

**BART Agreement Number: 6M8143**

**Approval Date: 12/19/23**

**Work Plan No. B.34-01 Elevator Renovation Phase 1.3 -- Final Design and Bid Support**

**Scope:**

**1. Project Management**

**a. Project Administration**

- i. Project management support from site visit to bid support services
- ii. Coordinate HDR's project staff with Lerch Bates' and YEI's project staff
- iii. Coordinate weekly design meetings with design team and BART project staff
- iv. Take meeting minutes
- v. Arrange kick-off meeting
- vi. Project Scheduling
- vii. Project accounting
- viii. QAQC

- b. Risk Management
  - i. Providing risk management services for Cost and Schedule Risk Analysis (CSRA) to identify project risks (threats and opportunities) and to determine the appropriate amount of a potential risk reserve or other risk-sharing strategy for the project.

## **2. Preliminary Reviews and Site Visits**

- a. Review BART provided final Conceptual Engineering Report of the SF Elevator Renovations
- b. Preliminary review of BART provided documents applicable to scope of work. Documents may include as-built drawings and other design documents, previous reports, and/or past repair records.
- c. Attend 5-day site visits with Lerch Bates, YEI, HDR and BART staff
  - i. BART to provide escorts/staff in-charge to preform site visit
  - ii. BART provide approval for project staff to travel prior to site visit
  - iii. BART provide access for project staff do site visits at each elevator location
  - iv. Verify existing conditions and Conceptual Engineering Report findings

## **3. Design Services & Support**

- a. Elevator Support
  - i. Plan review and support of the design team related to renovating the elevators and machine rooms.
  - ii. Coordinate with other disciplines to support the project design.
  - iii. Review BFS and code compliance and help team to determine prevailing codes and industry standard practices.
  - iv. Site visit to record dimensions and existing conditions for VT drawings.
  - v. Provide a detailed, performance-based equipment specification for the appropriate Division 14 sections in the Architect's standard format. Specification will include:
    - 1. Specific performance criteria relating to quality of equipment, performance times, ride quality, and noise and vibration as defined by the BFS or industry standards.
    - 2. Established level of quality.
    - 3. Compliance with accessibility standards.

4. Compliance with prevailing Codes directly related to the equipment application selected.
- vi. Scaled equipment drawings using electronic backgrounds provided by the Architect via Lerch Bates standard drawing files in requested version of Revit current version or three previous releases supported by Autodesk.
  1. Update Equipment summary, core, pit, overhead, and machine room dimensions.
  2. Information for interface with structural, electrical, and mechanical engineering disciplines.
  3. Information for interface with related work not to be provided in Division 14.
  4. The design drawings with arrangements accommodating approved manufacturers.
  5. Information will conform with AIA LOD 200 for Revit models.
  6. Provide updates per Scheduled Milestones, maximum three (3) updates in Final Working Drawings and Specs
- vii. Lerch Bates drawings are to be used solely for design team reference and coordination and are not to be used for fabrication or construction of the project.
- viii. Equipment layout will conform with prevailing codes directly related to the equipment application selected.
- ix. Lerch Bates will update and coordinate vertical transportation drawings based on specific communication from the architectural team regarding a background drawing change which affects the vertical transportation equipment.
- x. Review the architectural drawings for conformance with the Design Information provided by Lerch Bates. Provide written comments, advice, assistance, or information.
- xi. Final Working Drawings and Specs services include digital meetings with the Client.

b. Construction Documents

- i. Lerch Bates will update and coordinate vertical transportation Revit drawings based on specific communication from the architectural team regarding a background drawing change which affects the vertical transportation equipment.
  1. Finalize hoistway and car plans.

2. Finalize machine/control room plans.
  3. Finalize hoistway sections.
  4. Information will conform with AIA LOD 200 for Revit models.
  5. Provide updates per Scheduled Milestones, maximum three (3) updates in Construction Documents.
  6. Drawings will not include an engineer's stamp.
- ii. Lerch Bates drawings are to be used solely for design team reference and coordination and are not to be used for fabrication or construction of the project.
  - iii. Update the detailed, performance-based equipment specification for the appropriate Division 14 sections in the Architect's standard format.  
Specification will include:
    1. Specific performance criteria relating to quality of equipment, performance times, ride quality, and noise and vibration.
    2. Established level of quality.
    3. Compliance with accessibility standards.
    4. Compliance with prevailing Codes directly related to the equipment application selected.
    5. The project specification will require the selected elevator/escalator manufacturer to be responsible for the final design of their product and, if required, will provide elevator submittals stamped by a Professional Engineer, registered in the state where the project is located, for review.
  - iv. Configure Construction Documents to encourage competitive bidding.
  - v. Construction Document services include digital meetings with the Client.
    1. Water Intrusion Support
  - vi. Perform a limited review of the provided documents as applicable to LB's scope of work. Documents may include as-built drawings and other design documents, previous reports, and/or past repair records.
  - vii. Conduct one visual-only observation of the existing conditions of the elevator pits and determine the project scope.
  - viii. Provide a technical memorandum will include the following:
    1. Summary of observations and findings
    2. Discussion of conclusions
    3. Recommendations for next steps.
  - ix. Preliminary review of client-provided documents.
  - x. Site visit will include isolated leak assessment.

- xi. Meet with the design team via teleconference to discuss the findings and report recommendations and to discuss the project's requirements, preliminary scope, scope alternates, budgetary parameters, and design intent.
  - 1. The purpose of this meeting will be to ascertain goals for cost, performance, maintenance, and aesthetics. LB will also provide multiple options for consideration (where they exist) regarding the areas of repair, the scope of repair, material selection, and project logistics.
- xii. Meet with the design team via teleconference to discuss the report recommendations.
- xiii. OPTIONAL: If necessary/possible, LB will perform leak replication testing per ASTM E2128-17, by spraying select enclosure components with water from a Monarch Nozzle

c. Mechanical/Plumbing Support

- i. Plan review and support of the design team related to renovating the elevators and machine rooms.
- ii. Check code compliance and BSF compliance.
- iii. New mechanical ventilation units for each elevator machine room.
- iv. Sump pump and/or drain for each elevator shaft (Hydraulic Units Only).
- v. Discharge piping from each sump to nearest approved locations.
- vi. CAD drawings to be traced from PDF as-builts into CAD.

d. Electrical Support

- i. Plan review and support of the design team related to renovating the elevators and machine rooms.
- ii. Check code compliance and BFS compliance.
- iii. Power Distribution to support Elevator Replacement - The existing main electrical distribution system will be analyzed for power capacity to support the new elevator machines/controllers. Branch circuit panels will be evaluated for capacity to serve the life safety circuits for the elevator cab and code required lighting and receptacles circuits needed for the elevator machine room, pit, and shaft.
- iv. The existing machine rooms will be surveyed to confirm if they are CEC compliant and meet working clearance requirements for the new

machinery. If the existing machine room is inadequate, HDR will consult with BART for feasible alternative locations.

- v. Lighting - The lighting will be upgraded to new LED lighting and controls suited to the current elevator code required illumination levels for the machine rooms, elevator shaft and pits.

e. Communications/SCADA Support

- i. Plan review and support of the design team related to renovating the elevators and machine rooms. Design for this effort will be as follows:
  - 1. Connection to be determined during the design phase to either located the interface within the elevator machine room in a communication interface box or by running a conduit from the elevator machine to the Communication room.
    - a. Communications design shall provide a camera to be installed by systems contractor in the cab and coordinated with elevator contractor.
    - b. Elevator design shall provide an ADA compliant screen and public address intercom within the elevator control panel in the cab by elevator contractor. Elevator contractor shall coordinate with the systems contractor to provide connectivity from the elevator control panel to the Communications network.
    - c. Communications design shall provide SCADA connection to the elevator. SCADA and LIFTnet coordination will be coordinated between the systems and elevator contractor.
- ii. Check code compliance and BFS compliance.
- iii. Site visit for data collection and assessing existing conditions.
- iv. Develop Communications engineering plans consisting of the following:
  - 1. General Drawings
  - 2. SCADA Block Diagram
  - 3. Video Surveillance System Block Diagram
  - 4. Public Emergency Intercom and Passenger Visual Information System Diagram
- v. Client coordination meetings

f. Structural Support

- i. Plan review and support of the design team related to renovating the elevators and machine rooms.
  - ii. Check code compliance and BFS compliance.
  - iii. Elevator No. 62, 52, 54, 56 (hydraulic type)
    - 1. For No relocation or seismic retrofit structural work, the engineer will be looking at a guide rail connection to the wall and hydraulic jack support load on the footing. If the guide rail connection and footing need to be strengthened, a CAD plan will be drafted to show the new connection and retrofitted foundation. Estimate 3 plan sheets will be required. If the elevator type needs to be changed from a hydraulic type to a traction type, the structural assessment mentioned in Part 4 of Structural Support Section applies.
  - iv. Elevator No. 53, 55, 57, 37 (traction type)
    - 1. For No relocation or seismic retrofit structural work, the engineer will be looking at overhead beam connections to existing walls. Guiderail connection and machine mounting bolt loads on footing. If the overhead beam, guide rail, or machine connections and footing need to be strengthened, a CAD plan will be drafted to show the new connections and retrofitted foundation. Estimate 3 plan sheets will be required. If the elevator type will be changed from a traction type to a hydraulic type, the structural assessment mentioned in Part 3 of Structural Support Section applies
- g. Civil Support
- i. Plan review and support of the design team related to renovating the elevators and machine rooms.
  - ii. Check code compliance and BFS compliance.
  - iii. Attend site visits and up to three (3) meetings with the Client.
  - iv. Develop construction staging and laydown area plans and any associated striping/barricades to delineate areas on BART property.
  - v. Develop drainage plans to show elevator drain connections to outside of building storm drain system.
- h. Fire Protection

- i. Provide plan review and support for the design team during the elevator and machine room renovation project.
- ii. Check code compliance and BFS compliance throughout the design process.
- iii. Conduct a site visit for data collection and assessing existing conditions, including the current fire alarm system, sprinkler protection, and fire extinguisher systems. This information will be used to inform the design and installation of the emergency systems.
- iv. Integrate the existing fire alarm system with the new elevator controls to comply with code requirements for emergency recall operation (Phase I and Phase II) and in-car operation.
- v. Expand the existing fire alarm system as needed to meet current code requirements for elevator and machine room upgrades, including the installation of additional fire alarm system devices and relays.
- vi. Extend the building/station fire suppression system to provide sprinkler protection in the hoistway pit, and Elevator Lobbies, as required to meet current code requirements.
  - 1. Sprinklers not permitted in machine rooms per BFS
- vii. Provide fire extinguishers in the Elevator Machine Room as required to meet current code requirements.
- viii. Include necessary drawings, details, and specifications for the installation and integration of the emergency recall operation and in-car operation, fire alarm system devices and relays, sprinkler protection, and fire extinguishers needed to comply with code.
- ix. Incorporate relevant codes and standards into the design, including those related to elevator safety, fire protection, and elevator emergency recall systems. Revise the design documents as needed throughout the design and installation process to reflect changes or updates to the emergency systems.
- x. Provide project procurement support.
- xi. Review budgetary cost estimates for the fire alarm and fire protection components, equipment, materials, and labor.

i. Architecture Support

- i. Coordinate and apply, programmatic, aesthetic and functional objectives stated in the Downtown San Francisco Renovation Draft Conceptual Report dated January 2023.
- ii. Provide code compliance review and design for egress and ADA.
- iii. Review path of travel from street level to platform level for barrier free design and passenger safety.
- iv. Provide design support for location and enlargement of elevator machine rooms.
- v. Assist in the selection of building material and elevator cab finishes.
- vi. Review and coordinate with respect to ADA, elevator code and gurney access.
- vii. Review and coordinate with fire protection engineer, Fire, Life Safety compliance.
- viii. QAQC of architectural design packages.

#### **4. Assumptions:**

- a. Assume one day (8hrs) for site visit per station location.
- b. If during site visit, equipment/site is not accessible, then condition will be based on remaining service life.
- c. Railroad Protective Liability insurance is not required for this work.
- d. One flight is budgeted to perform field inspection. If track time or weather do not allow for work to be completed within the proposed working window additional fee will be required.
- e. BART will provide as-built drawings for elevators and related disciplines.
- f. Assuming BART provided as-built drawings and other related documents are accurate to with site conditions. If as-builts drawings are not complete, additional services and fees to be added.
- g. BART will provide AutoCAD base files of the station to be used in plan development. If CAD files are not available, additional services and fees to be added.
- h. Existing elevator background drawings will be provided by BART in AutoCAD format. If CAD files are not available, additional services and fees to be added.
- i. Drawings will be provided in 2D AutoCAD format.
- j. Site visits will be limited to visual observations and that HDR will not be responsible for identifying concealed or inaccessible conditions.
- k. Assume one round of comment resolution meetings for each design submittal.

- l. Assume 1 month for BART review of each design submittal
- m. Assume 1 month for Comment Resolution
- n. Apply BART Facility Standards (BFS) from contract start date
- o. HDR's review of other professional's work, does not make HDR responsible for that work.
- p. VT sheets will not be signed and seal drawings, future elevator supplier/contractor will sign and seal with their selected equipment. (BART confirmed other elevator projects VT sheets are not signed and sealed)
- q. Client will provide detailed list of points to monitor on the elevators and what communication protocols are required
- r. Backgrounds files to be provided to Lerch Bates/YEI Engineers and HDR Design Teams.
- s. The elevator manufacturer will provide the elevator structural member design. HDR will provide connection design between the elevator structural members and the existing structures per connection loads provided by the elevator manufacturer.
- t. Each elevator will have three structural sheets in average and a total of 24 sheets are expected for eight elevators.
- u. Lerch Bates will specify the audio and visual communications equipment as required by ASME A17.1-2004 and CBC 3001.2. except the security camera. Security camera shall be designed by HDR and installed by future System Contractor.
- v. Lerch Bates will work with HDR during the design phase to identify the interface point between the elevators and Communications.
- w. HDR assumes that the Communications work to be performed is within the elevator cab only. No work on the station platform or outside of the elevator landings is required.
- x. HDR will work with Lerch Bates during the design phase to identify the interface between SCADA and BMS.
- y. Expected NTP to be 30days from approval of this Work Plan
- z. Construction activities are not included in this project
- aa. Design will not include access road design, temporary structures/access, or additional designs to accommodate construction.
- bb. HDR will coordinate with BART staff to identify staging and laydown areas for construction work and will develop any temporary striping needs for BART property only.
- cc. It is assumed no traffic control will be needed outside of BART property.

- dd. Third party permits and coordination are not included
- ee. Design submittals will be delivered in electronic PDF format, electronic file format, and 10 sets of IFB hard copies.
- ff. Additional services are only available if mutually agreeable
- gg. Meetings: Unless indicated otherwise herein review meetings will be virtually.
- hh. Fee is based on modifying the existing Automatic Sprinkler System and will be delegated designs using client specs with detailed design layouts and final hydraulic calculations provided by the awarded contractor as part of deferred submittal process during construction. Drawings will provide system zoning and classification, performance notes, primary equipment locations, utility connections, and preliminary device layouts for coordination and bidding clarity.
- ii. Fee is based on modifying the existing Fire alarm/Mass Notification System and will be delegated designs using client specs with detailed design layouts and final battery calculations provided by the awarded contractor as part of deferred submittal process during construction. Drawings will provide system zoning and classification, performance notes, primary equipment locations, and preliminary device layouts for coordination and bidding clarity.
- jj. Fee includes code analysis and Fire & Life Safety design support services which are included in this proposal.
- kk. Fee assumes the Fire Protection and Fire Alarm delegated design and specifications will cover modifications limited to areas impacted by the Scope of Work.
- ll. Fee assumes the Fire & Life Safety plans will be limited to new areas impacted by the Scope of Work.
- mm. Fee does not include performing a current Hydrant flow test(s) in accordance with NFPA 291.
- nn. Design of an alternative automatic fire-extinguishing systems are not included in this proposal.
- oo. Functional testing of the existing Fire Pumps, Fire Suppression, Fire Alarm/Mass Notification Systems are not included in this proposal. If identified during the site investigation that active testing is required, the testing will need to be performed by others (local fire protection contractor) under the direction of HDR and will require additional effort and a modification to the scope/fee.
- pp. Fee assumes existing fire alarm panels (EST3, Notifier Alarm Panels), are capable to support fire alarm system modifications and new components.

- qq. Fee assumes that no fire & life safety upgrades to the existing fire protection and fire alarm systems serving the existing building/Station (e.g. areas outside the elevator remodel).
- rr. Issued for Construction documents sealed prior to January 1, 2026 shall conform to the 2022 San Francisco Building Codes. Such documents issued after December 31, 2025 shall conform to 2025 San Francisco Building Codes. Building Codes include relevant codes for building, electrical, fire, mechanical, plumbing, energy, and CalGreen.

**Prime: HDR**

<b>Subconsultant</b>	<b>Amount</b>	<b>DBE (Y/N)</b>	<b>SBE (Y/N)</b>
YEI Engineers (MEP)	\$ 1,199,305	Y	Y
YEI Engineers (Arc Flash Study)	\$ 410,316	Y	Y
Lerch Bates (Elevator Systems)	\$ 492,123	N	N

**Total Work Plan Value: \$ 5,738,870**