

Public Project Application Environmental Project Description – Proposed Fire Training Facility

The San Francisco Fire Department (SFFD) proposes a project to construct a new Fire Training Facility will be located on two City blocks bounded by Carroll Avenue, Hawes Street, Armstrong Avenue, and Griffith Street. Bancroft Avenue will be vacated to form a contiguous site 300,000 square feet (SF) in area. The purpose of the Fire Training Facility is to provide necessary facilities for live fire training, classroom training, equipment training, and other forms of training for effective firefighting, and to improve operational efficiency by consolidating existing SFFD training facilities. The building would replace existing Fire Department facilities for its training program currently located in the South of Market area and on Treasure Island (which the SFFD is obligated soon to vacate).

The project comprises a Fire Training and Administration Building, Apparatus Building, Maintenance Shop, Training Tower, various burn rooms, training props and simulated structures, and associated site improvements.

To construct building foundations and ground improvements, the estimated amount of excavated material that will be off-hauled is approximately 15,000 cubic yards. The area of ground disturbance would be the entire project area of approximately 300,000 square feet. The maximum depth of excavation will be to the bottom of liquefiable soil layer, which is estimated at 20 feet below grade.

Details of the off-road powered machine required to construct the project are provided in the attached construction information list. The project will require approximately 913 calendar days to complete.

This project description has been prepared for environmental-planning purposes to capture project elements with sufficient detail that any potentially significant environmental impacts can be identified and mitigated through the CEQA process. This is in order that, following the CEQA determination and formal project acceptance by the San Francisco Board of Supervisors, SFFD may purchase the site property from a private owner with whom they have entered into a conditional purchase agreement. A second CEQA review is expected to take place once the project has entered a more advanced stage of design.

EXISTING CONDITION

The lot is currently partially paved, with no structures, and is used as a temporary laydown and staging area for construction projects located elsewhere. There are no sidewalks on the perimeter of the block. Residential uses (city-owned public housing) face the site on the opposite (southern) side of Carroll Ave. Industrial uses border the other frontages of the property. Yosemite Slough is two blocks to the north. The site is within a mapped liquefaction area, the mapped Maher area, and the Air Pollutant Exposure Zone. The lot is comprised of the following parcels:

Block/Lot	Ownership/Jurisdiction	Zoning	Height/Bulk District
4852/001	Public - SFPUC	P	40-X
4852/002 through /022	Private	PDR-2	40-X
4877/001 through /004	Private	PDR-2	40-X

PROPOSED PROJECT

Buildings and Structures

Building and Structure Foundations

Foundations for the Fire Administration Building, Apparatus Building, Maintenance Shop, and Training Tower (see below) will be supported on deep foundations utilizing auger cast-in-place (ACIP) piles, gaining support in competent alluvial soil or bedrock beneath the fill and Bay Mud. Piles would be designed for the anticipated building loads and downdrag forces caused by liquefaction-induced in the fill and possible consolidation settlement in weak, compressible Young Bay Mud present at the site.

Fire Administration Building

The three-story Fire Training and Administration Building would be a three-story, steel-framed, 75' deep x 310' wide x 40' tall building providing approximately 70,000 square feet space, facing Carroll Ave., with 50' of clearance around its perimeter. The first floor would be 17 ft floor-to-floor above the elevation of the ground floor at 1st floor. The building would include a 900 SF entry plaza on the street-facing side of the building and a 900 SF training plaza at the rear of the building. The project would provide screening of rooftop-mechanical equipment along the frontage on Carroll Ave. The Training and Administration Building would house administrative offices, conference rooms, break rooms, and related offices spaces, training classrooms, fitness rooms, lockers, and showers. The building would operate during normal business hours.

The gravity-load-carrying system for the Training and Administration Building will comprise concrete fill on metal deck roof and floor slabs supported on structural steel beams and girders spanning to structural steel columns. Columns will be supported on deep foundations with concrete grade beams and pile caps. The lateral-force-resisting system will comprise the concrete fill on metal deck roof and floor slabs, special steel-moment-resisting frames, and deep foundations below.

Apparatus Building

The Apparatus Building will be a steel-framed 100' deep x 160' wide x 50' tall building providing approximately 27,000 square feet of interior space, facing Griffith St., with 50' of clearance at the rear of building (facing the interior of the lot) and 20' clearance at the sides. It would consist of one story with an interior mezzanine. The single story structure would be 50' tall. The building would comprise four vehicle bays with 2 at 45' tall, with enhanced ventilation and drive-through building access from a proposed new driveway. A 5,000 sf mezzanine at 17' above the ground-floor elevation would occupy the remainder of interior space. The building would be used for training, storage of fire-apparatus vehicles (including 2 trucks – 9' x 60', 3 engines – 9' x 30', 1 ambulance – 8' x 25', 1 PG&E truck – 9' x 30', 1 Chief's buggy – 8' x 20'), turnout gear storage and cleaning ("turnout gear" is the term used by fire departments to refer to the protective clothing worn by firefighters), and a "dirty" classroom (classroom where trainees can enter after using props without having to do a full wash/clean) for prop training. The building would operate during normal business hours.

The gravity-load-carrying system will comprise concrete fill on metal deck roof slab supported on structural steel beams and girders spanning to structural steel columns. Columns will be supported on

deep foundations with concrete grade beams and pile caps. The lateral-force-resisting system will comprise the concrete fill on metal deck roof slab, special steel-moment-resisting frames, and deep foundations below.

Maintenance Building

The one-story Maintenance Building (shown as “Shops” on the site plan) will be a single-story steel-framed building 70’ deep x 190’ wide x 40’ tall providing approximately 19,200 square feet of interior space, facing Carroll Ave. The building would 50’ clearance at rear (facing the interior of the lot) side of building and 20’ clearance at the sides. The building would house metal and wood shops for building and maintaining training props, and would be used for materials storage.

The gravity-load-carrying system will comprise concrete fill on metal deck roof slab supported on structural steel beams and girders spanning to structural steel columns. Columns will be supported on deep foundations with concrete grade beams and pile caps. The lateral-force-resisting system will comprise the concrete fill on metal deck roof slab, special steel-moment-resisting frames, and deep foundations below. The building would operate during normal business hours.

Prop Structures

Props are structures that mimic real buildings and that are used to simulate real-world situations during firefighting training. Props may be permanent or designed partially to burn and then be reconstructed. Props would be located in the center of the lot, where the three-story administration building will provide some acoustical attenuation of the sound of training being conducted. Props are as follows:

#	Building	Height	Dimensions & Area	Special Requirements	Building/Prop Use & Program	Noises	Time of Day	Fuel used for firefighting simulations
4	Training Tower	7 story concrete-framed structure plus basement; 110 ft	40’ deep x 40’ wide x 110’ tall building (includes parapet); 10’ clearance all around		Multiple internal training exercises; Ladder and external stair training	Moderate –; Typical training sounds	Normal business hours	N/A
5	Condo/ Apartment (Class A & B)	4 stories; 40 ft	40’ deep x 50’ wide x 40’ tall building; 10’ clearance all around		Live fire training in mock condo/ apartment building	Moderate –; Typical training sounds	Normal business hours	Wood and propane
6	Victorian House; (Class A)	3 stories plus basement; 40 ft	20’ deep x 35’ wide x 40’ tall building; 10’ clearance all around		Live fire training in mock Victorian house	Moderate –; Typical training sounds	Normal business hours	Wood
7	Commercial Prop Burn Room ; (Class A)	1 story; 20 ft	32’ deep x 40’ wide x 20’ tall building; 10’ clearance all around		Live fire training in mock commercial building	Moderate –; Typical training sounds	Normal business hours	Wood

8	Container Burn Room; (Class A)	2 stories; 20 ft	32' deep x 80' wide x 20' tall building; 10' clearance all around	Built with shipping containers. 8 on 1st floor, 6 on 2nd floor.	Live fire training in shipping containers	Moderate -; Typical training sounds	Normal business hours	Wood
9	Prop Area Control Room	20 ft	10' deep x 20' wide x 20' tall; 10' clearance all around	Close to/part of Class B props	Control station for live fire burn props	Minimal -	Normal business hours	N/A
10	Vehicle Fire Prop	n/a	40' deep x 40' wide concrete pad	Near burn props	Mock vehicle fire	Moderate -; Typical training sounds	Normal business hours	Propane
11	Propane Tank for Burn Props	n/a	12' deep x 40' wide open area ; 10' clearance all around	Near burn props	Storage tank to supply propane to burn props	Minimal - ; During refill only	Only for refills	N/A

The seven-story Training Tower will be a concrete-framed structure with basement measuring approximately 40 feet square in plan dimension. The gravity-load-carrying system will comprise concrete roof and floor slabs supported on perforated concrete walls around the perimeter. The structure will be supported on deep foundations with thickened concrete mat slab. The lateral-force-resisting system will comprise the concrete roof and floor slabs, special structural walls, and deep foundations below.

The various prop and simulation structures will be constructed using various materials, including, but not limited to, concrete, structural steel, light-gauge steel, wood, and masonry. These structures will be supported on concrete mat slabs-on-grade over soil with ground improvements. The Victorian House, Mock BART Station, Trench Rescue, and Outdoor Confined Space props will have a basement level.

Live-fire props will be equipped with exhaust capture systems to remove the bulk of airborne pollutants generated before they can disperse. A number of emission control systems for smoke-scrubbing from flashover Class A type training simulators are available: the Series 7000/8000 Gas Atomized Venturi Scrubber (<https://www.bionomicind.com/wet-scrubbers/7000-8000-gas-atomized-scrubber.cfm>) is representative of the kind of system that would be deployed.

Other Site Improvements

Geotechnical Ground Improvement

Ground improvement will be utilized to mitigate anticipated earthquake-induced ground settlement for parking area, apparatus training area, and apparatus building that are either on grade or supported by shallow spread footings or mat foundations. Pending on the result of site-specific subsurface investigation, any of the following ground-improvement methods may be utilized: vibro-stone columns, compaction grouting, and/or other deep soil mixing such as jet grouting.

In general, vibro-stone columns uses a vibro probe to advance the stone column to the desire tip elevation under the action of its own weight, vibrations, and air jetting, thus result almost no in-situ soil appears at the surface. Where necessary, pre-augering to the necessary depth may be utilize.

If new fill is placed, a surcharge program with wick drains may be necessary to reduce the long-term consolidations settlement. Use of wick drains may reduce the required surcharge time to less than 1 year.

Parking

The project proposes the construction of a 60-space at-grade parking lot at ground level along the frontage at Armstrong St. for staff & fleet vehicle as well as a 56-space at-grade parking lot at ground level along the frontage at Griffith St. for visitor and In-Service vehicles. Landscape planting would be constructed meeting the screening requirements for parking lots at Sec. 142 of the Planning Code. Overall this would include 6 accessible spaces, 12 EV charging stations, and 10 Class 1 and 4 Class 2 spaces for bicycle parking. Four driveways would be constructed: One on Griffith St. providing access to the Apparatus Bay; a second on Griffith St. providing access to parking, one on Hawes St. providing access to the Maintenance Building; and a fourth, exit-only driveway on Carroll Ave. for fire apparatus and general vehicle use.

Apparatus Circulation

The project would provide an approximately 160' x 130' paved area to the west of the Apparatus Bay to allow for fire-vehicle turning movements.

Perimeter Fence

The project would construct a 12' perimeter fence consisting of a combination of masonry wall and powder-coated steel fencing, with manual steel gates for pedestrians and automated steel gates for vehicles at driveways.

Site Drainage and Water Treatment

At-grade surfaces of the lot would be graded to direct runoff and stormwater to drop inlets which would direct flows to mechanical filtration systems before discharging to the combined stormwater/sanitary sewer system. SFFD would institute a regular schedule for inspection and maintenance.

Emergency Backup Diesel Generator

The project would construct a backup diesel generator within an acoustic enclosure on a concrete pad in the interior space of the lot. The generator would be operated only during power failures and for testing (no more than 72 hours per year), pursuant to BAAQMD permitting.

Underground Storage Tanks and Fuel Dispensing Facility

The project would construct UL 1316 rated underground fuel oil storage tanks for SFFD apparatus refueling. Tanks will be fiberglass 12,000-gallon diesel and 6,000-gallon gasoline with double wall containment, deadman anchors, turnbuckles, and fiberglass hold down straps. Above ground fuel dispenser will be located near the Apparatus Building with bollards all around and capable of dispensing both diesel and gasoline. An under-dispenser containment sump will be provided at the transition from below-grade to above-grade piping.

Above-Ground Tanks

Propane will be stored in a metal 12,000-gallon (needs to be confirmed by SFFD & engineers) above grade tank and securely anchored to a raised concrete pad with bollards all around. Emergency generator will have a UL 142 rated steel double-wall base tank with 500-gallon capacity. It will also be connected to the underground diesel tank noted above.

Utilities

The project would connect to existing water and sewerage facilities under the Bancroft Ave. paper street crossing the proposed. Trenches from the water utilities to the structures and water tank would be approximately 2' deep for water, 12' deep for sewer laterals; these excavation impacts would be subsumed in the impacts for geotechnical ground improvements.

A trench for electrical service would be excavated to a depth of approximately 2' to the existing above-ground service on the south side of Carroll Ave. The project would construct a riser with utility box to connect to the pole. The project would provide underground utility connections to the various buildings and facilities; those excavation impacts would be subsumed in the impacts for geotechnical ground improvements.

Right-of-Way-Improvements

The project would construct new sidewalk and integral concrete curb, with ADA-compliant curb ramps at intersections. Proposed sidewalk widths are 15' along Carroll Ave. and 10' along the remaining frontages. Excavation required for the construction of sidewalk is approximately 1'.

The project will construct 3' tree wells at the curb edge of the new sidewalk at 20'-on-center spacing except at driveways. Trees will be of a climate-appropriate species as recommended by the Public Works Bureau of Urban Forestry will be planted in the wells.

The project would construct new street lighting in the new sidewalk following the recommendations of an illumination study. Lighting would be SFPUC standard pole-mounted street luminaires and would require cast-in-drilled-hole foundations down to a maximum of 12'. Pullboxes will be constructed in the new sidewalk as necessary.

A design-level geotechnical investigation will be performed to collect site-specific data for geotechnical analyses to address the complexity of subsurface condition. The proposed investigation would include the following activities:

- Eight (8) rotary wash soil borings. These borings would be between 60 and 150 feet deep, and less than eight inches in diameter. Soil samples would be collected typically at 5-foot depth intervals although the field engineer or geologist would monitor soil cuttings in between sample depths to provide a continuous log of the boring. The drill cuttings would be collected in 55-gallon steel drums, tested for contaminants, and suitably disposed of at an approved landfill.
- Eight (8) cone penetration tests (CPTs)
- Installation of two (2) new open standpipe piezometers, which are converted from the rotary wash borings.
- Laboratory testing for index and strength of selected soil samples

Equipment to be used during the investigation would include a drilling rig, CPT push rig, support truck, lift gate truck, and water truck. Following completion of the investigation, the borings and CPTs would

be backfilled and the ground surface returned to pre-investigation conditions in compliance with applicable Department of Public Health Bureau of Environmental Health standards.

OPERATION

The facility would be used for the Fire Academy for new recruits. A normal recruit training morning starts with one-hour roll call, inspection and physical training followed by three-hours of classroom work. The afternoons generally consist of various hands-on manipulative training followed by fire station 'housework' procedures. Of the twenty-week, 800-hour recruit academy program, 30% takes place indoors with either lectures or testing while 70% of the activities are outdoors in either physical training or various hands-on manipulative training exercises.

The facility would be used for fire in-service training. Fire In-Service training currently consists of 41 specific or specialized training exercise evolutions necessary to meet State Fire Marshall mandates, accreditation requirements, and industry best practices. The Office of the State Fire Marshal recommends that each SFFD firefighter (1500 in total) participate in 16 hours of live-fire training annually. That equates to slightly more than one engine company needing access to a live-fire training prop for 360 days a year. Fire In-Service training takes place on almost every single day of the year, except for the standard holidays. While there is certainly a classroom component for In-service training, most training hours are spent on maintaining proficiency utilizing numerous scenario-based training props.

Training with live-fire props for in-service and academy training would take place up to 75 times a year. Fire vehicles and apparatus used for these programs, including Fire Engines, Fire Trucks, Rescue Squad Company, Wildland pickup trucks, are brought in and out of the station on a daily basis, with approximately 10 arrivals and 10 departures a day.

Three different EMS Academies are offered on a recurring basis lasting either eight, six, or three weeks. EMS training generally consists of morning lectures and afternoon hands-on manipulative training. Other smaller academies provide more specialized training. Each academy is offered two to three times per year based upon need, generally at separate times, and each is active about 40 weeks of the year.

The Fire Training Center would also be utilized for training by up to a dozen various Partner fire agencies and associated Committees or citizen groups. These external organizations use classroom meeting spaces and outdoor training facilities, often on weekends or evenings throughout the year.

The facility would also host grant-funded technical rescue training/Bay Area Urban Areas Security Initiative programs training to mitigate and respond / recover from significant catastrophes and terrorist attacks.

The table below summarizes operational loads and schedules for the facility:

	Avg. Daily # of participants	Weekly Schedule	Daily Operating Hours
Fire In-Service training	30-35	Monday thru Friday Saturdays Sundays	9 to 4 9 to 3
Fire Academy*	50 (40 weeks of 52)	Monday Thru Friday	8 to 6
EMS Academies	20 (20 weeks of 52)	Monday Thru Friday	8 to 6
EMS In-Service	25-30 (varies)	Monday Thru Friday	9 to 4
Partners & Committees	25-30	Weekends/nights	6-9 pm (weeknights) 9 to 3 (weekends)
Totals	[Total daily #] 125-135	[full weekly schedule of all uses] Monday-Sunday	[Full length of operating hours for all uses 8 am to 6 pm

*Fire Academy graduations take place twice a year: Approximately 150 people and approximately 60 vehicles.