures for utility relocations and for a material transport corridor between 2040 Century Park East and 1940 Century Park East. Full closure for tunneling and cross passage construction (27 months)	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for station excavation and construction. Full weekend closures for installing and removing street decking. Full closure for tunneling and cross passage construction (27 months)	No closures required	Partial closures for utility relocations. Partial closures for soldier piles. Partial closures for the installation and removal of street decking. Partial closures for construction of station entrance and appendages.	Full and partial closures will impact entrances to: <ul style="list-style-type: none"> • Customer parking and loading dock at Westfield Mall • Entrance to parking at Sun America • Entrance to future loading dock at 1950 Avenue of the Stars • Entrance to 10100 Constellation Blvd parking • Entrance to Century Plaza Hotel parking • Entrance to future parking for New Century Plaza • Entrance to Solar Way



Unique Problems or Unusual Factors

The schedule for development of 1950 Avenue of the Stars would impact the way the crossover beneath the development could be constructed. As discussed under the safety and operational considerations above, the crossover and tunnels would have to be built in advance of the development. In this way, the construction can be managed from the surface using conventional construction methods and the crossover can be designed to carry the future building loads and the building design can in turn reflect the presence of the tunnels and crossover. Delays associated with redesign and contracting of the Westside Purple Line Extension to adopt the Century Park A Alternative would increase the amount of time by which planned development of 1950 Avenue of the Stars would precede crossover construction and, therefore, would increase to delay cost liability to Metro if development of 1950 Avenue of the Stars is delayed until after completion of the crossover structure.

If construction of Section 2 of the Project does proceed before development of 1950 Avenue of the Stars, the top of the structure to hold the crossover tracks would be 15 feet below the bottom of the new building foundations (approximately 60 feet below street level) and require structural strength sufficient to construct the entitled high-rise property above the structure. The design of the high-rise foundations would need to be carefully coordinated with the tunnels and crossover to avoid conflicts with foundation elements of the building, which is adjacent to the Century City Station and above the crossover structure. This would result in delays and redesign for the property's developer and require a delay of building construction until after completion of the crossover structure.

The developer is currently proceeding with design and permitting; therefore, this scenario would require Metro to stop the developer from moving forward with the current design and schedule to work around the crossover and tunnel. Metro would have to accept the cost of delays and redesign and in the worst case the cost of the developer abandoning the project if the delays would mean the developer misses the current market cycle. These costs are substantial and have not been included in the current cost estimate. This is feasible but not prudent due to the cost of delays to the developer, which would be a liability for Metro.

Cumulative Consideration of Factors

The Century Park A Alternative, when compared to the Project, would operate less efficiently by increasing travel time for patrons and operation and maintenance requirements for the system, would have increased construction-phase risks and impacts, would delay the benefits of the project by between two and four years, and would include a significant risk that the crossover structure could not be constructed. The station entrance would be less central to the intersection of Constellation Boulevard and Avenue of the Stars, making it less convenient for Metro riders. Furthermore, the construction cost would be higher by an extraordinary magnitude compared to the Project. The cumulative consideration of these factors would make the Century Park A Alternative not prudent. Since the alternative is not prudent, it was not carried forward for further consideration.

5.4.4 Century Park B

Description of Alternative

The Century Park B Alternative (Figure 5-27) is another alternative identified in the May 24, 2012 presentation to the Metro Board of Directors. The Century Park B Alternative would travel below and between the foundations of several high-rise buildings in Century City, including the 40-story 10000 Santa Monica Boulevard, the 24-story 1875 Century Park East, and the 15-story 1800 Century Park East. These buildings have up to three basement levels of parking below ground level.



Figure 5-27. Century Park B Alternative

As with the Century Park A Alternative, the tunnel alignment would cross the property at 1950 Avenue of the Stars and the tunnel profile would have to be lowered to accommodate future development, which is anticipated to be high-rise buildings above four levels of underground parking and a mat foundation. The station at Constellation Boulevard and the tunnels would have to be lowered by 12 feet compared to the design for the Project to provide the necessary clearance at 1950 Avenue of the Stars.

The station would be located at the west end of Constellation Boulevard, which would shift the alignment for the Section 3 tunnels to the west and increase the number of residential properties from which subsurface easements would be required. Moving the station to the west also would affect the proposed station entrance at the northeast corner of Avenue of the Stars and Constellation Boulevard, which is near the center of activity in Century City. Maintaining the station entrance at this location would require

an extended corridor beneath Constellation Boulevard to connect the entrance to the station concourse. Alternatively, the station entrance could be moved farther west to the existing bus layover facility at the southeast corner of the intersection of Constellation Boulevard and Century Park West, which would increase the walk distance for most station users.

As with the Century Park A Alternative, the Century Park B Alternative would require a site to launch the tunnel boring machines and support tunnel boring. The developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard extending to South Moreno Drive would be required for construction staging (Figure 5-26).

Evaluation of Feasibility

The Century Park B Alternative, as with the Century Park A Alternative, would travel below and between the foundations of several high-rise buildings in Century City. This would create construction challenges and reduce operational efficiency, which are factors in considering the prudence of the alternative, but the challenges would not make the alternative infeasible. There are substantial risks associated with tunneling under high-rise buildings as described for Century Park A.

Evaluation of Prudence

Effectiveness at Meeting Purpose and Need

Elements of the Project's purpose to improve transit services within the Study Area and provide a fast, reliable, and environmentally sound transit alternative, the Century Park B Alternative would have a greater length and lower average operating speed, which would increase travel time between both the Wilshire/Rodeo and Westwood/UCLA stations and Century City relative to the Project (Table 5-6). The 56,680 passengers that board and alight daily at Century City and stations farther west would experience a collective 600 hours of travel time increase daily compared to the Project. While it would be less effective at meeting purpose and need, it would not compromise the project to a degree that it is unreasonable to proceed.

Safety and Operational Considerations

The Century Park B Alternative would result in less efficient operations than the Project. It would add more than half a minute to each transit trip traveling on the Purple Line. The increased operating time, along with longer alignment (approximately a 6 percent increase in the track distance between the Wilshire/Rodeo and Westwood/UCLA stations) would increase operation and maintenance requirements for the Century Park B Alternative relative to the Project. The increased operating time, if served with the same vehicle fleet, would decrease the schedule recovery time at the end of each trip, thereby increasing the occurrences of cascading schedule delays.

In addition to operational concerns, substantial safety risks are associated with tunneling under high-rise buildings, and any structural damage to such buildings would be difficult and costly to repair. The Century Park B Alternative would be designed with a minimum clearance distance of 15 feet below existing structures because the alignment is constrained by station depth, vertical curve, and grade limits. Even with this

minimum clearance distance, the Century City Station would be approximately 12 feet deeper than required for the Project. Structural damage to high-rise buildings could require repair or replacement of major structural elements within the building, or in the extreme case of cumulative damage beyond safety limits, demolition of the building. The Century Park B Alternative would be operationally less efficient than the Project and has additional tunneling risks related to safely tunneling under high-rise structures. The safety risks of tunneling under high-rise buildings would make it imprudent to proceed with the alternative.

Social, Economic, Environmental, and Community Impacts

Because the Century Park B Alternative would operate in tunnels and therefore would avoid surface impacts and would serve the same areas as the Project, the long-term social, economic, environmental, and community impacts would be similar. The increased transit travel time for the Century Park B Alternative would result in lost time and productivity for transit users.

The Century Park B alternative, however, differs substantially in construction-phase impacts in comparison to the Project. The tunnel alignment for Century Park B would not be accessible from the construction staging sites that are proposed for the Project located between 1940 and 2040 Century Park East; therefore, as described for the Century Park A Alternative, an alternative site in the developed area between North Santa Monica Boulevard and South Santa Monica Boulevard south and west of Wilshire Boulevard extending to South Moreno Drive would be required to launch the tunnel boring machine and support tunnel boring (Figure 5-27). Because the site is in the center of the reach between stations, the tunnel boring machine would have to be launched first in one direction, then brought back to the launch site and sent in the other direction. This would add several months to the construction period and associated disturbance. The construction staging would substantially increase the number of business displacements in Century City and west Beverly Hills.

In addition, the Century City Station would be approximately 12 feet deeper and shifted to the west compared to the Project, which would increase the disruption during construction. Construction would require decking and excavation in front of the entrance to Westfield Mall. It would also require long-term lane closures above the station module footprint to provide a staging area for station construction. Compared to the Project, Century Park B would have a longer period of road closures while the station is being excavated and greater quantities of material trucked away on local roads, resulting in both increased traffic congestion and air pollution from the haul vehicles. Station excavation would be nearer residences west of Century Park West.

The lengthened construction schedule, combined with the likely multiple-year delay that would result from the need to perform structural assessments on existing high-rise buildings, and negotiate subsurface easements with the building owners, would affect the community by delaying realization of the benefits of the Westside Purple Line Extension by approximately two to four years. The two-to-four-year delay to Section 2 would prevent operation of Section 3 until Section 2 is complete, resulting in an approximately 18-month to three-year delay to Section 3.

Costs of an Extraordinary Magnitude

The longer alignment, deeper station and crossover, schedule delay, increased construction duration, and requirements for alternative tunnel boring machine launch and construction staging areas would increase the costs for the Century Park B Alternative relative to the Project by approximately \$119 million YOE dollars (Table 5-8). This approximately 5 percent increase in capital costs would be a substantial increase. In addition to the increased project costs, there would be costs associated with the likely two-to-four-year delay, which are not included in this comparison.

Unique Problems or Unusual Factors

The tunnels would cross below 1950 Avenue of the Stars. The developers of 1950 Avenue of the Stars have recently indicated that they intend to begin construction of a high-rise development prior to the scheduled construction of the Century City Station. The top of the tunnels would be at a depth of 15 feet below the building foundations (approximately 60 feet below street level) and would require a tunnel design that allows for construction of the building foundation above and around the tunnel sufficient to construct the entitled high-rise property above. The design of the high-rise foundations would need to be carefully coordinated with the tunnel alignment to avoid any conflicts with foundation elements of the building, which is adjacent to the Century City Station. Selection of the Century Park B Alternative would cause delays and redesign of 1950 Avenue of the Stars to accommodate the tunnels. This would introduce Metro liability for redesign costs and a substantial risk regarding the safe constructability of the tunnels once 1950 Avenue of the Stars is complete.

Cumulative Consideration of Factors

The Century Park B Alternative, when compared to the Project, would operate less efficiently by increasing travel time for patrons and operation and maintenance requirements for the system, would have substantially increased construction-phase risks of damage to high-rise buildings and impacts including displacements and construction closures and delays, would have a substantially higher cost, would delay the benefits of the project by between two and four years, and would include a risk associated with construction of the deep tunnel section under 1950 Avenue of the Stars and existing high-rise buildings in Century City. The station entrance would be less central to the intersection of Constellation Boulevard and Avenue of the Stars making it less convenient for Metro riders. The cumulative consideration of these factors would make the Century Park B Alternative not prudent. Since the alternative is not prudent, it was not carried forward for further consideration.

5.4.5 Century Park C

The Century Park C Alternative (Figure 5-28) is another of the alternatives identified in the May 24, 2012 presentation to the Metro Board of Directors. The Century Park C Alternative would travel below and between the foundations of several high-rise buildings in Century City, including the 24-story 1925 Century Park East, the 21-story 1888 Century Park East, the 15-story 1880 Century Park East, and the 40-story 10000 Santa Monica Boulevard. These buildings have up to three basement levels of parking



Figure 5-28. Century Park C Alternative

below ground level. The Century Park C Alternative crosses under the northwest corner of BHHS, outside the boundary of the NRHP-eligible historic property. The station at Constellation Boulevard and the tunnels would have to be lowered by 9 feet compared to the design for the Project to provide the necessary clearance for the building foundations at 1975 Century Park East.

Evaluation of Feasibility

The Century Park C Alternative would travel below and between the foundations of several high-rise buildings in Century City. There are substantial risks associated with tunneling under high-rise buildings similar to the Century Park A Alternative. This would create construction challenges and reduce operational efficiency, which are factors in considering the prudence of the alternative, but they would not make the alternative infeasible.

Evaluation of Prudence

Effectiveness at Meeting Purpose and Need

Elements of the Project's purpose and need to improve transit services within the Study Area and provide a fast, reliable, and environmentally sound transit alternative, the Century Park C Alternative would have a greater length and lower average operating speed, which would increase travel time between both the Wilshire/Rodeo and Westwood/UCLA stations and Century City relative to the Project (Table 5-6). The increased travel time would result in a small reduction in boardings for the Century City Station. The 56,680 passengers that board and alight daily at Century City and stations

farther west would experience a collective 680 hours of travel time increase daily compared to the Project. While it would be less effective at meeting purpose and need, it would not compromise the project to a degree that it is unreasonable to proceed.

Safety and Operational Considerations

The Century Park C Alternative would result in less efficient operations than the Project. It would add approximately two-thirds of a minute to each transit trip traveling on the Project. The increased operating time, along with the longer alignment (approximately a 5 percent increase in the track distance between the Wilshire/Rodeo and Westwood/UCLA stations) would increase operation and maintenance requirements for the Century Park C Alternative relative to the Project (Table 5-6). The increased operating time, if served with the same vehicle fleet, would decrease the schedule recovery time at the end of each trip, thereby increasing the occurrences of cascading schedule delays.

In addition to the operational concerns, as detailed for the Century Park A Alternative, there are substantial safety risks associated with tunneling under high-rise buildings, and any structural damage to such buildings would be difficult and costly to repair. The Century Park C Alternative would be designed with a minimum clearance distance of 15 feet below existing structures because the alignment is constrained by station depth, vertical curve, depth of the access box for construction, and grade limits. Even with this minimum clearance distance, the Century City Station would be approximately 9 feet deeper than required for the Project. Structural damage to high-rise buildings could require repair or replacement of major structural elements within the building, or in the extreme case of cumulative damage beyond safety limits, demolition of the building.

Unlike the Century Park A and B Alternatives, the Century Park C Alternative could use the construction staging sites that are proposed for the Project located between 1940 and 2040 Century Park East to launch and support the tunnel boring machines. However, the distance is too great to be able to directly connect underground and use the access shaft location proposed for the Project. An access box would have to be constructed on Century Park East to provide access between the tunnels and the construction staging sites for materials supply and removal of spoils.

Running through the proposed access box footprint for the Century Park C Alternative is the 60-inch Los Angeles Department of Water and Power Stone–Hollywood trunk line. This water line would have to run through the access box or be relocated to a corridor outside the shaft shoring. Figure 5-29 shows the relationship of the access box to the water line and the adjoining properties. The Project and other avoidance alternatives would not require an access box in this vicinity and would tunnel under the trunk line without affecting it.

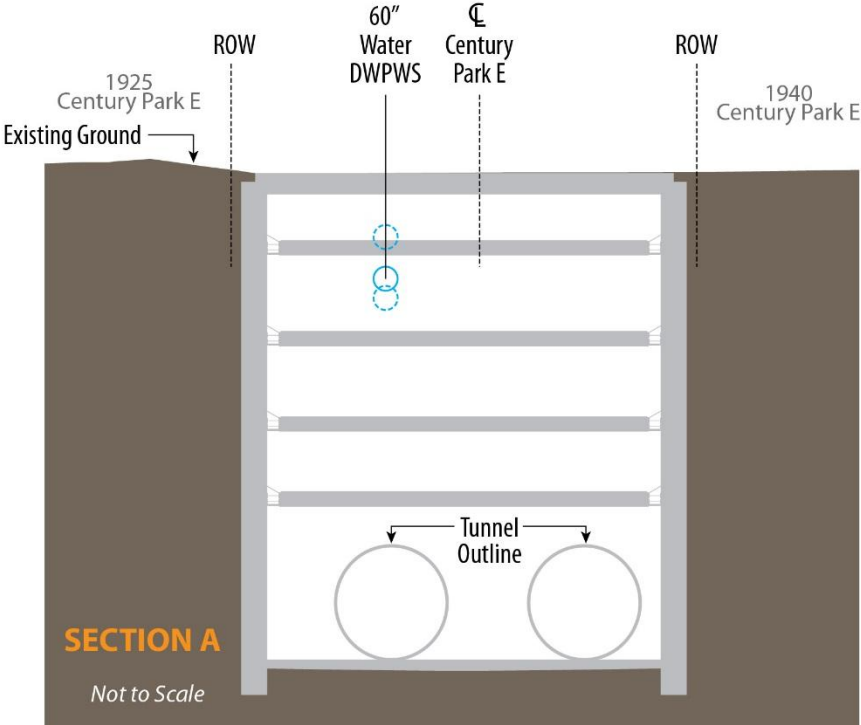
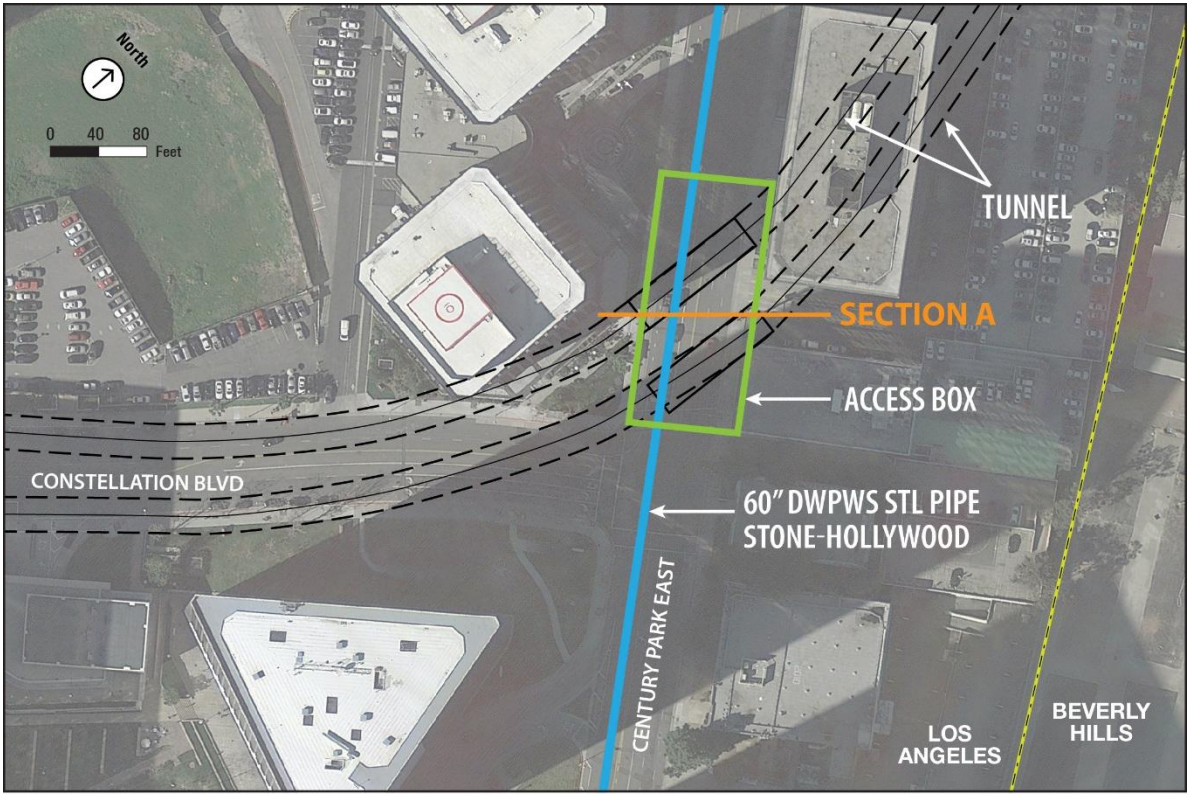


Figure 5-29. Century Park C Access Box Excavation Relative to the Stone-Hollywood Trunk Line

An access box large enough to support tunneling would not leave space to reroute the 60-inch water main around the box, and therefore the water line would have to be reinforced or replaced and then supported as it runs through the box. Having such a large water line running through the access box carries the risk of it being damaged during construction, the consequences of which would be catastrophic. The rupture of a 30-inch water line near UCLA in July 2014 flooded sections of the campus and surrounding properties and caused substantial damage to property. A rupture of the 60-inch line would release four times the volume of water. Any rupture of the 60-inch line would immediately flood the tunnels. The tunnels slope down away from the access shaft, so workers in the tunnels would be unlikely to be able to escape in the event of a pipe rupture. Properties and streets near the shaft and underground garages at Century City would likely be flooded, resulting in major property damage and risk to people in these facilities.

The Century Park C Alternative would be operationally less efficient than the Project and have additional tunneling risks related to safely tunneling under high-rise buildings and the 60-inch Stone-Hollywood trunk line. These safety risks would make it imprudent to proceed with the alternative.

Social, Economic, Environmental, and Community Impacts

Because the Century Park C Alternative would operate in a tunnel and therefore would avoid surface impacts and would serve the same areas as the Project, the long-term social, economic, environmental, and community impacts would be similar between the alternatives. The increased transit travel time for the Century Park C Alternative would result in lost time and productivity for transit users.

The alternatives, however, would differ in construction-phase impacts. The Century Park C Alternative could use the construction staging sites that are proposed for the Project located between 1940 and 2040 Century Park East to launch and support the tunnel boring machines. However, the tunnels would not directly connect to the access shaft location proposed for the Project and an access box would have to be constructed on Century Park East to provide access between the tunnels and the construction staging sites for materials supply and removal of spoils. The access box would require additional utility relocation work on Century Park East to clear pile corridors for the shoring and decking. Access box construction would require partial closures of Century Park East to install soldier piles and full closures to install and later remove decking and for street restoration.

In addition, the Century City Station would be approximately 9 feet deeper compared to the Project, which would increase the disruption during construction. Construction would require long-term lane closures above the station module footprint to provide a staging area for station construction. Compared to the Project, this alternative would have a longer period of road closures while the station is being excavated and greater quantities of material trucked away on local roads, resulting in both increased traffic congestion, noise, and air pollution from the haul vehicles.

The lengthened construction schedule, combined with the likely multiple-year delay that would result from the need to perform structural assessments on existing high-rise buildings, and negotiate subsurface easements with the building owners and their insurers, would affect the community by delaying realization of the benefits of the Westside Purple Line Extension by approximately two to four years. The two-to-four-year delay to Section 2 would prevent operation of Section 3 until Section 2 is complete, resulting in an approximately 18-month to three-year delay to Section 3.

Construction-phase impacts and risks would be substantially greater for the Century Park C Alternative than for the Project.

Costs of an Extraordinary Magnitude

The longer alignment, deeper station, schedule risk, depth of the crossover, and increased construction duration and risks would increase the capital costs for the Century Park C Alternative relative to Section 2 of the Project by approximately \$105 million YOE dollars (Table 5-8). This approximately 4 percent increase in capital costs would be a substantial increase. In addition to the increased project costs, there would be costs associated with the likely two-to-four-year delay, which are not included in this comparison.

Unique Problems or Unusual Factors

The access box on Century Park East would require excavating below the 60-inch Stone–Hollywood trunk line, which is a major regional water line below ground under Century Park East, with an open cut (Figure 5-29). The water line would be exposed for the entire length of the approximately 200-foot-long access box in Century Park East. The line would have to be protected, reinforced, and supported or replaced with modern pipe to reduce the risk of rupture, which could flood the tunnels under construction below the pipe while disrupting water service to a large area. This would introduce additional worker and public safety risk, including potential flooding of the tunnel and nearby buildings including BHHS, into the tunnel construction. The open-cut access within Century Park East also would increase the disruption to traffic on Century Park East while the work is in progress.

Cumulative Consideration of Factors

The Century Park C Alternative, when compared to the Project, would operate less efficiently, increase travel time for patrons and operation and maintenance requirements for the system, would have increased construction-phase impacts, would have a substantially higher cost, would delay the benefits of the project by between two and four years, and would include substantial risks associated with construction of the tunnels under several high-rise buildings and the access box under the Stone–Hollywood trunk line. The cumulative consideration of these factors would make the Century Park C Alternative not prudent. Since the alternative is not prudent, it is not carried forward for further consideration.

5.4.6 Summary of Feasibility and Prudence of Avoidance Alternatives

The Wilshire Boulevard Alternative would be feasible but would not be prudent to construct because it fails to meet key elements of the Project's purpose and need, resulting in a decrease in system boardings by 12 percent and reduced transit access to 49,970 jobs in Century City. It also would have less benefit in regards to improving regional air quality and reducing energy consumption, as well as social, economic, and community effects of displacing 32 individual businesses and an additional two multi-tenant office buildings and reducing connectivity to jobs for low-income populations (Table 5-5).

The Santa Monica Boulevard Alternative is not feasible and prudent because it would not be seismically safe to construct and operate the alternative, would reduce system boardings by 7 percent, and would displace 32 individual businesses and an additional two multi-tenant office buildings.

The Century Park A Alternative would not be feasible to construct if development of 1950 Avenue of the Stars precedes the Project. If development of 1950 Avenue of the Stars is delayed until after completion of the crossover structure, it would not be prudent when cumulatively considering its efficiency, operating requirements, environmental impacts during construction, delay in project benefits of between two and four years, higher cost than the Project by an extraordinary magnitude, and construction risks associated with excavating and tunneling under high-rise buildings.

The Century Park B Alternative would be feasible to construct, but it would not be prudent to construct when cumulatively considering its efficiency, operating requirements, schedule risks around timing of development of 1950 Avenue of the Stars, environmental impacts during construction, delay in project benefits of between two and four years, substantially higher cost than the Project, and construction risks associated with excavating and tunneling under high-rise buildings.

The Century Park C Alternative would be feasible to construct, but it would not be prudent to construct when cumulatively considering its efficiency, operating requirements, environmental impacts during construction, delay in project benefits of between two and four years, substantially higher cost than the Project, and construction risks associated with excavating and tunneling under high-rise buildings and excavating the access box under the Stone-Hollywood trunk line.

There are no feasible and prudent alternatives that would have no use, in the form of a subsurface easement, of Section 4(f) properties in the west Beverly Hills and Century City area.

5.5 Evaluation of Least Overall Harm

Because none of the avoidance alternatives evaluated in Section 5.4 would be feasible and prudent alternatives to the Project, this section provides an evaluation of other alternatives that would use land below one or more Section 4(f) properties in the west Beverly Hills and Century City area (Figure 5-30). The evaluation includes a representative range of alternatives that encompasses all of the alternatives that have been previously identified to serve Century City, including alternative alignments identified after issuance of the ROD, and would use land from one or more Section 4(f) properties. The least overall harm analysis compares:

- The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- The relative significance of each Section 4(f) property;
- The views of the officials with jurisdiction over each Section 4(f) property;
- The degree to which each alternative meets the purpose and need for the project;
- After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- Substantial differences in costs among the alternatives.

The evaluation is summarized in Table 5-10.

As explained in Section 3.3.1 of the Section 4(f) Policy Paper, *de minimis* impacts are generally not differentiators in a least overall harm analysis because the net harm resulting from the *de minimis* impact is negligible (USDOT 2012). The FTA preliminarily determined that impacts from the Project on Section 4(f) resources would be *de minimis*; therefore, the net harm to Section 4(f) resources from the Project and other alternatives with similar impacts is not a significant factor in determining least overall harm between the alternatives.



Figure 5-30. Alternatives Considered for Least Overall Harm

Table 5-10. Summary Comparison of Alternatives for Least Overall Harm

Alternative ¹	Ability to Mitigate Adverse Impacts on Each Section 4(f) Property	Relative Severity of Remaining Harm	Relative Significance of Each Section 4(f) Property	The Official(s) with Jurisdiction	Meets the Purpose and Need for the Project	Magnitude of Other Adverse Impacts	Differences in Costs
The Project	Impacts avoided by tunneling under 4(f) properties	None	Two NRHP-eligible sites, one of which is a shared-use recreational resource	SHPO, BHUSD, and the City of Beverly Hills	Meets purpose and need	No adverse impacts to resources not protected by Section 4(f); subsurface easements from 30 commercial and 90 residential properties	Cost for the Project is \$2,411 M YOE
Century Park D	Impacts avoided by tunneling under 4(f) properties	None	Two NRHP-eligible sites, one of which is a shared-use recreational resource; would cross under BHHS Building B2	SHPO, BHUSD, and the City of Beverly Hills	30 person-hours of daily travel time savings relative to the Project; similar to the Project in meeting purpose and need	Subsurface easements from 27 commercial and 90 residential properties	\$60M greater than the Project YOE
Constellation Direct	Impacts avoided by tunneling under 4(f) properties	None	Three NRHP-eligible sites, one of which is a shared-use recreational resource; would cross under BHHS Building B2	SHPO, BHUSD, and the City of Beverly Hills	50 person-hours of daily travel time increase relative to the Project; similar to the Project in meeting purpose and need	Subsurface easements from 23 commercial and 93 residential properties	\$8M greater than the Project YOE
Lasky Drive A	Impacts avoided by tunneling under 4(f) properties	None	Three NRHP-eligible sites, one of which is a shared-use recreational resource	SHPO, BHUSD, and the City of Beverly Hills	240 person-hours of daily travel time increase relative to the Project; less effective than the Project in meeting purpose and need	Subsurface easements from 23 commercial and 88 residential properties	\$6M greater than the Project YOE
Lasky Drive B	Impacts avoided by tunneling under 4(f) properties	None	Three NRHP-eligible sites, one of which is a shared-use recreational resource	SHPO, BHUSD, and the City of Beverly Hills	660 person-hours of daily travel time increase relative to the Project; less effective than the Project in meeting purpose and need	Subsurface easements from 21 commercial and 107 residential properties	\$12M greater than the Project YOE

Alternative ¹	Ability to Mitigate Adverse Impacts on Each Section 4(f) Property	Relative Severity of Remaining Harm	Relative Significance of Each Section 4(f) Property	The Official(s) with Jurisdiction	Meets the Purpose and Need for the Project	Magnitude of Other Adverse Impacts	Differences in Costs
Spalding	Impacts avoided by tunneling under 4(f) properties	None	Three NRHP-eligible sites, one of which is a shared-use recreational resource	SHPO, BHUSD, and the City of Beverly Hills	350 person-hours of daily travel time increase relative to the Project; less effective than the Project in meeting purpose and need	Subsurface easements from 19 commercial and 100 residential properties	\$3M greater than the Project YOE
Constellation South	Impacts avoided by tunneling under 4(f) properties	None	Three NRHP-eligible sites, one of which is a shared-use recreational resource; would cross under BHHS Building B2	SHPO, BHUSD, and the City of Beverly Hills	50 person-hours of daily travel time savings relative to the Project; similar to the Project in meeting purpose and need	Subsurface easements from 20 commercial and 97 residential properties	\$42M less than the Project YOE
Avenue of the Stars	Permanent impacts avoided by tunneling under 4(f) properties, except for Roxbury Memorial Park	Construction activities would use Roxbury Memorial Park; Park Access limited during construction	One NRHP-eligible site and Roxbury Memorial Park, a significant recreational resource	SHPO and the City of Beverly Hills	680 person-hours of daily travel time increase relative to the Project; less effective than the Project in meeting purpose and need	Subsurface easements from 11 commercial and 130 residential properties	\$12M greater than the Project YOE

¹Other alternatives were identified that would fail to meet minimum design or safety requirements. The Santa Monica Boulevard East Alternative would fail to meet seismic safety requirements. The Lasky Drive C, D, and E and Olympic Boulevard Alternatives would fail to meet minimum design criteria for curve radius.

5.5.1 Alternatives Considered for Least Overall Harm

This Section 4(f) Evaluation considers a representative range of alternatives that encompasses the alternatives that have been previously identified to serve Century City, including alternative alignments identified after issuance of the ROD (Figure 5-30). For all of the alternatives considered, no project features would reach the surface within the boundaries of any Section 4(f) property.

Santa Monica Boulevard East

The Final EIS/EIR considered this variation on the Santa Monica Boulevard Alternative that is discussed in Section 5.4.2 of this Draft SEIS, but with the station located farther east at Century Park East to avoid seismic faults identified at Avenue of the Stars (Figure 5-31). This alternative was identified in the Final EIS/EIR as not being viable because of safety issues related to seismic faults identified in this section of Santa Monica Boulevard as well as requiring the crossover to be separated from the main station excavation, resulting in an additional ventilation zone and the need to mine beneath the Benedict Canyon storm drain. The Santa Monica Boulevard Alternative would tunnel under the southwest corner of the Los Angeles Country Club.



Figure 5-31. Santa Monica Boulevard East Alternative

The Santa Monica Boulevard East Alternative would locate the Century City Santa Monica Station east of the location for the Santa Monica Boulevard Alternative evaluated in Section 5.4.2, Avoidance Alternatives. The station would still be within the Santa Monica fault zone in the vicinity of Santa Monica Boulevard. Because of seismic risks (refer to Section 4.3 of this Draft SEIS) associated with constructing and operating a subway station across a seismic fault, the Santa Monica Boulevard East Alternative would fail to meet safety requirements. The Santa Monica Boulevard East Alternative is not a feasible alternative.

Century Park D

The Century Park D Alternative is a variation on the Century Park Alternatives that are discussed as avoidance alternatives in Section 5.4 of this Draft SEIS. Subsequent to the May 24, 2012 presentation to the Metro Board of Directors where the Century Park Alternatives were presented, multiple developments have begun in Century City, which were factors in the evaluation of those alternatives as not being feasible and prudent avoidance alternatives. The Century Park D Alternative was developed within the constraints of the new developments (Figure 5-32). The Century Park D Alternative would tunnel under BHHS Building A and the northwest corner of the BHHS historic property, including under Buildings B3 and B4 (Figure 5-5), and the AAA Building.



Figure 5-32. Century Park D Alternative

Constellation Direct

The Constellation Direct Alternative is located farther west than the Project between Wilshire Boulevard and the Constellation Boulevard station. It was considered during Alternatives Analysis prior to issuance of the Draft EIS/EIR (Figure 5-33). The Constellation Direct Alternative would tunnel under the Perpetual Savings Bank parcel, BHHS, and AAA Building historic properties and the recreational resources associated with BHHS. The Constellation Direct Alternative would tunnel under BHHS Building B2.



Figure 5-33. Constellation Direct Alternative

Lasky Drive A

The Lasky Drive A Alternative crosses BHHS south of the Project (Figure 5-34). The Lasky Drive A Alternative would tunnel under the Perpetual Savings Bank parcel, BHHS, and AAA Building historic properties and the recreational resources associated with BHHS.

Lasky Drive B

The Lasky Drive B Alternative crosses BHHS south of the Project (Figure 5-35). The Lasky Drive B Alternative would tunnel under the Perpetual Savings Bank parcel, BHHS, and AAA Building historic properties and the recreational resources associated with BHHS.



Figure 5-34. Lasky Drive A Alternative



Figure 5-35. Lasky Drive B Alternative

Lasky Drive C

The Lasky Drive C Alternative crosses BHHS south of the Project (Figure 5-36). The Lasky Drive C Alternative would tunnel under the Perpetual Savings Bank parcel, BHHS, and AAA Building historic properties and the recreational resources associated with BHHS.



Figure 5-36. Lasky Drive C Alternative

The Lasky Drive C Alternative would have a minimum curve radius less than 750 feet (Table 5-11). Metro has a design criterion of 1,000 feet minimum curve radius for the Westside Purple Line Extension (Metro 2011o). If local conditions make it impractical to meet the design criterion, a design deviation can be granted to allow individual curves of less than a 1,000-foot radius. As the radius of a curve is reduced, the speed of trains must also be reduced to prevent the trains from derailing. In addition to requiring slower train speeds, smaller curve radii increase the cost of maintaining the track and the train wheels. Train wheels make more contact with the rails on tighter curves, causing wear on both the wheels and the rail, as well as resulting in rail squeal, which is an annoyance for passengers.

The lower-limit for curve radius is 750 feet, based on operational requirements of Metro's subway vehicles. At a radius of less than 750 feet, the increased risk of derailments caused by wheels binding and climbing onto the outside rail is unacceptable and design deviations would not be approved. Because the Lasky Drive C Alternative would have a minimum curve radius of less than 750 feet, it would not be a feasible alternative (Table 5-11).

Table 5-11. Limiting Curve Radius for Lasky Drive C, D, and E Alternatives and Olympic Boulevard Alternative

Alternative	Minimum Design Criteria: Limiting Curve Radius	Comparison to lower limit curve radius of 750 feet	Feasible?
Lasky Drive C	630 feet	Less than 750 feet	Not feasible
Lasky Drive D	450 feet	Less than 750 feet	Not feasible
Lasky Drive E	400 feet	Less than 750 feet	Not feasible
Olympic Boulevard	675 feet	Less than 750 feet	Not feasible

Note: Metro has a design criterion of 1,000 feet minimum curve radius for the Westside Purple Line Extension (Metro 2011o). A design deviation can be granted to allow individual curves to have a radius of between 750 and 1,000 feet.

Lasky Drive D

The Lasky Drive D Alternative approaches BHHS following Spalding Drive, then crosses BHHS south of the Project and under the football field and track (Figure 5-37). The Lasky Drive D Alternative would tunnel under the Perpetual Savings Bank parcel, BHHS, and the AAA Building historic properties and the recreational resources associated with BHHS. The lower-limit for curve radius is 750 feet. Because the Lasky Drive D Alternative would have a minimum curve radius of less than 750 feet it would not be a feasible alternative (Table 5-11).



Figure 5-37. Lasky Drive D Alternative

Lasky Drive E

The Lasky Drive E Alternative crosses BHHS south of the Project and under the BHHS football field and track (Figure 5-38). The Lasky Drive E Alternative would tunnel under the Perpetual Savings Bank parcel, BHHS, and the AAA Building historic properties and the recreational resources associated with BHHS. The lower-limit for curve radius is 750 feet. Because the Lasky Drive E Alternative would have a minimum curve radius of less than 750 feet it would not be a feasible alternative (Table 5-11).



Figure 5-38. Lasky Drive E Alternative

Spalding

The Spalding Alternative approaches BHHS following Spalding Drive, then crosses BHHS south of the Project (Figure 5-39). The Spalding Alternative would tunnel under the Perpetual Saving Bank parcel, BHHS, and the AAA Building historic properties and the recreational resources associated with BHHS.

Constellation South

The Constellation South Alternative is located farther west than the Project between Wilshire Boulevard and the Constellation Boulevard station. It was considered during the Alternatives Analysis prior to issuance of the Draft EIS/EIR (Figure 5-40). The Constellation South Alternative would tunnel under Building B2 at BHHS, the AAA Building, and the Barn historic properties and the recreational resources associated with BHHS.



Figure 5-39. Spalding Alternative



Figure 5-40. Constellation South Alternative

Avenue of the Stars

During the Alternatives Analysis prior to issuance of the Draft EIS/EIR, a tunnel alternative was developed that would reach Century City by traveling south along South Bedford Drive, crossing south of West Olympic Boulevard, then loop back to the north under Avenue of the Stars, with a station located between Constellation Boulevard and Santa Monica Boulevard (Figure 5-41). The Avenue of the Stars Alternative would tunnel under Roxbury Memorial Park and the southwest corner of the Los Angeles Country Club (South Course).

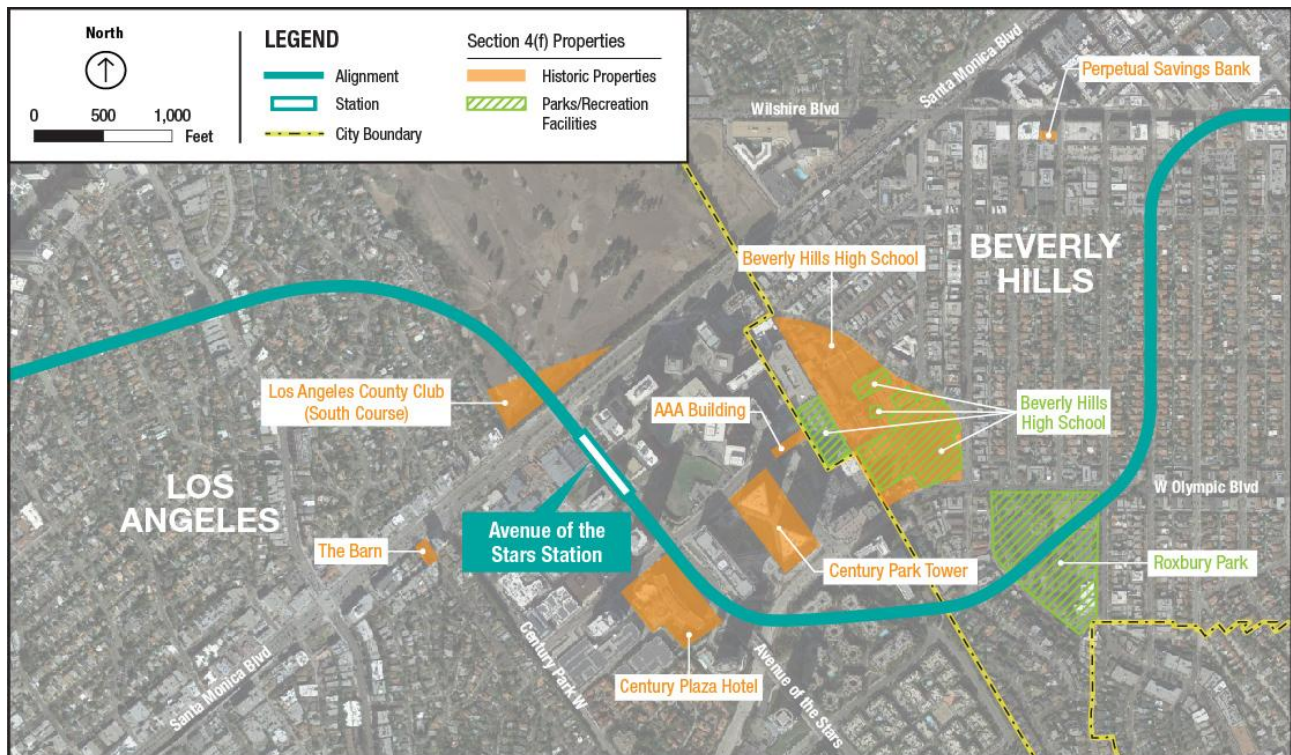


Figure 5-41. Avenue of the Stars Alternative

Olympic Boulevard

The Olympic Boulevard Alternative travels south of and avoids BHHS historic buildings and Roxbury Memorial Park (Figure 5-42). The Olympic Boulevard Alternative would tunnel under BHHS, the Century Park North Tower, and Century Plaza Hotel historic properties and the recreational resources associated with BHHS. The lower-limit for curve radius is 750 feet. Because the Olympic Boulevard Alternative would have a minimum curve radius of less than 750 feet it would not be a feasible alternative (Table 5-11).

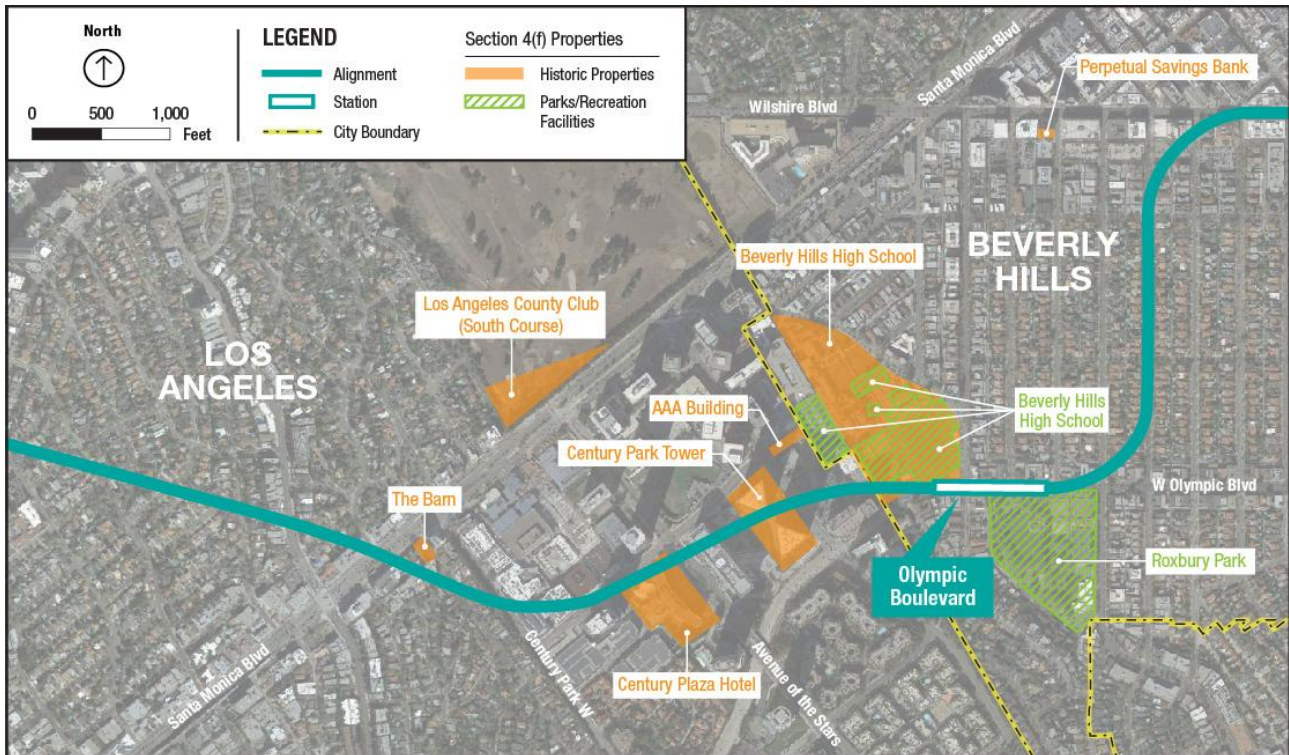


Figure 5-42. Olympic Boulevard Alternative

5.5.2 Ability to Mitigate Adverse Impacts on Each Section 4(f) Property

All of the alternatives, including the Project, would be entirely below ground with no project features reaching the surface within any of the Section 4(f) properties in the west Beverly Hills and Century City area. For the Project, the maximum operational ground-borne noise level for a tunnel under BHHS was predicted at 33 dBA, and the maximum operational vibration level was predicted at 64 VdB for any existing location on the BHHS campus, which would be less than the FTA impact criteria for institutional land uses of 40 dBA and 75 VdB (Table 4-34 of the Final EIS/EIR [Metro 2012]). Section 4.2 of this Draft SEIS provides analysis to confirm that, with mitigation, ground-borne noise and vibration levels inside the planned future gymnasium also would be below the criteria. Vibration levels for other alternatives that include tunnels under the campus would be similar.

Tunneling with a tunnel boring machine, along with compensation grouting where required, would not cause significant ground settlement that would result in damage to the historic buildings, as discussed in Sections 4.15.3 and 8.8.4 of the Final EIS/EIR (Metro 2012). As detailed in Sections 4.3 and 4.5.5 of this Draft SEIS, construction and operation of the project would not affect methane gas movement below the Section 4(f) properties. As discussed in Section 5.3 of this Draft SEIS, the design would avoid or mitigate potential long-term adverse impacts for the Project. The same design elements would be incorporated for each of the feasible alternatives and there would be no remaining long-term harm with any of the feasible alternatives.

Construction-phase effects to Section 4(f) properties would be similar to those for the Project for all feasible alternatives except for the Avenue of the Stars Alternative. The Avenue of the Stars Alternative would require different construction staging areas because this alternative would not be adjacent to the staging areas that would be used for the Project (Figure 5-43). For the Avenue of the Stars Alternative, a site above the tunnel would be required to launch the tunnel boring machine and support tunnel boring. The only identified open area above the alignment with sufficient space to launch the tunnel boring machine is within Roxbury Memorial Park. This would require excavating a large open pit within the Park and use of parkland for staging for several years to support tunnel construction. The park would be fully restored once tunneling is complete. During that period, public park access would be limited, and several sports and recreational features would be out of service.

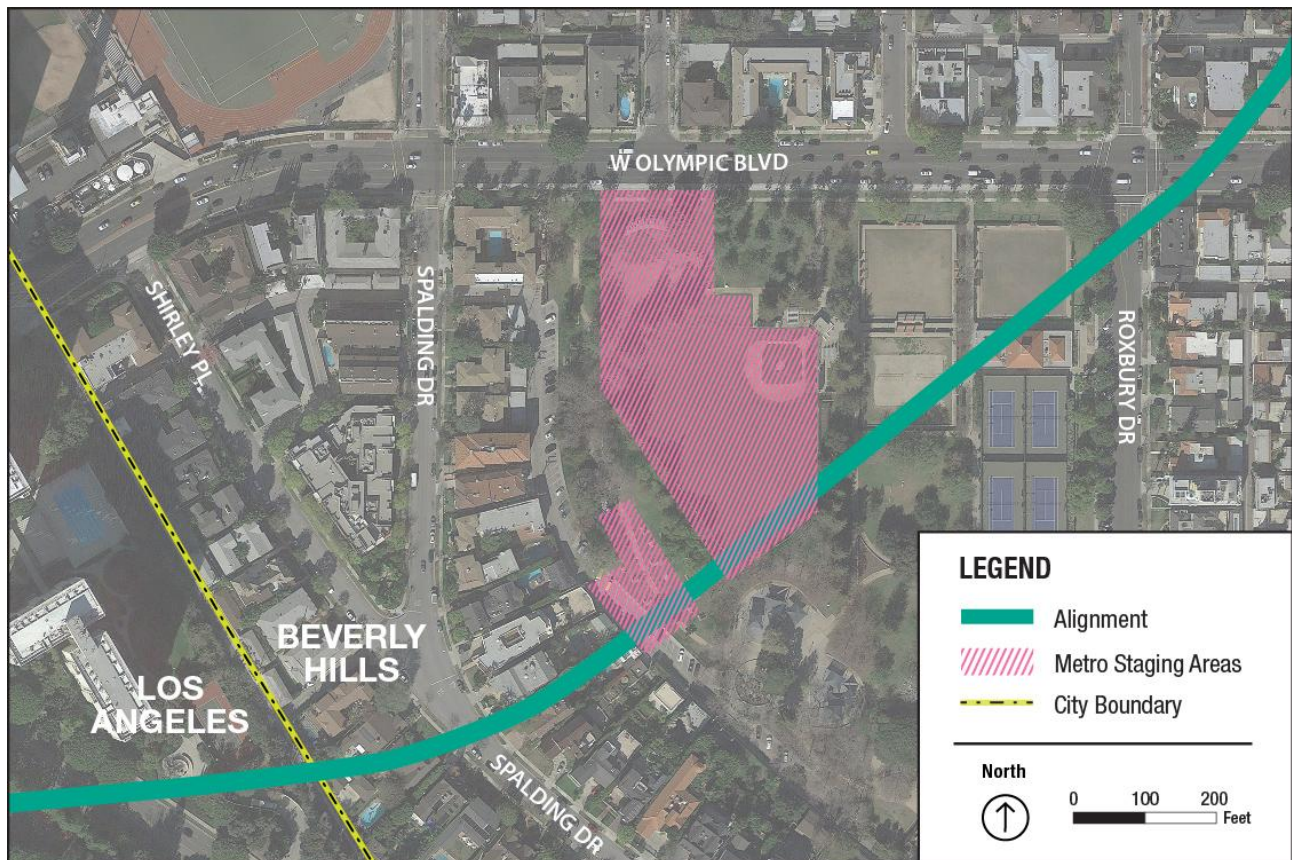


Figure 5-43. Avenue of the Stars Alternative Construction Staging Areas

5.5.3 Relative Severity of Remaining Harm, after Mitigation, to Protected Activities, Attributes, or Features that Qualify Each Section 4(f) Property for Protection

Because, as discussed in Section 5.5.2 of this Draft SEIS, there would be no permanent adverse impacts to Section 4(f) properties as a result of the tunnel, after tunnel completion there would not be any remaining harm to any Section 4(f) property in the west Beverly Hills and Century City area. The Avenue of the Stars Alternative would have construction-phase impacts to Roxbury Memorial Park that would be relatively more severe than any harm to Section 4(f) properties caused by any of the other alternatives. Because of the magnitude and duration of the use of Roxbury Memorial Park, including loss of recreational access, this would constitute a greater than *de minimis* use under Section 4(f).

5.5.4 Relative Significance of Each Section 4(f) Property

The historic sites that would require underground easements for the evaluated alternatives are all eligible for listing in the NRHP (Table 5-12). By being eligible for NRHP listing, all of the historic sites are historically significant. None of the properties are designated National Historic Landmarks or historic districts; therefore, each historic property is treated as equally significant. The FTA determined that the Project would not have an adverse effect on any of the NRHP-eligible properties in the west Beverly Hills and Century City area, and the California SHPO concurred with the determination on December 8, 2011. BHUSD has indicated in prior correspondence that it preferred that alternatives not cross under the 1927 academic building (Building B2). While consultation with the SHPO did not identify any of the historic buildings at BHHS as being more significant than others, the views of BHUSD were considered in assessing relative significance. The Century Park D, Constellation Direct, and Constellation South Alternatives would all cross under Building B2.

While the various alternatives would tunnel under or near different historic properties, the effect on historic properties would be similar for all of the alternatives.

BHHS provides public recreational opportunities during times when the campus is not in use as a school. Roxbury Memorial Park is a significant recreational property that is available for public use during all open hours. The Avenue of the Stars Alternative is the only alternative that would use land from Roxbury Memorial Park or impact the park during construction.

All of the considered Section 4(f) properties are significant; however, Building B2 has been identified as being of relatively greater concern than other historic buildings on the BHHS campus and Roxbury Memorial Park as providing more public recreational benefits than the BHHS campus. After completion of construction, there would not be any remaining harm to any of these properties. During construction, only the Avenue of the Stars Alternative would generate harm to a Section 4(f) property.

Table 5-12. Section 4(f) Properties with Use

Alternative	Section 4(f) Historic Properties with Use	Section 4(f) Recreational Properties with Use
The Project	Beverly Hills High School (Building B1) and AAA Building	Beverly Hills High School Recreational Resources (future gymnasium and future half soccer field)
Century Park D	Beverly Hills High School (Buildings B2, B3, and B4), and AAA Building	Beverly Hills High School Recreational Resources (future half soccer field)
Constellation Direct	Perpetual Savings Bank, Beverly Hills High School (Building B2), and AAA Building	Beverly Hills High School Recreational Resources (future half soccer field)
Lasky Drive A	Perpetual Savings Bank, Beverly Hills High School (Building B1), and AAA Building	Beverly Hills High School Recreational Resources (future swimming pool, future gymnasium, and future half soccer field)
Lasky Drive B	Perpetual Savings Bank, Beverly Hills High School (Building B1 and Swim-Gym), and AAA Building	Beverly Hills High School Recreational Resources (Swim-Gym, future swimming pool, and future half soccer field)
Spalding	Perpetual Savings Bank, Beverly Hills High School, and AAA Building	Beverly Hills High School Recreational Resources (future track, future baseball field, and future half soccer field)
Constellation South	Beverly Hills High School (Buildings B1 and B2), AAA Building, and the Barn	Beverly Hills High School Recreational Resources (future half soccer field)
Avenue of the Stars	Los Angeles Country Club (South Course)	Roxbury Memorial Park

5.5.5 Views of the Official(s) with Jurisdiction over Each Section 4(f) Property

Consultation with officials with jurisdiction over the Section 4(f) properties associated with the Section 2 of the Project is discussed in Section 5.6 of this Draft SEIS.

Correspondence with the California SHPO is consistent in documenting that tunneling under any of the historic properties in the Project's APE would not have an adverse effect under Section 106 on the property unless there are ground-borne noise, vibration, or other direct effects of the construction or operation of the tunnel on the historic property. Tunneling would have similar effects on historic properties for all of the alternatives considered in the least overall harm analysis.

BHUSD has indicated in prior correspondence that it preferred that alternatives not cross under the 1927 academic building (Building B2). The Century Park D, Constellation Direct, and Constellation South Alternatives would all cross under the individually NRHP-eligible 1927 building that is part of the BHHS historic property.

During coordination in 2017, BHUSD and the City of Beverly Hills expressed their concerns about construction access shaft location, its purpose, and whether there were other options for the access shaft. Analysis of alternative access locations is included in Section 5.3.4 of this Draft SEIS. BHUSD asked about subsurface conditions, including abandoned oil wells on the BHHS campus, methane, and fault displacement. BHUSD also expressed concerns related to air quality, noise, public health and safety during construction. The City of Beverly Hills provided questions related to air quality modeling

methodology and methane gas assessment in the vicinity of BHHS. The analysis included in Chapter 4 of this Draft SEIS considers the City and BHUSD's comments.

5.5.6 Degree to which Each Alternative Meets the Purpose and Need of the Project

As discussed in Chapter 1 of the Final EIS/EIR and reiterated in Chapter 2 of this Draft SEIS, the project's purpose is to:

- Improve Study Area mobility and travel reliability
- Improve transit services within the Study Area
- Improve access to major activity and employment centers in the Study Area
- Improve opportunities for transit-supporting land use policies and conditions
- Improve transportation equity
- Provide a fast, reliable, and environmentally sound transit alternative
- Meet Regional Transit Objectives through the Southern California Association of Governments' performance indicators of mobility, accessibility, reliability, and safety

Because all of the alternatives would provide a similar service, serve a similar area, and connect to the same transit system beyond the west Beverly Hills and Century City area, they would have similar performance relative to the project purpose and need for most of these elements. Areas where they differ would be in improving study area mobility and travel reliability and providing fast and reliable transit, which are factors of travel time for passengers; the accessibility of the station to housing and employment, which can be illustrated in the difference in total system boardings between alternative station locations; and in the safety of passengers, including environmental risks to the system (Table 5-13).

All of the alternatives with station entrances in the vicinity of Constellation Boulevard and Avenue of the Stars would have similar accessibility to nearby residential and commercial uses. The Avenue of the Stars (Figure 5-41) Alternative would relocate the Century City Station north from the center of the concentration of development in Century City; however, entrances connecting to the south end of the station would be located near Constellation Boulevard, making the increase in walking distance relatively small.

Travel times would differ between the alternatives depending on the length and limiting speed of the alignment between the Wilshire/Rodeo and the Century City stations (Table 5-13). Of the feasible alternatives, Century Park D, Constellation Direct, the Project, and the Spalding Alternatives would have the shortest travel times. Travel time for the other alternatives would be up to 43 seconds longer than for the Project. For the 56,680 passengers that board and alight daily at Century City and stations farther west, they would collectively experience between 50 daily hours of travel time savings with the Constellation South Alternative and 680 additional hours of travel time with the Avenue of the Stars Alternative compared to the Project.

Table 5-13. Factors in the Effectiveness of Alternatives in Meeting Purpose and Need

Alternative	Travel Time between Rodeo and UCLA Stations (min:sec)	Distance between Wilshire/Rodeo and Westwood/UCLA Stations	Ridership	Safety and Operating Concerns
The Project	5:14	16,390 feet	49,340 daily system boardings ¹	No safety concerns related to faults
Century Park D	5:12	16,690 feet	Similar to the Project	No safety concerns related to faults
Constellation Direct	5:17	16,600 feet	Similar to the Project	No safety concerns related to faults
Lasky Drive A	5:29	16,530 feet	Similar to the Project	No safety concerns related to faults
Lasky Drive B	5:56	16,630 feet	48,630 daily system boardings ²	No safety concerns related to faults
Spalding	5:36	16,510 feet	Similar to the Project	No safety concerns related to faults
Constellation South	5:11	16,040 feet	Similar to the Project	No safety concerns related to faults
Avenue of the Stars	5:57	18,030 feet	48,630 daily system boardings ²	Safety concerns related to faults in vicinity of the station

¹Final EIS/EIR, Table 3-5²Supplemental travel demand forecasting completed to support this Draft SEIS

5.5.7 After Reasonable Mitigation, the Magnitude of any Adverse Impacts to Resources not Protected by Section 4(f)

In the west Beverly Hills and Century City area, none of the alternatives would have significant differences in adverse impacts to elements of the environment not protected by Section 4(f). For most of the alternatives, construction staging and access areas would be the same as for the Project (refer to Section 2.3.2 of this Draft SEIS); therefore, construction-phase impacts would be similar. As discussed in Section 5.5.2 of this Draft SEIS, unlike the other alternatives, the Avenue of the Stars Alternative would require different construction staging areas that would limit access to and recreational use of Roxbury Memorial Park during construction (Figure 5-43). All of the alternatives would require subsurface easements from private properties for the tunnel (Table 5-14). While the Project and Century Park D Alternatives would tunnel under more commercial properties than the other alternatives, the Project, Century Park D, and Lasky Drive A Alternatives would tunnel under the fewest residential properties of all of the alternatives. The Avenue of the Stars Alternative would require the greatest number of subsurface easements from residential properties.

Table 5-14. Required West Beverly Hills and Century City Subsurface Easements

Alternative	Easements from Commercial Properties	Easements from Residential Properties
The Project	30	90
Century Park D	27	90
Constellation Direct	23	93
Lasky Drive A	23	88
Lasky Drive B	21	107
Spalding	19	100
Constellation South	20	97
Avenue of the Stars	11	130

5.5.8 Substantial Differences in Costs among Alternatives

Capital costs would differ between the Project and the other feasible avoidance alternatives (Table 5-15). The Constellation South Alternative would be the least costly overall, followed by the Project.

Table 5-15. Comparison of Costs

Alternative	Capital Cost ¹	Difference from the Project
The Project	\$2,411	N/A
Century Park D	\$2,471	\$60 (2.5%)
Constellation Direct	\$2,419	\$8 (0.3%)
Lasky Drive A	\$2,417	\$6 (0.2%)
Lasky Drive B	\$2,423	\$12 (0.5%)
Spalding	\$2,414	\$3 (0.1%)
Constellation South	\$2,368	-\$42 (-1.8%)
Avenue of the Stars	\$2,423	\$12 (0.5%)

¹Values are in millions (year of expenditure dollars)

5.5.9 Summary of Finding of Least Overall Harm

The Project would generate the least overall harm considering the degree to which the alternative meets the purpose and need, the magnitude of other adverse impacts, and substantial differences in costs among the alternatives. This conclusion is supported by the least overall harm evaluation detailed in subsections 5.5.2 through 5.5.8 of this Draft SEIS.

Compared to the Project, the Century Park D Alternative would cross below BHHS Building B2, B3, and B4 and have a substantially greater cost (Table 5-16). The Constellation Direct Alternative would cross below BHHS Building B2, tunnel under an additional Section 4(f) property (Perpetual Savings Bank) and would have increased travel time, residential subsurface easements, and cost relative to the Project (Table 5-16). The Lasky Drive A Alternative would travel under the same existing Section 4(f)-protected features at BHHS as the Project as well as below the planned future swimming pool, would tunnel under an additional Section 4(f) property (Perpetual Savings Bank), and have increased travel time and cost relative to the Project (Table 5-16). The Lasky Drive B Alternative would tunnel under the Swim-Gym as well as the future swimming pool and an additional Section 4(f) property (Perpetual Savings Bank) and would have increased travel time, residential subsurface easements, and cost relative to the Project (Table 5-16). The Spalding Alternative would tunnel under an additional Section 4(f) property (Perpetual Savings Bank) and would have increased residential subsurface easements and cost relative to the Project (Table 5-16). While the Constellation South Alternative would be less costly than the Project, it would require subsurface easements from more residential properties, tunnel under an additional Section 4(f) property (the Barn), and would cross below BHHS Building B2 (Table 5-16). The Avenue of the Stars Alternative would have substantial construction-phase impacts to Roxbury Memorial Park, a significant recreational resource, that are relatively more severe than the remaining harm of any other alternative to Section 4(f) properties. It would also have increased travel time, travel under Roxbury Memorial Park, require subsurface easements from substantially more residential properties, and have increased cost relative to the Project (Table 5-16).

Table 5-16. Least Overall Harm

Alternative	Subsurface easements below Section 4(f) Historic Properties	Subsurface easements below Section 4(f) Recreational Properties	Construction phase impacts to Section 4(f) Properties	Transit Travel Time Relative to the Project	Subsurface Easements	Capital Cost Relative to the Project (YOE)
The Project (Least Overall Harm)	BHHS (Building B1) and AAA Building	BHHS School Recreational Resources (future gymnasium and future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	-	90 residential 30 commercial	-
Century Park D	BHHS (Buildings B2, B3, and B4), and AAA Building	BHHS School Recreational Resources (future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	30 person-hours of daily travel time savings	90 residential 27 commercial	\$60M greater
Constellation Direct	Perpetual Savings Bank, BHHS (Building B2), and AAA Building	BHHS Recreational Resources (future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	50 person-hours of daily travel time increase	93 residential 23 commercial	\$8M greater
Lasky Drive A	Perpetual Savings Bank, BHHS (Building B1), and AAA Building	BHHS Recreational Resources (future swimming pool, future gymnasium, and future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	240 person-hours of daily travel time increase	88 residential 23 commercial	\$6M greater
Lasky Drive B	Perpetual Savings Bank, BHHS (Building B1 and Swim-Gym), and AAA Building	BHHS Recreational Resources (Swim-Gym, future swimming pool, and future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	660 person-hours of daily travel time increase	107 residential 21 commercial	\$12M greater
Spalding	Perpetual Savings Bank, BHHS, and AAA Building	BHHS Recreational Resources (future track, future baseball field, and future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	350 person-hours of daily travel time increase	100 residential 19 commercial	\$3M greater
Constellation South	BHHS (Buildings B1 and B2), AAA Building, and the Barn	BHHS Recreational Resources (future half soccer field)	Monitoring instruments at BHHS and construction staging at AAA Building	50 person-hours of daily travel time savings	97 residential 20 commercial	\$42M less
Avenue of the Stars	Los Angeles Country Club (South Course)	Roxbury Memorial Park	Construction activities would use Roxbury Memorial Park; Park access limited during construction	680 person-hours of daily travel time increase	130 residential 11 commercial	\$12M greater

The Project would generate the least overall harm. Table 5-16 summarizes information detailed in subsections 5.5.2 through 5.5.8 of this Draft SEIS. Text in black denotes impact similar to the Project. Text in red indicates greater impact or worse performance than the Project. Text in green indicates less impact or better performance than the Project.

5.6 Coordination and Consultation

This section provides a summary of consultation and coordination with officials with jurisdiction over Section 4(f) properties that could be affected by the Project and an outline of the public and agency review and comment opportunity on the Section 4(f) evaluation.

In 2010 and 2011, the FTA consulted with the California SHPO regarding the area of potential effects on historic properties, the eligibility of historic properties, and the effects of the project on historic properties. The FTA determined, and the California SHPO concurred in a letter dated December 8, 2011, that the Project would not have an adverse effect on BHHS or the AAA Building.

When the FTA intends to make a *de minimis* impact determination for historic properties, it is required to obtain concurrence from the California SHPO that the project would not have an adverse effect on the site and notify the California SHPO of its intent to make the *de minimis* impact determination (23 CFR 774.5(b)). The FTA notified the California SHPO of its finding of effect on September 16, 2011, and the California SHPO concurred with the determination on December 8, 2011. The public was given an opportunity to review and comment on the determination of effect when the FTA solicited comments on the Final EIS/EIR in March 2012.

The level of detail about construction staging near the AAA Building has increased since the Final EIS/EIR (Metro 2012); therefore, FTA reassessed project effects related to construction staging, as described in Section 4.4.2 of this Draft SEIS. FTA has made a finding that the construction staging would have no new adverse effect on historic properties and is consulting with the California SHPO. As part of the consultation, FTA is informing the California SHPO of its intent to make a Section 4(f) finding based on their concurrence with the Section 106 determination.

When the FTA intends to make a *de minimis* impact determination for recreational Section 4(f) properties, it must inform the official with jurisdiction of its intent to make a *de minimis* impact finding. On January 25, 2017, per 23 CFR 774.5, FTA consulted with and informed the City of Beverly Hills Community Services Department and the BHUSD, the officials with jurisdiction over the public use of the BHHS sports fields, of its intent to make a *de minimis* impact determination for the recreational facilities, below which the project would construct and operate a tunnel in a subsurface easement.

The City of Beverly Hills responded to the FTA on February 2, 2017, requesting consultation under Section 106 and requesting additional information related to the Project's construction schedule, analysis of subsurface conditions, measures to minimize risk to public safety, proposed survey and monitoring activities, analysis of atmospheric effects from staging areas, feasible and prudent avoidance alternatives, and information related to the Project's Section 106 process. The City also requested a meeting with FTA.

The BHUSD responded to the FTA on February 8, 2017, requesting consultation under Section 106 and requesting additional information related to the Project's lack of impairment to recreational features, construction schedule, analysis of subsurface

conditions, measures to minimize risk to public safety, proposed survey and monitoring activities, documentation that the survey and monitoring would not affect public use of recreational facilities, analysis of atmospheric effects from staging areas, feasible and prudent avoidance alternatives, and information related to the Project's Section 106 process. BHUSD also requested a meeting with FTA.

On February 15, 2017, FTA and Metro met with the City of Beverly Hills and BHUSD representatives to discuss the findings and provide the additional information requested by the reviewing parties. BHUSD and the City of Beverly Hills asked about construction access shaft location and purpose and whether there were other options for the access shaft. BHUSD asked about subsurface conditions, including abandoned oil wells on the BHHS campus, methane, and fault displacement. BHUSD also expressed concerns related to air quality, noise, and safety during construction.

On April 4, 2017, the City of Beverly Hills responded to FTA with questions related to air quality modeling methodology and methane gas assessment in the vicinity of BHHS. The analysis included in Chapter 4 of this Draft SEIS considers the City's comments.

On April 7, 2017, BHUSD responded to FTA with questions related to subsurface methane gas, seismic analysis, noise and vibration, and air quality and public health. The analysis included in Chapter 4 of this Draft SEIS considers BHUSD's comments.

With this Draft SEIS, the FTA is seeking public review and comment on its intent to make a *de minimis* impact determination regarding the Section 4(f) properties evaluated in Section 5.3 of this Draft SEIS. Following the opportunity for public comment, the FTA will request the concurrence of the City of Beverly Hills Community Services Department and the BHUSD with FTA's determination of *de minimis* impact on the BHHS recreational facilities.

5.7 Preliminary Section 4(f) Finding

The FTA has made a preliminary determination that the Project would have a *de minimis* impact on the historic activities, attributes, or features that qualify BHHS and the AAA Building for protection under Section 4(f) as historic properties. Recreational facilities located at BHHS also qualify for protection as publicly owned recreational resource that is open to the public at times when they are not in use by the school. The FTA also has made a preliminary determination that the Project would have a *de minimis* impact on the activities, attributes, or features that qualify BHHS recreational facilities for protection as publicly owned recreational facilities that are open to the public. Even if the final determination is that the impact of the Project on Section 4(f) properties is not *de minimis*, FTA has determined that the Project would satisfy the requirements of Section 4(f) because (1) as documented in Section 5.4, there is no prudent and feasible alternative that would avoid use of the 4(f) properties; and (2) as documented in Section 5.5, the Project, when compared to other alternatives, would generate the least overall harm.