

(Revised 1/22/2019 in response to CalOES RFI 1)

(Revised 6/25/2019 in response to FEMA RFI 1)

13E. Scope of Work (SOW) (Seismic Retrofit)

Background

The Castro-Mission Health Center (“CMHC”) is a 2-story, 15,292 SF, concrete and masonry structure built in 1964. It is one of the community health centers within the San Francisco Health Network and serves patients in the SF Castro District area.

The project was initiated with the Department of Public Health’s request to commission a seismic assessment report of CMHC to evaluate the building’s seismic performance per Tier 3 methodology of ASCE/SEI 41-13 (*Seismic Evaluation and Upgrade of Existing Buildings*). The seismic assess report was completed by Biggs Cardosa Associates, Inc., (“BCA”) a local structural engineering firm, which resulted in the assignment of a Seismic Hazard Rating (SHR) of 3+ for CMHC. Per the San Francisco’s Seismic Hazard Rating system, a building with SHR of 3+ is defined as a building that will experience major damage to partial/total collapse in the event of a maximum considered earthquake. As part of the seismic assessment, SF Public Works also retained the services of Engeo/Terra Engineers, Inc. (“ETE”), a local geotechnical firm, to perform a thorough geotechnical exploration and engineering services of the building site that included field exploration, soil borings, and laboratory testing and analysis of new and existing geotechnical data. Based on the findings of both BCA and ETE, the seismic deficiencies of CMHC can be mitigated by implementing the recommended seismic retrofit scheme consisting of adding new concrete shear walls with new foundations at select locations of the existing exterior masonry walls

SF Public Works also retained the services of MEI Architects (“MEI”), a local architectural firm, as the Architect of Record to prepare the design documents for this project. MEI’s scope of work includes the coordination and integration of the seismic retrofit scopes into the overall building tenant improvement and renovation project.

Seismic Retrofit Work Activities

The seismic retrofit design scheme consists of adding six (6) new reinforced concrete shearwalls with new foundations that extend below the existing building foundation elevation to the roof elevation and have been placed strategically around the perimeter of the existing building envelope. All new concrete shear walls will consist of 4,000 psi strength concrete with two layers of #5 ASTM Gr. 60 reinforcing steel and will be connected to the existing masonry/concrete wall with drilled and epoxied #4 rebar dowels with 4” embedment at a spacing of 1’-6” to 3’-0” on-center. The length of the shearwalls and dimensions of the respective footings vary depending on placement along the perimeter of the building (see building and structural detail below). All typical footings will be constructed with 11-#10 reinforcing steel that will create a new structural beam.

Fire Life Safety Work Activities

A new fire suppression system will be provided as a design-built scope through a certified fire protection contractor per National Fire Protection Association (NFPA), other code requirements, and performance criteria for the entire 2nd Floor (6,464 SF).

A new fire alarm detection system will be provided as a design-built scope through a certified fire alarm contractor per National Fire Protection Association (NFPA), code requirements, and performance criteria for the entire 2nd Floor (6,464 SF). A new fire alarm control panel, fire alarm annunciator, fire alarm devices (pull stations, strobes, horns, and smoke detectors), and interface/connections to the fire smoke dampers will be furnished and installed as part of the fire alarm base scope. The new fire alarm control panel and annunciator will be installed on the 1st Floor. All other devices will be installed on the 2nd Floor.

Work Sequencing

The project design schedule is currently anticipating the 100% design documents (plans and specifications) to be completed by December 2018. At the completion of the design documents, the Architectural and Engineering Design Team will submit the documents to the San Francisco Department of Building Inspection (SFDBI) to initiate the plan review process. With plan approval and building permit issuance by SFDBI, SF Public Works will utilize a lowest price competitive design-bid-build project delivery method to select a qualified General Contractor to deliver the construction of this project, which will include both the seismic retrofit, fire life safety, and all other renovation work activities. The project is currently being delivered by phasing the construction activities with the intent to have all disruptive and noise/vibration generating activities to be completed after the closure of the clinic each day and on the weekends.

After construction notice-to-proceed is issued for the project, Contractor will mobilize and prepare and submit to the City submittals for review and approval. Contractor first field activities will include sitework preparation and then followed by foundation construction activities. Foundation activities will include excavation and shoring, drilling and doweling into the existing walls, formwork installation and concrete placement for the new wall foundations. After the completion of the new wall foundations, Contractor will continue with the vertical construction of the new exterior shear walls: (1) drilling and doweling into existing walls; (2) wall reinforcing steel installation; and (3) formwork installation and concrete placement.

Concurrently with the foundation and exterior shear wall activities, the Contractor will be proceeding with a complete interior demolition of the existing 2nd floor partition walls, ductwork/piping/conduits, and stairs between 1st and 2nd Floor. After completion of the interior demolition, Contractor will proceed with interior metal stud framing and installation of the new building systems, which will include new ductwork, fire suppression piping, fire alarm system conduits and cabling, and lighting conduits and cabling. The last interior construction activities will include the wall and flooring finishes and installation of new stairs between 1st and 2nd Floor. The anticipated construction duration of this project is approximately 17 months.

At the completion of the construction activities, Contractor will commence with demobilization and Design Team will prepare punchlist and final closeout documentation. The City will issue Final Certificate of Completion upon Contractor's completion of all punchlist items and receipt of all required closeout documentation.

Land Acquisition/Easements

No land acquisition nor right-of-way/access easements need to be obtained for this project.

Structural Approach

For the seismic retrofit work, new concrete footings and walls will be constructed using standard construction techniques. All excavation can be performed using conventional digging equipment (i.e. backhoe or excavator) but will require temporary shoring that will be designed and provided by Contractor. Formwork will also be constructed on three sides to create the dimensions of the new concrete walls and footings. It is expected that there will be at least three concrete pours because of the height of the walls: (1) Pour #1 – footing; (2) Pour #2 – 1st lift of walls; and (3) Pour #3 -2nd lift of walls.

Building and Structural Detail

Shearwall #1 at Gridline F-2.5

This concrete shearwall is approximately 20 feet in length with wall thicknesses that vary from 12” to 14” and spans below the existing building foundation to the roof elevation (approx. 32’ tall). A new foundation (7’ wide x 32’-4” long x 5’ deep) will be constructed along the full length of the wall, which will require an excavation and displacement of approximately 1,400 ft³ of soil. The footing consists of #10 reinforcing steel that will create a new structural beam.

Shearwall #2 at Gridline F-7.5

This concrete shearwall is approximately 14 feet in length with wall thicknesses that vary from 12” to 14” and spans below the existing building foundation to the roof elevation (approx. 32’ tall). A new foundation (7’ wide x 28’-2” long x 5’ deep) will be constructed along the full length of the wall, which will require an excavation and displacement of approximately 1,200 ft³ of soil. The footing consists of #10 reinforcing steel that will create a new structural beam.

Shearwall #3 at Gridline 8.0-D.5

This concrete shearwall is approximately 27 feet in length with wall thicknesses that vary from 12” to 14” and spans below the existing building foundation to the roof elevation (approx. 32’ tall). A new foundation (7’ wide x 41’ long x 5’ deep) will be constructed along the full length of the wall, which will require an excavation and displacement of approximately 1,750 ft³ of soil.

Shearwall #4 at Gridline A-4.5

This concrete shearwall is approximately 16 feet in length with wall thicknesses that vary from 12” to 14” and spans below the existing building foundation to the roof elevation (approx. 32’ tall). A new foundation (6’ wide x 30’ long x 5’ deep) will be constructed along the full length of the wall, which will require an excavation and displacement of approximately 1,080 ft³ of soil.

Shearwall #5 at Gridline A-1.5

This concrete shearwall is approximately 18 feet in length with wall thicknesses that vary from 12" to 14" and spans below the existing building foundation to the roof elevation (approx. 32' tall). A new foundation (6' wide x 32' long x 5' deep) will be constructed along the full length of the wall, which will require an excavation and displacement of approximately 1,200 ft³ of soil.

Shearwall #6 at Gridline B-1.0

This concrete shearwall is approximately 27 feet in length with wall thicknesses that vary from 12" to 14" and spans below the existing building foundation to the roof elevation (approx. 32' tall). A new foundation (5' wide x 34' long x 5' deep) will be constructed along the full length of the wall, which will require an excavation and displacement of approximately 1,020 ft³ of soil.

Tunneling

No tunneling is proposed for this project.

Demolition

Complementing the seismic retrofit and fire system improvements at the Castro-Mission Health Center, the 2nd Floor of the clinic will undergo a complete renovation. The 2nd Floor will be completely demolished to the building shell and rebuilt based on the new clinic layout with all new building systems. Only the fire life safety systems (fire suppression and fire alarm detection systems) are proposed here for Hazard Risk Mitigation funding.

Non-structural Bracing Activities

As part of the complete renovation of the second floor of the clinic, all new non-full height interior walls, ceiling assemblies, electrical systems, plumbing systems, and electrical systems will need to be seismically braced in accordance with California Building Code (CBC) and National Fire Protection Association (NFPA) code standards.

For utility building elements, these non-structural bracing activities are in addition to the required hangers/support brackets that are needed for supporting the weight of the pipes, conduits, cable trays, ductwork, etc. that are part of the electrical, fire suppression, mechanical, plumbing/sewer, and domestic water building systems. In general, diagonal braces, will be installed along the length of pipes, conduits, cable trays, ductwork, etc. to provide lateral support against the calculated seismic loads.

For architectural building elements, non-full height interior walls and ceiling assemblies will be constructed with diagonal bracing elements at the top of the walls or ceiling members to provide lateral support against the calculated seismic loads.