

SECTION 01 55 26

TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section sets forth the minimum requirements for traffic routing and traffic control during construction.
- B. Related Sections:
 - 1. Section 01 41 00 – Regulatory Requirements
 - 2. Section 01 50 00 – Temporary Facilities and Controls
- C. All traffic signs, barricades, delineators, flashing arrow signs, and other traffic control devices shall conform to the requirements of the latest edition of California Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD) and the requirements of the Caltrans Standard Specifications (CTSS), except as specified herein.

1.2 SCOPE OF WORK

- A. The Contractor shall prepare Traffic Control Plans, and install, operate, maintain and remove traffic control in conformance with the requirements in this section. The required traffic control work shall be in place prior to the start of the construction work of the Contractor and/or any of the subcontractors. The Traffic Control Plans shall clearly depict the exact sequence of the construction operation(s), the construction to be performed and the traveled way that will be utilized by all movement of traffic and pedestrians during each phase of construction. Multiple phases of construction will require a separate traffic control plan for each different construction phase or operation for working and non-working hours. No typical Traffic Control Plans will be permitted except as approved by the Traffic Engineer.
- B. The Contractor (having Contractor's Class A license issued by the State of California Contractors State License Board) may perform the traffic routing work utilizing its own forces or may engage a subcontractor to perform the traffic routing work. The Contractor or subcontractor performing the traffic control work shall possess a current C-31 Construction Zone Traffic Control license issued by the California Contractor State License Board.

The Contractor shall provide sufficient traffic crews as required by the City Representative to implement and maintain the traffic control work. The Contractor or Subcontractor shall provide flag persons as required by the City Representative and/or as shown on the approved Traffic Control Plans to control the vehicular traffic and to guide the pedestrians through the Construction area. Flaggers shall not perform non-traffic related duties. There shall be at least one (2) or more flaggers as required by the Traffic Engineer. The Traffic Crew shall be comprised of at least two (2) dedicated persons.

- 1. Traffic Crew
 - a. Assist in re-striping and setting up all traffic signs and other traffic control devices in accordance with the approved Traffic Control Plans and Traffic Detour Plans. The required traffic control work shall be in place

- prior to the start of the construction work of the General Contractor and/or any of the subcontractors.
- b. Be on site especially during nights, weekends, and holidays, if and as required by the City Representative in setting up and/or correcting the traffic control devices, during the Contractor's actual working hours or as directed by the City Representative.
 - C. The Contractor shall so conduct the operations as to cause the least possible obstruction and inconvenience to the public and area residents and shall have under construction no greater length or amount of work, than set forth in the specifications, and that the Contractor can prosecute properly with due regard to the rights of the public and area residents. The Contractor shall ensure all streets and intersections remain open to traffic and maintain access to public and private properties to the greatest extent possible by constructing the work in stages.
 - D. The Contractor shall provide for the protection of the traveling public, pedestrians, and workers within the area covered by the limits of construction, at all times when the area is affected by the Contractor's construction facilities or activities.
 - E. The Contractor shall furnish, install, relocate to provide for lane shifting, remove, store, maintain (including covering and uncovering as required), move to new locations, replace when damaged or missing and dispose of all traffic signs and traffic control devices and features necessary for the safety and convenience of the general public and area residents. All workers and work shall be safeguarded where and as required by conditions at the site of the work, and in addition to the requirements specified herein, including but not limited to the following:
 - 1. Traffic signs and parking prohibition signs
 - 2. Barricades with flashers
 - 3. Delineators
 - 4. High level warning devices
 - 5. Solar Powered Flashing arrow signs
 - 6. Pedestrian barricades
 - 7. Removal of conflicting existing striping and pavement markings in traffic lanes and in parking areas and re-installation of the original striping and pavement markings after construction is completed.
 - 8. Temporary striping and reflective markers, overlay markers, for both construction and interim re-alignments of traffic lanes, crosswalks prior to final striping
 - 9. Excavation plating/bridging, including any temporary plating and bridging required by the Contractor's operations.
 - 10. Temporary paving
 - 11. Providing flag persons
 - F. The Contractor shall provide traffic lanes and routing of vehicles, bicycles, and pedestrian traffic, as specified herein, in a manner that will be safe and will minimize traffic congestion and delays.
 - G. Temporary Pavement Markings

1. Temporary traffic delineation and pavement markings (lane lines, STOP Bars, etc.) shall be furnished, installed, maintained, and removed by the Contractor. The Contractor shall furnish and install temporary pavement markings according to striping drawing(s) prior to opening the roadway to public traffic and/or instructed by the City Representative through the Traffic Engineer. The location of the temporary pavement lane lines shall be within 3 inches of the lines shown on the existing striping drawings.
2. Whenever the work causes obliteration of pavement markings (i.e., after removing the existing markings, grinding, paving, etc.), temporary pavement markings delineation shall be in place prior to opening the roadway to public traffic.
3. All work necessary, including any required lines or marks, to establish the alignment of temporary pavement markings shall be performed by the Contractor. When temporary pavement markings are required to be removed, all lines and marks used to establish the alignment of the temporary pavement markings shall be removed.
4. Surfaces to receive temporary pavement markings shall be dry and free of dirt and loose material. Temporary pavement markings shall not be applied over existing pavement markings or other temporary markings.
5. Temporary pavement markings shall be maintained at no additional cost during the duration of the project until superseded or replaced with permanent pavement markings. Temporary pavement markings shall be removed when, as determined by the Traffic Engineer through the City Representative, the temporary pavement markings conflict with the permanent pavement markings or with a new traffic pattern for the area and is no longer required for the direction of public traffic.

1.3 APPLICABLE CODES AND STANDARDS

- A. In addition to compliance with this specification, the Contractor shall comply with all applicable requirements of the latest editions of the following:
 1. California Vehicle Code.
 2. California Manual on Uniform Traffic Control Devices (MUTCD)
 3. Caltrans Standard Specifications (CTSS) and Plans, Department of Transportation, State of California.
 4. City & County of San Francisco Municipal Transportation Code.
 5. Regulations for Working in San Francisco Streets ("Blue Book"), San Francisco Municipal Transportation Agency (SFMTA), City and County of San Francisco.

Free copies of the "Blue Book" can be obtained from the SFMTA at
1 South Van Ness Avenue, 7th Floor, San Francisco, California 94103 or online at: <http://www.sfmta.com/services/streets-sidewalks/construction-regulations>
 6. Regulations for Excavating and Restoring Streets in San Francisco, Department of Public Works, City and County of San Francisco.
 7. Standard Specifications and Plans, Department of Public Works (DPW), City and County of San Francisco.
 8. Other Applicable Government Regulations.

1.4 SUBMITTALS

- A. The Contractor shall prepare and submit the following to the Traffic Engineer through the City Representative for review and approval before any major work is allowed in the streets:
1. Traffic Control Plans
 2. Parking and Storage Plans
 3. Material Specifications
 4. Certification of all Flag Persons.
- B. Traffic Control Plans
1. Complete Traffic Control and Detour Plans shall be submitted to the Traffic Engineer through the City Representative for approval thirty (30) calendar days before embarking on any scope of work. No work shall be allowed on the streets without the approved Traffic Control Plans. The Contractor shall allow in the schedule twenty-one (21) calendar days for the City to review and respond to the Traffic Control Plans. The Traffic Control Plans shall be prepared, signed and stamped by a Civil Engineer or a Traffic Engineer (Registered in the State of California) with the assistance and input of the Contractor's Superintendent.
 2. A submittal shall consist of six (6) copies on white paper or blueprints of each drawing. The Contractor shall use the existing striping plans, T-1, T-2 and T-3 as a base to prepare the Traffic Control Plans. Drawing size shall be 36" X 24". The Traffic Control Plans shall be drawn to a scale of 1 inch = 50 feet (1:600). **No half scale TCP will be accepted by the Traffic Engineer.**
 3. A separate set of Traffic Control Plans shall be required for both working and non-working hours. **The licensed Engineer who prepared the Traffic Control Plans shall make site visits and have personal knowledge of the traffic conditions in the work areas, understands the impacts the work will have on vehicular, pedestrian, and other modes of transportation,** and shall ensure Traffic Control Plans comply fully with all Americans with Disabilities Act (ADA) requirements and all City requirements related to providing path of travel through construction zones.
 4. If the alignment of the main changes after pot holing and the Contractor cannot follow the approved Traffic Control Plans, the Contractor shall submit four (4) copies of the proposed new alignment and Traffic Plan to the Traffic Engineer through the City Representative for review and approval. The Contractor shall prepare the Traffic Control Plans for grinding and paving, based on the Excavation Permit issued by the Bureau of Streets and Mapping (BSM) of the Department of Public Works (DPW) for each street.
 5. The Contractor shall submit Traffic Control Plans for the following work as applicable:
 - a. Concrete Base Repair Work
 - b. Sewer
 - c. Grinding
 - d. Paving

- e. Curb Ramps
 - f. Curb and Sidewalk Work
6. Each Traffic Control Plan shall show the following minimum applicable information, as required by the Traffic Engineer through the City Representative:
- a. Roadway and traffic lane layout (width of sidewalk, street and lanes, etc.); outline and dimensions of the work under construction (i.e., limits of excavation), location of construction barricades, location of trench protection devices, location of major construction equipment, and the ingress and egress routes of trucks hauling materials to and from the construction site.
 - b. Sequence of construction and traffic lane transitions.
 - c. Taper lengths shall be called out and dimensioned.
 - d. Crosswalk and sidewalk closures.
 - e. Existing striping, pavement markings and traffic signs, and description of what is to be removed prior to installation of temporary striping and signage, and what will be restored after the construction is completed.
 - f. Location and spacing of "Tow-Away, No Stopping" signs.
 - g. Location and description of temporary striping, pavement markings, signs, and other traffic control devices necessary to provide and maintain the adequate number and width of traffic lanes specified herein, and to provide and maintain passage and protection for pedestrians.
 - h. Location and description of traffic control devices proposed for the protection of the work area, excavation, etc.
 - i. Other proposed changes and provisions for removal, relocation, or temporary installation of:
 - i. Traffic signs
 - ii. Transit stops
 - iii. Barricades
 - iv. Solar operated flashing arrow signs
 - v. Traffic Signals
 - j. Safe path of travel for passengers using public transit, from/to loading platform to/from the sidewalk.
 - k. Location of detour signs for vehicular, truck, bicycle and pedestrian traffic.

C. Parking and Storage Plans

1. The Contractor shall submit plans for materials storage and equipment parking, for each area of the work along with the respective Traffic Control Plans. The City has the option to reject the storage and equipment parking plans. Storage, stockpiling or placement of any equipment, materials or supplies within the area of any public street or alley, including the sidewalks thereof, will be allowed only with approved storage and parking plans approved by the Traffic Engineer through the City Representative.

2. No construction equipment and material storage, including but not limited to pipes, pipefittings, steel bars, shoring, backfill, asphalt mix etc. shall be allowed on any sidewalk, street or property, except as shown on the approved Traffic Control Plans for various phases of construction. A maximum storage area of 100 feet in length may be allowed per block.
3. Office/storage trailers shall be at least 100 feet from any intersection. It shall not block traffic control devices (STOP signs, signals, etc.), hydrants, bus stops, or driveways.
4. Storage, stockpiling, or placement shall not in any way obstruct any lane or passageway intended for vehicular or pedestrian traffic.
5. If parking meters are to be occupied for equipment/material storage in the vicinity of the active construction area, the Contractor shall apply for a Special Traffic Permit and pay for all applicable fees. See Article 3.5 Special Traffic Permit for more information.
6. If the Traffic Engineer through the City Representative determines that such storage, stockpiling, or placement causes a violation of the foregoing, of any law or order of any regulatory body having jurisdiction, and/or public complaint, the Contractor shall cease or modify the storage, stockpiling, or placement as necessary to comply with the specifications, laws, and orders. Any work performed to remove, relocate or modify the storage, stockpiling or placement of any equipment, materials or supplies shall be done at the Contractor's expense.
7. The Contractor shall provide its own yard for the storage of pipes, pipe fittings, steel bars, shoring, etc. The proposed areas for storage of materials or equipment shall be noted in the Traffic Control Plans.
8. The Contractor shall be responsible for ensuring that only Contractor's vehicles clearly identified with the name on each side of each vehicle, may be parked in the construction area.
9. Employees of the Contractor, subcontractors, and suppliers shall not park their vehicles within the active construction area when and where they are currently working and where public access is prohibited. The Contractor shall provide parking for its employees at a site which will not impact local public parking and transport employees between the parking area and the work.
10. The Contractor is not allowed to store construction equipment or materials on the sidewalk and roadway of the following streets:
 - a. Paul Ave.
 - b. San Bruno Ave.

D. Material Specifications

1. The Contractor shall submit the manufacturer's specification and data for the specific traffic control devices and materials, e.g., solar operated flashing arrow boards, temporary traffic detour tape, traffic water-filled barriers or approved equal, etc.

E. Certification of Flag Persons

1. The flag persons shall have a minimum of one-year experience utilizing manual Traffic Controls on similar construction projects. The flag persons shall have passed "The Flagger Training Course" offered by the American Traffic Safety Services Association (herein after called ATSSA) or other institutions acceptable by the Traffic Engineer through the City Representative. Refer to web page www.atssa.com for training classes for Flaggers. The Contractor shall submit certificates of all Flag persons for review and approval of the Traffic Engineer. The certificates of the Flag persons shall show the expiration date which shall be valid up to the end of the contract.

PART 2 – PRODUCTS

2.1 GENERAL

- A. All traffic signs, barricades, delineators, flashing arrow signs, and other traffic control devices shall conform to the requirements of the latest edition of the California MUTCD. The California MUTCD is available online at:
<http://www.dot.ca.gov/hq/traffops/engineering/mutcd/>
- B. All special construction traffic signs shall be reflectorized with black messages/symbols having 6" and/or 8" high series D letters on orange colored aluminum plate. The message and size of the letters shall be determined by the City Representative through the Traffic Engineer. Any changes on any signs shall be made with appropriate decals.
- C. All barricades shall have flashers. For nighttime work when lanes are closed, the flashers shall be maintained in good operating condition at all times by the Contractor.
- D. Any equipment that does not operate properly or any device that is not in good operating condition shall be removed from the job site immediately at the Contractor's expense.
- E. The Contractor shall use Caltrans, CAMUTCD, or FHWA approved traffic control devices to separate traffic lanes and construction areas.
- F. The Contractor shall provide ADA compliant safe paths of travel for pedestrians.
- G. When circumstances require use of a barrier system refer to Section 2.6 – BARRIERS.

2.2 DELINEATORS

- A. Delineators for lane taper areas for the separation of traffic from other work shall be either reflectorized traffic cones minimum 28 inches high or reflectorized portable tubular delineators minimum 36 inches high, with orange posts and yellow/white reflectors. Reflector units shall be 3"x 12" minimum.

2.3 NON-SKID METAL PLATING

- A. Metal plating and any metal bridging shall be with non-skid and rust-inhibitive product and shall be Intergard 750HS (formerly 7300 Magna-Prime) Epoxy or equal, manufactured by Courtaulds Coatings (Division of International), 400 South 13th Street, Louisville, KY

40201-1439; Tel: (800) 332-6270; Fax: (800) 283-0508. This material shall be applied as directed by the manufacturer. Plating shall be installed and maintained in such a manner as to provide a non-skid surface with no edges or corners sticking up and with no bouncing or shifting. All non-skid plates shall have a friction factor of 0.35 or greater as measured by the California Department of Transportation Test 342.

2.4 CHANGEABLE MESSAGE SIGNS

- A. The Contractor shall furnish and maintain temporary Changeable Message Signs (CMS) if required by the Traffic Engineer through the City Representative. The sign shall use light emitting diodes (LED). A photocell shall control the brightness of LED display panel. Message panel size shall be approximately 61" high x 83" wide and able to display three text lines with up to 8 characters per line. The CMS will be able to operate by both solar panel and batteries. ADDCO Model DH500-FM, manufactured by ADDCO Manufacturing Co. Inc., St. Paul, MINN, (651) 488-8600, meets these requirements. The Contractor may supply any other model of any other manufacturer meeting these requirements.

2.5 BARRICADES

- A. The Contractor shall furnish, install and maintain barricades to separate pedestrian areas and traffic areas as shown on the approved Traffic Control Plans.
- B. Devices meeting CAMUTCD, Caltrans, and FHWA requirements for barricades and designed specifically to be used as barricades may be used as barricades. Barrier systems shall not be used as barricades in the San Francisco public right-of-way. Barricades used in the public right-of-way shall be deployed in conjunction with traffic control devices as established by CAMUTCD.
- C. Under no circumstances may barrier devices be used in the public right of way as barricades.

2.6 BARRIERS

- A. All plastic barrier systems including, but not limited to Triton barrier systems, that are deployed as barriers shall be filled, connected/inter-locked and arrayed in unit quantities that comply with manufacturer's standards for use of these devices as barrier systems. Only devices meeting CAMUTCD, Caltrans, and FHWA requirements for use as barrier systems may be used as barrier systems. Minimum requirements for plastic barrier systems are:
 - 1. Filling units with water or sand in accordance with manufacturer's requirements.
 - 2. Physical connection systems and correct alignment in accordance with manufacturer requirements.
 - 3. Meet or exceed manufacturer's established number of devices for posted speed limit where deployed.
 - 4. Installation of end treatments (array) as required by manufacturer.
- B. The installation layout of water filled barriers (or approved equal) shall be in accordance with the manufacturer's specifications. The water filled barriers (or approved equal) shall be filled with water or sand in accordance with the manufacturer's specifications. The

water filled barriers (or approved equal) shall be inter-locked per manufacturers specifications.

- C. The Contractor shall not substitute K-rails for water filled barriers (or approved equal). The use of water filled barriers (or approved equal) used in conjunction with K-rails is not permitted under any circumstance.
- D. If K-rails are required for the work by Caltrans or the project the Contractor shall furnish, install, and maintain the Caltrans Standard K-rails used in the project, and shall follow CAMUTCD, Caltrans, FHWA, and manufacturer's requirements for their installation and use.

2.7 TAPE AND MARKERS FOR TEMPORARY STRIPING

A. Temporary Retroreflective Painted Pavement Striping and Markings

The Contractor shall use painted traffic striping and pavement markings on concrete sub-base as instructed by the City Representative through the Traffic Engineer. Painted traffic striping and pavement markings shall be installed immediately after grinding and before fully opening the required lanes to traffic at the end of the workday. The materials and application shall comply with Section 84-3 of Caltrans Standard Specifications. The Traffic Engineer, through the City Representative, may request samples of materials.

B. Temporary Removable Pavement Tape

The Contractor shall use pavement tape after paving as instructed by the City Representative through the Traffic Engineer. The Contractor shall use any one of the following removable tapes furnished with a foil backing:

- 1. Swarco Visa-Line
- 2. Brite-Line Series 100
- 3. ATM Series 200

C. Temporary Reflective Overlay Pavement Markers

The Contractor shall use overlay pavement markers on finished concrete streets and micro-surfaced streets as instructed by the City Representative through the Traffic Engineer. The Contractor shall use any one of the following:

- 1. Davidson Plastic Model TOM (Standard) with Reflexite PC-1000 or WZ with Reflexite AC-1,000 sheeting
- 2. Stimsonite Model 300 "Temporary Overlay Markers"
- 3. Hi-way Safety Inc. Model 1280 / 1281 with Reflexite PC 1,000

PART 3 - EXECUTION

3.1 VEHICULAR AND PEDESTRIAN TRAFFIC

A. Traffic Lane and Parking Requirements

1. In addition to the lanes specified lanes for through traffic, the Contractor shall provide an additional left/right turn lane of 11 feet width at the intersection, if there is already an existing separate right/left turn lane.
2. The Contractor shall maintain the required travelway for vehicles in any public street or way and a minimum width of 4 feet of clear sidewalk for pedestrians at all times.
3. The Contractor may be allowed to store materials and/or equipment for a limited time in the parking strip and/or portion of the sidewalk with written permission of the City Representative and SFMTA for use of the public right of way. The Contractor shall maintain adequate signing, barricades, lights, etc. at all times. Permission to store the materials shall be limited to unused materials during working hours or materials needed to resume the next seven (7) days of work. Refer to 1.4C Parking and Storage Plans for more requirements.
4. No work shall interfere with the access of emergency vehicles including those of Police and Fire Departments and ambulances. Local access shall be maintained at all times, by providing a 12 feet wide lane on all roadways.
5. All existing traffic movements at the intersections shall be maintained by bridging and/or phasing.
6. Full Roadway is defined as the street from property line to property line, including sidewalks, parking strip and travel lanes. Exceptions are as noted below:
 - a. Curb Ramps – Contractor may barricade off this curb return area, **excluding any concrete base repair area adjacent to the curb ramps**, per approved traffic control plan for up to 4 days to allow for necessary demolition, pouring, and curing time and to provide safe pedestrian paths of travel.

Refer to the traffic lane requirements table in Part 8 for further details;

7. The Contractor shall provide the following tabulated lanes to satisfactorily accommodate vehicular and bicycle traffic. Vehicular/pedestrian access to properties along the project site shall be maintained at all times.
8. Tow-Away signs can have the posted hours shown as 0.5 (half) hour prior to the start of work with the exception that it shall not be earlier than 8:00 a.m.

Traffic Lane Requirements
Number and Width of Lanes for Through Traffic

| STREET | TIME | NORTHBOUND | SOUTHBOUND | EASTBOUND | WESTBOUND |
|---|--|--|--|--|---|
| <u>During Curb Ramp Construction</u> | | | | | |
| Somerset, Goettingen, Brussels, | 8AM – 6PM At Other Times | 1@10' Full Roadway | 1@10' Full Roadway | - - | - - |
| Woolsey*, Salinas Ave. at Gould St., β Paul Ave., β Salinas Ave. | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times 8AM – 6PM At Other Times | - - - - - | - - - - - | 1@11' 1@11' Full Roadway - - | 1@11' 1@11' Full Roadway 1@10' Full Roadway |
| Colby, Dartmouth, Carr, Exeter, Keith, Bowdon, | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | 1@10' 1@10' Full Roadway | 1@10' 1@10' Full Roadway | - - - | - - - |
| Holyoke at Woolsey*, San Bruno Ave., β Wheat, Crane | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | 1@11' 1@11' Full Roadway - - Full Roadway | 1@11' 1@11' Full Roadway 1@12' 1@12' Full Roadway | - - - - - - | - - - - - - |
| Gould, Exeter Streets, | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | 1@10'↑ 1@10'↑ Full Roadway | 1@10'↑ 1@10'↑ Full Roadway | - - - | - - - |
| <u>During Sewer Construction</u> | | | | | |
| Paul Ave. * between Bayshore Blvd. & San Bruno Ave. β | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | - - - | - - - | 1@11' 1@11' Full Roadway | 1@11' 1@11' Full Roadway |
| Paul Ave. * east of Bayshore Blvd. *** β | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | - - - | - - - | Road Closed Road Closed Full Roadway | 1@12' 1@12' Full Roadway |
| San Bruno Ave. * β | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | 1@11' 1@11' Full Roadway | 1@11' 1@11' Full Roadway | - - - | - - - |
| Bayshore Blvd. | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | 1@12' 1@12' Full Roadway | 1@12' 1@12' Full Roadway | - - - | - - - |
| Wheat and Crane Streets | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | - - - | 1@10' 1@10' Full Roadway | - - - | - - - |
| Woolsey Street*. | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | - - - | - - - | 1@14'↑ 1@14'↑ Full Roadway | 1@14'↑ 1@14'↑ Full Roadway |
| Holyoke St. * | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | 1@14'↑ 1@14'↑ Full Roadway | 1@14'↑ 1@14'↑ Full Roadway | - - - | - - - |
| Somerset & Colby Streets | 9AM – 4PM (M-F) 8AM – 6PM (S/S) | 1@10'↑ 1@10'↑ | 1@10'↑ 1@10'↑ | - - | - - |

| STREET | TIME | NORTHBOUND | SOUTHBOUND | EASTBOUND | WESTBOUND |
|---|-----------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | At Other Times | Full Roadway | Full Roadway | - | - |
| Salinas Ave. | 8AM – 6PM | - | - | - | Road Closed to Through Traffic |
| | At Other Times | - | - | - | Full Roadway |
| Carr and Keith Streets | 8AM – 6PM | Road Closed to Through Traffic | Road Closed to Through Traffic | - | - |
| | At Other Times | Full Roadway | Full Roadway | - | - |
| <u>During Concrete Base Construction</u> | | | | | |
| Somerset, Goettingen, Brussels, | 8AM – 6PM | 1@10' | 1@10' | - | - |
| | At Other Times | Full Roadway | Full Roadway | - | - |
| Woolsey between Holyoke and University Sts. | 9AM – 4PM (M-F) | - | - | 1@14'↑ | 1@14'↑ |
| | 8AM – 6PM (S/S) | - | - | 1@14'↑ | 1@14'↑ |
| | At Other Times | - | - | Full Roadway | Full Roadway |
| Woolsey between Holyoke and Girard Sts. | 8AM – 6PM | - | - | Road Closed to Through Traffic | Road Closed to Through Traffic |
| | At Other Times | - | - | Full Roadway | Full Roadway |
| Salinas at Gould St. | 9AM – 4PM (M-F) | - | - | 1@11' | 1@11' |
| | 8AM – 6PM (S/S) | - | - | 1@11' | 1@11' |
| | At Other Times | - | - | Full Roadway | Full Roadway |
| Salinas Ave. at Carr St. | 8AM – 6PM | - | - | - | 1@10' |
| | At Other Times | - | - | - | Full Roadway |
| Colby, Hamilton, Dartmouth, Bowdoin, | 9AM – 4PM (M-F) | 1@10' | 1@10' | - | - |
| | 8AM – 6PM (S/S) | 1@10' | 1@10' | - | - |
| | At Other Times | Full Roadway | Full Roadway | - | - |
| Holyoke at Woolsey, San Bruno Ave., | 9AM – 4PM (M-F) | 1@11' | 1@11' | - | - |
| | 8AM – 6PM (S/S) | 1@11' | 1@11' | - | - |
| | At Other Times | Full Roadway | Full Roadway | - | - |
| Paul Ave. between Bayshore and San Bruno Ave. β* | 9AM – 4PM (M-F) | - | - | 1@11' | 1@11' |
| | 8AM – 6PM (S/S) | - | - | 1@11' | 1@11' |
| | At Other Times | - | - | Full Roadway | Full Roadway |
| Paul Ave., east of Bayshore Blvd. *** β | 9AM – 4PM (M-F) | - | - | Road Closed | 1@12' |
| | 8AM – 6PM (S/S) | - | - | Road Closed | 1@12' |
| | At Other Times | - | - | Full Roadway | Full Roadway |
| Bayshore Blvd. | 9AM – 4PM (M-F) | 1@12' | 1@12' | - | - |
| | 8AM – 6PM (S/S) | 1@12' | 1@12' | - | - |
| | At Other Times | Full Roadway | Full Roadway | - | - |
| Wheat, Crane | 9AM – 4PM (M-F) | - | 1@12' | - | - |
| | 8AM – 6PM (S/S) | - | 1@12' | - | - |
| | At Other Times | - | Full Roadway | - | - |
| Gould, Exeter, Carr, Street, | 9AM – 4PM (M-F) | 1@10'↑ | 1@10'↑ | - | - |
| | 8AM – 6PM (S/S) | 1@10'↑ | 1@10'↑ | - | - |
| | At Other Times | Full Roadway | Full Roadway | - | - |
| <u>During Grinding and Paving Construction</u> | | | | | |
| Woolsey between University and Holyoke Sts. **** | 9AM – 4PM (M-F) | - | - | 1@14'↑ | 1@14'↑ |
| | 9AM – 4PM (S/S) | - | - | 1@14'↑ | 1@14'↑ |
| | At Other Times | - | - | Full Roadway | Full Roadway |

| STREET | TIME | NORTHBOUND | SOUTHBOUND | EASTBOUND | WESTBOUND |
|---|--|--|--|--|---|
| Woolsey between Holyoke and Girard Streets | 8AM – 6PM At Other Times | - - - | - - - | Road Closed To Through Traffic Full Roadway | Roadway Closed To Through Traffic Full Roadway |
| Dwight Street | 8AM – 6PM At Other Times | - - | - - | Road Closed To Through Traffic Full Roadway | Roadway Closed To Through Traffic Full Roadway |
| San Bruno Ave. ***** β | 9AM – 4PM (M-F) 9AM – 4PM (S/S) At Other Times | 1@11' 1@11' Full Roadway | 1@11' 1@11' Full Roadway | - - - | - - - |
| Paul Ave. between San Bruno Ave. & Bayshore Blvd. β | 9AM – 4PM (M-F) 9AM – 4PM (S/S) At Other Times | - - - | - - - | 1@11' 1@11' Full Roadway | 1@11' 1@11' Full Roadway |
| Bayshore Blvd. β | 9AM – 4PM (M-F) 9AM – 4PM (S/S) At Other Times | 1@11' 1@11' Full Roadway | 1@11' 1@11' Full Roadway | - - - | - - - |
| Paul Ave. between Bayshore Blvd. & 3 rd Street *** β | 9AM – 4PM (M-F) 8AM – 6PM (S/S) At Other Times | - - - | - - - | Road Closed Road Closed Full Roadway | 1@12' 1@12' Full Roadway |
| 3 rd Street | At All Times | Full Roadway | Full Roadway | - | - |
| Gould, Bowdoin, Girard Streets | 8AM – 6PM At Other Times | Road Closed To Through Traffic Full Roadway | Road Closed To Through Traffic Full Roadway | - - | - - |
| Salinas Ave. at Gould St. | 8AM – 8PM At Other Times | - - | - - | 1@11' Full Roadway | 1@11' Full Roadway |
| Salinas Ave. between 3 rd St. & Jamestown Ave. | 8AM – 6PM At Other Times | - - | - - | - - | Road Closed To Through Traffic Full roadway |

99 The Contractor shall not prevent or delay the operation of mass transit vehicles at any time. TC = Trolley Coach, MC = Motor Coach, MM = SFMTA Metro. See Subsection 3.3 MASS TRANSIT VEHICLES for more information.

*** During sewer, concrete base, grinding and paving construction on Paul Ave. between Bayshore Blvd. and 3rd Street, Contractor may close Paul Ave. to all eastbound traffic. However, Contractor must inform and coordinate with Muni Operations, 10 working days in advance, to detour Muni Bus Line No. 29 eastbound on Paul Ave. via Bayshore Blvd. southbound and eastbound on Salinas Ave. during construction working hours.

**** During grinding and paving construction at the intersection of Holyoke and Woolsey Streets, Contractor may close Holyoke Street to through traffic, except Muni Buses. Contractor must permit Muni buses to travel through this intersection un-interrupt at any time.

***** Contractor must pave the intersection of San Bruno Ave. and Paul Ave. in the north and south direction so that the north- and southbound traffic on San Bruno Ave. will not interrupted at any time. Contractor shall permit all buses travel through this uninterrupted at anytime.

β The Contractor shall perform the appropriate measures to ensure the safety of bicyclists on ALL streets on which there is construction. Contractors shall pay special attention to streets that are on the Bicycle Route Network. See Blue Book Section 9: Bicycle Routes or on the internet at:

<http://www.sfmta.com/services/streets-sidewalks/construction-regulations>

The Contractor shall install "Bicyclists Allowed Use of Full Lane" signs, or other approved equal, on streets with bicycle lanes during construction.

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The Contractor shall designate the lane for two-way traffic with a flag person at each end of the two-way road segment to control the flow of traffic. This operation shall be restricted to one block at a time.

3.2 SPECIAL INSTRUCTIONS

A. General

1. The Contractor shall not commence site work prior to receiving the City Representative's approval of the construction schedule. No work shall commence prior to the approval of applicable traffic control plan(s), parking and storage plan(s), and flagger certificates. **The Contractor shall possess a copy of the latest, approved Traffic Control and Detour Plans at the construction site, available for review by a City Representative at all times.** The Contractor will be levied damages, as specified in Section 00 73 03 – Contract Time and Liquidated Damages for non-compliance.
2. The Contractor shall use hot asphalt concrete to provide longitudinal and/or transverse transitions between the newly constructed concrete base, manhole, etc. and existing pavement (whenever the difference in the grade of the pavement and the concrete base, manhole, etc. exceeds 3/4 inch) by the end of the work shift or before opening the lanes to traffic. Refer to the DPW Excavation Code for requirements.
3. The Contractor shall be responsible for coordinating with SFMTA to keep trolley and coach buses in operation at all times during construction. See Subsection 3.3 MASS TRANSIT VEHICLES for more information.
4. The Contractor shall not close any cross streets at any time unless specified in this specification. If cross streets are permitted to close, Contractor shall not close more than one cross street within a 5 block length at the same time unless permitted by the Traffic Engineer.
5. The Contractor shall plate over trenches after working hours. See Subsection 2.3 NON-SKID METAL PLATING for more information.
6. The Contractor shall provide flag persons to control the traffic, as specified in the approved traffic control plan and/or directed by the Traffic Engineer through the City Representative. The number of flag persons required shall depend on the phase of work, traffic conditions, etc. The flag persons shall be provided as an incidental to the Traffic Control bid item.
7. The Contractor shall separate the construction area and staging areas from the traffic lanes by barricades, delineators, etc. The Contractor shall also separate the construction area and staging areas from the walkways in accordance with DPW barricade regulations.
8. Contractor is responsible for taking inventory of SFMTA markings in the work area prior to working. These markings include yellow "Coach Stop" bars, yellow

circular markings, etc. Contractor shall notify the Chuck Silvera at the SFMTA Paint Shop at (415) 401-3164 two weeks prior to paving on each block so that Muni can restore the markings immediately after paving.

9. COORDINATION WITH OTHER CONTRACTORS

- a. There may be other Contractors working in this area. The Contractor shall coordinate the work with other Contractors working in the area. The required number of lanes must still be provided, as specified in the Tables of Subsection 3.1. VEHICULAR AND PEDESTRIAN TRAFFIC.
- b. The Contractor shall ensure that the traffic detours for this project do not conflict with other construction work and/or other traffic detours.

10. No work is allowed in the streets or sidewalks in the area outlined in the "Holiday Season Restrictions" map in the blue book (downtown) or on any "business block" in the City of San Francisco from the day after Thanksgiving through January 1, between the hours of 7am to 10pm. A "business block" is defined as a block in which at least 50% of the linear frontage is devoted to business. Establishments in this category are retail stores, bars, restaurants, banks, service type businesses, non-residence type hotels, wholesale businesses or others as determined by the SFMTA.
11. Before commencing construction, it is the Contractor's responsibility to request for the latest copy of the list of TEMPORARY STREET CLOSURES FOR SPECIAL EVENTS in the City from the Traffic Engineer on a monthly basis through the duration of the project. The Contractor must get prior approval from the Traffic Engineer through the City Representative for weekend work during San Francisco events and parades within the vicinity of project, and days in which similar events will take place as determined by the City Representative.
12. All openings in the street and sidewalk must be closed by backfilling and paving, providing safe and adequate passage for vehicles and pedestrians. All plates shall be removed at least one day before the Holiday Moratorium and any special events mentioned above within the project area. No plates are allowed during the specified periods above.
13. The pedestrian path shall be clear of any debris and meet all ADA requirements. Refer to drawing STR 7696 Rev. 2 Pedestrian Crosswalks through Construction Zones for details.
14. The Contractor shall not perform any operation to relocate, adjust, or otherwise disturb bicycle facilities installed in the work area. The contractor shall be responsible for coordinating with the Traffic Engineer and the SFMTA Bicycle Facility Managers to request the removal of these bicycle facilities that might be affected by work in the area. See Subsection 3.20 BICYCLE FACILITIES IN THE WORK AREA for more information.
15. The Contractor shall be responsible for coordinating with the San Francisco Department of Public Works – Bureau of Street Use and Mapping (DPW-BSM) to request the removal of any temporary sidewalk extensions that might be affected by work in the area. See subsection 3.29 TEMPORARY SIDEWALK EXTENSIONS – PARKLETS for more information.

B. Grinding and Paving Work

The Contractor shall stage grinding and paving operation so that the following minimum requirements are met:

1. Grinding and/or paving work will be allowed up to **three (3) consecutive blocks and two (2) consecutive intersections or a total street length of no more than 1,000 feet maximum at a time** and all three (3) consecutive blocks and two (2) consecutive intersections must be paved within 120 hours from the start of grinding work, without exception. No further grinding of consecutive blocks or intersections may be started until the previously impacted blocks are paved. If one of the three (3) consecutive blocks is paved, grinding work on a fourth consecutive block may be allowed based upon the discretion of the Resident Engineer.

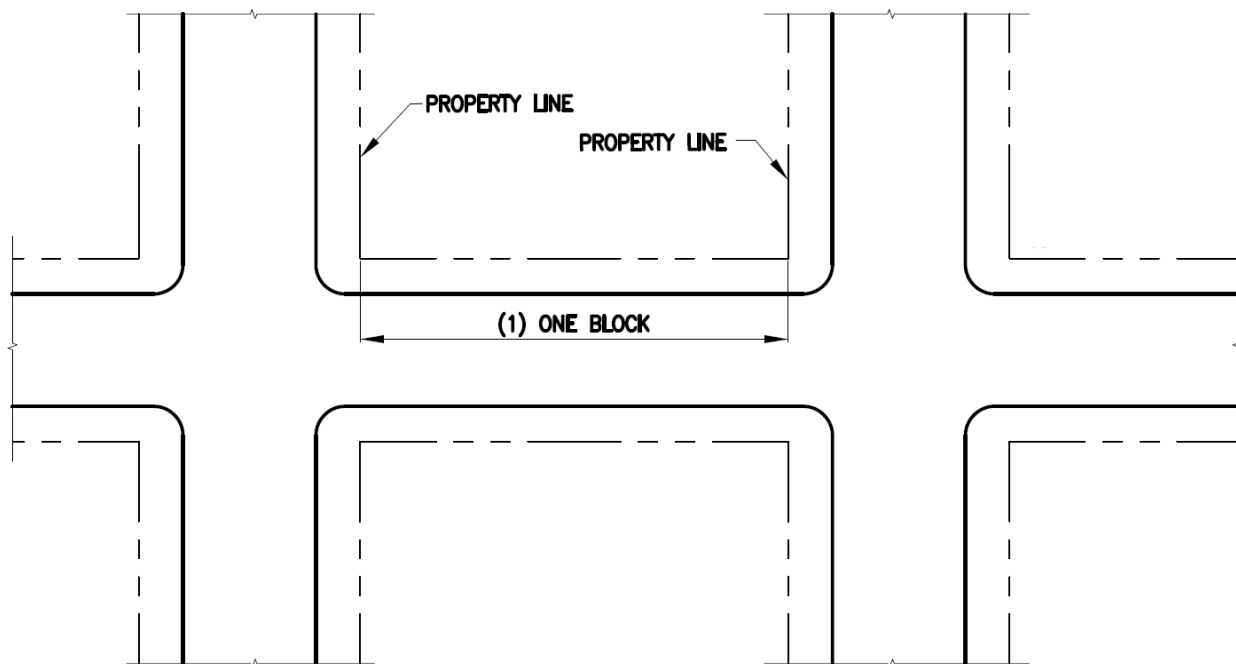


Figure 3.2B.1 – Length of one (1) block

2. Grinding is not permitted on Thursday or Friday unless paving will be satisfactorily completed before the end of the Saturday workday of the same week.
3. Cross streets shall not be closed at any time unless as specified in this specification.
4. During intersection grinding and paving work, the cross street may be interrupted for up to a maximum of ten (10) minutes for residential areas and five (5) minutes for commercial areas, arterials, and streets of high importance listed in the Blue Book.

5. The Contractor shall grind or pave the full width of the roadway within a block by the end of a work shift.
6. The parking shall be restored in a particular section, as soon as the grinding/paving/concrete reconstruction work is completed.
7. The Contractor shall finish any water work, sidewalks, curb ramps, and concrete base repair work in the blocks before proceeding to grinding and paving operations on said blocks.

C. Concrete Base Repair Work

1. The Contractor shall work on (2) blocks and/or (2) intersections on any one day not to exceed 1,200 linear feet for concrete base repair work.

D. Curb Ramp and Sidewalk Work

1. The Contractor shall be allowed to work at a maximum of three (3) intersections at any time if there are multiple curb ramps to be constructed along a street, except as otherwise noted in these specifications.
2. No crosswalk shall be allowed to be closed during curb ramp work except during demolition of curb ramps in which Contractor may close only one crosswalk at a time and provide one flagger to guide pedestrians to the open crosswalk.
3. The Contractor shall separate the safe path of travel for pedestrians from traffic and the construction area of the curb ramps with traffic water-filled barriers as shown on drawing STR 7696 Rev. 2, Detail 6 Pedestrian Crosswalks through Construction Zones.
4. If the safe path of travel for pedestrians is provided on the sidewalk, the Contractor shall separate the construction area of the ramps from the safe path of travel with chain link fence or water-filled barriers, and construction area of the ramps from the traffic area with chain link fence and /or plastic orange colored fence with 2 x 4 inch boards to guide visually impaired persons.
5. The Contractor shall not construct the curb ramps on two (2) adjacent corners of the same street unless otherwise instructed by the Traffic Engineer through the City Representative.
6. **The Contractor may work on curb ramps at diagonally located corners at the same time only if the full traffic lane shifting transition length can be met. Unless otherwise instructed by the Traffic Engineer through the City Representative. Less than full transition is not permitted. The Traffic Control Plans shall show adequate construction areas, for required traffic lane width on all streets, pedestrian walkway, barricades, truck loading and unloading areas immediately adjacent of the curb ramp construction area. The construction of curb ramp and concrete base repair adjacent to the same corner or in front of the curb ramp is prohibited.**
7. The Contractor shall provide temporary curb ramps during construction and clearly mark the temporary crosswalks.

8. The Contractor shall submit a "Construction Schedule" showing a proposed sequence of operations, starting date, duration and work limit for each intersection where curb ramps are to be constructed.
9. The Contractor shall be allowed a maximum of fifteen (15) working days to complete all the required curb ramps at any intersection.
10. When working on curb ramps at mid-block, Contractor shall completely finish curb ramps on one side of the street prior to starting work on the other side of the street.
11. The Contractor shall maintain all crosswalks and STOP lines at all times while constructing the curb ramps, using temporary traffic tape if necessary.

3.3 MASS TRANSIT VEHICLES

A. General

1. The City has a transit first policy. The Contractor shall not impede the operation of mass transit vehicles at any time.
2. The Contractor shall be familiar with transit routes that operate within the limits of the work.
3. The lanes made available for traffic shall be located so as to include an adequate and allowable travel path for the coach lines. The extreme touring range of the centerline of a trolley coach is 10 feet (3.1 m) from the centerline of the trolley wires. The Contractor shall provide a 45 foot (13.7 m) turning radius for SFMTA Transit vehicles.
4. The Contractor shall notify the SFMTA Superintendent of Special Operations at (415) 701-5376, through the City Representative, at least ten (10) working days in advance of doing any work in existing passenger loading zones for buses on each street, where such work would interfere with passenger loading and unloading operations. The SFMTA may temporarily authorize the relocation of these zones. The Contractor shall provide and continuously maintain at least one sign at any bus stop that SFMTA has authorized to be closed or relocated. The SFMTA Superintendent will supply the exact wording, size, and location of these signs. Unauthorized bus zone relocations or any other unauthorized use of the temporary bus stop signs will result in liquidated damages per Section 00 73 02.
5. The Contractor shall provide flag personnel as required to assist SFMTA Transit lines operating around the construction area.
6. The SFMTA overhead electric wires carry a minimum of 600 volts DC and have a 17 foot +/- vertical clearance from the roadway. The Contractor's attention is directed to Article 37 of General Order 95 of the Public Utilities Commission State of California. CAL OSHA regulations require that any equipment that moves vertically must maintain a 10 feet radial clearance, and any other equipment must maintain a 6 feet clearance from Muni overhead electric wires. The Contractor shall observe these regulations during the entire duration of the construction work.

7. The Contractor shall obtain a clearance permit from SFMTA Central Control at (415) 759-4398 before performing any work within 72 inches of the outside edge of SFMTA rail (the "Track Zone"). If workers or equipment are within the Track Zone, the Contractor shall train its workers and comply with the requirements of the SFMTA Roadway Worker Protection Program. In addition to obtaining a clearance permit, a copy shall be provided to the City Representative. Contact the SFMTA Safety Manager at (415) 701-4500 for training requirements.
8. The following streets have mass transit operations (TC=Trolley Coach, MC = Motor Coach, MM = Muni Metro):
 - a. Ocean Avenue: # K - Ocean (MM),
 - b. Woolsey Street - # 54 - Felton (MC)
 - c. Holyoke Street - # 54 - Felton (MC)
 - d. San Bruno Ave. - # 8 - Bayshore (MC)
9 - San Bruno (MC)
29 - Sunset (MC)
 - e. Paul Ave. - # 29 - Sunset (MC)
 - f. Bayshore Blvd. - # 29 - Sunset (MC)
9. It is the Contractor's responsibility to verify SFMTA bus routes and to inform the transit agencies at least ten (10) working days in advance if the work is expected to interfere with their operations.

B. Maintaining Transit Service

1. The Muni Overhead wires shall not be relocated or de-energized except specified in this contract. Contractor shall use appropriate construction means during grinding and paving construction at the intersection of Jules and Ocean Avenues and methods to meet all CAL OSHA rules and regulations. If the Contractor requests or requires the relocation and/or de-energization, the Contractor shall pay for all costs for de-energization and Muni Inspectors without reimbursement from the city. Muni may deny the request of the Contractor for overhead wire relocation and/or de-energization.
2. There are locations along Ocean Ave. where Muni overhead lines intersect or are parallel to the sewer alignment. Limiting the project's operational effect on Muni operations and maintaining adequate clear clearance between all construction equipment and the overhead wires are the sole responsibility of the Contractor. The Contractor shall choose the appropriate construction means and methods to meet all the aforementioned CAL-OSHA rules and regulations while accommodating Muni's operational and facility's requirements. The following are intersections which require special attention:

| Location | Muni Action Required | Muni Inspectors Needed |
|----------|----------------------|------------------------|
| | None | |

3. All Muni services as specified above under "Muni Action Required" will be provided by the City at no cost to the Contractor. Any additional services

requested by the Contractor, above and/or beyond the scope of this contract, shall be the responsibility of the Contractor.

4. Payments to Muni for additional services above and/or beyond the scope of this contract shall be as follows:
 - a. The estimated cost for overhead wire relocation is SEVEN Thousand FIVE HUNDRED Dollars (\$7,500.00). The estimated cost for overhead wire de-energization is SEVEN Thousand FIVE HUNDRED Dollars (\$7,500.00) per weekend day. The cost for a Muni inspector is approximately \$120/hr with a minimum of four (4) hours per site. Multiple Muni inspectors may be required when de-energizing any trolley wires. All fee's subject to change.
 - b. Any requests for de-energizing of overhead wires are subject to Muni's approval and availability of resources. De-energization is only permitted on weekends.
 - c. If de-energization is requested, the Contractor shall pay for Muni Inspectors if required by Muni, bus substitution if required by Muni, as well as the cost for de-energization, without reimbursement from the city.
5. The Contractor shall notify the Superintendent of Special Operations at (415) 701-5376, through the Engineer, to schedule the overhead wires relocation/overhead wires de-energization and/or any Muni Inspectors and services, at least ten (10) working days in advance of the work.
6. Upon notification as required for the work, Muni will relocate/de-energize the affected overhead wires.
7. For cancellation of any scheduled overhead wires relocation/overhead wires de-energization and any other services, the Contractor shall provide Muni with at least five (5) working days notice in advance of the scheduled work. Contractor shall pay Muni all required amounts for cancellations with less than five (5) working days advance notice. This cancellation cost will be borne by the Contractor and the city shall not reimburse the Contractor.
8. If Muni cannot provide the overhead wires relocation/overhead wires de-energization and/or other Muni services when the Contractor has scheduled the work, the City will give time extension only. No monetary compensation shall be made.

3.4 TRAFFIC CONTROL BY UNIFORMED OFF-DUTY SAN FRANCISCO POLICE OFFICERS

- A. (Not Used)

3.5 SPECIAL TRAFFIC PERMIT

- A. The Contractor shall apply for a Special Traffic Permit from the SFMTA, if any deviation from the traffic lane requirements (time, width, etc.) of this Specification is requested. If SFMTA approves the issue of the Special Traffic Permit, the Contractor shall pay the required fee to SFMTA and obtain the necessary permit. Fees for the Special Traffic Permit are subject to change. The application for the Special Traffic Permit and current fees can be found here:

<http://www.sfmta.com/services/streets-sidewalks/construction-regulations>

SFMTA reserves the right to deny any request.

- B. The Contractor shall apply for a Special Traffic Permit from SFMTA to use metered parking in addition to where it is permitted per the contract specifications if the Contractor wants to occupy parking meter(s) for equipment/materials storage or materials loading. The associated fee to occupy parking meter(s) is \$9.00 per parking meter per day as of July 1, 2016. The fee is subject to change per section 312 of the San Francisco Transportation Code.
 - 1. The Contractor shall maintain the cleanliness of the area surrounding the occupied meters for the duration of the permit. Failure to maintain the cleanliness of the area as determined by the City Representative or the Traffic Engineer shall be grounds for revocation of the permit.
- C. In case of an emergency, the Contractor shall declare emergency by contacting the City Representative and other relevant City agencies according to Section 12 "Emergency Procedure". Refer to "Regulations for Working in San Francisco Streets" (Blue Book).
- D. Working on City streets beyond the terms set forth in the specifications, without a Special Traffic Permit and without emergency declaration, is in violation of the San Francisco Transportation Code Section 903. Violation of the Special Traffic Permit Ordinance shall result in fines of at least \$500 in addition to possible liquidated damages.
- E. Violation of the San Francisco Transportation Code Section 7.3.30 constitutes a misdemeanor. It reads as follows:

To obstruct traffic four or more times within one year without a Special Traffic Permit, or violate the terms of a Special Traffic Permit or the regulations set forth in Division II, Section 903. Each hour during which the obstruction continues shall constitute a separate offense. Any person and/or business entity violating this section may be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of at least \$1,000, or imprisonment in the county jail not exceeding six months, or both.
- F. The Contractor shall NOT be compensated for the cost of a Special Traffic Permit and/or any fine levied for any violations and/or shut down due to violations of project specifications and/or violations of the conditions of the Special Traffic Permit.

3.6 TEMPORARY PAVEMENT MARKINGS

- A. After each day's work the Contractor shall furnish and install temporary pavement delineation, which shall be maintained by the Contractor until the permanent markings are installed.
- B. Prior to construction the Contractor shall survey each street and inventory all existing pavement markings including marking type and material used. The pavement markings shall include, but not be limited to traffic striping, crosswalks, stop bars, messages and raised pavement markers.
- C. The temporary pavement markers shall be the same color as the markings they replace.
- D. Surfaces on which temporary pavement delineation is to be applied shall be cleaned of all dirt and loose material and shall be dry when the pavement markers are applied.

- E. Temporary pavement delineation shall be applied in accordance with the manufacturer's instructions.
- F. Dimensions and spacing of tape for temporary striping shall be as follows:
 - 1. Crosswalk and STOP bar: One stripe 12 inches wide to mark 12 inches wide crosswalk or limit lines. Unless specified otherwise on the contract drawings, stop bars shall be aligned with the projections of the near side property lines and shall be extended from the curb to the yellow striping or center of the roadway.
 - 2. Striping across intersections and guidelines for left and/or right turn lanes shall be one stripe of 4 inches wide to mark 8 inches wide guidelines.
 - 3. Double yellow stripe centerline shall be two 4 inch wide lines, 3 inches apart; 2 ft long strips at 24ft center to center.
 - 4. Lane lines shall be one 4 inch stripe of 24-inch segments, spaced 24 feet apart.
- G. Dimensions and spacing of temporary overlay markers shall be as follows:
 - 1. Double yellow stripe centerline shall be two markers, 3 inches apart; spaced at 24ft center to center.
 - 2. Lane line markers shall be spaced 24ft center to center.
- H. The Contractor shall install temporary pavement markings, as specified below, after base reconstruction, after grinding, after paving, after water main work, and before opening the street to public traffic. Any existing traffic striping and lane lines that are removed or damaged by the work activity shall be restored with temporary foil backed tapes.
- I. The Contractor shall maintain all temporary pavement markings for 30 calendar days after the acceptance of the paving of any street. The SFMTA Paint Division will maintain the temporary pavement markings or install permanent markings after 30 calendar days of the acceptance of the paving by the City Representative.

3.7 CROSSWALKS AND SIDEWALKS

- A. All crosswalks shall be kept open at all times, unless a substitute temporary crosswalk is provided, or otherwise approved by the Traffic Engineer through the City Representative.
- B. R9-3 and R9-3bP, "NO PED CROSSING" and "USE CROSSWALK (L/R)" signs shall be placed at each end of a temporarily closed crosswalk.
- C. Whenever a temporary crosswalk is provided outside of the existing crosswalk, such temporary crosswalks shall be clearly defined by signs, striping, pedestrian bridges or plates. The minimum width of the temporary crosswalk shall be 10 feet measured between the outside edges of the striping tape. The Contractor shall provide access to mobility and visually impaired persons at all temporary and/or permanent crosswalks at all times by providing accessible temporary curb ramps.
- D. No obstruction or openings of any kind shall be allowed in portions of sidewalks accessible to pedestrians.
- E. Portions of sidewalk closed to pedestrians shall be delineated by a continuous line of pedestrian barriers. Barriers shall not have legs or other parts projecting into pedestrian ways and shall meet the requirements for visually impaired persons.

3.8 PERMANENT THERMOPLASTIC PAVEMENT MARKINGS

- A. The SFMTA Paint Division will furnish and install all the permanent thermoplastic stripes and pavement markings (traffic stripes, crosswalk stripes, stop bars, messages and raised pavement markers) at the locations shown on the traffic plans and in accordance with the latest edition of Caltrans Standard Specifications and Plans.
- B. The Contractor shall notify the Traffic Engineer through the City Representative of the proposed schedule for repaving of each block at least seven (7) calendar days in advance and again once the paving is completed and accepted, so that SFMTA Paint Division can install permanent pavement markings.

3.9 PROHIBITION OF STOPPING

- A. The Contractor may prohibit stopping in parking lanes where and when necessary to gain access to the work or to provide the required lanes, unless specified otherwise in this Section.
- B. The Contractor shall use "Tow Away" signs in all construction zones as shown in DPW Order No. 183,160. The ordinance can be found at:
<http://www.sfdpw.org/index.aspx?page=1191>
- C. The Contractor shall register Tow-Zone by calling (415) 701-2311 or 311 from San Francisco at least 72 hours in advance of the effective date and time. The Contractor shall post the signs at least 72 hours in advance of the effective date and time. The Tow-Away sign fee is \$4.00 per sign. Fees for the Tow-Away sign are subject to change.
- D. "Tow-Away, No Stopping" signs may be attached to Type II barricades, placed at 20 feet centers. The Contractor shall post the signs only in the area where actual work is being done. Parking shall not be prohibited in the area where there is no construction activity. The information posted on the sign shall be in compliance with DPW Order 183160.
- E. The Contractor shall maintain the signs on a continual basis and shall replace damaged or missing signs daily, and shall remove the signs immediately after they are no longer needed.
- F. When existing posted sign(s) need(s) to be revised (i.e., later start date, duration extension, etc.), the Contractor shall obtain new sign(s) to reflect the change(s) and replace the existing posted sign(s) at least 72 hours in advance of the proposed change(s). Refer to DPW Order 183160.
- G. When a vehicle is removed from a street at the request of the Contractor and a post-storage hearing determines that as a result of the Contractor's improper posting of the required signs, reasonable grounds did not exist for removal, the Contractor shall reimburse the City and County of San Francisco for the cost incurred in storage and towing. The failure of the Contractor to provide reimbursement or to agree to assume all liability for any improper posting shall result in the SFMTA Parking Enforcement Divisions denial of any future requests by that Contractor for removal of vehicles in violation.

3.10 NIGHTTIME WORK

- A. Contractor shall obtain a night noise permit for any work between the hours of 8:00 PM and 7:00 AM, as specified in Section 2908 of the Police Code. Contact Rassendyll Dennis of the Department of Public Works (DPW), 1155 Market St, 3rd Floor at (415) 554-5810 for details of the requirements for obtaining the permit.
- B. Contractor shall provide suitable temporary lighting to illuminate the construction area for safety and security purposes, as required by the City Representative. The Contractor shall submit the details of the temporary lighting to the City Representative for approval.

3.11 TREE TRIMMING

- A. The Contractor shall contact the Bureau of Urban Forestry (BUF) of DPW at (415) 554-6700, ninety (90) calendar days prior to start of work if trees are in the City right-of-way and will be in conflict with the construction work, equipment, and/or with the traveling public during construction. The Contractor shall not detour any traffic onto the parking lane until all the tree branches are properly trimmed or the Contractor has made sure that these branches will not interfere with the traveling public.
- B. The Contractor will not be allowed to trim any trees without the written approval and supervision from BUF. The Contractor will do all necessary tree trimming as directed, at no additional cost to the City.
- C. If the trees are maintained by Property Owners, the Contractor shall send notices to the Property Owners, at least sixty (60) calendar days in advance to trim the trees. If the trees are not trimmed by the Property Owners, the Contractor shall trim the trees, at no cost to the City, as per directions of BUF.

3.12 TEMPORARY CONSTRUCTION AND TRAFFIC SIGNS

- A. The signs and equipment shall conform to the requirements of the latest edition of California Department of Transportation's MUTCD. Unless otherwise shown on the plans or specified in this specification, the color of construction area warning and guide signs shall have black legend and border on orange background, except W10-1 or W47(CA) (Highway-Rail Grade Crossing Advance Warning) sign shall have black legend and border on yellow background.
- B. The Contractor shall be familiar with the California MUTCD.
- C. Before starting any work which will affect the normal flow of traffic, The Contractor shall furnish, install, and maintain temporary signs.
- D. The Contractor shall as a minimum, furnish and make available to the site the following signs and equipment in sufficient quantities to maintain required traffic control, per the approved Traffic Control Plans and/or as directed by the Traffic Engineer through the City Representative:
 - 1. Barricades, as required by Section 21,400 of the State of California Vehicle Code and as specified in the Latest Edition of the State of California's Department of Transportation's MUTCD, in sufficient amount to safeguard the public and the workers.

2. "TOW-AWAY, NO STOPPING" signs as herein specified.
3. Traffic cones and/or delineators and/or temporary reflectorized removable tape to delineate traffic lanes as required to guide and separate traffic movements.
4. High level warning flag units, in advance of traffic approaching the work, each displaying three (3) flags mounted at a height of 7 feet.
5. "ROAD WORK AHEAD" signs, Code W20-1, size 48"x48" placed in conspicuous locations, in advance of the work, facing approaching traffic.
6. "ROAD CLOSED" signs, Code R11-2, size 48"x30."
7. "ROAD CLOSED TO THRU TRAFFIC" signs, Code R11-4, 60"x30".
8. "ROAD CLOSED AHEAD" signs, Code W20-3, 48"x48".
9. "RIGHT/LEFT LANE CLOSED AHEAD" signs Code W20-5 (RT/LT), size 48" x 48".
10. "FLAGGER SYMBOL" signs, code C9A (CA), size 48"x48".
11. "TWO WAY TRAFFIC SYMBOL" signs, Code W6-3, size 48"x48".
12. "ROUGH ROAD" signs, Code W8-8, size 36"x36".
13. "REVERSE TURN SYMBOL", signs, Code W1-3, size standard 36"x36".
14. "DETOUR AHEAD" signs, Code W20-2, size 48"x48".
15. "DETOUR" signs, Code M4-10 (RT/LT) and/or SC3 (CA), size 48" x 18".
16. "Street Name" signs, with 6" Upper Case series "D" black letters on orange plate, size 48" x 18".
17. "NO PED CROSSING SYMBOL" signs, Code R9-3a, size 18" x 18".
18. "USE CROSSWALK (RIGHT OR LEFT ARROW)" signs, R9-3b (RT/LT), size 18" x 12", (used with R9-3a signs).
19. "SIDEWALK CLOSED" signs, R9-9.
20. "SIDEWALK CLOSED / Left or Right Arrow / USE OTHER SIDE" signs, R9-10.
21. "SIDEWALK CLOSED AHEAD / Left or Right Arrow / CROSS HERE" signs, R9-11.
22. "SIDEWALK CLOSED / Left or Right Arrow / CROSS HERE" signs, R9-11a.
23. "MAY USE FULL LANE" signs, R4-11.
24. "SAN FRANCISCO BIKE LOGO ROUTE" signs with bike route number and "BIKE LANE", Code Ca-SG45 (modified), 12" x 24", black and reflective orange.

25. "SAN FRANCISCO BIKE LOGO ROUTE" signs with bike route number and "↑DETOUR", or "←DETOUR", or "DETOUR→" Code Ca-SG45 (modified), 12" x 26" black and reflective orange.
 26. Flashing arrow signs, Type II conforming to the latest Caltrans Standard Specifications, except as modified herein, placed as shown on the approved Traffic Control Plan. The Contractor shall use solar powered flashing arrow signs.
 27. Miscellaneous signs, size 48" x 48" or larger, with 6" and/or 8" series "D" black letters on orange plate.
 28. Changeable Message Signs (CMS), if specified in the bid schedule, shall be portable. The sign shall be capable of 24-hour operation via solar power to minimize complaints of odor and noise, etc. from local residents and businesses.
 29. SFMTA temporary Bus Stop Signs, 12" x 24", shall be placed as directed by the SFMTA through the City Representative. The SFMTA Superintendent at (415) 701-5376 will determine the exact wording and location of these signs through the City Representative. Unauthorized bus zone relocations or any other unauthorized use of the temporary bus stop signs will result in liquidated damages per Section 00 73 02.
- E. All signs installed by the Contractor shall employ the use of Type III Graffiti proof sheeting on aluminum signs and Type IV for roll-up signs. No cardboard or paper sign is permitted except the temporary "No Stopping" signs. The Graffiti sheeting shall meet the latest Caltrans requirements.**
- F. The actual number and type of signs to be placed shall be as shown on the approved traffic control plans or as directed by the Traffic Engineer through the City Representative.
- G. All signs and/or temporary striping shall be reflectorized. Signs shall be installed so that the bottom of the sign is at least 7 feet above the sidewalk or pavement or as directed by the Traffic Engineer through the City Representative.

3.13 TRAFFIC CONTROL

- A. Traffic Coordination with Others
1. In order to maintain a continuous flow of traffic, the Contractor shall coordinate the traffic routing work with subcontractors and other contractors, working in the same adjacent area. This includes truck traffic hauling materials, equipment, etc.
 2. All proposed traffic control changes shall be subject to approval of the Traffic Engineer through the City Representative.
- B. Traffic Control Flag Persons
1. Flaggers, flagging procedures, flagger stations, and flagger control, shall conform to latest edition of the MUTCD.
 2. The Contractor shall ensure that flaggers are trained in the proper fundamentals of flagging traffic before being assigned as flaggers.

3. The flaggers shall be used in each situation when the Contractor's equipment and/or vehicle backs up into a travel lane, intermittently occupies a traffic lane, enters from the work area into a traffic lane, and/or where required for traffic control, as directed by the City Representative.

3.14 MAINTENANCE OF TRAFFIC

- A. The Contractor shall cause the least possible interference with traffic. The Contractor shall not obstruct or close any roadway to vehicular or pedestrian traffic, except in the immediate vicinity of the work, and then only to the extent allowed.
- B. Those parts of streets, access roads, and sidewalks that are occupied by the Contractor shall be immediately vacated and returned to public use when use thereof is no longer necessary for the prosecution of the work.
- C. The Contractor shall not impede at any time, free access to public and private properties, including those properties fronting or streets allowed or stipulated by this specification and approved traffic control plans. The Contractor shall provide for such local access by phasing operations, bridging, or employing other procedures approved by the City Representative.

Exception: For work that will require impeding access, the Contractor shall coordinate and work with each affected property or business owner, or responsible building or business manager.

- D. Access to fire hydrants shall not be impaired by the Contractor. No debris, materials, or equipment shall be placed within ten (10) feet of any fire hydrant.

3.15 DIVERTING OF VEHICULAR TRAFFIC

- A. When closing one or more lanes to vehicular traffic or to otherwise divert such traffic from its normal paths, the Contractor shall clearly delineate temporary centerlines separating two-way traffic and dividing lines for other temporary traffic lanes by employing cones, barricades, flags, reflectors, or other approved methods or devices.
- B. Placing of devices shall commence sufficiently in advance of the obstruction or other cause of the diverting of traffic to minimize congestion and shall enable traffic to enter, traverse, and leave the site of the work without abrupt or unwarranted changes in direction. Unless otherwise specified or approved, each temporary traffic lane shall be not less than ten (10) feet clear width.
- C. When a detour is necessary for full or partial roadway closure, all detour signs needed for the required traffic routing must be in place before the roadway can be closed for construction. Failure to comply with this requirement shall result in liquidated damages associated with improper lane closure.
- D. High rise warning flag units, each displaying three flags mounted at the height of (7) feet, to provide advance warning for traffic approaching the work, will be required in all cases where motorists' visibility of the work is limited or obscured.

3.16 RELOCATION AND REMOVAL OF EXISTING PERMANENT TRAFFIC CONTROL AND SIGNS

- A. The Contractor shall be familiar with all existing permanent traffic signs and other traffic control devices within and adjacent to the project limit. The Contractor shall survey the site thoroughly to get all pertinent information of the signs in the construction area, including, but not limited to sign type, message, location, orientation, number of faces (double sided or single sided), and reflectivity. The Contractor shall pay particular attention to the signs that will likely be damaged, removed, or relocated during construction.
- B. The Contractor shall temporarily relocate all traffic control, street name, and other City signs, as required for the prosecution of the work and to prevent interference with traffic signal installations and shall satisfactorily maintain such signs in place at all times. The Contractor shall similarly relocate or remove and salvage as City property, the standards for such signs. The Contractor shall salvage standards in their entirety and shall remove any concrete therefrom.
- C. The temporary relocation of each "STOP" or other traffic regulatory sign shall be done immediately upon its removal and to a location as close as possible to the original position of such sign or where directed by the City Representative.
- D. The Contractor shall remove and salvage as City property existing "STOP" or other signs superseded by installed traffic signals immediately upon being notified by the City Representative that such signals will remain in operation.
- E. The Contractor shall permanently relocate traffic control and other signs and standards to the locations shown on the plan or as directed by the Traffic Engineer through the City Representative. Signs to be removed or salvaged are to be delivered by the Contractor, with a copy of the Sign Inventory Form(s), to the SFMTA Sign Shop at 1508 Bancroft Avenue, San Francisco telephone (415) 554-9785. Each sign shall be tagged and labeled providing such information as location and the direction sign was facing prior to its removal.
- F. The Contractor shall notify the Traffic Engineer through the City Representative at least five (5) working days before the Contractor reinstalls the permanent signs which were temporarily removed due to construction. The reinstalled signs will be inspected by the Sign Shop personnel at no cost to the Contractor. The Contractor shall provide the Sign Shop with a copy of the approved sign inventory form along with a contact name, and phone number.
- G. If new materials (sign, pole, frame, mounting equipment, etc.) and adjustments are needed during the Sign Shop personnel's inspection, the associated cost shall be borne by the Contractor. The Sign Shop shall bill the Contractor to recover all costs incurred.

3.17 WORKING AROUND PARKING METERS

- A. The Contractor shall notify the Traffic Engineer through the City Representative, at least 10 working days before starting any work that may impact parking meters so that arrangements may be made by the City to have the meters removed at no cost to the Contractor. Meter removal shall only be done by the SFMTA Meter Shop, unless otherwise authorized by the Traffic Engineer.

- B. Parking meters and parking meter standards damaged or loosened by the Contractor's operations will be repaired or replaced as necessary by the City; however, all expenses in connection therewith shall be borne by the Contractor.

3.20 BICYCLE FACILITIES IN THE WORK AREA

- A. Bicycle facilities may refer to but is not limited to any of the following:
 - 1. Bicycle Racks – Usually but not always constructed of round or square metal tubing in the shape of a hoop or inverted U.
 - 2. Bicycle Sharing Stations – Automated electronic bicycle parking facility that dispenses bicycles for public hire. Comprised of multiple components including a group of bicycle docks, a payment kiosk with solar mast, and map panel/display case.
 - 3. Bicycle Lockers – Enclosed, secure individual bicycle storage lockers accessed by key or cardkey.
- B. If bicycle racks are located within the work area and could be subject to damage by construction, the Contractor is responsible for coordinating its removal with the SFMTA Bicycle Parking Manager at bikeparking@sfmta.com through the City Representative, (10) ten working days before starting work.
- C. If bicycle sharing stations or bicycle lockers are located within the work area and could be subject to damage by construction, the Contractor is responsible for coordinating its removal with the SFMTA Bicycle Sharing Manager at bikeshare@sfmta.com through the City Representative at least (30) thirty working days before starting work.
- D. If bicycle counters are located within the work area and could be subject to damage by construction, the Contractor is responsible for coordinating its removal with the SFMTA Bicycle Counter Manager at bikecounters@sfmta.com through the City Representative, (30) thirty working days before starting work.
- E. In the event the Contractor removes or damages the existing bicycle facilities during construction, the Contractor shall immediately contact the Traffic Engineer and the SFMTA Bicycle Facility Managers through the City Representative, to coordinate the re-installation of the bicycle facility at the Contractor's sole expense.
- F. Once the work has been completed by the Contractor and the final paving has been approved by the City Representative, the Contractor shall notify the Traffic Engineer and the SFMTA Bicycle Facility Managers through the City Representative, and the bicycle facility will be re-installed.

3.21 EXISTING TRAFFIC SIGNAL SHUTDOWN AND MAINTENANCE

- A. Where it is necessary to shut down existing traffic signals at any intersection, the Contractor shall notify the Traffic Engineer through the City Representative, SFMTA Signal Shop (Fax # 415-282-7681), and SFPD Traffic Bureau ten (10) working days in advance of the start of each shutdown. It is the responsibility of the Contractor to make arrangements to have police officer(s) on duty to control traffic. Notification shall be written and shall also include a contact name and number to be used in case of emergency. If the Contractor fails to provide notice as detailed above, liquidated damages shall be assessed per Section 00 73 03.

- B. The Contractor shall similarly notify the Bureau of Light, Heat, and Power (BLHP) at (415) 227-8513 a minimum of ten (10) working days in advance of any work on existing street light equipment. Disconnection of any existing or temporary streetlights will not be permitted until the new equipment has been approved, tested, and properly adjusted by BLHP.
- C. The operation and interconnected functioning of existing traffic signals shall not be disturbed before 9:00 a.m. The traffic signals shall be returned to normal working conditions before 3:00 p.m. of the same day.
- D. All work and expenses for maintenance of existing traffic signal and streetlights in operation shall be done as incidental work to this contract.
- E. Many traffic signals are interconnected via 12-conductor cable, twisted wire pairs, or fiber optic cable to provide signal coordination. Coordination of the traffic signals shall be maintained every day between the hours of 7-9 AM and 3-7 PM. During all other times, the Contractor shall make every effort to maintain the existing coordination. Failure to ensure traffic signal interconnect is operational between the peak periods of 7-9 AM or 3-7 PM will result in liquidated damages being assessed per Section 00 73 03.

3.22 COMMUTER SHUTTLE BUS STOP IN THE WORK AREA

- A. If a Commuter Shuttle Bus Stop space is located within the work area and could be subjected to damage by construction, the Contractor is responsible for coordinating its removal with the Commuter Shuttle Bus Stop Manager at 415-646-2349 through the Traffic Engineer (10) ten working days before starting work.
- B. In the event the Contractor removes or damages the existing Commuter Shuttle Bus Stop during construction, the Contractor shall immediately contact the Commuter Shuttle Bus Stop Manager at 415-646-2349 through the Traffic Engineer, to coordinate the re-installation of the Commuter Shuttle Bus Stop at the Contractor's sole expense.
- C. Once the work has been completed by the Contractor and the final paving has been approved by the Traffic Engineer, the Contractor shall notify the Commuter Shuttle Bus Stop Manager at 415-646-2349 through the Traffic Engineer, and the Commuter Shuttle Bus Stop will be re-installed.

3.23 CAR SHARE IN THE WORK AREA

- A. If a car share space is located within the work area and could be subjected to damage by construction, the Contractor is responsible for coordinating its removal with the Car Share Manager at 415-701-4213 through the Traffic Engineer (10) ten working days before starting work.
- B. In the event the Contractor removes or damages the existing car share space during construction, the Contractor shall immediately contact the Car Share Manager at 415-701-4213 through the Traffic Engineer, to coordinate the re-installation of the car share space at the Contractor's sole expense.
- C. Once the work has been completed by the Contractor and the final paving has been approved by the Traffic Engineer, the Contractor shall notify the Car Share Manager at 415-701-4213 through the Traffic Engineer, and the car share space will be re-installed.

3.29 TEMPORARY SIDEWALK EXTENSIONS – PARKLETS

- A. If a temporary sidewalk extension, parklet, is located within the work area and could be subject to damage by construction, the Contractor is responsible for coordinating its removal with the San Francisco Planning Department's Parklet Program Manager at parklets@sfdpw.org, through the City Representative at least (30) thirty working days before starting work.
- B. In the event the Contractor removes or damages the existing parklet during construction, the Contractor shall immediately contact the Traffic Engineer and the Parklet Program Manager through the City Representative, to coordinate the repair or re-installation of the parklet at the Contractor's sole expense.
- C. Once the work has been completed by the Contractor and the final paving has been approved by the City Representative, the Contractor shall notify the Traffic Engineer and the Parklet Program Manager through the City Representative, and the parklet will be re-installed.

PART 4 - MEASUREMENT, PAYMENT, AND LIQUIDATED DAMAGES

4.01 MEASUREMENT AND PAYMENT

See Section 01 20 00 – Price & Payment Procedures

4.02 LIQUIDATED DAMAGES

See Section 00 73 03 Subsection 1.4A

4.03 REPORTS FOR LIQUIDATED DAMAGES AND DEDUCTION OF LIQUIDATED DAMAGES

- A. The City Representative shall furnish the Contractor with the weekly progress report showing the date, period of time of violation, and the assessed liquidated damages. The Contractor shall be allowed 15 days from the issuance of the weekly progress report showing the liquidated damages in which to file a written protest setting forth in what respect the Contractor differs from the City Representative and any extenuating circumstances; otherwise the decision of the City Representative shall be deemed to have been accepted by the Contractor as correct.
- B. The amount of liquidated damages and cost of remedial actions shall be deducted from the progressive and/or final payment made to the Contractor.

END OF SECTION 01 55 26