TEMPORARY TRAFFIC CONTROL (TTC) GUIDELINES

Department of Public Works | Division of Transportation and Traffic

OVERVIEW

These guidelines are provided to assist developers and contractors in designing Temporary Traffic Control (TTC) plans for all construction activities within City of Sunnyvale's right-of-way. Contractor shall request approval for roadways under other agencies' jurisdiction such as El Camino Real, Homestead Road, expressways and freeways. These guidelines should be used to ensure that the basic elements are covered and to support a timely plan review. Please refer to the latest edition of the California Manual of Uniform Traffic Control Devices (CA-MUTCD), Part 6: Temporary Traffic Control, for information on preparing TTC, definitions, TTC devices, compliance information, and for typical TTC examples.

The contractor is responsible for inspecting all traffic detour routes to ensure adequate horizontal and vertical clearances for construction vehicles are maintained from obstructions (e.g., poles and overhanging tree limbs) and report to the City prior to commencement of work. The contractor is also responsible for implementing and maintaining TTC at all times when needed and removing TTC promptly when not needed.

No staging area or materials storage area shall be done in the public right-of-way. All construction activities must happen within the private construction zone area including loading and off-loading of construction material and/or equipment. Exceptions must be approved in advance, in writing by the Public Works Director or his/her designee, when appropriate for public safety and convenience, rather than the convenience of the contractor.

TEMPORARY TRAFFIC CONTROL PLANS DRAWING SUBMITTAL REQUIREMENTS

1. TTC plans shall be site specific. The use of a generic Caltrans traffic plan shall not be permitted.
2. All sheets on TTC plans shall be numbered consecutively: TC-1 TC-2, etc.
3. Specific drawing scales are required to adequately show: the locations of advance construction signs, the dimensions for the placement of channelizing devices and pavement markings, and various phases of construction as needed. Acceptable scales are: 1"=20', 1"=30', 1"=40', and 1"=50'.
4. TTC plans shall be legible using drafting standards, preferably computer generated graphics. If TTC plans can not be clearly understood, it will be returned for revision and resubmittal.
5. Indicate contractor's name, address, and telephone number. Include name and telephone number of the 24-hour contact person representing the contractor.
6. Include applicable dates and time durations.
7. Indicate north arrow and scale.
8. Show all streets, existing traffic signals, & traffic signs within the work zone (approx. 1,000 foot radius.) This area around the work zone is required to establish location and placement of advance warning signs, and to prepare a pedestrian detour sign if a sidewalk/pathway area is part of the construction zone.

Traffic Control Devices in Work Zones Definitions:

Signs:
The signs used for traffic control in work zones are regulatory signs, guide signs and warning signs. The placement and spacing of the advance warning signs will be according to CA-MUTCD standards.

Channelizing Devices:
Channelizing devices such as cones, tubular markers, vertical panels, drums and barricades are used to warn and alert drivers, bicyclists and pedestrians of conditions in work zones, to separate traffic from the work area, and to guide the traffic.

Warning Lights:
Warning lights are lights placed on channelizing devices or signs. Per CA-MUTCD, they shall be securely mounted at a minimum height of 30 inches to supplement retroreflectorization on warning signs and channelizing devices.

Pavement Markings:
For long-term stationary projects, the guidelines of Part 6 of the CA-MUTCD shall be followed for placement and removal of pavement markings. For short-term projects and

9. A minimum of 72 business day hours of advance notification is required prior to implementation of any traffic signal operation change which is part of the TTC approval.
10. Show existing potential conflicts (bus stops, driveways, etc), traffic striping, pavement markings, lane configuration, painted crosswalks and bike lanes. Include total roadway widths, individual lane widths, bike lane widths, median dimensions, etc.
11. Show existing curbs, gutters, sidewalks, driveways and intersections in the construction work zone including areas affected by taper transition.
12. Indicate posted speed limits including proposed speed limit reductions in construction zones in compliance with Part 6 of the CA MUTCD Section 6C.01.
13. Clearly show locations of advance warning signs (per Table 6C-1 - Suggested Minimum Advance Warning Sign Spacing of the CA-MUTCD), barricades and delineators (includes cones.)
14. Clearly show exact location and dimensions of the construction work zone.
15. Label all taper lengths and widths, delineator spacing and sign spacing. All taper lengths shall conform to CA-MUTCD standards (Tables 6C-3 & 6C-4).
16. Use CA-MUTCD nomenclature for all symbols and place them in a legend.
17. Show all parking restriction zones and signs, as appropriate.
18. Indicate the construction schedule, work hours and duration of times when TTC will be in effect.
19. Specify how the work area will be protected at night (e.g., trench plates, temporary lighting, etc.)
20. If work is to be done in phases, submit separate TTC plans for each phase of work.
21. All detour signs must be removed or covered by contractor when detour is not in effect.

Please refer to the attached CA-MUTCD Figures 6C-1 and 6C-2 for guidance in the placement of temporary traffic control devices.

Lane Closures

Except for emergencies or unless otherwise specified, no lane closure will be permitted in any part of the major commute streets during commute hours:

Major commute streets are:
North/South Streets
- Mathilda Avenue
- Sunnyvale-Saratoga Road
- Wolfe Road
- Fair Oaks Avenue
- Mary Avenue
- Remington Drive (between Sunnyvale-Saratoga and El Camino Real)

East/West Streets
- Homestead Road
- Duane Avenue
- Fremont Avenue
- Arques Avenue
- Maude Avenue

where existing pavement marking conflicts with the temporary travel path, additional signing and channelizing devices shall be used.

Arrow Panels:
Arrow Panels are a sign with a matrix of elements capable of either flashing or sequential displays. Arrow Panels shall be required for lane closures on major arterial and collector streets, or when one lane on a two lane, two-way roadway is closed, with flagger control in effect. Arrow Panels should not be used without signs or other devices and should be delineated with retroreflective channelizing devices.

Changeable Message Signs (CMS):
CMS are devices with the flexibility to display a variety of messages. CMS shall be required if construction activities will cause unexpected situations such as excessive delays, changes in alignment or surface conditions, changes in the road user pattern, etc. Submit all messages to be used on CMS in advance to the City for approval. Only City approved messages shall be used.

Commute hours are defined as:
"Northbound" Between 6:00 a.m. and 10:00 a.m.
"Southbound" Between 3:30 p.m. and 7:30 p.m.
"Eastbound" Between 6:00 a.m. and 9:30 a.m.
"Westbound" Between 3:30 p.m. and 7:30 p.m.

Additional lane closure restrictions may be imposed if there is evidence that excessive inconvenience to the public is observed during construction.

The lane closure(s) must be limited in duration and area as practical. Times and dates of closure must be stated on the TTC. Refer to the attached Sunnyvale Standard Operating Procedure (SOP) for typical lane closure.

Road Closures

- Full road closures may only be used when no other types of temporary traffic control is feasible for the work involved and must not occur unless approved, in advance, in writing by the Director of Public Works or his/her designee.
- Detour routes and notification plans must be submitted to the City four weeks in advance of any proposed road closure.
- The road closure(s) must be limited in duration and area as necessary and practical. Times and dates of closure must be stated on the TTC.

Road closures will require approval from the Director of Public Works or his/her designee. Any road closure also requires notification be provided to the Sunnyvale Department of Public Safety and residents in the work area, and others as determined by the City.

Approved Traffic Control Devices

- Every roadside sign on the TTC plans should include the CA-MUTCD sign number, dimension and description.
- A Flashing Arrow Sign/Board (FAS) ***must*** be used for ***all*** lane or street closures and their size, panel display and exact location shall be indicated on the TTC.
- Show locations of all flaggers, channelizing devices, warning lights, flag trees, and portable barriers on the TTC. All devices shall comply with CA-MUTCD.

Traffic Signal Operation and Equipment

- If the work zone affects a signalized intersection, TTC shall show how all impacts will be mitigated. Potential impacts to consider include any modification or changes to traffic signal operation and equipment, as well as, signs and markings (e.g., vehicle and pedestrian detection, striping, signs, signal timing, signal phasing, etc.)
- A flagger shall not be used to direct traffic through a signalized intersection against the signal indications.
- Any work within 150 feet of a signalized intersection may require specific traffic control by additional certified flaggers. The need for this will be determined based on on-site conditions and shall be approved prior to work.
- Contractor must include in the TTC a request for any traffic signal operation and equipment modification. This request must include location of all traffic signals and traffic signal detection devices within the traffic control area. Only City forces and City's contract employees are allowed to modify traffic signals.
- If special signal timing is required in the TTC, specify **all proposed** changes and their effects on a separate sheet. This includes potential changes to signal operations such as flashing red, recall or fixed time.

A minimum of 72 business day hours of advance notification is required prior to implementation of any traffic signal operation change which is part of the TTC approval.

Pedestrian/Bicycle Safety

- Pedestrian access, including provisions for people with disabilities compliant with the Americans with Disabilities Act (ADA), must be maintained throughout the duration of construction. This does not just apply to the final product; accessibility must be maintained during construction. Safe, clearly marked routes must be maintained through or around the construction activity at all times.
- The use of temporary walkways with width, slope, and cross-slope, compliant to ADA to the maximum extent feasible, shall be incorporated on the job site. Surfaces must be firm, stable, and slip resistant.
- Channelizing and barricading must be used to separate pedestrians from vehicular traffic. Adequate barricading must be addressed to prevent visually and/or hearing impaired pedestrians from entering work zones.
- Any proposed alternate pedestrian circulation routes shall have appropriate signage and be accessible to people who use mobility aids (wheelchairs, walkers, scooters, etc.). The alternate circulation path shall have a minimum width of 5 feet and parallel to the disrupted pedestrian access route when practical.
- Barricades and channelizing devices shall be continuous, stable, non-flexible, and shall consist of a wall, fence, or enclosure that clearly separate paths of travel for bicyclists and pedestrians near or at work zones. Where channelizing devices are used to channelize pedestrians, there shall be continuous detectable bottom and top surfaces to be detectable to users of long canes. The bottom of the bottom surface shall be no higher than 2 inches above the ground. The top of the top surface shall be no lower than 32 inches above the ground (Refer to Figure 6F-7 for Channelizing Devices). This is specified in section 6F of the CA-MUTCD.
- Show all pedestrian and bicycle entries, detours, paths and exits on the TTC on a separate sheet.
- Clearly show description and location of all traffic control devices, including fences and barricades, within the proposed pedestrian and bicyclist access route on the TTC.
- Signs and barricades are required to direct pedestrians and bicyclists through or around the construction work zone and shall be shown on the TTC.

Parking Restrictions

- City-approved temporary parking restriction signs must be clearly posted, a minimum of 72 hours before work begins. They shall be furnished, implemented and maintained by the contractor or developer for all affected parking spaces.
- All other legal parking areas must be maintained. Access to parking spaces and all legally parked vehicles' doors and storage areas must also be maintained.
- Parking restrictions must be limited in time as necessary and practical. Restrictions may only be used when there is no other type of traffic control feasible for the work involved, or when parking demand can be otherwise reasonably accommodated.

You may contact the Division of Transportation and Traffic at (408) 730-7415 for questions related to TTC's, including closures, traffic signal operations, and temporary "No Parking" signs.

Please expect a minimum of three (3) to five (5) working days for the City to review the TTC. Once the TTC is approved it must be available for inspection on-site at all times. City may require field changes to the TTC as necessary to meet the City's goals.

All Temporary Traffic Control (TTC) devices shall be removed by the contractor as soon as possible when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered by the contractor.

Figure 6C-1. Component Parts of a Temporary Traffic Control Zone

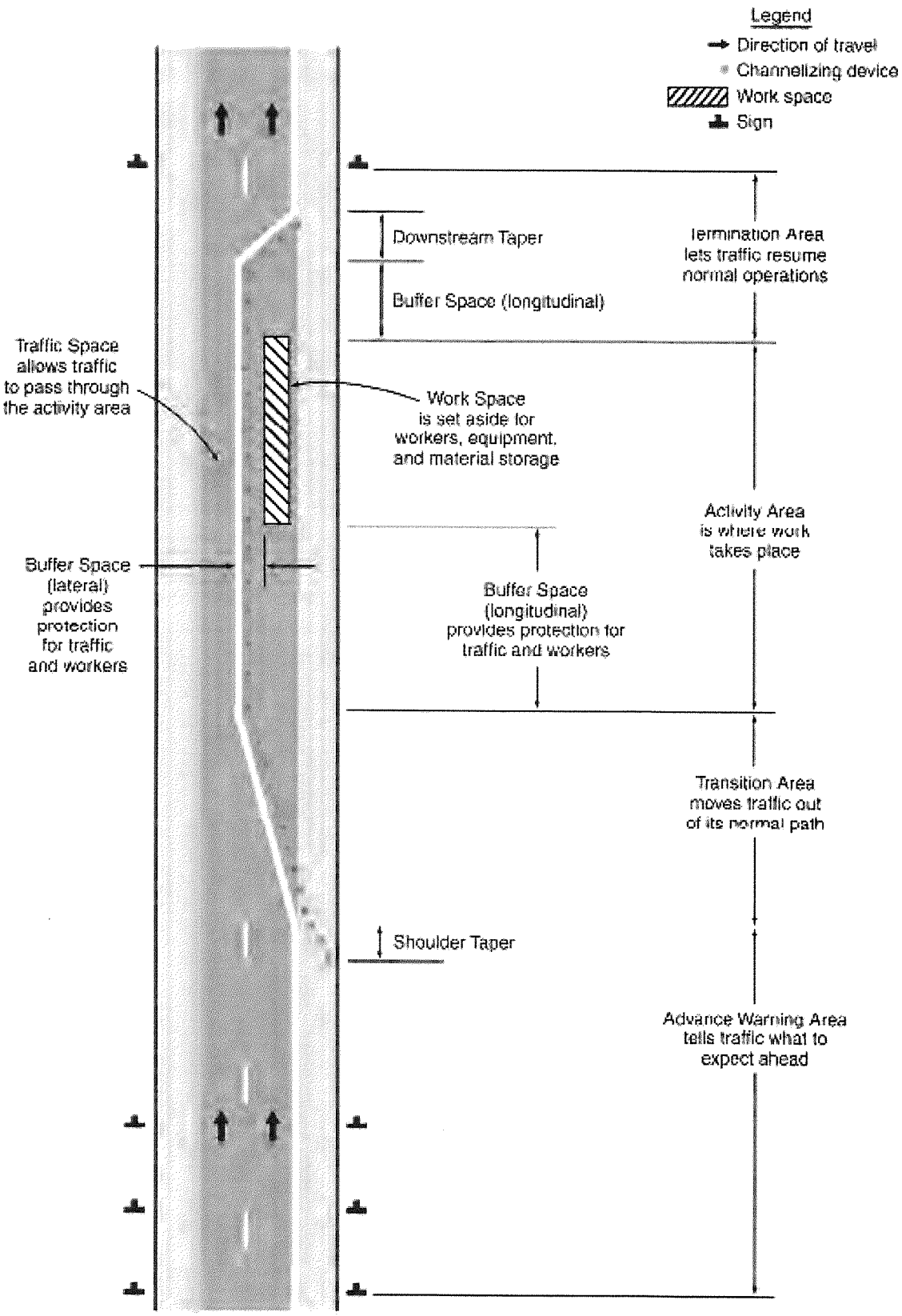
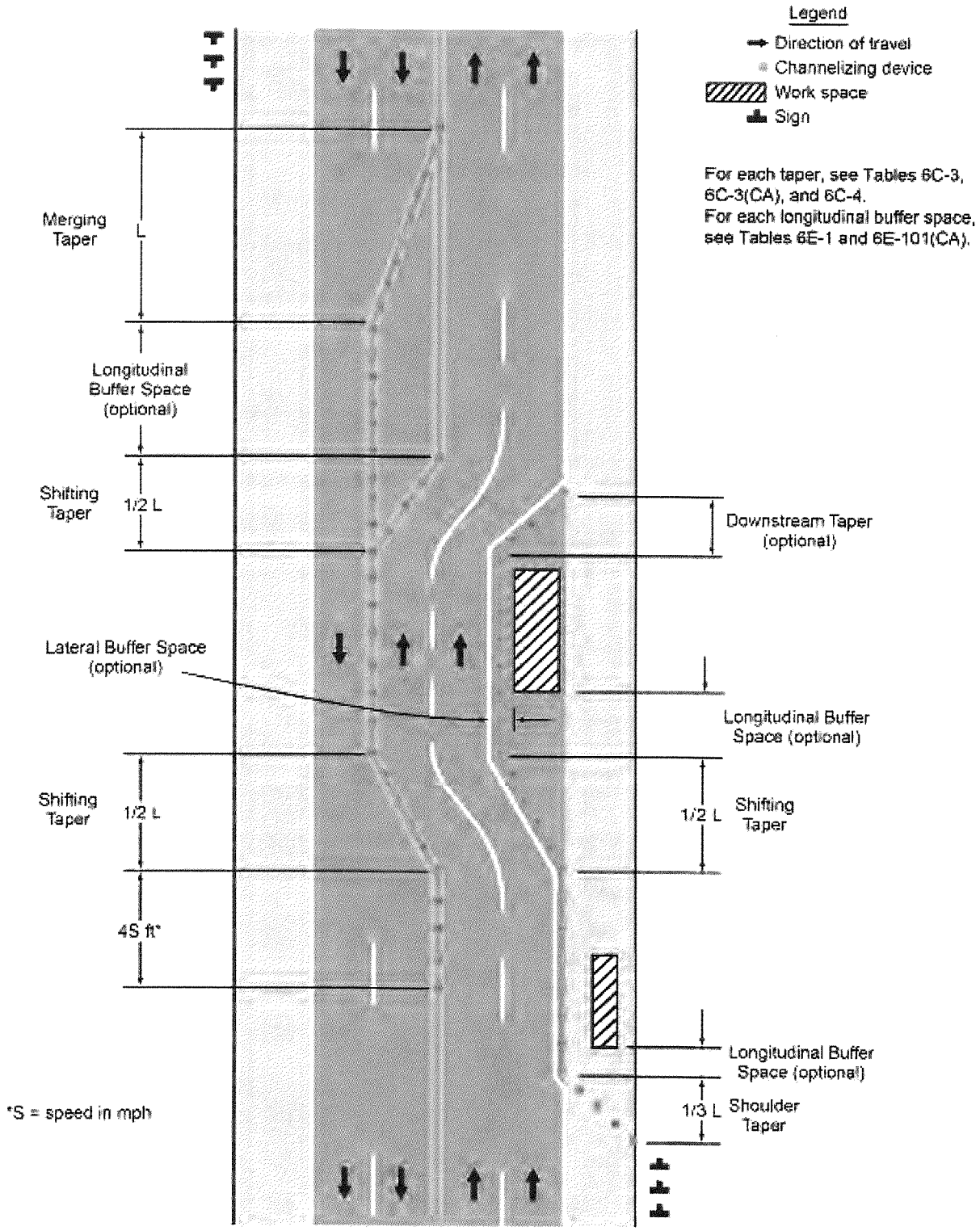
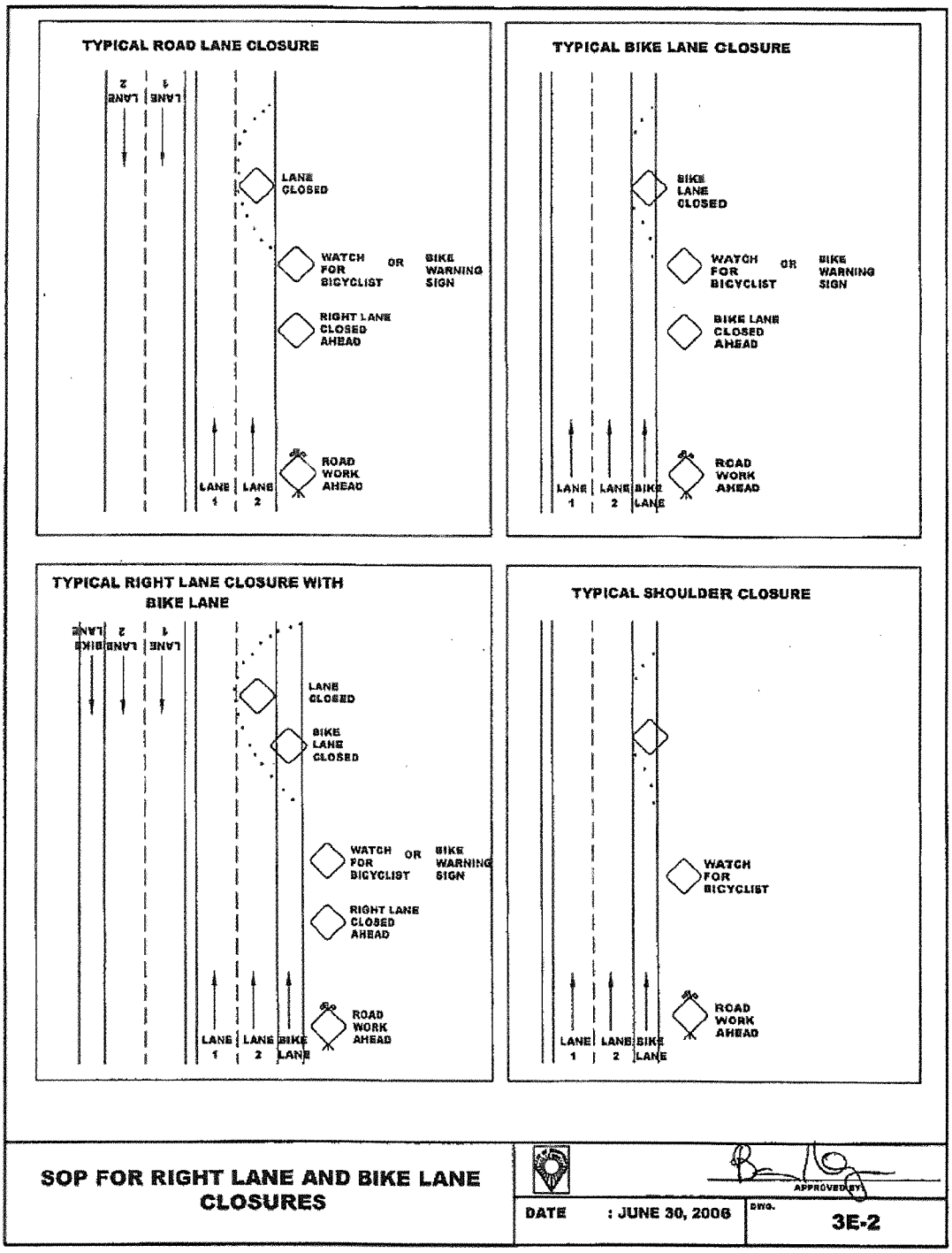


Figure 6C-2. Types of Tapers and Buffer Spaces




TYPICAL ROAD LANE CLOSURE
LANE 2
LANE 1
LANE CLOSED
WATCH FOR BICYCLIST
OR
BIKE WARNING SIGN
RIGHT LANE CLOSED AHEAD
ROAD WORK AHEAD
LANE 1
LANE 2
TYPICAL BIKE LANE CLOSURE
BIKE LANE CLOSED
WATCH FOR BICYCLIST
OR
BIKE WARNING SIGN
BIKE LANE CLOSED AHEAD
ROAD WORK AHEAD
LANE 1
LANE 2
BIKE LANE
TYPICAL RIGHT LANE CLOSURE WITH BIKE LANE
LANE 2
LANE 1
LANE CLOSED
BIKE LANE CLOSED
WATCH FOR BICYCLIST
OR
BIKE WARNING SIGN
RIGHT LANE CLOSED AHEAD
ROAD WORK AHEAD
LANE 1
LANE 2
BIKE LANE
TYPICAL SHOULDER CLOSURE
WATCH FOR BICYCLIST
ROAD WORK AHEAD
LANE 1
LANE 2
BIKE LANE
SOP FOR RIGHT LANE AND BIKE LANE CLOSURES
APPROVED BY:
DATE : JUNE 30, 2006
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2006 STANDARD DETAILS