

For Consideration by BART Board on May 26, 2011

Hayward Maintenance Complex Project Mitigation Monitoring and Reporting Plan

San Francisco Bay Area Rapid Transit District

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Section 1

Introduction

1.1 PURPOSE AND NEED FOR MONITORING

Pursuant to the California Environmental Quality Act (CEQA), an Initial Study/Mitigated Negative Declaration (IS/MND) was prepared by the San Francisco Bay Area Rapid Transit District (BART) to address the potential environmental effects of the Hayward Maintenance Complex (HMC) Project (proposed project). The Draft IS/MND was issued for a public review period that began on December 3, 2010 and ended on February 11, 2011. A Final IS/MND has been prepared that provides all comments on the proposed project and responds to those comments. The environmental analyses for the proposed project identified potential impacts and measures to mitigate those impacts wherever feasible. Impacts and mitigation measures were identified in the following areas:

- Visual Quality
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise and Vibration
- Transportation/Traffic

This Mitigation Monitoring and Reporting Plan (MMRP) identifies the mitigation actions that will be performed by BART to compensate for, reduce, minimize, or eliminate the effect of impacts resulting from construction and operation of the proposed project. The MMRP was prepared pursuant to the requirements of California Public Resources Code Section 21081.6, which requires a public agency to adopt a monitoring and/or reporting program to ensure compliance with mitigation measures during project implementation. This MMRP identifies and clarifies the mitigation measures to be implemented by BART for the proposed project and identifies the parties responsible for implementation and monitoring. This MMRP incorporates all mitigation measures identified.

1.2 PROJECT DESCRIPTION

The San Francisco Bay Area Rapid Transit District (BART) operates and maintains 104 miles of track in revenue service and 43 stations, serving an average of 360,000 passenger trips every weekday in the counties of San Francisco, Alameda, Contra Costa, and San Mateo. The Hayward Yard is one of four

BART maintenance facilities serving the BART system. Over the next 30 years, BART will require additional vehicles to meet future demand associated with regional population growth, system expansions for the Warm Springs and Silicon Valley/San Jose Extension projects, and additional riders from the Oakland Airport Connector and eBART projects. Accordingly, BART requires expanded maintenance and storage facilities to serve the expanded fleet. The proposed Hayward Maintenance Complex project (proposed project) would consist of acquisition and improvement to three properties on the west side of the existing Hayward Yard and the construction of additional storage tracks for a maximum of 250 vehicles on undeveloped BART property on the east side of the Hayward Yard.

1.3 MITIGATION MONITORING PROGRAM

This MMRP has been prepared for the Hayward Maintenance Complex Project in accordance with the California Public Resources Code Section 21081.6, which specifies that when a public agency makes findings required by paragraph (1) of subdivision (a) of Section 21081, it "...shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." Public Resources Code 21081.6 further specifies that the MMRP will "...ensure compliance during project implementation." This MMRP is intended to ensure the effective implementation of mitigation measures that are within the authority of BART to implement, including monitoring where identified, throughout all phases of development and operation of the Project.

1.4 MITIGATION ACTIONS

The HMC Project Manager will be responsible for oversight of mitigation actions and reporting on compliance with the measures in this plan. Mitigation actions will be performed by BART staff, by consultants to BART, and/or by contractors to BART.

1.5 PROCEDURES FOR MONITORING AND REPORTING

Monitoring and reporting procedures will conform to the following steps prior to and during project construction and operations.

Step 1 – Monitoring

This step will be executed by the Monitor, who will be designated by the Transit System Development Project Manager (PM). Monitoring activities may be performed by BART staff or the Monitor may be a consultant or contractor to BART. The Monitor shall report to the PM and shall perform monitoring and reporting tasks in consultation, as needed, with the BART System Safety Department Manager and other BART staff with relevant expertise.

The Monitor will have the following responsibilities:

- Prepare an implementation plan prior to the commencement of construction to augment and detail the monitoring actions and compliance requirements listed in this MMRP.
- Be knowledgeable in the mitigation that is to be monitored.
- Verify implementation of mitigation by:
 - ensuring prior to advertisement for contract bids that bid documents, contracts, and other plans and specifications include requirements to implement identified mitigation measures;
 - conducting site visits in the field to ensure that required implementation has been properly executed during and after construction; and
 - contacting the Project Manager and requesting that the situation be remedied if mitigation is not being implemented or executed properly. This action will be accomplished with formal notification via an Environmental Non Conformance Report (ENCR) process, which requires formal response.
- Prepare Mitigation Status Forms and submit to appropriate BART management.

Step 2 – Action

This step will be executed by the PM. The PM will be appointed by the Executive Manager of TSD.

The PM will have the following responsibilities:

- Review the Mitigation Status Forms and any other information presented by the Monitor as monitoring occurs.
- Review and approve any amendments to the MMRP that may be proposed by the Monitor, BART staff or contractors. The MMRP may be amended if changes in monitoring activities are deemed necessary, so long as such changes provide equivalent mitigation measures and maintain conformance with goals of the plan.
- Coordinate with other BART Divisions, as necessary.
- Ensure that the mitigation measures in the MMRP are undertaken, via staff, contractors, or consultants.
- Ensure that penalties to contractors for noncompliance and for ongoing noncompliance are incorporated into contracts.
- Verify monthly that mitigation actions are properly undertaken. This may include designation of a BART staff person or consultant to enforce effective and timely compliance with regard to specific mitigation measures outlined in this MMRP or required permits.
- Ensure that procedures and assignments to implement the MMRP are in place in the event that the BART structure is reorganized prior to completion of the MMRP actions.

Step 3 – Reporting

This step will be executed by the Monitor.

The Monitor will have the following responsibilities:

- Convey the status and any recommendations to the PM. Recommendations may include updating the frequency of monitoring, changing the type of monitoring, and suggesting better ways to implement mitigation.
- Assist the PM in reviewing contractor’s response to ENCRs, and preparing details of corrective action and time of completion to resolve the issues. If the Monitor deems mitigation is satisfactorily completed, the noncompliance situation will expire. If the Monitor deems mitigation to be unsatisfactorily addressed, Monitor will document the non-compliance in a report. The reports will be submitted to the PM and the General Manager or the General Manager’s designee.
- Verify that the ENCR is enforced, that the contractor has taken corrective action and submitted a formal response to the ENCR, and the contractor will incur appropriate penalties as specified in the contracts. The Monitor will report corrective actions taken to remedy noncompliance or ongoing noncompliance to the PM and the General Manager or the General Manager’s designee.
- Report to the PM on MMRP issues on a monthly basis.
- Compile all Mitigation Status Forms into a Compliance Report on a quarterly basis.
- Submit Compliance Reports through the PM to the General Manager or the General Manager’s designee every 12 months.

1.6 GENERAL MITIGATION AND MONITORING EFFORTS

In general, BART staff will be responsible for implementing or ensuring that the mitigation actions listed in the MMRP are undertaken for this project. Mitigation measures may be implemented by BART staff, consultants to BART, and/or by the contractors who will construct the proposed project under the oversight of BART staff. Implementation includes ensuring that any required actions are included in bid documents and contracts as part of the design and construction process for the proposed project and ensuring that the consultants and contractors include specified mitigation activities in plans and specifications for construction. BART staff responsibility includes designation of certain mitigation responsibility to, and continued oversight of, the contractors and consultants.

The Monitor will investigate noncompliance allegations and identify how BART staff or its designees, contractors, or consultants should correct implementation of the measure. The recipient of the ENCR has 30 days to respond with plans for corrective action, unless another timeframe is required by state or federal regulatory agencies or as specified in contracts. Otherwise, BART staff is responsible for enforcing contracts to bring ENCRs into conformance; contractors or consultants are responsible for

correcting actions in nonconformance, as indicated in contracts. If a measure is under control of another agency, the Monitor will inform the agency of the Monitor's determination and request improved implementation. All actions taken as part of this MMRP will be documented and reported to the PM monthly, Compliance Reports generated quarterly, and reported every twelve months to the General Manager or the General Manager's designee. This MMRP will be available for public review at the HMC Project office, currently at 300 Lakeside Drive, Oakland, California 94612. For the extent of the mitigation monitoring period, as listed in each mitigation measure, individuals and public agencies may notify the Monitor in writing if mitigation measures are not implemented or being executed properly.

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Section 2

Project Mitigation Measures

2.1 INTRODUCTION

This section describes the mitigation measures for each of the impacts identified in the Hayward Maintenance Complex IS/MND and identifies the parties responsible for implementation and monitoring of each measure. Mitigation measures are numbered using a prefix to link them with the impact they address. (“Mitigation Measure TR-1” refers to the first mitigation measure identified in the Transportation section.) For ease of reference, the impacts and mitigation measures in this MMRP are numbered as they were described in the environmental analysis. The resource topics are discussed in the same order as presented in the IS/MND.

2.2 PROJECT MITIGATION MEASURES

The following impacts and mitigation measures apply to the proposed project.

Visual Quality

Visual Character. Construction of the proposed crossover switches south of Whipple Road could require the removal of trees to the west of the BART mainline to provide track access. These trees currently screen views from residents east of the BART mainline toward the existing industrial buildings to the west. The removal of these trees could alter views from the residential area and increase the visibility of the industrial uses to the west; this would be a potentially significant impact of the project.

Mitigation Measure VQ-1 Replacement of Trees that Screen Views of Industrial Buildings. If construction activities south of Whipple Road require removal of the existing trees near the industrial buildings west of the BART mainline, BART shall plant replacement trees at a 1:1 ratio in the area of removal, after construction activities are complete.

Monitoring:

1. Prior to construction of the proposed project, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include all requirements to plant replacement trees at a 1:1 ratio.
2. The Monitor will verify in the field that the BART contractor is replacing all removed trees at the ratio identified in the IS/MND.

Air Quality

Construction NO_x. There would be a potential for an exceedance of the NO_x threshold if the clearing, grubbing, grading, and fill transport activities planned for Phase 2 of the proposed project are conducted simultaneously with other project construction activities.

Mitigation Measure AQ-1 Construction Phasing to Reduce Air Emissions. For construction of the storage tracks in Phase 2, BART shall ensure that all work involving clearing, grubbing, grading, and fill transport associated with work on the project site north of Whipple Road not be conducted concurrently with construction work south of Whipple Road to assure that the BAAQMD NO_x construction equipment emission threshold would not be exceeded.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the requirements set forth in Mitigation Measure AQ-1 above.
2. During construction, the Monitor will verify in the field that the BART contractor is conducting construction activities according to the requirements set forth in Mitigation Measure AQ-1 above.

Construction Dust. PM₁₀ and PM_{2.5} would be generated from soil-disturbing activities. These dust emissions could impact sensitive residential receptors to the north, northeast, and east of the project site by increasing local ambient PM₁₀ concentrations there.

Mitigation Measure AQ-2 Dust Control during Construction. BART shall ensure implementation of the following mitigation measures during project construction, in accordance with Bay Area Air Quality Management District (BAAQMD) standard mitigation requirements:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or as necessary to control dust.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as practical.
- Building pads shall be laid as soon as practical after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control

measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage stating the regulations shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the requirements set forth in the list above and require that the contractor use control measures set forth by the BAAQMD for construction activities to minimize fugitive dust.
2. During construction, the Monitor will verify in the field that the BART contractor is implementing the BAAQMD air quality construction control measures to minimize air emissions according to the plans and specifications.

Biological Resources

Wetland Disturbances. Construction and operation of the proposed project may result in the filling or adverse modification of jurisdictional wetlands, other "waters of the U.S.," or "waters of the State."

Mitigation Measure BIO-1 Wetland Avoidance and Protection. BART shall ensure that the wetlands adjacent to the east side expansion area of the project site are not affected during construction by installing orange exclusionary fence to alert construction crews that the areas are to be avoided during construction, and through compliance with applicable statewide NPDES general permits.

In addition, BART shall ensure that post installation conditions shall not cause significant changes to the pre-project hydrology, water quality, or water quantity in any wetland or other water of the U.S. that is affected by the project. This shall be accomplished through implementation of Mitigation Measures HYD-1 and HYD-2 from the Hydrology section, *Stormwater Drainage System Design*, and through compliance with applicable statewide NPDES general permits.

Monitoring:

1. Prior to approval of the final design of the proposed project, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the above requirements to mitigate impacts to wetlands, other "waters of the U.S.," or "waters of the State," and that the applicable NPDES permit will be obtained.

2. BART staff will ensure and the Monitor will verify that BART retains a qualified biologist to confirm that the proposed project will not impact wetlands, “waters of the U.S.,” or “waters of the State,” and that the applicable NPDES permit has been obtained.

Nesting Habitat. Trees and shrubs found within both the east side and west side expansion areas could provide nesting habitat for a wide variety of native birds. Removal of these trees and shrubs during the nesting season (March 1 to September 15) could result in the loss of active bird nests, the loss of which would be a significant impact.

Mitigation Measure BIO-2 Restrictions on Tree or Shrub Removal to Avoid Nesting Birds. Tree or shrub removal or pruning shall be avoided from March 1 through September 15, the bird nesting period, to the extent feasible. If no tree or shrub removal or pruning is proposed during the nesting period, no surveys or further mitigation measures are required.

Monitoring:

1. Prior to construction, BART staff will ensure and the Monitor will verify that plan specifications and construction bid documents include restrictions on tree and shrub removal during the bird nesting period to the extent feasible.

Mitigation Measure BIO-3 Pre-construction Nesting Bird Survey and Measures to Reduce Harm to Nesting Birds. If tree and shrub removal is unavoidable during the nesting season, BART shall hire a qualified biologist to conduct a survey for nesting raptors and other birds covered by the Migratory Bird Treaty Act (MBTA). BART shall have a qualified biologist conduct nest surveys no more than 30 days prior to any demolition/construction or ground-disturbing activities that are within 500 feet of potential nest trees or suitable nesting habitat (i.e., trees, tule, cattails, grassland). A pre-construction survey report shall be submitted to CDFG that includes, at a minimum: (1) a description of the methodology including dates of field visits, the names of survey personnel with resumes, and a list of references cited and persons contacted; and (2) a map showing the location(s) of any bird nests observed on the project site. If no active nests of MBTA-covered species are identified, then no further mitigation is required.

If active nests of protected bird species are identified in the focused nest surveys, BART will consult with the appropriate regulatory agencies to identify project-level mitigation requirements, based on the agencies standards and policies as then in effect. Mitigation may include the following, based on current agency standards and policies:

- a) BART, in consultation with CDFG, would delay construction in the vicinity of active nest sites during the breeding season (March 1 through September 15) while the nest is occupied with adults and/or young. A qualified biologist would monitor any occupied nest to determine when the nest is no longer used. If the construction cannot be delayed, avoidance measures would include the establishment of a non-disturbance buffer zone around the nest site. The size of the buffer zone would be determined in consultation with the CDFG, but will be a minimum of 100 feet. The buffer zone would be delineated with highly visible temporary construction fencing.

- b) No intensive disturbance (e.g., heavy equipment operation associated with construction, or use of cranes) or other project-related activities that could cause nest abandonment or forced fledging would be initiated within the established buffer zone of an active nest between March 1 and September 15.
- c) If construction activities are unavoidable within the buffer zone, BART would retain a qualified biologist to monitor the nest site to determine if construction activities are disturbing the adult or young birds. If abandonment occurs, the biologist would consult with CDFG or USFWS (who monitor compliance with the MBTA) for the appropriate salvage measures (e.g., remove abandoned nestlings to an agency approved wildlife care group). BART would be required to fund the full costs of the salvage measures.
- d) If fully protected species are found to be nesting near the construction area, their nests would be completely avoided until the birds fledge. Avoidance would include the establishment of a non-disturbance buffer zone of 250 feet, or as determined in consultation with the CDFG.

Monitoring:

1. Prior to construction, BART staff will ensure and the Monitor will verify that bid documents, contracts, and other plans and specifications require a preconstruction survey for nesting raptors and other birds covered by the MBTA to be conducted 30 days prior to the initiation of any ground-disturbing or vegetation clearing activities that occur between March 1 and September 15, as described above.
2. BART staff will ensure and the Monitor will verify that BART, in consultation with CDFG, will retain a qualified biologist to conduct the preconstruction survey.
3. If no active nests of MBTA-covered species are identified, then no further mitigation is required.
4. If active nests of protected bird species are identified in the focused nest surveys, BART will ensure and the Monitor will verify that the appropriate regulatory agencies are consulted to identify project-level mitigation requirements, based on the agencies' standards and policies as then in effect.

Protected Trees. Removal of coast redwood trees, considered protected trees under the City of Hayward's Tree Preservation Ordinance, located in the west side expansion area would constitute a significant impact.

Mitigation Measure BIO-4 Tree Survey and Replacement of Protected Trees to be Removed. Prior to construction, BART shall retain a certified arborist to survey trees in the project area, including potential access roads and staging areas, to identify and evaluate trees that shall be removed. A report shall be prepared and submitted to BART to document the trees that are to be removed. Mitigation shall be required for impacts to trees designated as "protected trees" in the cities of Hayward or Union City. Replacement trees will be a native tree species. Each removed tree

meeting the above classifications will be replaced at a 1:1 ratio. Trees will be planted in locations suitable for the replacement species. Selection of the replacement sites and installation of replacement plantings will be supervised by a qualified botanist. Trees will be replaced as soon as practical after construction is completed. A qualified botanist will monitor newly planted trees at least once a year for 5 years. Each year during that period, any trees that do not survive will be replaced. Any trees planted as remediation for failed plantings will be planted as stipulated here for original plantings, and will be monitored for a period of 5 years following installation.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that a tree survey is conducted by a certified arborist to identify and evaluate trees that shall be removed, including identification of “protected trees” in the cities of Hayward or Union City.
2. BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications require that replacement trees be planted to compensate for removal of any specially-designated tree.
3. The Monitor will verify in the field that the tree replacement plan is implemented and that the replacement plantings are supervised by a qualified botanist.
4. Monitor will verify that replacement trees are monitored for 5 years and failed plantings are replaced.

Cultural Resources

Archaeological Resources. If any prehistoric resources are located subsurface within the project area, project-related ground-disturbing activities could potentially cause a significant impact to those resources.

Mitigation Measure CR-1 Avoidance of Discovered Cultural Resources and Measures to Reduce Harm. If evidence of an archaeological site or other suspected historic resource is encountered during construction, including darkened soil representing past human activity (“midden”) that could conceal material remains (e.g., worked stone, faunal bone, hearths, or storage pit), all ground-disturbing activity within 100 feet of the find shall be halted and BART notified. BART will hire an archaeologist meeting the Secretary of the Interior’s Standards for Professional Archaeologist to assess the find. Impacts to any significant resources may be mitigated through avoidance, data recovery, or other methods determined adequate by the qualified archaeologist and that are consistent with the Secretary of the Interior’s Standards for Archeological Documentation. Any mitigation plan developed by the qualified archaeologist shall be approved by BART prior to implementation. Project-related ground-disturbing activities shall not be continued in the vicinity of any discovered resource until the significance of the resource is resolved and mitigation action (if any) is completed.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include provisions for the response to the discovery of archeological artifacts.
2. If unknown potential historical or unique archaeological resources are discovered during construction, BART staff will ensure and the monitor will verify that all work in the immediate vicinity be suspended and alteration of the materials and their context shall be avoided pending site investigation by a qualified archaeologist.
3. BART staff will ensure and the Monitor will verify that, if a historical or unique archeological site is identified, BART will retain a qualified archeologist to develop and implement a plan for investigation and avoidance, if feasible.

Human Remains. Project-related ground-disturbing activities (in both the west side and east side portions of the project site) could disturb or destroy any human remains that are present within the project area, causing a significant impact.

Mitigation Measure CR-2 Avoidance of Discovered Human Remains and Measures to Reduce Harm. If human remains, including disarticulated or cremated remains, are discovered during any phase of construction, all ground-disturbing activities in the vicinity and Hayward any nearby area reasonably suspected to overlie adjacent human remains shall be immediately halted. BART and the Alameda County Coroner shall be notified immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.05 of California's Health and Safety Code. If the remains are determined by the county coroner to be Native American, it is the responsibility of the county coroner to inform the Native American Heritage Commission (NAHC) within 24 hours. The guidelines of the NAHC should be adhered to in the treatment and disposition of the remains. BART shall retain a qualified archaeologist who meets the Secretary of the Interior's Standards for Professional Archaeologist and with Native American burial experience to conduct a field investigation of the specific site and consult with the person identified as the Most Likely Descendent, if any, identified by the NAHC. BART shall approve any mitigation recommended by the qualified archaeologist prior to implementation, taking account of the provisions of State law as set forth in the California Environmental Quality Act (CEQA) Guidelines Section 15064.5(e) and Public Resources Code Section 5097.98. Approved mitigation must be implemented before resumption of ground disturbing activities in the vicinity of where the remains were discovered.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include all requirements that if human remains are discovered, construction shall cease and follow protocol and procedures, as described above.
2. The Monitor will verify in the field that protocol and procedures are being implemented.

Greenhouse Gas Emissions

Construction GHG Emissions. Construction of the proposed project would generate short-term GHG emissions.

Mitigation Measure GHG-1 Construction-Related Greenhouse Gas Best Management Practices. BART shall ensure implementation of the following mitigation measures during project construction, in accordance with Bay Area Air Quality Management District (BAAQMD) standard mitigation recommendations which suggest:

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet;
- Use local building materials (within 100 miles) of at least 10 percent; and
- Recycle or reuse at least 50 percent of construction waste or demolition materials.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the requirements set forth in the list above and require that the contractor use mitigation measures set forth by the BAAQMD for construction activities to minimize GHG emissions.
2. During construction, the Monitor will verify in the field that the BART contractor is implementing the BAAQMD standard mitigation measures to minimize GHG emissions according to the plans and specifications.

Hazards and Hazardous Materials

Hazardous Materials. Construction of the proposed project could potentially expose workers and employees to contaminated materials, resulting in a significant impact.

Mitigation Measure HAZ-1 File Review and a Phase I ESA Prior to Construction. Prior to construction BART shall conduct an environmental site assessment (ESA) to further analyze potential hazardous materials and waste sites around the project site. BART shall ensure that additional research, including a file review with the Alameda County Department of

Environmental Health and the RWQCB and a Phase I ESA for the west side expansion area, is performed. If the file review reveals no potential impact from environmental contamination, no further action to remedy soil or groundwater contamination would be necessary.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that an additional file review and a Phase I ESA are conducted, as described above.

Mitigation Measure HAZ-2 Further Soil and Groundwater Investigations Prior to any Construction Activities. If the file review under Mitigation Measure HAZ-1 above reveals potential environmental contamination along or beneath the proposed project's footprint or other facilities, BART shall evaluate the sites to determine the level of investigation appropriate to evaluate the possible presence of hazardous chemicals in soil and groundwater. In the event soil and/or groundwater testing is deemed appropriate, BART shall ensure that a Phase II soil and groundwater investigation is conducted in the affected areas, including field sampling and laboratory analysis, to evaluate conditions where excavation and grading will take place. The Phase II investigation shall be completed prior to any construction or excavation work, and a schedule shall be developed in the pre-design phase of the project to ensure that a sufficient amount of time is allotted prior to site development to identify and implement actions to investigate the presence of hazardous substances in soil and groundwater, and to identify design and contingency measures in the event that the results of the investigation indicate the need for further testing, site controls, or remediation. The number, location of field samples, and constituents tested would depend on the size of the impacted site, site activities, and possible transport or migration routes. Field samples may include soil, soil gas, or groundwater, depending on the nature of the contaminants suspected to be present. The sampling plan shall specify that all soil and groundwater chemical analyses shall be performed by a California certified laboratory, using standard EPA and California chemical testing methods. The investigation results shall, if necessary, lead to preparation of a:

- Remedial Action Plan for soil and groundwater treatment and disposal;
- Health and Safety Risk Assessment; and
- Soil management plan with criteria for impacted soils, in consultation with DTSC and RWQCB.

If necessary, a Remedial Action Plan shall be prepared to identify options for remediation of the contaminated site. If the proposed remedial approach does not involve complete source removal, a Health and Safety Risk Assessment shall be completed. Work in impacted areas will be conducted in accordance with applicable Cal OSHA requirements.

Monitoring:

1. If contaminated sites are found, BART staff will ensure and the Monitor will verify that further soil and groundwater investigations are conducted, and if necessary, a Remedial

Action Plan, a Health and Safety Risk Assessment, and a soil management plan will be prepared prior to construction activities.

2. During project construction, the Monitor will inspect and verify in the field that the BART contractor is adhering to the Remedial Action Plan, the Health and Safety Risk Assessment, and the soil management plan.

Mitigation Measure HAZ-3 Remediation of Contaminated Sites Prior to Construction. If hazardous materials are identified in soil and groundwater at levels that present a risk to the public, to construction workers, or to the environment, based on the investigations described in Mitigation Measure HAZ-2 above, BART shall ensure that remediation is conducted at contaminated sites pursuant to applicable laws and regulations.

A Remedial Action Plan may be developed if warranted to address potential air and health impacts from soil excavation activities, potential transportation impacts from the removal of remedial activities, and potential risks of public upset should there be an accident at excavation sites. During excavation activities, construction workers or the public may be exposed to contaminants in the soil through ingestion, dermal contact, inhalation of fugitive dust, and inhalation of volatile emissions. The Site-Specific Health and Safety Plan will include measures to mitigate these potential impacts, such as cordoning off excavation sites to prevent public access, water misting to control dust during removal activities, perimeter air monitoring for dust along the site boundaries both upwind and immediately downwind of site excavation and stockpiling activities, and air monitoring of volatile organic compounds (VOC). All exposed contaminated materials shall be covered at the end of each day. Excavation work shall be performed in compliance with all OSHA rules and regulations.

Monitoring:

1. If hazardous materials are identified in soil and groundwater at levels that present a risk, BART staff will ensure and the Monitor will verify that remediation is conducted at contaminated sites pursuant to applicable laws and regulations.
2. During project construction, the Monitor will inspect and verify in the field that the BART contractor is conducting remediation pursuant to applicable laws and regulations.

Mitigation Measure HAZ-4 Discovered Environmental Contamination During Construction. In the event that soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities after implementation of Mitigation Measure HAZ-3, BART's contractor shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and contractor shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notification of the applicable regulatory agency(ies) as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the corresponding regulatory agency(ies), as appropriate.

Monitoring:

1. If hazardous materials are identified in soil, or other environmental medium unexpectedly during construction activities, BART staff will ensure and the Monitor will verify that all construction activities shall cease until all measures identified above have been implemented under the applicable oversight agency(ies).

Hydrology and Water Quality

On-Site Drainage Pattern. The proposed project could result in off-site and on-site flooding as a result of an increased impervious surface cover at the project site.

Mitigation Measure HYD-1 Stormwater Drainage System Design. Prior to final design of each phase of the proposed project, BART shall have a licensed professional engineer registered in California prepare a detailed Hydrology and Hydraulics Report that identifies flow contributing areas (catchments), flow pathways, off-site discharge locations, receiving storm drain systems, and proposed on-site flow conveyance structures and conveyance capacities.

The Hydrology and Hydraulics Report shall identify the off-site peak flow rates and flow volumes for the 100-year storm event at all proposed off-site discharge locations, retained existing on-site flow conveyance structures, and proposed onsite flow conveyance structures for both existing conditions and proposed project conditions. The detailed Hydrology and Hydraulics Report calculations shall be prepared in accordance with Alameda County Flood Control District Hydrology and Hydraulics Manual (June 2003, or later version, as applicable).

Off-site Runoff. Based on the detailed Hydrology and Hydraulics Report, BART shall design on-site detention (or retention) facilities sufficient to detain increases in 100-year runoff peak flow rates and retain increases in 100-year flow volumes at all off-site discharge locations compared to existing conditions. BART shall submit a preliminary design, along with the Hydrology and Hydraulics Report, to the Alameda Flood Control District and City of Hayward Public Works Department for review. BART shall incorporate Alameda Flood Control District recommendations into the project design, where applicable, prior to the beginning of construction activities.

On-site Runoff. BART shall design on-site drainage in accordance with one of the following, or a combination of the following:

- BART shall design sufficient on-site detention (or retention) to detain increase in flow rates in excess of the conveyance capacity of existing downstream structures; or
- BART shall upgrade existing on-site conveyance structures to provide sufficient conveyance capacity. All proposed on-site conveyance structures shall be designed with adequate capacity to convey the 100-year storm event.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor develop a detailed Hydrology and Hydraulics Report and incorporate recommendations of the report into the project design. In addition, BART contractors shall incorporate Alameda Flood Control District recommendations into the project design, where applicable.
2. BART staff will ensure and the Monitor will verify that prior to construction activities, a preliminary design, along with the Hydrology and Hydraulics Report is submitted to the Alameda Flood Control District and City of Hayward Public Works Department for review.

Noise and Vibration

Noise. Operation and construction of the proposed project would result in significant noise impacts to residents adjacent to the project site.

Mitigation Measure NO-1 Construction of Sound Walls. BART shall incorporate sound walls at the BART right-of-way line or other locations that mitigate the noise impacts indicated in Table 13 and Table 14 of the IS/MND. Implementation of sound walls will provide approximately 10 dBA reduction in overall noise levels. Concrete block masonry, poured-in-place, or pre-cast concrete walls would be acceptable as construction materials provided they have a minimum surface density of 4 lbs/ft². The specific location of sound walls will be addressed in final design. Sound walls will be constructed in phases as necessary to reduce noise as components of the project are constructed.

Monitoring:

1. Prior to final design plans, BART staff will ensure and the Monitor will verify that the recommended noise attenuation measures would satisfy the standards defined by the Federal Transit Administration.
2. BART staff will ensure and the Monitor will verify that the plan specifications and construction bid documents include the recommended noise attenuation measures that would reduce train noise so that noise levels indicated in Table 13 and Table 14 of the IS/MND are not exceeded.

Mitigation Measure NO-2 Installation of Building Sound Insulation Features. For those receptors where the outdoor wayside noise from the train operations at ground level can be mitigated to achieve the FTA criteria, but the sound walls provided by Mitigation Measure NO-1 are not sufficient to mitigate noise levels at upper stories, BART will measure operational noise levels on a case-by-case basis following project implementation. Where the existing building construction

does not provide interior noise levels of Ldn 45 dBA or lower, BART will quantitatively evaluate individual structures and implement a formal program of building sound insulation improvement as necessary to meet this criterion.

Monitoring:

1. Following project implementation, BART staff will ensure and the Monitor will verify that a quantitative analysis of individual residences is conducted on a case-by-case basis to determine if the recommended noise attenuation measures would satisfy the standards defined by the Federal Transit Administration.
2. Where sound walls provided by Mitigation Measure NO-1 are not sufficient to mitigate noise for the upper stories, as determined under Monitoring Item 1 above, BART staff will ensure and the Monitor will verify that a formal program of building sound insulation improvements is implemented, as necessary, in order to meet the FTA criterion.

Mitigation Measure NO-3 Construction Noise Best Management Practices. BART shall incorporate the following practices into the construction documents to be implemented by the project contractor. Such practices include, but are not limited to, the following measures:

- Where feasible, BART shall require that the contractor complies with a Performance Standard of 80 dBA 8-hour Leq during the daytime (7 a.m. to 10 p.m.) and 70 dBA 8-hour Leq during the nighttime (10 p.m. to 7 a.m.) at the property line of the sensitive receptor.
- Prior to construction, BART shall ensure that a Noise Control and Monitoring Report is prepared. The report shall include expected construction noise levels, noise control measures, and explain how the contractor intends to monitor and document construction noise and complaints.
- Locate noisy equipment as far as possible from noise sensitive receptors. In addition, the use of temporary barriers should be employed around the equipment.
- Where construction noise impacts have been identified, use temporary noise barriers along the working area and/or project right-of-way. Barriers/curtains must achieve a Sound Transmission Class (STC) of 30 or greater in accordance with ASTM Test Method E90 and be constructed from material having a surface density of at least 4 pounds/square foot, to ensure adequate transmission loss.
- When nighttime or 24-hour construction will be required, coordinate with residents to ensure that the affected residents are fully informed about the upcoming construction. Residents will be given the option of sleeping in hotel rooms at BART expense for the duration of the nighttime construction in areas where construction is expected to exceed the FTA criterion. Residents that work nights and sleep days in locations where construction noise is expected to exceed the FTA criterion will be given the same option.

- Require ambient sensitive (“smart”) backup alarms, SAE Class D, or limit to SAE Class C (97 dB) for vehicles over 2.5 cubic yards haulage capacity, or Cal-OSHA/DOSH-approved methods that avoid backup alarm noise for vehicles under 2.5 cubic yards haulage capacity.
- Fit silencers to combustion engines. Ensure that equipment has effective, quality mufflers installed, in good working condition.
- Switch off engines or reduce to idle when not in use.
- Lubricate and maintain equipment regularly.
- Route construction-related truck traffic along roadways that result in the least disturbance to sensitive receptors.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include requirements to use noise-reducing construction practices and to measure noise levels before beginning construction and periodically during construction, as described above.
2. BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include requirements for the use of noise barriers between equipment and residential areas, as listed above, to meet BART’s construction noise thresholds in the vicinity of sensitive receptors.
3. During project construction, the Monitor will verify through periodic spot checks in the field that all noise-reduction measures as described above are used to reduce noise near sensitive receptors, and that the construction noise criteria are met.

Vibration. Operation and construction of the proposed project would result in significant vibration impacts to residents adjacent to the project site.

Mitigation Measure NO-4 Vibration Reducing Technology. BART shall incorporate vibration mitigation measures such as tire-derived aggregate (TDA) or floating slab track (FST) under the track, or other technology that may be developed to attain the FTA groundborne vibration operational criterion of 72 VdB. The general location of the mitigation measures under the track is presented in Table 22. However, the actual extent of the mitigation control would be determined during final design.

**Table 22
Vibration Mitigation**

Crossover #	Mitigation Required for Phase 1	Mitigation Required for Phase 2
P100B	No	Yes ¹
P100	No	No
P101	No	Yes ¹
P102	Yes ¹	No
P103	No	No
P104	No	No

Source: WIA 2010

Notes:

1. Mitigation extent will be determined during final design.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include requirements to incorporate vibration-reducing technologies in the final project design.
2. During project construction, the Monitor will inspect and verify in the field that the BART contractor is incorporating the vibration-reducing technologies identified in the final project design.

Mitigation Measure NO-5 Construction Vibration Best Management Practices. Where potential construction vibration impacts have been identified, the contractor shall be required to select equipment and methods that would reduce potential annoyance to nearby residents. Such practices include, but are not limited to, the following measures:

- Comply with a Performance Standard of 0.3 in/sec PPV at any building at anytime.
- Minimize vibration annoyance by maintaining vibration levels at 80 VdB or less at any building at any time.
- Prior to construction, BART shall prepare a Vibration Control and Monitoring Report, in which the contractor indicates what vibration levels they expect to generate, vibration control measures they intend to implement, and how they intend to monitor and document construction vibration and complaints.
- Avoid the use of impact pile drivers, and use instead sonic or vibratory impact drivers. It is also encouraged that “quiet” or “silent” piling technologies be used, if feasible.
- When nighttime or 24-hour construction is necessary, coordinate with residents to ensure that the affected residents are fully informed about the upcoming construction. Residents will be given the option of sleeping in hotel rooms at BART expense for the duration of the nighttime

construction in areas where construction is expected to exceed the FTA criterion. Residents that work nights and sleep days in locations where construction vibration is expected to exceed the FTA criterion will be given the same option.

- Monitor vibration during construction to ensure compliance with the criterion for building damage for buildings within 40 feet from construction activities. Conduct a pre-construction crack survey at these structures.
- Plan routes for hauling material out of the project site that would cause the least impact (annoyance).
- Restrict high amplitude vibration methods such as vibratory pile driving and soil compaction using large truck-mounted compactors to areas beyond 50 feet and 20 feet, respectively, of residential structures or wood-framed buildings. Otherwise, temporary accommodations away from construction shall be coordinated between BART and the residents.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include requirements for the contractor to use vibration-reducing practices and construction methods, as described above.
2. During project construction, the Monitor will verify through periodic spot checks in the field that appropriate vibration-reducing techniques are used and that BART's noise and vibration criteria are met.

Transportation/Traffic

Construction-Related Traffic Impacts. Construction of the proposed project could result in construction-related traffic impacts that would be potentially significant.

Mitigation Measure TR-1 Construction Phasing and Traffic Management Plan. BART will ensure that a Construction Phasing and Traffic Management Plan is developed and implemented by the contractor. The plan shall define how traffic operations, including construction equipment and worker traffic, are managed and maintained during each phase of construction. The plan shall be developed in consultation with the cities of Union City and Hayward, BART, and Union City Transit Bus Lines. To the maximum practical extent, the plan shall include the following measures:

- a) Specify predetermined haul routes from staging areas to construction sites and disposal areas by agreement with the cities of Union City and Hayward prior to construction. The routes shall follow streets and highways that provide the safest route and avoid congested intersections to the extent feasible.
- b) Identify construction activities that, due to concerns regarding traffic safety or congestion, must take place during off-peak hours.

c) Identify a telephone number that the public can call for information on construction scheduling, phasing, and duration, as well as for complaints. Such information shall also be posted on BART's website.

Monitoring:

1. Prior to project construction, BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include a requirement that the contractor develop and implement a construction phasing and traffic management plan, as described above.
2. BART staff will ensure coordination with the cities of Union City and Hayward, BART, and Union City Transit Bus Lines, in developing and implementing the construction phasing and traffic management plan.
3. The Monitor will verify that the construction phasing and traffic management plan is being properly implemented in the field.

Traffic Safety. The proposed project may need reconfiguration at the intersection of Whipple Road in order to mitigate sight distance safety hazards, which would constitute as a significant impact.

Mitigation Measure TR-2 Reconfiguration of Southbound Approach of the West Side Expansion Area Driveway. BART will reconfigure the approach to Whipple Road for the west side expansion area driveway by narrowing the mouth of the intersection and channeling southbound traffic to approach Whipple Road at a more perpendicular angle. In addition, shrubbery/vegetation that impedes vehicle line of sight to the east will be removed.

Monitoring:

1. Prior to project operation, BART staff will ensure that an appropriate driveway design will be implemented as described above.
2. BART staff will ensure and the Monitor will verify that bid documents and contracts, and other plans and specifications include the intersection modifications required to implement the mitigation measures.
3. The Monitor will verify in the field that, the intersections modifications are being constructed according to the construction plans.

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