7. Alternatives to the Proposed Project

7.1 INTRODUCTION

7.1.1 Purpose and Scope

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) include a discussion of reasonable project alternatives that would "feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6). This chapter identifies potential alternatives to the proposed project and evaluates them, as required by CEQA.

Key provisions of the CEQA Guidelines on alternatives (Section 15126.6[a] through [f]) are summarized below to explain the foundation and legal requirements for the alternatives analysis in the EIR.

- "The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (15126.6[b]).

- "The specific alternative of 'no project' shall also be evaluated along with its impact" (15126.6[e][1]).

- "The no project analysis shall discuss the existing conditions at the time the Notice of Preparation (NOP) is published, and at the time the environmental analysis is commenced, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (15126.6[e][2]).

- "The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project" (15126.6[f]).

- "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)" (15126.6[f][1]).

- For alternative locations, "only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR" (15126.6[f][2][A]).

- "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (15126.6[f][3]).

For each alternative, this analysis:

- Describes the alterative,
- Analyzes the impact of the alternative as compared to the proposed project,
- Identifies the impacts of the project that would be avoided or lessened by the alternative,
- Assesses whether the alternative would meet most of the basic project objectives, and
- Evaluates the comparative merits of the alternative and the project.

Per the CEQA Guidelines Section 15126.6(d), additional significant effects of the alternatives are discussed in less detail than the significant effects of the project as proposed.

7.1.2 Project Objectives

As described in Section 3.2, the following objectives have been established for the proposed project and will aid decision makers in their review of the project, the project alternatives, and associated environmental impacts:

- Maximize the net useable space on the San Marino High School campus.
- Maintain the San Marino High School campus and other District-owned property in a manner that reflects the prudent and efficient use of public resources.
- Ensure the efficient and responsible use of school district funds.
- Avoid disruption to the educational and recreational activities at San Marino High School and other San Marino Unified School District properties.
- Reduce costs associated with the maintenance of the Michael White Adobe.
- Reduce liability associated with the Michael White Adobe, a non–Field Act compliant structure.
- Increase public access to the Michael White Adobe.
- Consider the feasibility of preserving the Michael White Adobe, either in situ or at Lacy Park.
- Develop mitigation measures or alternatives to reduce or eliminate potentially significant effects.

7.1.3 Alternatives for Historical Resources

For a project with potential impacts on historical resources, CEQA Guidelines Section 15064.5 states that a lead agency must "identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource." "Feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors" (Public Resources Code Section 21061.1). Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA Guidelines Section 15126.6(f)(1)) are site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site.

The range of alternatives required in an EIR is governed by a "rule of reason" that requires an EIR to set forth only those alternatives necessary to permit a reasoned choice. An EIR need not consider every conceivable alternative to a project. Rather, the alternatives must be limited to ones that meet the project objectives, are ostensibly feasible, and would avoid or substantially lessen a significant environmental effect. Of the alternatives considered, the EIR need only examine in detail those that the Lead Agency determines could feasibly attain most of the basic objectives of the project. The range of reasonable alternatives must be selected and discussed in a manner that fosters meaningful public participation and informed decision making (CEQA Guidelines Section 15126.6[f]).

Alternatives that are designed to comply in part or in full with the Secretary of the Interior's Standards would avoid or substantially lessen historic resource impacts. "Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995), Weeks and Grimmer, the project's impact on historical resources shall generally be considered mitigated below a level of significance and thus is not significant" (CEQA Guidelines Section 15126.4[b][1]).

7.2 ALTERNATIVES CONSIDERED AND REJECTED DURING THE SCOPING/PROJECT PLANNING PROCESS

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are clearly infeasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (CEQA Guidelines Section 15126[f][3]). This section identifies alternatives considered by the lead agency, but rejected as infeasible, and provides a brief explanation of the reason for their exclusion. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid any significant environmental effects (CEQA Guidelines Section 15126.6[c]).

7.2.1 Alternative Locations

CEQA requires that alternative locations for a project be considered. As the proposed project entails the removal of existing buildings, the project is site specific, and an analysis of alternative locations is not applicable. Alternative locations will therefore not be considered further.

7.2.2 Relocation and Stabilization to Rotary Park at Huntington Drive and Gainsborough Drive

This alternative would relocate and stabilize the Michael White Adobe (Adobe) in a manner similar to the Relocation to Lacy Park Alternative described below. However, under this alternative, the Adobe would be relocated to the southeast corner of the San Marino High School campus, near the intersection of Huntington Drive and Gainsborough Drive. This location contains an area known as Rotary Park, which contains a landscaped garden and a gazebo as well as a small parking lot. Under this alternative, the Adobe would remain under the care of the District. As Rotary Park is small, this alternative would result in the loss of the garden and parking area, and unlike the Relocation to Lacy Park Alternative, which would transfer ownership of the building, this alternative would require the District continue to maintain the Adobe.

Because this alternative would maintain the Adobe on District-owned property, a fence would be built around it to prevent unauthorized entry by students or staff. Therefore, this location would not provide greater accessibility of the historical building to the public. Public access to the Adobe during regular school hours

would remain prohibited unless arrangements are made with the District or San Marino High School administration. Access during nonschool hours would continue to be made with the San Marino Historical Society. This alternative would also result in the loss of already limited school parking. Although this alternative would be technically feasible and could reduce historic impacts associated with the demolition scenario to acceptable standards, this alternative was rejected from further consideration because it would:

- Allow many of the same problems currently faced by the District to continue
- Result in the loss of already limited school parking.

Furthermore, this Alternative would not meet the following project objectives:

- Maximize the net useable space on the San Marino High School campus.
- Maintain the San Marino High School campus and other District-owned property in a manner that reflects the prudent and efficient use of public resources.
- Ensure the efficient and responsible use of school district funds.
- Reduce costs associated with the maintenance of the Michael White Adobe.
- Reduce liability associated with the Michael White Adobe, a non–Field Act compliant structure.
- Increase public access to the Michael White Adobe.

7.2.3 Rehabilitation In Situ

Under this alternative, the Adobe would be rehabilitated in accordance with the Secretary of the Interior's standards for rehabilitation in situ or in place. This alternative would not result in a significant impact to the historical resource. However, compliance with the Secretary of the Interior's standards precludes compliance with the requirements of the Division of the State Architect (DSA). As the building would not comply with the DSA safety requirements, it could not be used by students or staff of the District.

This alternative does not meet the District's needs. While it would be rehabilitated without significant impact to a cultural resource, the Adobe would not be used by students or staff. The District would continue to perform minimal maintenance on the building and would not be able to occupy the property for school operational uses. Under this alternative, the building would continue to pose many of the same problems it currently poses to the District. Furthermore, this alternative would not meet the following project objectives:

- Maximize the net useable space on the San Marino High School campus.
- Maintain the San Marino High School campus and other District-owned property in a manner that reflects the prudent and efficient use of public resources.
- Ensure the efficient and responsible use of school district funds.
- Avoid disruption to the educational and recreational activities at San Marino High School and other San Marino Unified School District properties.
- Reduce costs associated with the maintenance of the Michael White Adobe.

- Reduce liability associated with the Michael White Adobe, a non–Field Act compliant structure.
- Increase public access to the Michael White Adobe.

For these reasons, this alternative was not selected for further analysis.

7.2.4 Reconstruction and Stabilization Alternative

An alternative method of relocating the Adobe was also considered. This alternative would use the reconstruction method of relocation to transfer the Adobe to another site (including the Rotary Park site, see Section 7.2.2 of this chapter, and the Lacy Park site, see Section 7.3.2 of this chapter). This alternative method entails carefully removing plaster on each side of the adobe walls and taking the adobe walls apart brick by brick, while documenting the location of each brick for reconstruction. Damaged brick would be replaced with stabilized and unstabilized adobe units. Under this alternative, the adobe walls at the receiver site would have embedded reinforced concrete columns at corners that would continue down into the subgrade, analogous to a flag pole. Stone footings would be placed between the columns' subgrade, and adobe brick would be placed between the columns above grade. While this alternative may be a cost-effective way of relocating the Adobe, it appears this methodology would fall in the range of reconstruction rather than rehabilitation. This would result in a less than significant impact to historic resources. However, as this alternative method involves a great potential loss of fragile archaic material, including material infilling joints in the adobe brick walls, this approach would be less preferable. This alternative method is more invasive than relocating the Adobe in the manner described in the Relocation to Lacy Park Alternative (Section 7.3.2). For this reason, the Relocation to Lacy Park Alternative, rather than this Reconstruction and Stabilization Alternative, was selected for further analysis.

7.3 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

The alternatives selected for further analysis strive to achieve the basic project goal, which is to maximize the net useable space on the high school campus while minimizing historical and cultural resources impacts. The District has decided to further evaluate the following three alternatives:

- No Project Alternative
- Relocation to Lacy Park Alternative
- Stabilization In Situ Alternative

Where feasible, the California Historical Building Code (CHBC; Part 8 of Title 24, California Building Code) was applied as an essential component for each alternative. The CHBC provides alternative building regulations for the "preservation, rehabilitation, relocation, related construction, change of use or continued use" of qualified historical buildings or properties. These regulations are intended to provide: alternative building code enforcement solutions for the preservation of qualified historical buildings or properties; access for persons with disabilities; a cost-effective approach to preservation; and reasonable safety for the occupants or users. However, the CHBC shall not be construed to allow development of a lower level of safety of structural design and construction than is reasonably equivalent to the regular code provisions in occupancies that are critical to the safety and welfare of the public at large, including, but not limited to, public and private schools, hospital, municipal police and fire stations, and essential services facilities. Therefore, the CHBC would be applicable to the Relocation to Lacy Park Alternative. However, it would not be applicable to the Stabilization In Situ Alternative, where the Adobe would remain on the high school campus and would need to be altered in conformance with requirements of the DSA.

7.3.1 No Project Alternative

Under this alternative, no changes to the project site would occur. The Adobe would remain in its current condition with limited public access and would continue to be gated to deter unauthorized entry. Minimal maintenance of the Adobe would continue to be performed by the District.

Cultural Resources

Although maintenance is considered preservation under the Secretary's Standards, there is no maintenance, stabilization, or mothballing implementation plan that currently exists. Therefore, the No Project Alternative would allow the building to deteriorate further. Evidence of rising damp and thus moisture infiltration in the east wall of the south wing and evidence of termite infestation throughout the interior of the building has already been observed, and can eventually lead to severe damage if not properly maintained. The No Project Alternative would result in a potentially significant impact on the historical resource. Impacts to cultural resources under this alternative would be similar to the proposed project.

Noise

This alternative would not require demolition and would therefore not generate any noise associated with those activities. As construction-related noise is the primary sources of noise associated with the proposed project, this alternative would be superior to the proposed project in the area of noise.

Conclusion

The No Project Alternative would be environmentally superior to the proposed project in the area of noise and environmentally similar in the area of cultural resources. There would be no immediate cost to implement the No Project Alternative. This alternative would not meet the following five project objectives:

- Maximize the net useable space on the San Marino High School campus.
- Maintain the San Marino High School campus and other District-owned property in a manner that reflects the prudent and efficient use of public resources.
- Ensure the efficient and responsible use of school district funds.
- Reduce costs associated with the maintenance of the Michael White Adobe.
- Reduce liability associated with the Michael White Adobe, a non–Field Act compliant structure.
- Increase public access to the Michael White Adobe.

7.3.2 Relocation to Lacy Park Alternative

If economically feasible, the Adobe would be relocated to Lacy Park at 1485 Virginia Road in San Marino, which is approximately 1.4 miles from San Marino High School. Lacy Park was identified as the only available recipient site for the Adobe. During the public review period for the Notice of Preparation, the District published a notice to offer to sell the Adobe in the *San Marino Tribune*, *Pasadena Star News*, and on www.historicproperties.com. The District also directly mailed the notice to 16 agencies and organizations. Of the agencies contacted, only the City of San Marino responded favorably. On May 13, 2009, the City Council unanimously approved a resolution to allow the Adobe to be relocated to Lacy Park, near the historic Armin

Thurnher House, and take ownership, as long as the City would not incur any costs to relocate, landscape, or refurbish the Adobe. As the City of San Marino is the only entity that has demonstrated willingness to accept the building, Lacy Park was determined to be the only feasible recipient site for the Adobe.

The preliminary move route is illustrated in Figure 7-1, *Relocation Route*. Although the City has approved a map showing a specific location, described as Alternate 3, it is understood that the City is amenable to a location at the entrance to Lacy Park. Alternate 3 is not preferred, however, because it would place the Adobe on a site currently occupied by a lawn and several old-growth trees, including at least three substantial oak trees. Relocation and placement of the Adobe may require removal of some of these trees, as the Adobe would be placed within the trees' canopy and would be inappropriate. In addition, the specific location described in Alternate 3 appears to change the compass orientation of the relocated Adobe. As a result, a potential relocation zone that is near the Thurnher House in Lacy Park has been identified. Both the Alternate 3 location approved by the City of San Marino and the potential relocation zone being considered can be seen in Figure 7-2, *Potential Relocation Zone*.

To implement this alternative, the District would engage a qualified architectural and engineering team (preservation consultants) to plan and move the Adobe from the donor site at San Marino High School to the receiver site within the potential relocation zone at Lacy Park. The preliminary maps, sketches, and reports prepared for the relocation would serve to guide all future associated work through design development, construction documents, and construction administration. The architect on the team would be required to meet the Secretary of the Interior's Professional Qualifications Standards in historical architecture and the structural engineer would be required to have a minimum of 10 years experience in historical preservation projects of a similar nature, including work on adobe structures. The mover and contractor responsible for implementing the work would be required to meet similar minimum qualifications standards. The preservation consultants would recommend the final receiver site, employing the criteria in the 1979 publication *Moving Historic Buildings* by John Obed Curtis, particularly with respect to appropriate solar orientation and relationship to other site features, and the Secretary's Standards would be employed to minimize harm and maximize preservation of physical character. Construction documents prepared by the preservation consultants, including the final relocation route, would be reviewed and approved by the District Superintendent or designee, as well as the City of San Marino, and receive all required clearances from governmental agencies with jurisdiction over the relocation route prior to commencing any work on the donor site. The CHBC would be utilized to the maximum extent possible.

Relocation of the Adobe would be accomplished by first protecting the adjacent sports facilities from debris and damage during the move. Site preparation would include but would not be limited to the removal of items, including the fencing around the Adobe, site paving, landscaping, wood-framed roof, porches, interior partitions, chimney, interior brick floors, and utilities. Approximately four feet of soil below the existing grade would be disturbed. The Adobe would be moved in two sections, and preparation to shore, lift, and transport the Adobe would occur in two phases. Site access requires the north wing be moved first, followed by the south wing. The base of the north wing Adobe walls above the existing foundations would have to be strengthened to provide a structural system that can be lifted. After the base of the Adobe wall is consolidated to prevent caving, a reinforced concrete bond beam would be introduced in small alternating sections to create a continuous new foundation. A continuous wood ledger would be attached to the inside and outside face of the bond beam and temporary wood framing would be constructed to confine the Adobe walls. Periodic sections of the existing foundations would be documented and removed, and hydraulic jacks would be placed in the cavities. After the jacks are in place and mechanically linked to lift together, the Adobe would be slowly lifted in small increments. As the limit of one lift is approached, wood cribbing would be installed in the vertical gap to maintain the new higher position. The lift sequence would be repeated until the building is high enough above the grade to install a steel beam grid. Once the grid is in place, the transportation axles and wheels would be positioned under the steel grid. Additional interior bracing between

the confined Adobe walls to keep the building from racking during the move would be put in place prior to leaving the project site. The same procedure would be required for moving the southern wing.

Grading, compaction, and other preparation of the receiver site at Lacy Park, including stubbed-out utilities, would need to be further documented. This alternative does not include full rehabilitation of the Adobe, but stabilization only. Stabilization in the relocation involves placement of the Adobe structure on the new foundation with sufficient site work to ensure water flow away from the Adobe, construction of new roof structures and sheathing, and patching of exterior surfaces as necessary to provide a watertight assembly. It is anticipated that a new chimney, flooring, and other work will be required to fully rehabilitate the relocated Adobe for use. Once relocated, the Adobe would be stabilized on a new foundation and be watertight. The Adobe would operate in a manner similar to the Thurnher House and be accessible to the public on a regular basis.

The relocation process would begin in the fall of 2009 after certification of the EIR and project approval. Selection of qualified firms, preparation of the plans, and the implementation of the necessary improvements to stabilize and prepare the Adobe for the move, as well as preparation of the receiving site, would take a few months. The entire preparation is expected to take approximately six months, and relocation activities would likely occur during the summer of 2010.

Cultural Resources

While CEQA only requires a qualitative comparison of impacts associated with project alternatives to the proposed project and does not require a technical analysis of impacts of project alternatives, the Historical Resources Technical Report prepared for the proposed project analyzed the impacts of this alternative in depth. While potential impacts would result from the work necessary to move the structure, Chattel Architecture, Planning, and Preservation concluded that relocation and stabilization could be accomplished in conformance with the Secretary's Standards. As established in CEQA Guidelines Section15064.5(b)(3), this alternative would therefore not result in a significant impact to the historic Adobe building.

Relocation of the Adobe to Lacy Park would provide it with a more appropriate setting than the San Marino High School campus. Rehabilitation guidelines of the Secretary's Standards define setting as, "The area or environment in which a historic property is found," and recommend "Retaining the historic relationship between buildings and landscape features of the setting." The current setting among the high school's recreational facilities is severely compromised and inappropriate. An Adobe built in the mid 1800s would not have been constructed in a school campus surrounded by athletic facilities, but would be in a more rural setting. Therefore, relocation and stabilization at Lacy Park would provide a more historically appropriate setting for the Adobe than its current placement.

As this alternative would require ground-disturbing activities similar to those associated with the proposed project, Mitigation Measures 1-3 and 1-4 identified in this DEIR would also apply to this alternative. These alternatives require that the District engage an archaeologist and, if paleontological soils are uncovered, a paleontologist as well, to monitor ground-disturbing activities. Under this alternative, cultural monitoring would be required at both the project site and the future location of the Adobe, where ground-disturbing activities would also be required.

Because the proposed project would demolish the Adobe, and because this alternative would not result in a significant impact to the building and would place it in a more appropriate setting, this alternative is superior to the proposed project with regard to cultural resources.

Relocation Route

Map of relocation route for Michael White Adobe from San Marino High School to Lacy Park.

0 1,400
Scale (Feet)

Source: Google Maps 2009

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Potential Relocation Zone

Map of Lacy Park showing possible receiving site for Michael White Adobe. The City has approved the "Alternate 3" location indicated on the map. However, the Alternate 3 location is not preferred, and potential sites throughout the indicated potential relocation zone ~~are being~~ would be considered.

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Noise

While CEQA only requires a qualitative comparison of impacts associated with project alternatives to the proposed project and does not require a technical analysis of impacts of project alternatives, the Noise Appendix (Appendix F) prepared for the proposed project analyzed the impacts of this alternative in depth. The following is based on the analysis and calculations in this appendix.

Under this alternative, short-term noise would mainly be associated with the preparation of the Adobe for relocation and relocation activities. If relocation of the Adobe is conducted, relocation activities would commence following approval of the project and approval of the receiver site at Lacy Park. Construction activities would entail site preparation work to prepare the building for relocation including: removing the roof, demolition of the interior walls, and constructing a concrete beam at the base of the perimeter walls. Onsite preparation would take approximately four months. In addition to onsite preparation, site preparation would need to be conducted at Lacy Park. Relocation would be on the eastern side of Lacy Park, near the Thurhner House. Site preparation at Lacy Park would take approximately one month to construct the foundation and concrete slab for the structure. After both sites are prepared, the building would be transported from the high school to Lacy Park and stabilized. Overall, construction activities would take approximately six months. Off-road construction equipment used for site preparation would include forklifts, a bobcat, and pneumatic tools.

Because construction is performed in distinct steps, each with its own mix of equipment, each construction phase has its own noise characteristics. Noise generated during construction is based on the type of equipment used, the location of the equipment relative to sensitive receptors, and the timing and duration of the noise-generating activities. Construction noise levels were calculated using the FHWA's RCNM based on the equipment list provided by the District. Noise levels in Table 7-1 represent the average noise levels from construction activities associated with relocation of the Adobe to Lacy Park.

Table 7-1
Construction Noise Levels Associated with Relocation of the Michael White Adobe

	Construction Noise Levels at Noise-Sensitive Uses	
Location	***dBA L_{eq}***	***dBA L_{max}***
Residents West of the San Marino High School Campus	62 dBA L_{eq}	65 dBA L_{max}
Residents South and East of Lacy Park[1]	71 dBA L_{eq}	73 dBA L_{max}
Thurnher Lawn Picnic Area	77 dBA L_{eq}	75 dBA L_{max}
Onsite Classroom Buildings	73 dBA L_{eq}	79 dBA L_{max}

Source: FHWA RCNM, Version 1.1. Based on the construction equipment mix provided by the District.
[1] Based on the potential relocation site closest to the off-site sensitive receptors.

Groundborne vibration is almost never annoying to people who are outdoors and is therefore evaluated in terms of indoor receivers (FTA 2006). Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. Vibration is typically sensed at nearby structures when objects within the structure generate noise from the vibration, such as rattling windows or picture frames. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor building construction. The results from vibration can range from no

perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Ground vibrations from construction activities rarely reach levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to the construction site.

The highest levels of vibration would be experienced when a heavy piece of construction equipment is operating or passes in proximity to the nearby vibration-sensitive structures. However, vibration levels taper off the farther construction equipment operates from the nearest sensitive structure. Levels of vibration produced by construction equipment are evaluated against the FTA's significance threshold for vibration annoyance of 78 VdB for residential structures during the daytime, as shown in Table 7-2. As shown in this table, vibration from construction activities at Lacy Park would not be perceptible at the single-family residential areas.

Table 7-2
Vibration Levels from Construction Equipment at Nearest Residences to Lacy Park – Vibration Annoyance

Equipment	*Maximum Vibration Levels at 115 feet (VdB)*	*Significance Threshold (VdB)*	*Exceeds Significance Threshold?*
Small Off-Road Construction Equipment[1]	45	78	No

Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, *Transit Noise and Vibration Impact Assessment* (2006).
[1] Vibration levels from the listed off-road construction equipment are equivalent to vibration levels generated by a small bulldozer.

Vibration-Induced Structural Damage

Vibration from construction activities rarely reaches levels that can damage structures. However, the FTA has also established thresholds for vibration levels that would damage building structures. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings (steel-framed, concrete, etc.). The threshold at which there is a risk of architectural damage to normal houses with plastered walls and ceilings is 0.2 inch per second, and 0.12 for historical buildings extremely susceptible to vibration damage. Project-related construction vibration was evaluated for its potential to cause structural damage in comparison to the FTA's structural damage criteria for the closest structure to the relocation site at Lacy Park. As shown in Table 7-3, construction activities associated with the project would result in PPV levels that are below the FTA's criterion for vibration-induced structural damage.

Table 7-3
Vibration Source Levels for Construction Equipment at Nearest Structure at Lacy Park – Structural Damage Assessment

Equipment	*Maximum RMS Velocity at 5 feet (in/sec)*	*Significance Threshold (in/sec)*	*Exceeds Significance Threshold?*
Small Off-Road Construction Equipment[1]	0.034	0.12	No

Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*. May 2006.
Notes: RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.
[1] Vibration levels from the listed off-road construction equipment are equivalent to vibration levels generated by a small bulldozer.

Noise impacts would generally be similar to those associated with the proposed project. The mitigation measures applied to the proposed project would also be applied to this alternative. However, because this alternative would require a longer schedule and would have increased duration of construction/relocation-related noise, this alternative is inferior to the proposed project with regard to noise.

Conclusion

The Relocation to Lacy Park Alternative would be environmentally superior to the proposed project in the area of cultural resources, and environmentally inferior to the proposed project in the area of noise. It would cost approximately $1,158,328 (see Appendix G) to implement and would also fail to meet the following project objective:

- Avoid disruption to the educational and recreational activities at San Marino High School and other San Marino Unified School District properties.

7.3.3 Stabilization In Situ Alternative

Under the Stabilization In Situ Alternative, the Adobe would not be demolished, but would be stabilized in its current location for school use. This alternative would be conducted in accordance with the requirements of the DSA for allowing school use of existing nonconforming buildings. Application of these DSA requirements would require a new foundation and walls, and would make the Adobe Field Act compliant. Therefore, under this alternative, students and staff of District would be able to occupy the Adobe.

Implementation of this alternative would require removal of a sufficient area of the existing footing or foundation to install a new reinforced concrete footing to support plywood and wood stud walls, which would permanently encase or encapsulate the existing adobe structure. The new foundation for the plywood and wood stud walls would be placed to avoid the existing condition of the foundation supporting the adobe wall. The existing ceiling and roof structures would be supplemented with plywood diaphragms and provide additional support at the top of the adobe wall with installation of permanent anchors set in epoxy resin. The adobe walls would be protected with batt insulation prior to placement of the permanent plywood and wood stud walls, and all-thread rods with washers (similar to threaded bolts, but without heads) would be through-bolted in the adobe walls.

Cultural Resources

While stabilization of the Adobe in situ would allow the adobe structure to remain, adobe would no longer be visible on either the exterior or interior of the building. Permanent encapsulation of the adobe walls might be considered in conformance with the reversibility concept described in rehabilitation standard 10 of the Secretary Standards: “New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.” However, the most important feature of the historical resource would no longer be visible and thus would violate rehabilitation standard 2, which is “The historic character of the property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.” Additionally, encapsulating the adobe walls might accelerate deterioration by retaining moisture behind the enclosed walls. This could cause possible future deterioration to go unchecked. Because compliance with DSA requirements would obscure the most important feature of the historic resource and would violate rehabilitation standard 2, the safety requirements of the DSA are incompatible with the requirements of the Secretary of the Interior’s Standards for historic buildings. Bringing the building into conformance with DSA standards would result in a significant impact to

the historic resource. This alternative would therefore be similar to the proposed project with regard to cultural resources.

Noise

This alternative would require some ground-disturbing activities. These ground-disturbing activities could be performed quickly. Construction efforts to bring the Adobe to DSA standards could take up to six months and result in noise nuisance during school operation hours. However, the noise impacts would not be significant. Therefore, this alternative would be similar to the proposed project with regard to noise.

Conclusion

The Stabilization In Situ Alternative would be environmentally similar to the proposed project in the area of cultural resources, and environmentally similar to the proposed project in the area of noise. This alternative would require approximately $1,040,007 to implement (see Appendix G for breakdown of fees). This alternative would not meet the following four project objectives:

- Avoid disruption to the educational and recreational activities at San Marino High School and other San Marino Unified School District properties.
- Increase public access to the Michael White Adobe.
- Consider the feasibility of preserving the Michael White Adobe, either in situ or at Lacy Park.
- Develop mitigation measures or alternatives to reduce or eliminate potentially significant effects.

7.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As provided in Section 6 of the Draft EIR, the proposed project would result in one significant and unavoidable impact to historical resources. This significant impact is a due to the fact that the Adobe is a historical resource, as defined by CEQA and CEQA Guidelines, and demolition of an historical resource is a significant adverse impact because it would materially impair the resource. Table 7-4, *Summary of Environmental Effects of Proposed Project and Alternatives,* summarizes the environmental effects of all three alternatives compared to the proposed project and provides the cost to implement the proposed project and each of the alternatives.

Table 7-4
Summary of Environmental Effects of Proposed Project and Alternatives

	Cost	Environmental Impacts Relative to Proposed Project	
		Cultural	Noise
Proposed Project (Demolition of Adobe)	$176,493	Significant	Less Than Significant With Mitigation Incorporated
No Project	$0	Similar	Superior
Relocation to Lacy Park	$1,158,328	Superior	Inferior
Stabilization In Situ	$1,040,007	Similar	Similar

As required by CEQA Guidelines Section 15126.6, an EIR must identify an "environmentally superior alternative," which would be the alternative that has the least impact on the environment or would be capable of avoiding or substantially lessening any significant impacts of the project. If the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]). Taking into consideration only the alternatives, the environmentally superior alternative would be the Relocation to Lacy Park Alternative. Although it is necessary to identify the environmentally superior alternative, the decision makers are free to select the proposed project or any of the alternatives evaluated in this EIR.

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