

APPENDIX B

EXCERPTS
from the
1992 BART WARM SPRINGS
EXTENSION
MITIGATION MONITORING PLAN

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September 1992

The following impacts, mitigation measures, and monitoring were adopted for the 1992 Warm Springs Extension project (Adopted Project) and still pertain to the 2003 Proposed Project.

1. Soils, Geology and Seismicity

IA Project Impact:

- Increased exposure of the public to a seismically active region involving risks from potential seismic ground shaking and associated ground rupture.

Mitigation:

- Incorporate the BART Extensions Program seismic design criteria into extension design;
- Aerial structures will be supported on piles driven into dense older alluvium, where feasible; for elevated alignments, use embankments at fault crossings. Comply with the Alquist-Priolo Special Studies Zones Act;
- Use BART's earthquake alarm system and implement BART's Emergency Response Plan procedures;
- All buildings will be designed in accordance with the Uniform Building Code (UBC) including current State of California amendments; and
- Prior to final design, identify the precise location of the Hayward Fault and any secondary faults at the Irvington Station. The investigation would follow the California Division of Mines and Geology guidelines for evaluating the hazard of surface fault rupture. If fault traces are identified, structures which would be occupied by workers or passengers would be located or relocated outside the zone of potential fault rupture.

Monitoring:

- Verify that the requirements to follow BART seismic design criteria have been included in design contracts;
- Review final contract drawings to verify stamped approval of a registered engineer;
- Review appropriate contract documentation to verify that elevated alignments have been placed on embankments at fault crossings;
- Verify that a certified geologist has completed a report in compliance with the Alquist-Priolo Act;
- Verify that the Emergency Response Plan has been expanded to include the Warm Springs Extension;
- Verify that the motion sensor and alarm system are included in trackway design; and

- Verify that a geologic investigation has taken place as per the California Division, of Mines and Geology guidelines. If the relocation of structures has been deemed necessary, review construction drawings to verify the relocation.

1B Project Impact:

- Increased exposure of the public to a seismically active region involving risks from fault creep along the Hayward Fault which could displace rails and create adverse track conditions.

Mitigation:

- Monitor fault creep and conduct weekly track inspections and semi-annual track alignment surveys and realign track as necessary.
- Monitoring of track displacements also would be performed monthly by a specially designed “laser geometry car” or other equivalent method certified by BART engineers.
- Document and compile all monitoring of track displacements.

Monitoring:

- Verify that BART’s track alignment inspections and surveys are expanded to include the Warm Springs Extension.
- Verify that documentation of all monitoring of track alignment inspection and surveys has been completed.

1C Project Impact:

- Expansive soils occur along the alignments, creating a potential risk of damage to structures from changing soil pressures.

Mitigation:

- The structure which may be affected will either be designed to withstand the increased earth pressures caused by the expansive clays; or alternatively, the expansive clays will be treated with lime injection to reduce the shrink-swell potential in localized areas. The removal of expansive soils and replacement with a non-expansive fill material is another mitigation option.
- Expansive soil will not be used as fill behind retaining structures or building foundations; and
- After construction, settlement would be monitored and evaluated to see if the track alignment has been affected.

Monitoring:

- Verify that structural design features, lime injection or non-expansive have been included in design specifications in area where expansive soils are found to exist.
- Monitor will review contract drawings and specifications to verify stamped approval by a licensed professional engineer; and
- After construction, settlement would be monitored and evaluated to see if the track alignment has been affected.

1D Project Impact

- Increased exposure of the public to compressible soils, creating a potential risk of damage to structures from changing soil pressures.

Mitigation:

- Treat or replace compressible soils in localized areas.
- Employ the BART Extension Program Design Criteria, the Uniform Building Code as amended, and the Alameda County Grading Ordinance to control erosion and unstable slopes; and
- Following construction, survey structures on embankments to evaluate if settlement has affected the alignment.

Monitoring:

- Verify that treatment or replacement of compressible soils has been included in design specifications.
- Review contract drawings and specifications to confirm stamped approval by a licensed professional engineer; and
- Verify that requirements to follow BART Extension Program Design Criteria and the Alameda County Grading Ordinance have been included in design contracts.

IE: Project Impact

- Potential slope instability in excavations and during construction; and
- Potential erosion during and after construction.

Mitigation:

- Excavation and slope construction would be performed under inspection by a qualified engineering professional, as required by the Uniform Building Code and BART design criteria;

- Employ to the extent feasible the BART Extension Program Design Criteria, the Uniform Building Code (UBC), City of Fremont Grading, Excavation and Sediment Control Ordinance and the Alameda County Grading Ordinance in design of slopes and retaining structures;
- Shore excavations as per *Cal/OSHA* requirements;
- Develop a dewatering program or appropriate procedures to control seepage (and associated pore water pressure) into any excavation below the groundwater table where necessary. Any water discharged into state waters would be regulated by the Regional Water Control Board (RWCB) under the National Pollutant Discharge Elimination System (NPDES) requirements. Water discharge into sanitary sewers would meet with Union Sanitation Discharge (USD) requirements;
- Slopes would be benched if slope height exceeds 30 ft. and vegetated as soon after construction as possible;
- Concentrated surface flow would be diverted away from slopes or conveyed to appropriate drains; and
- Inspect slopes monthly and after periods of heavy rain, repair gullies and re-vegetate as soon as possible.
- Follow substantially the applicable portions of the City of Fremont Grading, Excavation and Sedimentation Control Ordinance.

Monitoring:

- Verify that requirements to follow BART Extension Program Design Criteria, the UBC, and appropriate provisions of the Alameda County and the City of Fremont Grading, Excavation and Sedimentation Control Ordinance have been included in design contracts;
- Verify that the City of Fremont and Alameda County have had an opportunity to review and comment on sedimentation and erosion control plans;
- Review appropriate contract documentation to verify that provisions requiring shoring as per *Cal/OSHA* standards are included;
- Review appropriate contract documentation to verify that provisions requiring dewatering as per RWCB, NPDES, or USD regulations are included;
- Review appropriate contract documentation to verify that provisions requiring a terracing slopes exceeding 30 feet in height, slope inspection after rainfall. Gully repair, and re-vegetation are included; and
- Meet monthly with project engineers during construction at the project site to verify implementation of erosion control procedures.

1F Project Impact

- Increased or higher-density population near transit facilities may increase exposure of people to seismic hazards related to the Hayward Fault Zone.

Mitigation:

- Comply with Alquist-Priolo Special Studies Zone Act provisions and building codes for seismically active areas;
- Follow BART seismic design criteria at all fault crossings;
- For elevated alignments, use embankments at fault crossings;
- Use BART's earthquake alarm system and implement Emergency Response Plan procedures; and
- Prior to final design identify the precise location of the Hayward Fault and any secondary faults at the Irvington Station. The investigation would follow the California Division of Mines and Geology guidelines for evaluating the hazard of surface fault rupture. If fault traces are identified, structures which would be occupied by workers or passengers would be located or 1 relocated outside the zone of potential fault rupture.
- In addition, BART will encourage the City of Fremont to impose seismic design requirements on development along the BART alignment in the vicinity of the Hayward Fault to reduce the, potential increased exposure of people and structures to seismic hazard with the Hayward Fault Zone.

Monitoring:

- Verify the requirements that are to follow BART seismic design criteria have been included in design contracts;
- Review contract drawings to verify stamped approval by a registered engineer;
- Review appropriate contract documentation to verify that elevated alignments have been placed on embankments at fault crossings;
- Verify that a certified geologist has completed a report in compliance with the Alquist-Priolo Act;
- Verify that the Emergency Response Plan has been expanded to include the Warm Springs Extension;
- Verify that the motion sensor and alarm system are included in trackway design; and
- Verify that a geologic investigation has taken place as per the California Division of Mines and Geology guidelines. If the relocation of structures has been deemed necessary, review the construction drawings to verify the relocation.

- Verify that BART has encouraged the City of Fremont to impose seismic design requirements on developments in the vicinity of the Hayward Fault.

2. Hazardous Materials

2A Project Impact:

- Increased exposure of the public to contaminants in the event of accidents involving fuel pipelines along the alignment or railcars transporting hazardous materials.

Mitigation:

- The procedures set forth in BART's Emergency Response Plan would be implemented in the event of a release of hazardous materials.

Monitoring:

- Verify that the hazardous materials accident provisions in the Emergency Response Plan and in the site health and safety plan have been expanded to include the Warm Springs Extension prior to the completion of final design.

2B Project Impact:

- Interruption or delay of potential investigation or remediation activities;

Mitigation:

BART would cooperate with investigation and clean-up agencies and provide access as necessary for collection of soil samples and remediation of contaminated soils or groundwater, provided all regulatory and BART safety and emergency programs are complied with.

Monitoring:

- Consult with local jurisdictions to determine if site investigation/remediation activities will occur during construction and, if so, coordinate with the Project Manager to ensure that clean-up agencies are provided access to the site.

9. Utilities and Public Services

9A Project Impact:

- Potential disruptions of utilities, electrical transmission lines, pipelines, and fiber optic cables.

Mitigation:

- Coordinate with the San Francisco water Department determine actual impact to their facilities and develop a plan to mitigate construction impacts;
- Provide protection from stray electrical currents;
- Maintain clearance beneath electrical transmission lines; Provide access during BART construction;
- Coordinate with PG&E for utility line relocation and follow their regulations to mitigate construction impacts;
- Coordinate with Sanitary District for sewer line relocations;
- Relocate or adjust grades where it is determined necessary by pipeline operators; and
- Coordinate with affected companies which own underground conduits and fiber optic lines to arrange necessary relocation and protection of existing lines and follow their regulations to mitigate construction impacts.

Monitoring:

- Review project utility relocation plans and verify that the relocation of utilities, pipelines, and fiber optic cables is to be done with the coordination of the respective agency or company.

9B Project Impact:

- The extension project would involve potential impacts on basin drainage demands.

Mitigation:

- Coordinate with the Alameda County Flood Control & Water Conservation District and develop a plan: to upgrade existing drainage systems;
- Provide interim storage areas to avoid flooding during construction;
- Sediment traps should be placed at the drainage outlets of each earthwork construction area; and
- Sediment barriers should be placed along the toe of the embankment over South Tule Pond to prevent sedimentation of the replacement wetlands.

Monitoring:

- Verify that ACFCWCD has had an opportunity to review and comment on the basin drainage plans;
- Review appropriate construction documentation to verify inclusion of interim storage areas;
- Review appropriate construction documentation to verify sediment traps are placed at the drainage outlets of each earthwork construction area; and
- Review appropriate construction documentation to verify that sediment barriers placed along the toe of the embankment at South Tule Pond.

9C Project Impact:

- The extension project would involve potential impacts on sewer feeder lines during construction.

Mitigation:

- Coordinate with the Sanitary District for sewer line relocations and follow District policies;
- Provide access during construction;
- Interim sewer lines and/or drainage could be provided to avoid flooding if any change or improvement to the existing system proves necessary; and
- Work on the system would be scheduled to avoid periods of peak flow.

Monitoring:

- Verify that coordination with Sanitary District has occurred; and
- Review appropriate construction documentation to verify access during construction, provision of interim lines, and work schedule.

9D Project Impact:

- The extension project would involve potential conflicts with water pipelines for Hetch Hetchy water pipelines and electrical transmission lines.

Mitigation:

- Coordinate with the San Francisco Water Department to identify specific relocation and grade adjustment requirements;
- Provide protection from stray electrical currents for metal pipes; and
- Proper clearance from Hetch Hetchy electrical transmission lines will be maintained.

Monitoring:

- Verify that coordination with San Francisco Water Department has occurred; and
- Review appropriate construction documentation to verify protection from stray electrical currents and proper clearance from electrical transmission lines.

10. Safety and Security

10A Project Impact:

- Increased demand for police and fire services.

Mitigation:

- Apply provisions of BART's System Safety Plan and Emergency Response Plan;
- Expand BART's Police force and Safety Department staff or other security measures as necessary;
- Provide additional training and coordination with the Fremont Fire Department; and
- The Fremont Fire Department would be given the opportunity to comment on the engineering plans for the extension project as they are developed, and BART's Safety engineers would review the fire department's recommendation for design modifications that would further BART's system safety goals.

Monitoring:

- Verify that BART System Safety Plan and Emergency Response Plan have been applied;
- Verify that BART Police services or other security measures have been expanded to serve the Warm Springs Extension as necessary;
- Monitor will check with appropriate BART departments and local jurisdictions to verify that satisfactory briefing regarding services has occurred before operation of revenue service; and
- Verify that the Fremont Fire Department has been given an opportunity to review and comment on construction plans.