Background and Purpose

Supporting City goals around equity and climate includes ensuring direct, convenient, and comfortable paths of travel around work zones are maintained for walking and biking. Detours that are difficult or unclear to users result in frustration and people walking in the street or rolling in travel lanes where they are not expected.

Safety for people walking, bicycling, scooting, and those driving is also an important consideration in and around work or construction zones and special events. While there aren’t local statistics on work zone crashes, the FHWA has information by state. In California, in 2021, there were 113 work zone fatal crashes, 120 work zone fatalities, 2 “at work” pedestrian fatalities, and 31 other pedestrian involved fatalities at work zones1. People walking or biking are more vulnerable on roadways, particularly with respect to work zones and interactions between work-site vehicles and other motorists.

It is necessary to consider the work zone needs of these vulnerable roadway users as early as possible in the project development and design process.

As part of the City of Sacramento Public Works Department’s commitment to safety for all people walking, scooting, and bicycling must be considered during the planning and development of a Temporary Traffic Control Plan (TCP) and maintained throughout the duration of a work or construction zone or special event areas.

1 https://workzonesafety.org/work-zone-data/work-zone-fatal-crashes-and-fatalities/
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Definitions

- Bikeway - Bike lanes, buffered bike lanes, separated bikeways and/or shared use paths.
- Construction Sponsor – The entity responsible for implementation of temporary traffic control measures through a work zone or a special event. An entity can be private, public, City crews, or utility companies.
- Diversion – Diversions can apply to both people walking and bicycling (pedestrian and bicyclists). Pedestrian diversion means American Disability Act (ADA) compliant passage for pedestrians on a pedestrian pathway adjacent to the work area. This may include open walkways, covered walkways, and scaffolding. A bicyclist’s diversion means a pathway in a right-of-way adjacent to the work area.
- Detour – Detours can apply to both pedestrians and bicyclists. Detour means a sidewalk or bikeway closure adjacent to the work area with clear signage, warnings, and ADA-compliant barricades directing pedestrians or bicyclists to alternative routes.
- Must – A mandatory condition or action.
- Should – The standard under normal conditions.
- May – A permissive condition where no requirement for design, application or standards is intended.
- TCP – A temporary traffic control plan prepared by a professional which will modify the street and sidewalk use during construction. The TCP will show installation of temporary signage compliant with California MUTCD and any modifications to existing signage or street striping and will be reviewed and approved by the City.

Where possible this document refers to the actions of walking, scooting, bicycling, and driving rather than categorizing people into siloed terms based on mode of travel such as pedestrians and bicyclists. This was done because most people walk, bicycle and drive and by assigning labels to people by their mode of travel, it creates divisiveness.
Scope

These criteria and guidance provide people walking, scooting, and bicycling through work or construction zones and special events impacting mobility in Sacramento. These criteria and guidance will refer to work zones or construction zones interchangeably and these criteria and guidance are also intended for special events.

This criteria and guidance supplements the guidance in Chapter 6 of the California Manual on Traffic Control Devices (CA MUTCD), which specifies that people walking and bicycling must be safely accommodated through construction zones. This supplemental guidance specifies when and where pedestrian and bicycle facilities may be relocated, detoured, modified, and closed in Sacramento. This guidance applies to all sidewalks and all streets on which people bicycling are legally allowed to travel, including designated bikeways. The guidance applies to the construction sponsor performing construction work or hosting events in the public right-of-way, including utility companies, private land use development, and the City of Sacramento or City of Sacramento Crews.

Criteria and Guidance

Any construction or event sponsor submitting for an excavation/encroachment/street use permit to the City of Sacramento that will result in the blockage of a sidewalk, bikeway, vehicle travel lane, bus stop, or other public bicycle or pedestrian path must submit a Temporary Traffic Control Plan (TCP) to the City of Sacramento Public Works Department for review and approval prior to any work or construction beginning. The TCP must be included as part of the encroachment permit application and provide proposed pedestrian and/or bicyclist accommodations.

These criteria and guidance do not change the process for the City of Sacramento or City of Sacramento Crews working in the public right-of-way, rather, these criteria and guidance outlines the City of Sacramento requirement to accommodate people walking or biking through or around work or construction zones and provides additional guidance on the development of the construction sponsor’s TCP. All traffic control devices and methods included in the TCP must adhere to the standards set forth in the most recent edition of the CA MUTCD.

Work Durations

Work duration is the length of time construction, or an event (s) occupies one or multiple locations. It is a major factor in determining the number and types of temporary traffic control devices to be used in a work activity area.

Based on the CA MUTCD (Section 6G.02, Work Duration), there are five (5) categories of work duration and their time at a location. These criteria and guidance refer to those five categories of work, with a modification to long-term stationary work, which must be five (5) days or more.

A. Long-term stationary is work that occupies a location for 5 days or more.
B. Intermediate-term stationary is work that occupies a location more than one daylight period up to 5 days, or nighttime work lasting more than 1 hour.
C. Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.
D. Short duration is work that occupies a location up to 1 hour.
E. Mobile is work that moves intermittently or continuously.

Coordination

It is incumbent on City of Sacramento staff to coordinate with applicants for different construction projects along the same corridor or in close proximity to each other. City of Sacramento staff will work with applicants to coordinate and provide consistent detours, diversions, and
accommodations. For the most effective TCP, Construction Sponsors should provide updated construction schedules to City of Sacramento inspectors as the schedule changes. An approved TCP can be updated as needed during the duration of construction especially when new construction projects or events in the surrounding area affect or impact the temporary traffic control measures in place.

**Accommodation for those Walking**

According to the CA MUTCD (Section 6D.01, Pedestrian Considerations):

> It must be recognized that pedestrians are reluctant to retrace their steps to a prior intersection for a crossing or to add distance or out-of-the-way travel to a destination.

Closure of a sidewalk must be deemed the last resort in the absence of other practicable routing or accommodation options needed to assure pedestrian safety.

The two major types of temporary traffic control for pedestrians are adjacent sidewalk diversions and sidewalk detours. To determine which temporary facility is appropriate, refer to Table 1: Reasonable Accommodation for Pedestrians on page 6.

Requirements for pedestrian accommodations:

- All temporary pedestrian facilities and alternate paths must be compliant with the Americans with Disabilities Act (ADA) and all pedestrian-related signage must be as permanent as the other TCP signage.
- Any diversions, detours, or full closures must be approved as part of a TCP that must be submitted with the encroachment permit application.
- Signage, channelizing devices, barriers, and other equipment must not be placed in the pedestrian path of travel or in locations that would block or interfere pedestrian passage.
- Pedestrian diversions, detours, or closures must be clearly marked and include advance notification.
- Both sidewalks on a block should not be closed simultaneously.
- A pedestrian route designated as an established detour should not be closed.
- Hollow sidewalks – Covered walkways must not be placed on hollow sidewalks. Coordinate with the City of Sacramento to determine the best treatment for construction on or near hollow sidewalks.
- Utility structures must be considered in TCP design. Potential issues may include drop inlet covers that are not ADA compliant, could become a tripping hazard, or may have localized flooding during rain events that impede the path of travel.

**Sidewalk Diversion**

Sidewalk diversions must always be clearly identified, ADA compliant, shielded from motor vehicle traffic, and free of hazards such as holes, debris, gravel, mud, etc.

A temporary, protected walking route may be provided adjacent to the sidewalk in a parking lane (if present), travel lane, or bikeway. Protection means a barrier used to separate a sidewalk diversion from moving traffic. Channelizing devices used to separate a sidewalk diversion from moving traffic must fully protect people walking from motor vehicle impacts. Please refer to the CA MUTCD section 6D.01 Pedestrian Considerations for guidance on barrier selection. Barricades used for temporary walking routes must also be detectable by people with visual disabilities. Bases of temporary fences must not extend over any adjacent traffic, bikeway or walking path of travel.

People walking should be separated from people bicycling. If the sidewalk diversion is placed in a bikeway, biking accommodation must be maintained (see Accommodation for those Bicycling following this section). If a pedestrian diversion takes up a separated bikeway, the parking area that
provided a buffer from moving traffic to the separated bikeway may become a temporary bikeway.

All sidewalk diversion routes must keep and maintain minimum 6’ clear width for walking access, short pinch points of 48” width are permitted.

Sidewalk diversions in a parking lane may be dependent upon the slope of the parking lane and depending on the slope, a temporary platform may need to be constructed to be ADA compliant.

**Covered Walkways**

Covered walkways must be provided when overhead danger is present, for long-term stationary work, and in locations with high pedestrian volumes.

Covered walkways must conform with Figure 11: Walkway: Covered Pedestrian Walkway, the *Caltrans Temporary Pedestrian Facilities Handbook*, ADA accessibility standards, OSHA structural specifications (to OSHA standards, 1910-28 “Safety requirements for scaffolding”).

Design of the walkway should ensure limited obstruction between the top of railing and walkway cover to allow passive surveillance into and from the walkway and should have a maximum exit access travel distance of 100 feet.

Construction sponsors are responsible for maintaining adequate lighting within the covered walkway, removal of graffiti, and cleaning of debris.

**Sidewalk Detours**

Sidewalk detours should be a last resort. If approved in the TCP, sidewalk detours should not last more than 5 days.

For areas where sidewalk detours longer than 5 days are unavoidable due to safety and site specific conditions, the Construction Sponsor will need to provide justification for the sidewalk detour duration to the City as part of the TCP design.

All detours must comply with accessibility conditions.

Signage must be provided at closest intersections to alert people walking of the sidewalk closure and direct them to the detour. Advance notification to people walking of any sidewalk detours must be provided at the nearest crosswalk that meets minimum safety requirements on either side of the detour. The TCP should clearly provide the route of the detour.

A temporary walking route should be given priority over other facilities. A temporary walking route should be given priority over vehicular traffic except when resulting in excessive delay to transit or a walking route that is less safe.

**See Example Plans on page 22 for reference.**
<table>
<thead>
<tr>
<th>Duration of Construction</th>
<th>Construction or Event Project Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long-term stationary is work that occupies a location 5 or more days.</strong></td>
<td>Sidewalk Diversion$^5$</td>
</tr>
<tr>
<td><strong>Intermediate-term stationary is work that occupies a location more than one daylight period up to 5 days, or nighttime work lasting more than 1 hour.</strong></td>
<td>Sidewalk Diversion preferred Temporary sidewalk detour allowable</td>
</tr>
<tr>
<td><strong>Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.</strong></td>
<td>Sidewalk Diversion preferred Temporary sidewalk detour Flagger$^6$ required throughout duration of closure</td>
</tr>
<tr>
<td><strong>Short duration is work that occupies a location up to 1 hour.</strong></td>
<td>Sidewalk Diversion preferred Temporary sidewalk detour Flagger required throughout duration of closure</td>
</tr>
<tr>
<td><strong>Mobile is work that moves intermittently or continuously.</strong></td>
<td>See Intermittent Closure section for additional guidance Flagger required throughout duration of closure</td>
</tr>
</tbody>
</table>

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$^2$ Central City is defined as the City of Sacramento Special Planning District: https://www.qcode.us/codes/sacramento/view.php?cite=section_17.444.150&confidence=6


$^4$ Corridor with Commercial is defined as commercial in map LUP-2 in the Draft 2040 General Plan Update: https://www.cityofsacramento.org/Community-Development/Planning/Major-Projects/General-Plan

$^5$ Sidewalk diversion” and “sidewalk detour” are defined in Accommodation for those Walking.

$^6$ According to the CA MUTCD, a flagger is a person who actively controls the flow of vehicular traffic into and/or through a temporary traffic control zone using hand-signaling devices or an Automated Flagger Assistance Device (AFAD).

** Residential Mixed Use as shown on the General Plan LUP-5 map.
**Accommodation for those Bicycling**
Closure of a bikeway must be deemed the last resort in the absence of other practicable routing or accommodation options needed to assure the safety of those bicycling.

Proposals to close a bike lane, separated bikeway, or shared use path must demonstrate that impacts cannot be reasonably avoided through alternative construction methods, that the facility cannot be reasonably relocated through reassignment of vehicle lanes or other existing facilities, that the duration and extent of impacts has been minimized, and that an adequate detour has been provided.

When a work zone impacts the safety, accessibility, or movement of people bicycling, the Temporary TCP must provide traffic control measures to accommodate bicycling safely through or around the work zone. There should be efforts to provide a convenient and continuous bikeway with an equal or better degree of bicycle accommodation than the existing facility being disturbed. Accommodations to those bicycling will depend on the existing bikeway facility that could be impacted by construction, vehicle speeds and volumes, and the context of the roadway. Below are different temporary traffic control treatments for accommodating those bicycling.

**Bikeway diversion**
If it is not possible to keep the existing bikeway open, shift the bikeway by closing a parking lane or shift the bikeway to a location on the same roadway.

**Sharing the general purpose travel lane or Bicyclist May Use Full Lane**
Merging a bikeway into an adjacent travel lane to create a shared lane with people bicycling and people driving is not a preferred alternative and should only be proposed when there is not sufficient space to divert or shift the existing bikeway to a different dedicated path.

When utilizing this treatment, considerations must include vehicle speeds and volumes, grade, pavement condition, length of work area, lighting, and sight distance to determine if lane widths are sufficient to accommodate both motorists and bicyclists. Refer to Figure 1: Bikeway Facility Selection Guidelines from the City of Sacramento Bicycle Master Plan to understand if vehicle speeds and volumes support this treatment.

![Bikeway Facility Selection Guidelines](image)

*Figure 1: Bikeway Facility Selection Guidelines from the [City of Sacramento Bicycle Master Plan](#)*
**Bikeway detours**

Bikeway detours should be used only when an existing bicycle facility is impacted and:

- The roadway width is not available to create a diverted bikeway or
- The roadway width is not available to create a shared bikeway facility through a work zone or where it has been determined that creating a sharrow/bicyclist may use full lane would create safety concerns based on vehicle speeds or volumes.

Please refer to Figure 1: Bikeway Facility Selection Guidelines from the City of Sacramento Bicycle Master Plan from the City of Sacramento to understand the impact of vehicles speeds or volumes on bicycling level of comfort.

Bikeway detours should parallel the existing bikeway facility impacted by the work area and minimize detour distance to the greatest extent possible. The bikeway detour must be maintained and regularly monitored (clear of debris and signs maintained) during construction. Where bicycle detours are expected to create significant change in bicycle volumes on a detour, appropriate directional and warning signage for bicyclists and motor vehicles must be considered.

Advance signage that the bikeway is closed must be placed where a bicyclist can modify their route when necessary. This signage must be posted at least five (5) days in advance of the closure.

Existing bike lanes, buffered bike lanes, and separated bikeways must maintain a clear width of 5’ minimum, 6’ preferred, for one way travel unless the bikeway closure is specifically approved as part of a Temporary TCP and a reasonable accommodation for an alternate bicycling path of travel is implemented, as defined and prioritized below:

1. Closing a parking lane and keeping the adjacent bikeway open;
2. Diverting or shifting the bikeway to a location on the same roadway to bypass the work zone or obstruction, and if necessary, shifting and narrowing the adjacent motor vehicle traffic lanes; provided the adjacent motor vehicle travel lanes must be maintained at city standard widths or narrower, with approval from the City Traffic Engineer;
3. Closing the adjacent general purpose travel lane to provide space for a bikeway, provided that a minimum of one (1) motor vehicle travel lane must remain in the same direction of travel;
4. Merging the bikeway and the adjacent motor vehicle travel lane into a shared travel lane adjacent to the work zone or other obstruction, installing sharrow lane markings in the shared travel lane, and installing signage directing bicyclists to merge into the shared travel lane along with a R4-11 "Bicyclist May Use Full Lane" sign; provided the shared travel lane must be maintained at no less than fourteen feet (14 ft.) wide and the posted speed limit is 30 mph or less; and
5. If the above accommodation options cannot be met, detouring those bicycling onto an adjacent roadway, in which case the detour route must be adequately signed and replicate, as closely as practicable, the level of comfort found on the bikeway being blocked.

Any TCP that identifies bikeway closures, detours, or other bike facility changes is subject to approval and must address the following guidance:

1. Active bikeways must maintain a clear width of 5’ minimum, 6’ preferred. Signage, channelizing devices, barriers, and other equipment must not be placed in active bike lanes, in the bicycle path of travel or in locations that would obstruct or interfere with their passage.
2. Bikeways must not be closed for construction or event activities unless the closure is documented in a TCP and approved by the City.
3. Where bike lanes must be closed, advance notification and tapers must be provided with sufficient length to allow bicyclists to merge into the adjoining travel lane in advance of the bike lane closure.

4. TCPs that include bike lane closures must post construction zone speed limits of 25mph or less.

5. All bicycle-related signage must be as permanent as the other TCP signage in the construction zone.

6. If the TCP includes roadway striping, temporary bike lane striping or sharrows must be installed along with R4-11”Bicyclist May Use Full Lane.”

7. For multiuse or shared path closures, a low stress detour should be provided that is consistent with the Bikeway Facility Selection Guidelines as identified in the adopted Bicycle Master Plan. Multiuse or shared paths provide a higher level of comfort and are often more attractive for use by people of all ages and bicycling abilities because there is less interaction with automobiles, which can increase the level of stress for those bicycling. A low stress detour means that the detour route is meant to provide the same or similar level of comfort as a multiuse or shared path. The detour route should be convenient and as continuous as possible with an equal or better degree of bicycle accommodation as the trail closure. Refer to Figure 1 to for assistance understanding bikeway facility selection.

8. The City’s Transportation Planning Manager, or their designee, must review TCPs that include bikeway detours or bike lane closures of longer than one week.

See Example Plans on page 22 for reference.
Table 2: Reasonable Accommodation for Bicyclists

<table>
<thead>
<tr>
<th>Duration of Construction</th>
<th>Posted Travel Speed and Average Daily Traffic Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤25 mph or ≤5,000 avg. daily traffic with existing bike lane, buffered bike lane, or separated bikeway</td>
</tr>
<tr>
<td>Long-term stationary is work that occupies a location 5 or more days.</td>
<td>Bikeway Diversion providing at minimum a bike lane</td>
</tr>
<tr>
<td>Intermediate-term stationary is work that occupies a location more than one daylight period up to 5 days, or nighttime work lasting more than 1 hour.</td>
<td>Bikeway Diversion with bike route/sharrow or bike lane</td>
</tr>
<tr>
<td>Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.</td>
<td>Bikeway Diversion with bike route</td>
</tr>
<tr>
<td>Short duration is work that occupies a location up to 1 hour.</td>
<td>Bicyclist may use full lane sign OR Temporary Detour</td>
</tr>
<tr>
<td>Duration of Construction</td>
<td>Posted Travel Speed and Average Daily Traffic Volumes</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>≤25 mph or ≤5,000 avg. daily traffic with existing bike lane, buffered bike lane, or separated bikeway</td>
</tr>
<tr>
<td>Mobile is work that moves intermittently or continuously.</td>
<td>Bicyclist may use full lane sign OR Temporary detour</td>
</tr>
</tbody>
</table>
Developing a Temporary Traffic Control (TTC) Plan

Reflecting the above guidance and according to the CA MUTCD (Section 6C.01, Temporary Traffic Control Plans):

Should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection, and placement of TTC devices for a TTC plan should be based on engineering judgment (CA MUTCD, Section 6C.01, Temporary Traffic Control Plans, page 1021).

Before work begins, traffic control plans, when developed for handling traffic through a construction or maintenance project, must be submitted to the City and approved by the City to ensure the appropriate plans are used. Proposed design and placement of the temporary traffic control signs, devices, and roadway markings must follow the most recent edition of the CA MUTCD.

The closure of a sidewalk or a bikeway must be a last resort and must be approved by the City. Note: the safe and reasonable flow of walking and bicycling traffic is to be maintained in preference to construction activities and the flow of construction vehicles.

Noticing Requirements
After the applicant has an approved TCP, the applicant must provide the City of Sacramento’s Active Transportation Planning team information about the project, the diversion or detouring plan, so that City staff can alert City listservs and community partners of diversions, detours, or closures. This information must be provided a minimum of seven (7) days prior to the planned activities.

Intermittent Closure
If a sidewalk or bikeway must be closed intermittently due to conflicts with construction activities or construction vehicles, the temporary traffic control plan may require:

1. Flaggers or spotters to be posted at each end of the closed pedestrian or bikeway route for the entire duration of time the intermittent closure is in place;
2. The times of day when intermittent closure may occur;
3. The safe and reasonable flow of pedestrian and bicycle traffic to be maintained in preference to construction activities and the flow of construction vehicles; and
4. Acknowledgement that advance notice to the Department of Public Works, Police Department, and emergency services such as the Fire Department is required for each full closure, subject to fine and/or revocation of excavation/encroachment permit.

If an existing walking or bicycling route is impacted by a short-term or a short-duration work zone that is attended with project personnel, establishing an alternate pedestrian and/or bikeway route may not be necessary if the work can be stopped and pedestrians and/or bicyclists can navigate the work zone safely. This shall be determined by the City Traffic Engineer or their designee. When a temporary pedestrian/bikeway route extends through an active work zone, it must be the contractor’s responsibility to always maintain safe pedestrian/bicyclist passage. Pedestrians/bicyclists may be delayed for a short period of time for project personnel to move equipment and materials to facilitate passage. Project personnel may also assist pedestrians with disabilities. ADA compliant devices placed on the sidewalk and additional warning signage may be used to alert pedestrians of the beginning of a work zone.

Display of Permitted Temporary Traffic Control Plan
After an excavation/encroachment permit and TCP is approved and before commencing any activities that result in the blockage of a pedestrian or bicycle facility, Construction Sponsors must
display a copy of the excavation/encroachment permit at a prominent, publicly accessible location near the construction site entrance. If that is not feasible, the permit must be available at the site for inspection by the Public Works Director during all work (§ 12.20.020 D). Additionally, the following information must be displayed or available onsite should someone request it:

1. The range of dates during which the obstruction permit is valid.
2. The name and contact information of the party requesting the obstruction permit.
3. A clear description of the approved temporary traffic control plan.
4. A City of Sacramento Public Works Department phone number and email address to direct questions, comments, and concerns regarding the blockage.

Planning Appropriately for Temporary Traffic Control Plan Review

Every reasonable effort must be made to avoid and minimize construction impacts on pedestrian and bicycle facilities in Sacramento. As such, Construction Sponsors for projects may elect to propose and receive feedback on preliminary plans for temporary traffic control. Traffic Control Plans are required at different points in the process depending on the type of application.

- The TCP must be submitted with applications for minor encroachment street use and maintenance.
- Minor encroachment construction and major encroachment permits typically undergo an engineering review and the TCP is generally required after the engineering review is completed and approved.
- If on-street parking is impacted, applicants must also submit an on-street parking reservation application for parking closure.

Exemptions

An exemption to these criteria and guidance may be granted only if:

a) A request for an exemption is submitted in writing, with supporting documentation when construction sponsors submit initial TCPs for City review and approval; and

b) The exemption is approved in writing by the Public Works Director or their delegate.

Administrative Penalties

Implementation of the requirements for accommodations within these criteria and guidance must be paid for by the construction sponsor and it must be the responsibility of the construction sponsor to comply with the requirements of these criteria and guidance. Should the construction sponsor fail to comply, the Public Works Director or their delegate has the authority to stop all work until compliance has been achieved (§ 12.20.020). Such work will not be resumed until the necessary modifications have been implemented (§ 12.20.020).

The Public Works Director or their delegate may issue an order imposing an administrative penalty to any person violating any provision of Chapter 12.20 Closure of Primary Streets for Construction.
Maps

Figure 2: Central City
Figure 3: Vision Zero High Injury Network
For Major Transit Corridors (RT 15-minute service), refer to RT’s service schedule to determine routes with 15-minute service. Below are maps with current 15-minute service, as of November 2023 and as provided by SacRT.

**Figure 4: Sacramento Regional Transit Bus Route #30**
Route 38

Figure 5: Sacramento Regional Transit Bus Route #38
Figure 6: Sacramento Regional Transit Bus Route #51
Figure 7: Sacramento Regional Transit Bus Route #67
Figure 8: Sacramento Regional Transit Bus Route #68
Figure 9: Corridors with Commercial from Map LUP-2 from Draft 2040 General Plan
Figure 6H-28. Sidewalk Detour or Diversion (TA-28)

**Figure 10: Sidewalk Detour or Diversion (Figure 6H-28 from California Manual on Uniform Traffic Control Devices)**
Figure 11: Walkway: Covered Pedestrian Walkway
Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)

Typical Application 29

Figure 12: Crosswalk Closures and Pedestrian Detours (Figure 6H-29 from California Manual on Uniform Traffic Control Devices)
### Table 3. Recommended Advance Warning Sign Spacing

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Distance Between Signs**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Urban – 25 MPH or Less***</td>
<td>100 feet</td>
</tr>
<tr>
<td>Urban – More than 25 MPH to 40 MPH***</td>
<td>250 feet</td>
</tr>
<tr>
<td>Urban – More than 40 MPH***</td>
<td>300 feet</td>
</tr>
</tbody>
</table>

** The column headings A, B, and C are the dimensions shown in Fig. 9-2 through 9-5. The A dimension is the distance from the intersection or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. The “first sign” is the sign in the three-sign series that is closest to the TTC zone. The “third sign” is the sign that is furthest upstream from the TTC zone.

*** Provided for reference only; may be superseded by MUTCD, which governs.

### Table 4. Taper Length Criteria for Temporary Traffic Control Zones (for 12 feet offset width)

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Minimum Taper Length* for Width of Offset 12 feet (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Merging (feet)</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
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<tr>
<td>30</td>
<td>125</td>
</tr>
<tr>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>50</td>
<td>245</td>
</tr>
<tr>
<td>60</td>
<td>330</td>
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<tr>
<td>70</td>
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</tr>
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<td>80</td>
<td>600</td>
</tr>
<tr>
<td>90</td>
<td>730</td>
</tr>
<tr>
<td>100</td>
<td>780</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Minimum Taper Length* for Width of Offset 12 feet (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Merging (feet)</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>30</td>
<td>125</td>
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<td>730</td>
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<td>780</td>
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** Post speed limit, off-peak 85th—percentile speed prior to work starting, or the anticipated operating speed in mph.

** Post speed limit, off-peak 85th—percentile speed prior to work starting, or the anticipated operating speed in mph.

** For other offsets use the following merging taper length formula for L:

\[
L = \sqrt{\frac{W}{S}}
\]

Where:
- \( W \) = Width of offset in feet
- \( S \) = Speed in mph

Max downstream taper length is 100 feet. See Section 609.18.

---

### Figure 13: Recommended Advance Warning Sign Spacing, Formulas for Taper Length

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CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

RECOMMENDED ADVANCE WARNING SIGN SPACING.
FORMULAS FOR TAPER LENGTH.

APPROVED BY:

DATE: SEPT. 2023
DWG. NO. 2-2
Figure 14: Bicycling: Close Parking Lane, Shift Lanes for Separated Bikeway, One-Way Street
NOTES:

1. TRAVEL LANE SHIFT TAPER AND ADVANCE SIGN PLACEMENT MUST BE PER CA MUTCD GUIDANCE BASED ON POSTED SPEED

2. BIKE LANE MERGE TAPER MUST NOT BE SHARPER THAN 3.1 (L/W)

3. SEE “RECOMMENDED ADVANCE WARNING SIGN SPACING, FORMULAS FOR TAPER LENGTH” DETAIL (DWG NO. 2-2) FOR DIMENSIONS

4. MIRROR LAYOUT FOR A LEFT-SIDE SEPARATED BIKE LANE

Figure 15: Bicycling: Close Parking Lane, Shift Lanes for Bike Lane, One Way Street
Figure 16: Bicycling: Close Parking Lane, Shift Lanes for Bike Lane, Two Way Street

NOTES:
1. TRAVEL LANE SHIFT TAPER AND ADVANCE SIGN PLACEMENT MUST BE PER CMUTCD GUIDANCE BASED ON POSTED SPEED
2. BIKE LANE MERGE TAPER MUST NOT BE SHARPER THAN 3:1 (LR)
3. SEE "RECOMMENDED ADVANCE WARNING SIGN SPACING FORMULAS FOR TAPER LENGTH" DETAIL (DWG. NO. Z - 2) FOR A, B, C, DIMENSIONS

| CITY OF SACRAMENTO | BICYCLING:  
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<th>APPROVED BY</th>
<th>DATE: SEPT 2023</th>
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Figure 17: Bicycling: Close Travel Lane, Shift Bikeway
NOTES:
1. TRAVEL LANE SHIFT TAPER AND ADVANCE SIGN PLACEMENT MUST BE PER CA MUTCD GUIDANCE BASED ON POSTED SPEED
2. BIKE LANE MERGE TAPER MUST NOT BE SHARPER THAN 3:1 (LW)
3. SEE "RECOMMENDED ADVANCE WARNING SIGN SPACING, FORMULAS FOR TAPER LENGTH" DETAL (DWG. NO. 2-2) FOR [BLK. DIMENSIONS]

WORK ZONE
BIKE LANE MERGE TAPER

Figure 18: Bike Lane Closure Merge into General Purpose Travel Lane, Speed Limit 35 mph or More
Figure 19: Bike Lane Closure Merge into General Purpose Travel Lane, Speed Limit 30 mph or Less