

**NOTES**

1. Place a minimum of two bike lane symbol and arrow markings on each block face, centered in bike lane.
2. Place first marking on block 20 ft from curb return or crosswalk, unless otherwise noted.
3. Place last marking on block such that tip of arrow is 20 ft before curb return, unless otherwise noted.
4. Place additional mid-block markings, as noted on plans, such that spacing between symbols is no more than 200 ft, as measured from the base of one symbol to the next.
5. Adjust marking placement to leave at least 10 ft (parallel to the direction of travel) from advanced yield lines, limit lines, and other markings, unless otherwise noted.

NOT TO SCALE



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 BICYCLE & PEDESTRIAN PROGRAM  
 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: blkeped@oaklandca.gov

**BIKE LANE SYMBOL,  
 ARROW, AND STRIPING**

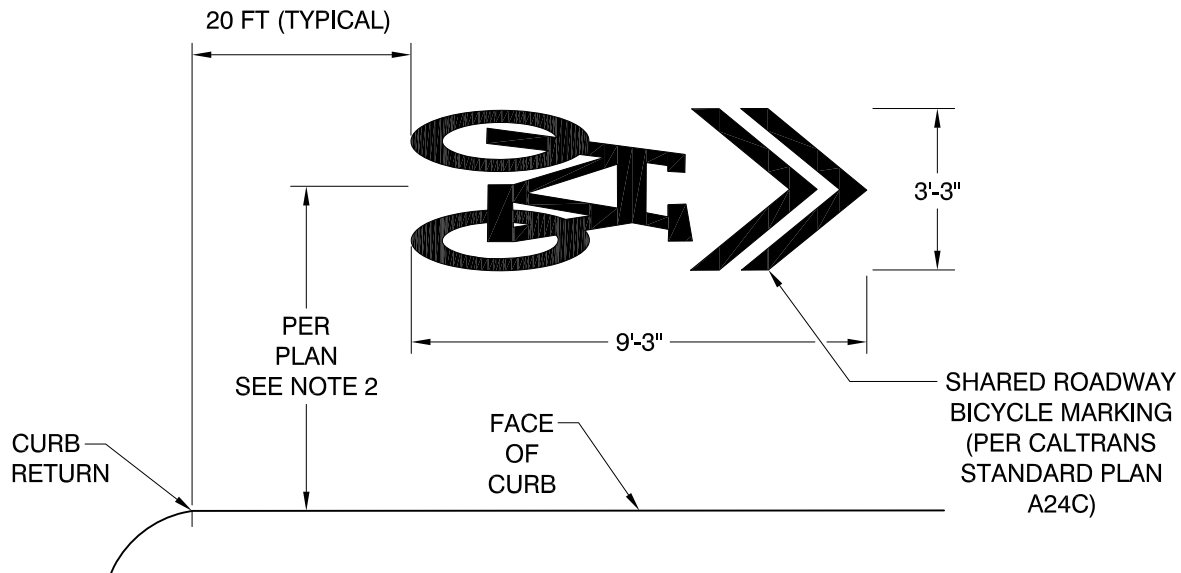
**ROADWAY MARKING  
 DETAILS**

SCALE: NTS

DWG. NO.

RM-1

DATE: MAR 2021



#### NOTES

1. Place a minimum of two sharrow markings on each block face.
2. Sharrow markings should typically be centered in the shared travel lane, but not less than 11' from face of curb if on-street parking is present.
3. Place first marking on block 20 ft from curb return or crosswalk, unless otherwise noted.
4. Place last marking on block such that tip of marking is 20 ft before curb return, unless otherwise noted.
5. Place additional mid-block markings, as noted on plans, such that spacing between markings is no more than 100 ft, as measured from the base of one marking to the next.
2. Adjust marking placement to leave at least 10 ft (parallel to the direction of travel) from word legends, lane assignment arrows, other markings, and speed humps.

NOT TO SCALE



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [bjkeped@oaklandca.gov](mailto:bjkeped@oaklandca.gov)

## SHARED ROADWAY BICYCLE MARKING (SHARROW)

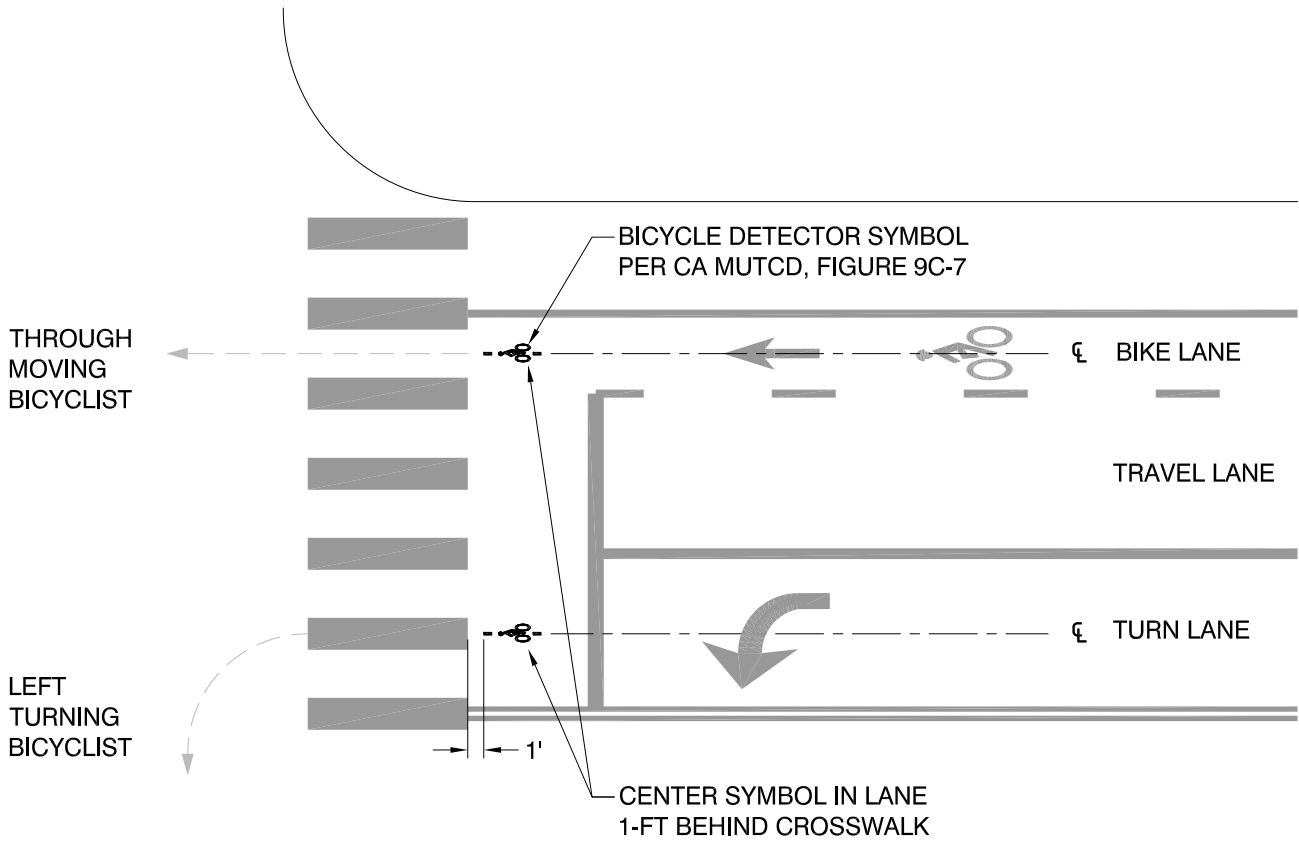
### ROADWAY MARKING DETAILS

SCALE: NTS

DWG. NO.

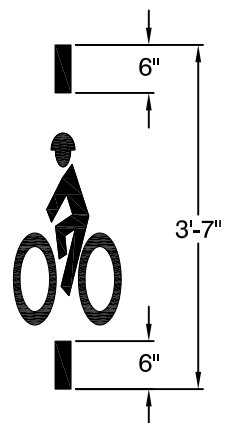
RM-2

DATE: MAR 2021



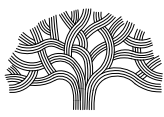
**NOTES**

1. The bicycle detector pavement marking (symbol) shall be used at all actuated traffic signal approaches that are capable of detecting bicycles.
2. A symbol shall be installed in the right-most lane serving the bicyclist's destination, including left turn lanes, through lanes, and bike lanes.
3. Center the symbol in the lane (aligned with lane assignment arrow).
4. The leading edge of the symbol shall be installed one foot behind the crosswalk (or limit line, if there is no crosswalk).
5. On Approaches with marked crosswalks and advanced limit lines, the symbol should be placed between the crosswalk and advanced limit line.



**BICYCLE DETECTOR SYMBOL  
(CA MUTCD, FIGURE 9C-7)**

NOT TO SCALE



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250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
EMAIL: blkeped@oaklandca.gov

**BICYCLE DETECTOR  
PAVEMENT MARKING**

**ROADWAY MARKING  
DETAILS**

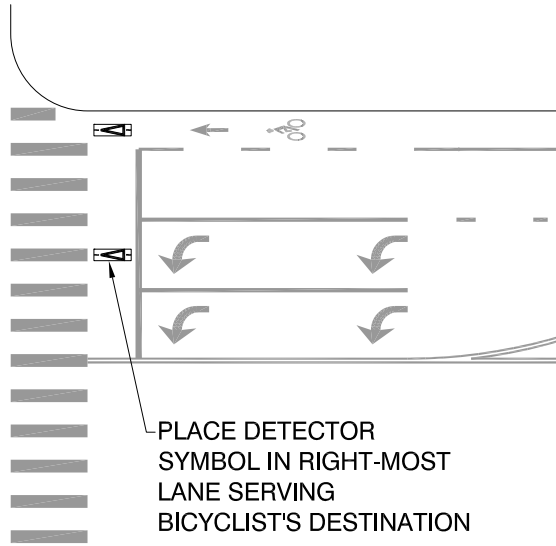
SCALE: NTS

DWG. NO.

**RM-3**

DATE: MAR 2021

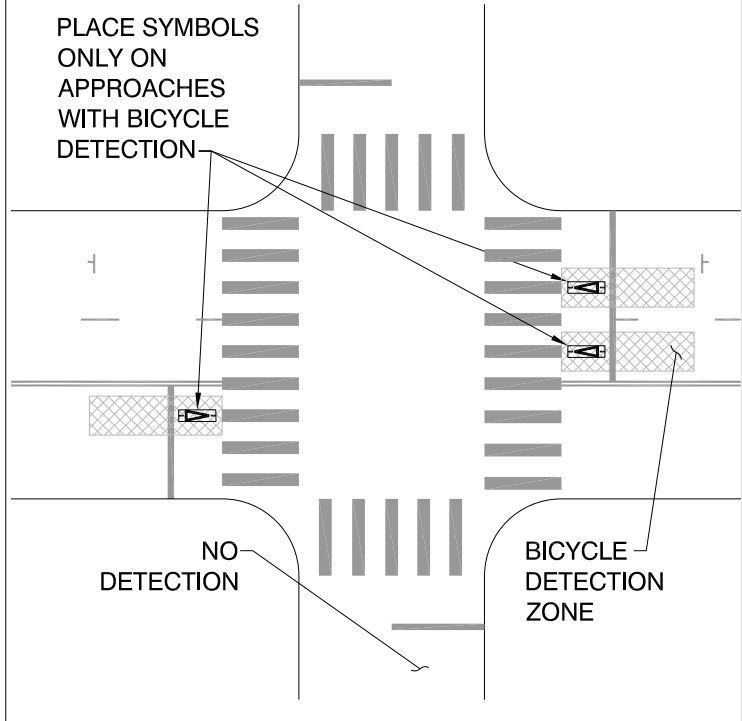
**MULTIPLE TURN LANES**



PLACE DETECTOR SYMBOL IN RIGHT-MOST LANE SERVING BICYCLIST'S DESTINATION

**PARTIALLY ACTUATED SIGNALS**

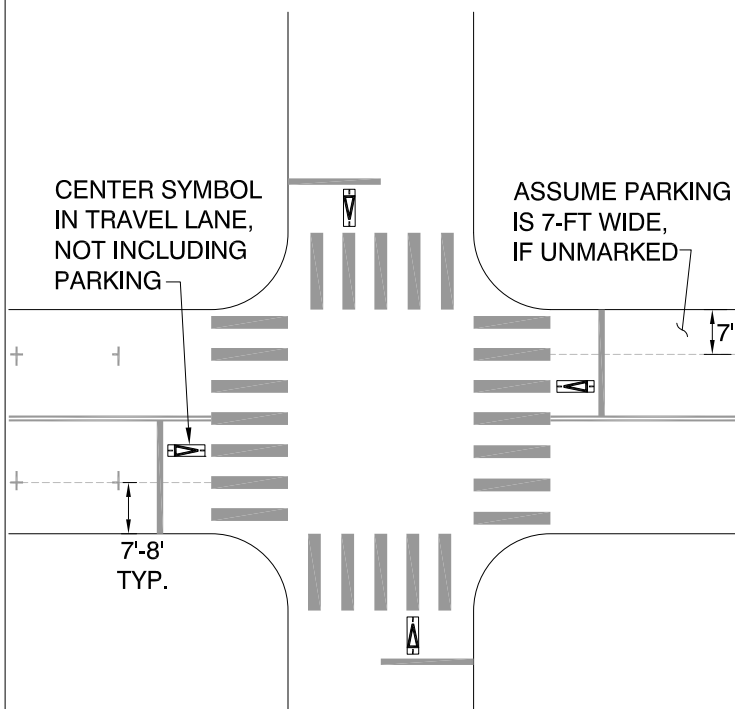
PLACE SYMBOLS ONLY ON APPROACHES WITH BICYCLE DETECTION



NO DETECTION

BICYCLE DETECTION ZONE

**THROUGH LANES WITH ADJACENT PARKING**



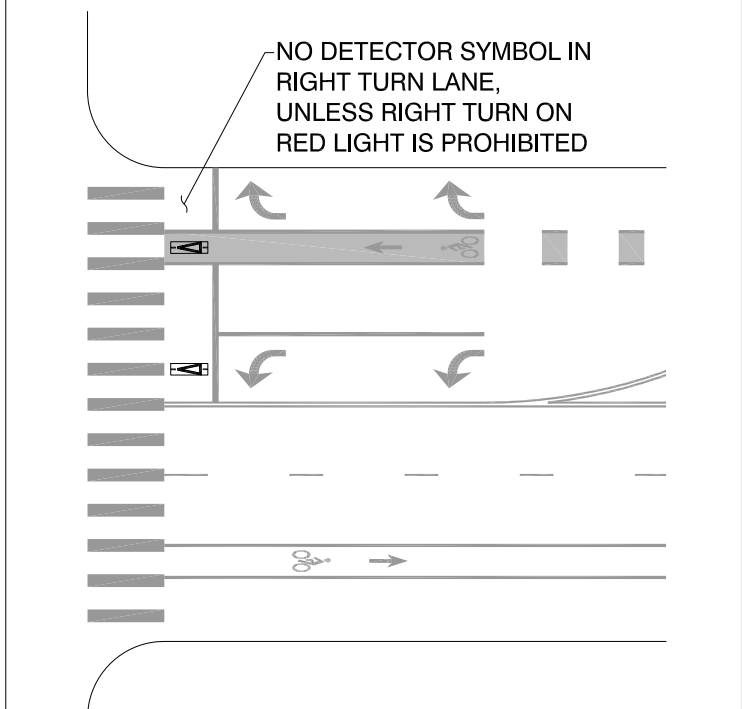
CENTER SYMBOL IN TRAVEL LANE, NOT INCLUDING PARKING

ASSUME PARKING IS 7-FT WIDE, IF UNMARKED

7'-8' TYP.

**RIGHT TURN LANES**

NO DETECTOR SYMBOL IN RIGHT TURN LANE, UNLESS RIGHT TURN ON RED LIGHT IS PROHIBITED



**LEGEND:**  BICYCLE DETECTOR SYMBOL (PER CA MUTCD, FIGURE 9C-7)



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250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
EMAIL: blkeped@oaklandca.gov

**BICYCLE DETECTOR PAVEMENT MARKING**

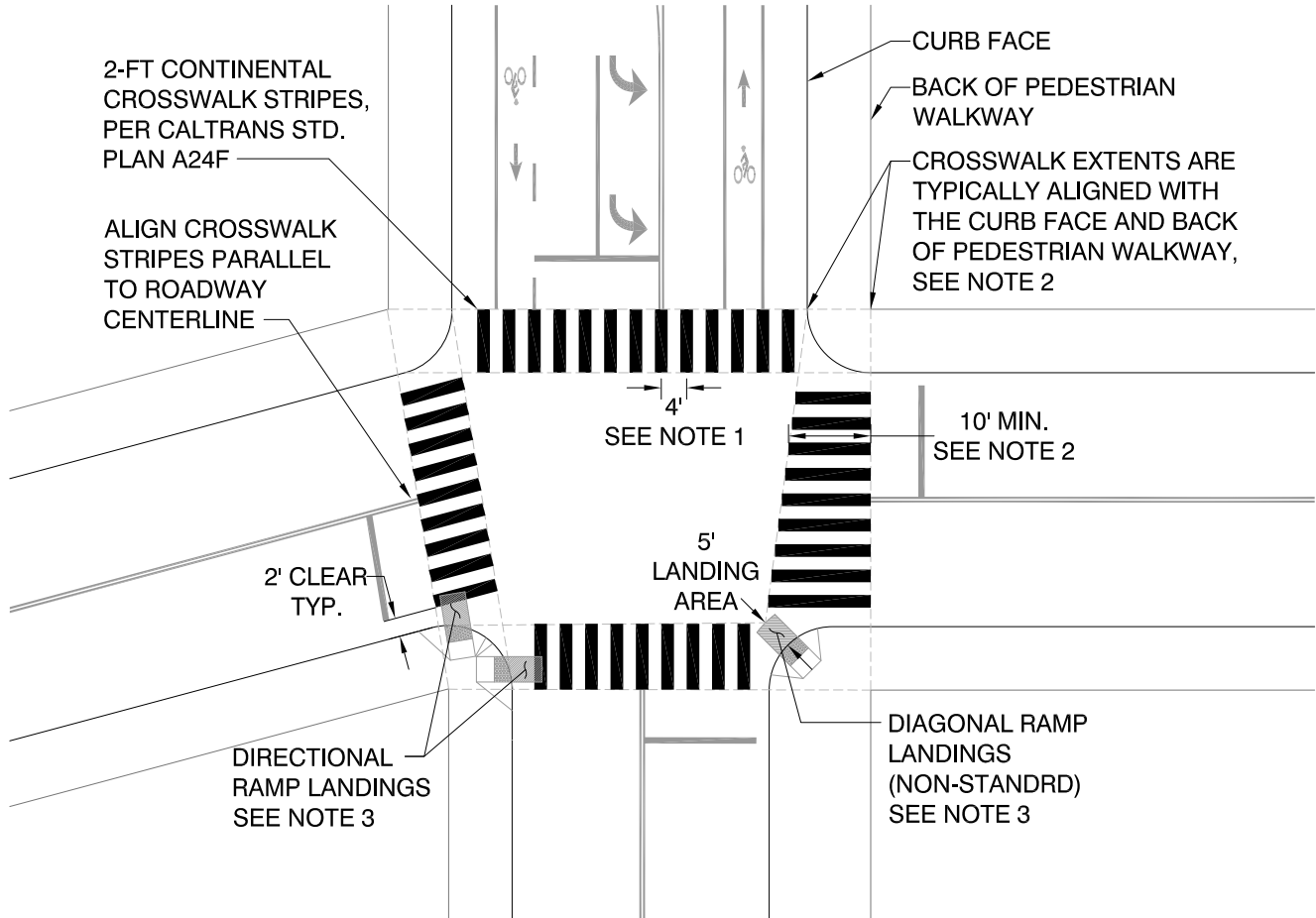
**SUPPLEMENTAL GUIDANCE**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

RM-3A



**NOTES**

1. Continental crosswalk stripe spacing is 4 ft, on-center, unless otherwise specified. Align first crosswalk stripe with centerline of roadway and continue pattern toward edge of roadway, maintaining 2 ft clear from face of curb (if present).
2. Crosswalks should encompass the pedestrian walkways they connect. Unless otherwise specified, align the front of the crosswalk with the curb face at the corresponding curb returns. Align the back of the crosswalk with the back of the pedestrian walkway but no less than 10 ft back from the front of the crosswalk.
3. Crosswalks must encompass the curb ramp landing areas they connect. Directional ramps are the preferred standard, but where a single diagonal ramp serves both crosswalks at a corner, the front of the crosswalks may need to be shifted toward the intersection to encompass the entire 5' landing area at the bottom of the curb ramp.
4. See Detail RM-4A for supplemental crosswalk layout guidance.
5. At controlled approaches, install advanced limit lines with continental crosswalks, per Marking Detail RM-5.

NOT TO SCALE



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: blkeped@oaklandca.gov

**CONTINENTAL  
 CROSSWALK**

**ROADWAY MARKING  
 DETAILS**

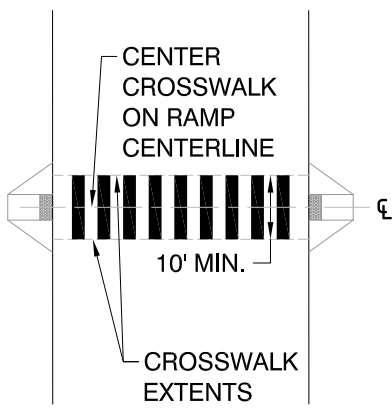
SCALE: NTS

DWG. NO.

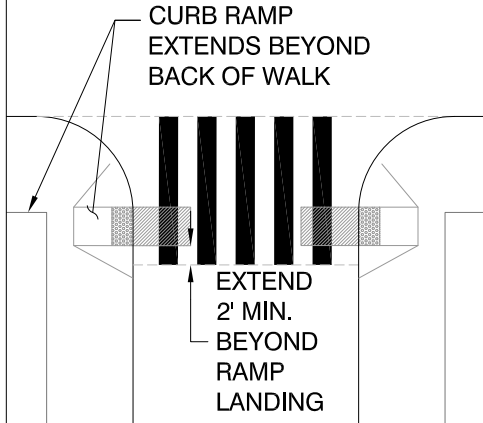
DATE: MAR 2021

**RM-4**

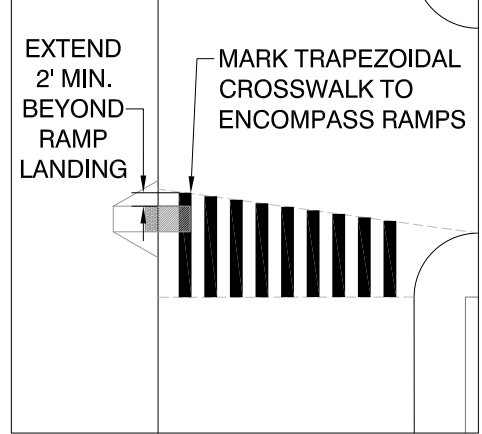
**MID-BLOCK CROSSWALK**



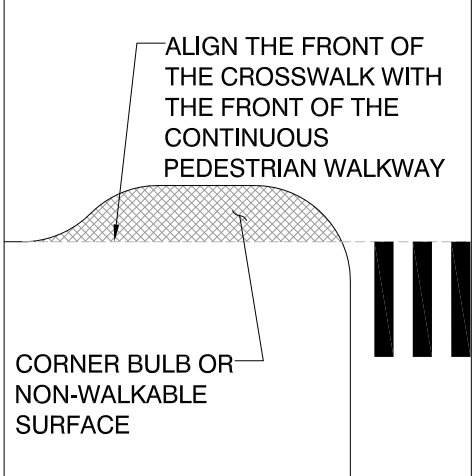
**CURB RAMP OFFSET FROM SIDEWALK**



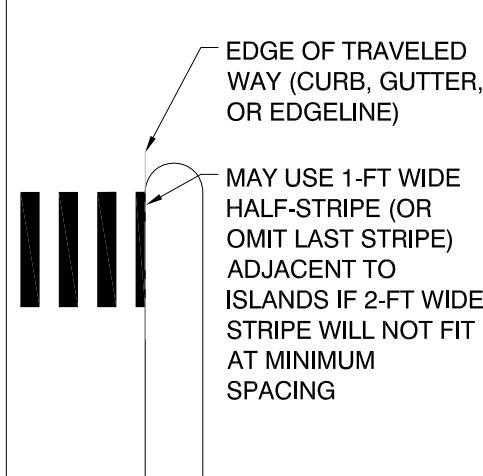
**TEE INTERSECTION WITH OFFSET RAMPS**



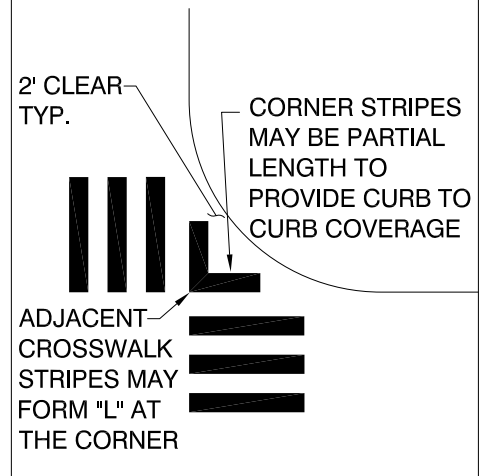
**SET-BACK FRONT OF WALK**



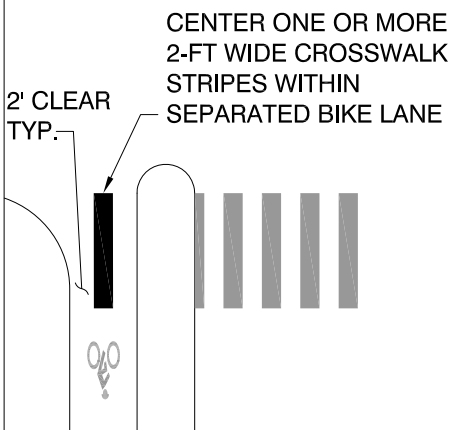
**TRAFFIC ISLAND AND MEDIAN EDGES**



**LARGE RADIUS CORNERS**



**SEPARATED BIKE LANE CROSSINGS**



**LEGEND:**

- CROSSWALK EXTENTS
- CENTERLINE
- CURB RAMP & LANDING AREA
- CROSSWALK STRIPE



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 BICYCLE & PEDESTRIAN PROGRAM  
 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**CONTINENTAL  
 CROSSWALK**

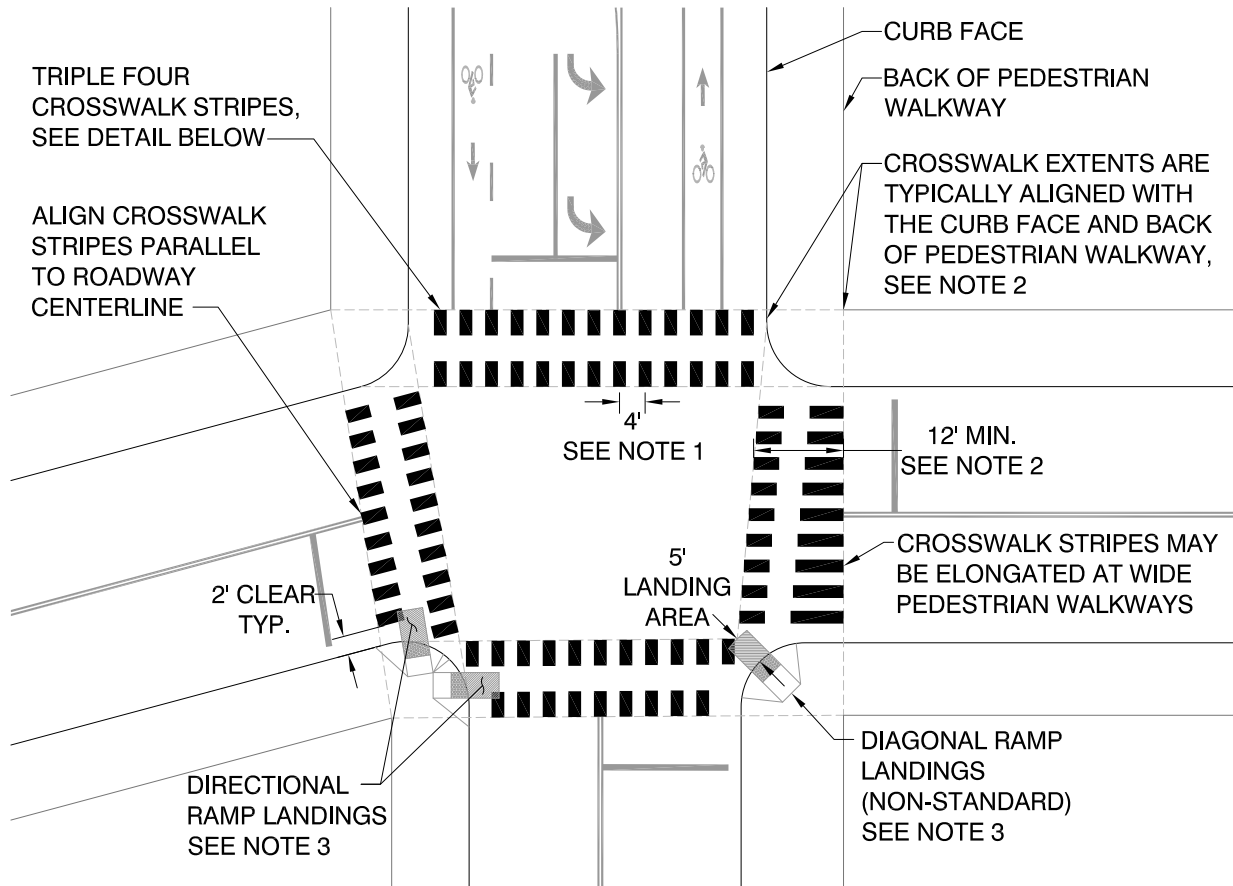
**SUPPLEMENTAL  
 GUIDANCE**

SCALE: NOT TO SCALE

DWG. NO.

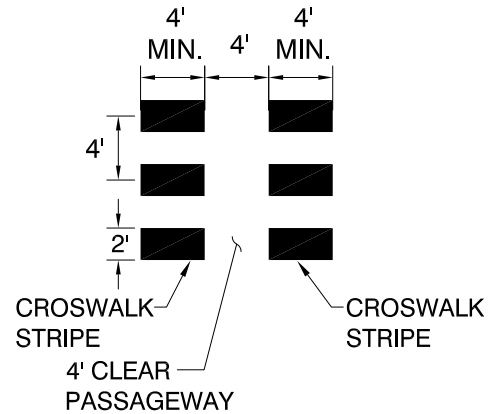
DATE: MAR 2021

**RM-4A**



**NOTES**

1. Triple four crosswalk stripe spacing is 4 ft, on-center, unless otherwise specified. Align first crosswalk stripes with centerline of roadway and continue pattern toward edge of roadway, maintaining 2 ft clear from face of curb (if present).
2. Crosswalks should encompass the pedestrian walkways they connect. Unless otherwise specified, align the front of the crosswalk with the curb face at the corresponding curb returns. Align the back of the crosswalk with the back of the pedestrian walkway but no less than 10 ft from the front of the crosswalk.
3. Crosswalks must encompass the curb ramp landing areas they connect. Directional ramps are the preferred standard, but where a single diagonal ramp serves both crosswalks at a corner, the front of the crosswalks may need to be shifted toward the intersection to encompass the entire 5' landing area at the bottom of the curb ramp. Align the 4-ft clear passageway toward curb ramps.
4. See Detail RM-4C for supplemental crosswalk layout guidance.
5. At controlled approaches, install advanced limit lines with triple four crosswalks, per Marking Detail RM-5.



**DETAIL**  
**TRIPLE FOUR CROSSWALK**  
**MARKINGS, PER CALTRANS**  
**STANDARD PLAN A24F**

NOT TO SCALE



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**TRIPLE FOUR**  
**CROSSWALK**

**ROADWAY MARKING**  
**DETAILS**

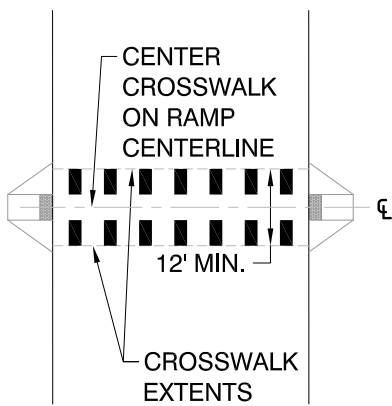
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DWG. NO.

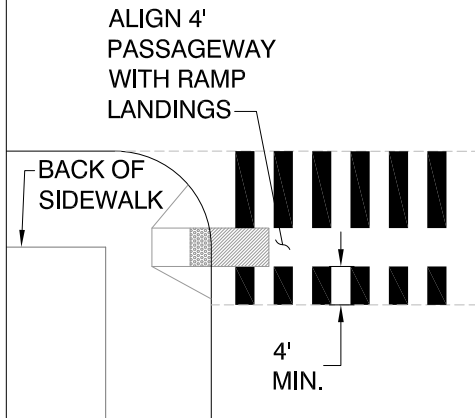
DATE: MAR 2021

**RM-4B**

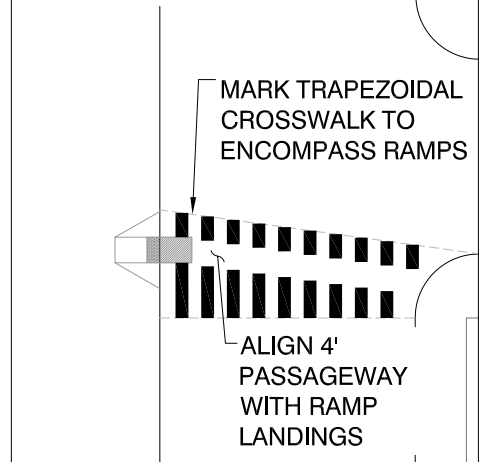
**MID-BLOCK CROSSWALK**



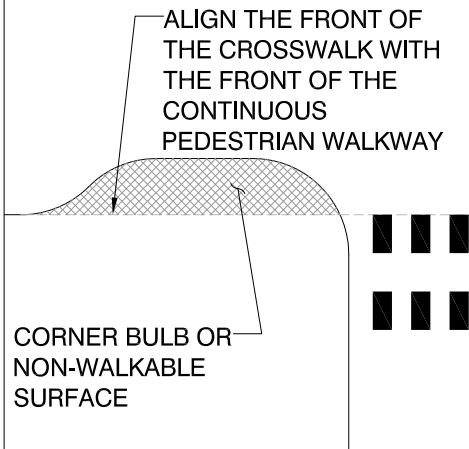
**CURB RAMP OFFSET FROM SIDEWALK**



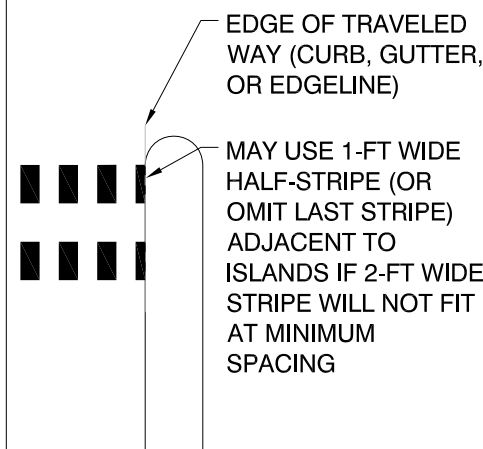
**TEE INTERSECTION WITH OFFSET RAMPS**



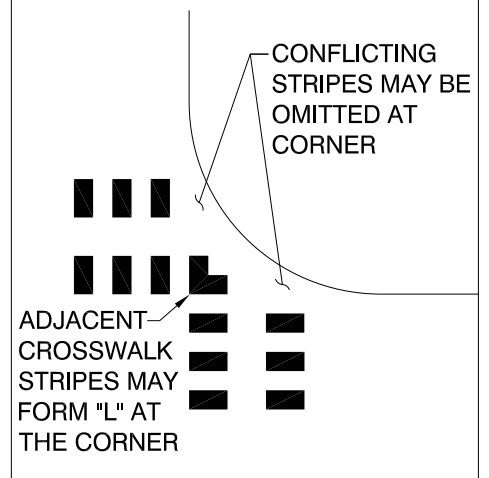
**SET-BACK FRONT OF WALK**



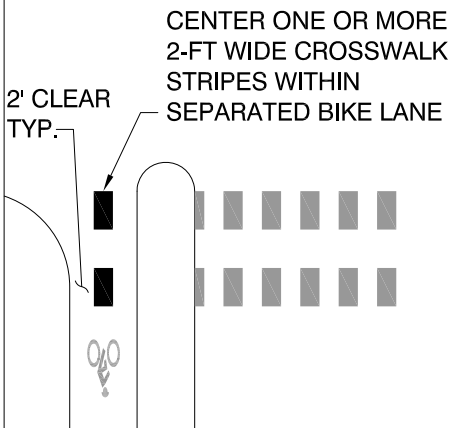
**TRAFFIC ISLAND AND MEDIAN EDGES**



**LARGE RADIUS CORNERS**



**SEPARATED BIKE LANE CROSSINGS**



**LEGEND:**

- CROSSWALK EXTENTS
- CENTERLINE
- CURB RAMP & LANDING AREA
- CROSSWALK STRIPES



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 BICYCLE & PEDESTRIAN PROGRAM  
 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**TRIPLE FOUR CROSSWALK**

**SUPPLEMENTAL GUIDANCE**

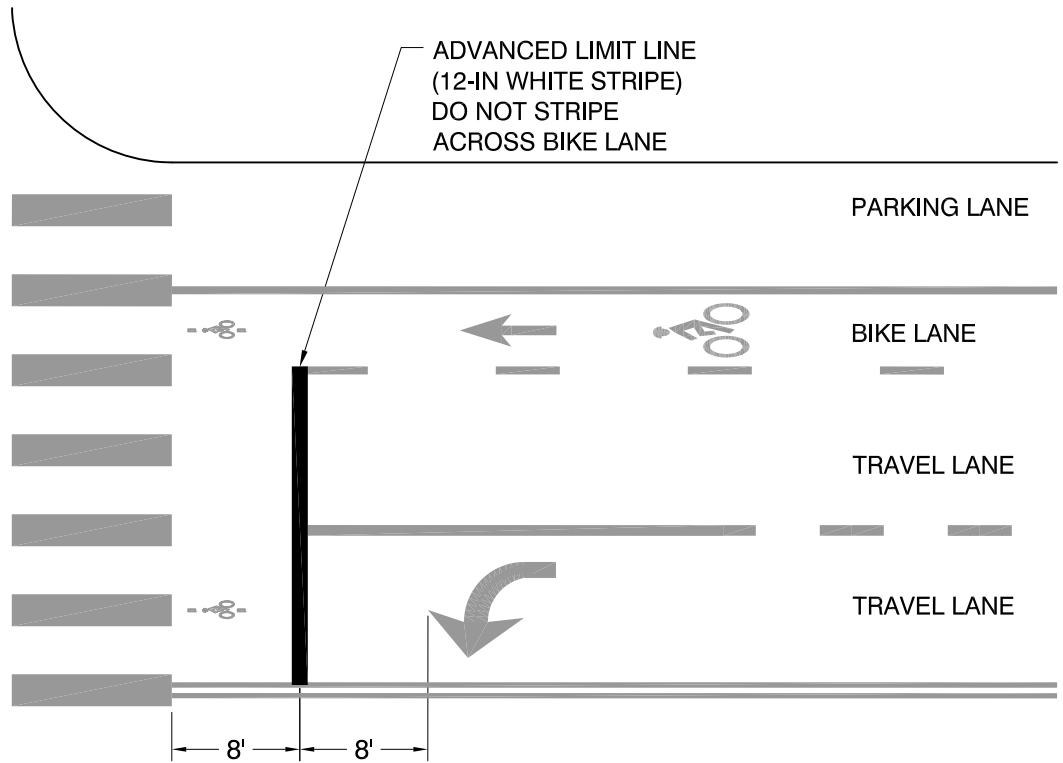
SCALE: NOT TO SCALE

DWG. NO.

DATE: MAR 2021

**RM-4C**





**NOTES**

1. Install an advanced limit line on all signalized or stop-controlled travel lanes approaching a continental crosswalk, 8 feet in advance of the nearest crosswalk stripe, unless otherwise specified.
2. In some locations, it may not be possible to place a limit line 8 feet in advance of the crosswalk due to existing lane assignment arrows or stop legends. In this case, place the limit line 2 feet downstream of the conflicting markings and no less than 4 feet in advance of the crosswalk. If it is not possible to achieve these minimum clearances, remove the conflicting markings and replace them according to the typical 8-foot spacing.

NOT TO SCALE



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: blkeped@oaklandca.gov

**ADVANCED LIMIT LINE**

**ROADWAY MARKING  
 DETAILS**

SCALE: NTS

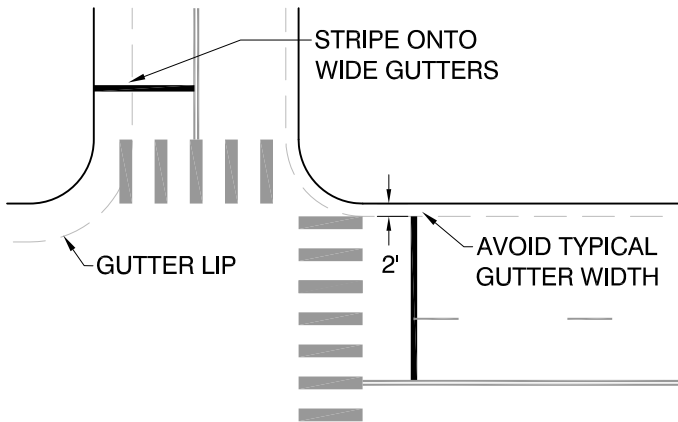
DWG. NO.

**RM-5**

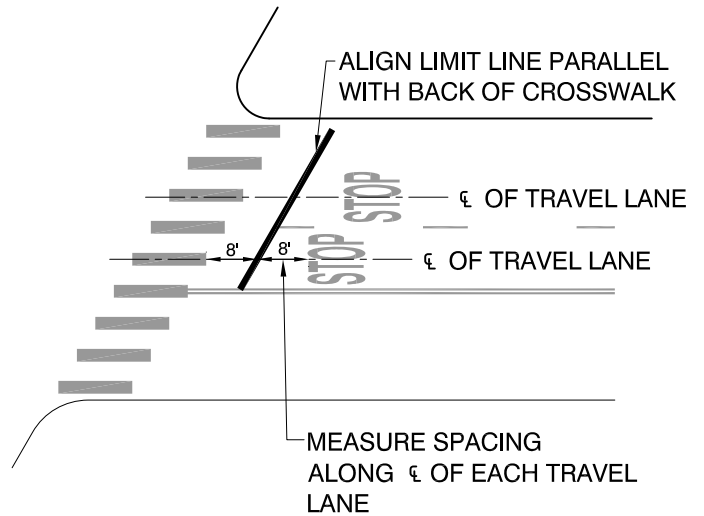
DATE: MAR 2021

**STREETS WITHOUT BIKE LANES**

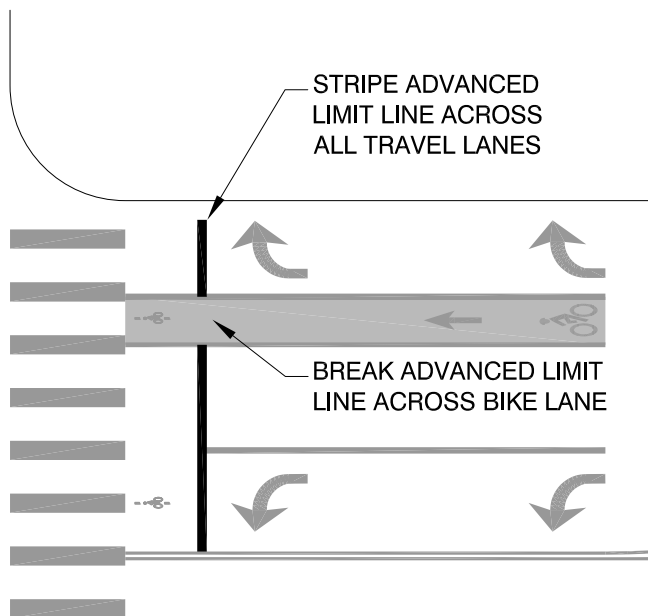
STRIPE LIMIT LINE TO EDGE OF ROAD IF NO BIKE LANE IS PRESENT



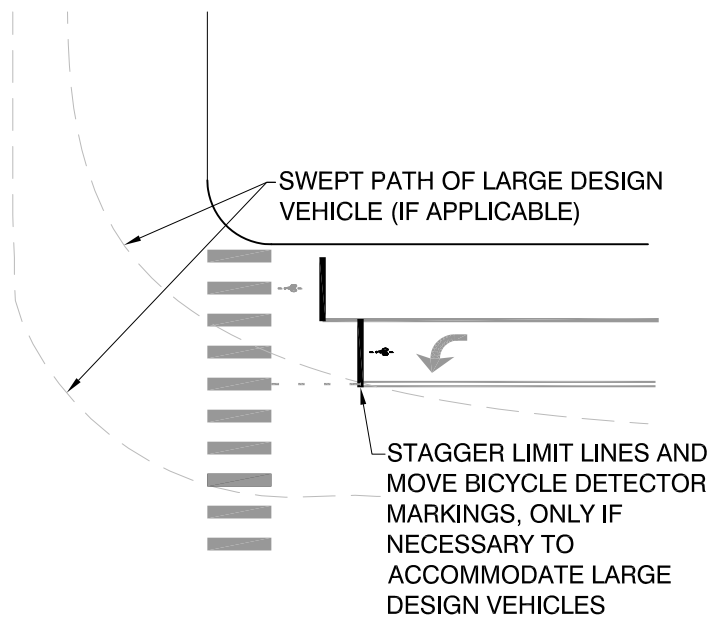
**SKewed INTERSECTIONS**



**BIKE LANES BETWEEN TRAVEL LANES**



**STAGGERED LIMIT LINES**



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BICYCLE & PEDESTRIAN PROGRAM  
250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
EMAIL: blkeped@oaklandca.gov

**ADVANCED LIMIT LINE**

**SUPPLEMENTAL GUIDANCE**

SCALE: NTS

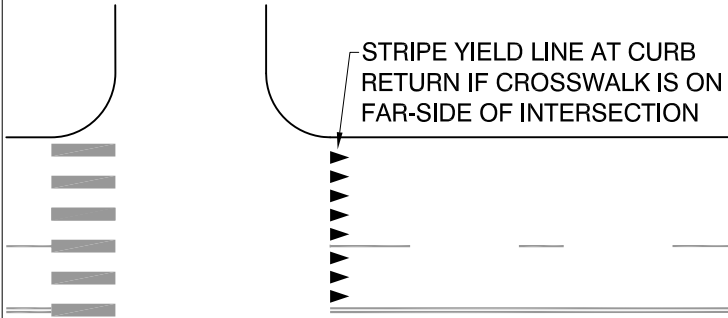
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DATE: MAR 2021

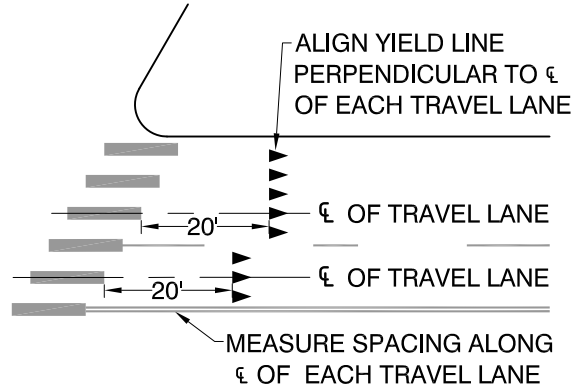
RM-5A



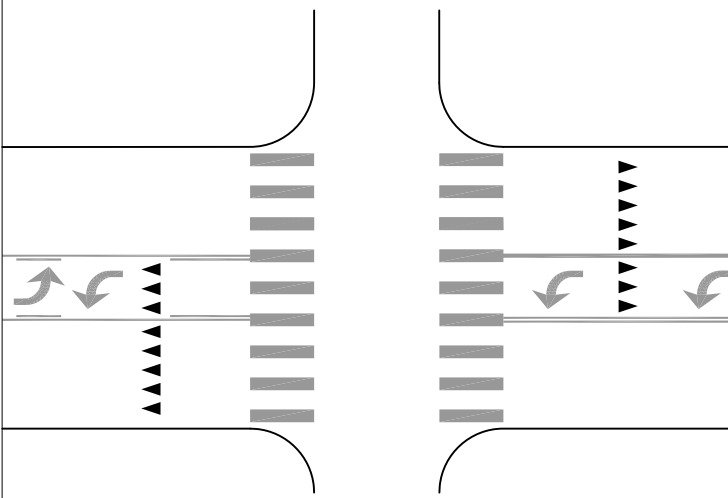
FAR-SIDE CROSSWALKS



SKWEVED INTERSECTIONS

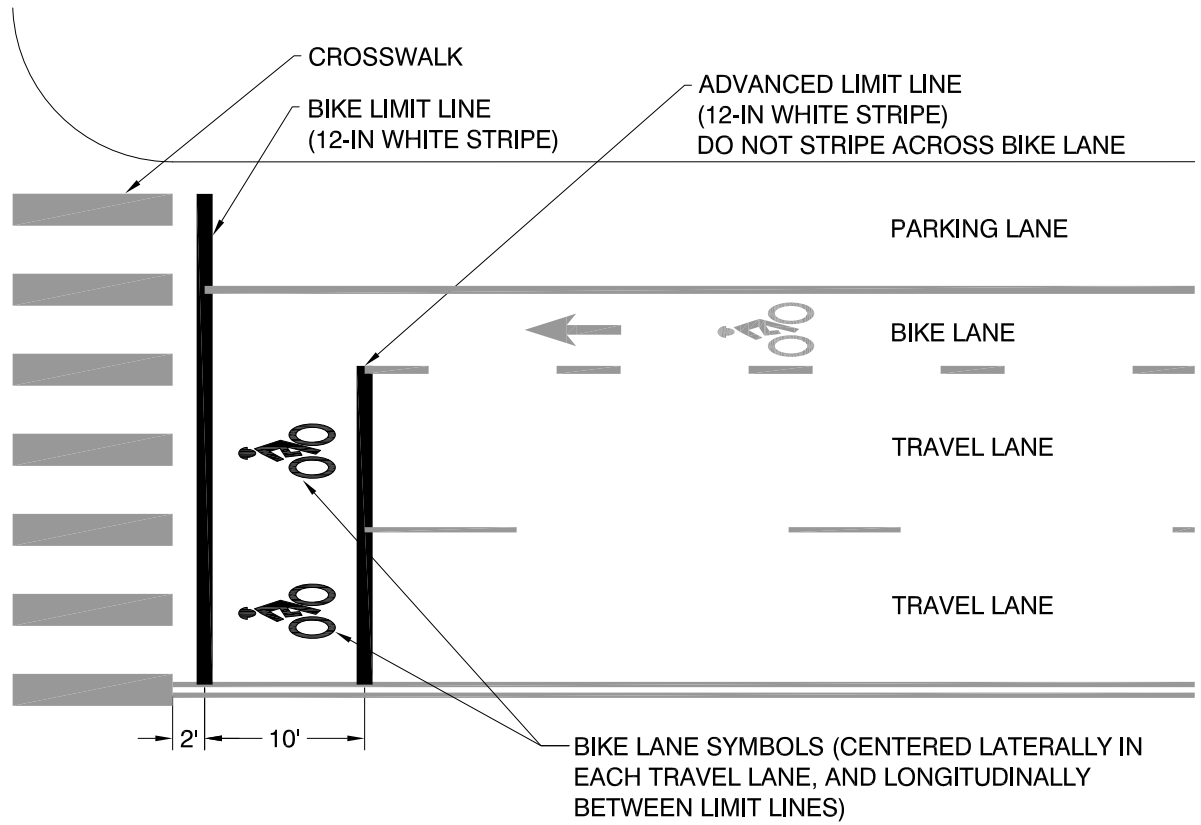


TURN LANES



STRIPE ADVANCED YIELD LINES  
ACROSS TURN LANES THAT  
CREATE MULTI-LANE CROSSWALK  
APPROACHES

NOT USED



**NOTES**

1. Install bike boxes at signalized intersections where two or more bikeways intersect.
2. On approaches with passive detection for bicycles, provide passive detection within the bike box. Bike detector symbol pavement markings should be omitted from approach lanes encompassed by a bike box where a bike lane symbol is centered in the lane between the bike limit line and the advanced limit line.

NOT TO SCALE



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 BICYCLE & PEDESTRIAN PROGRAM  
 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: bikeped@oaklandca.gov

**BIKE BOX**

**ROADWAY MARKING  
 DETAILS**

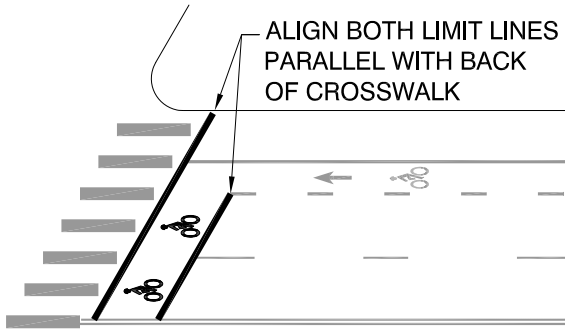
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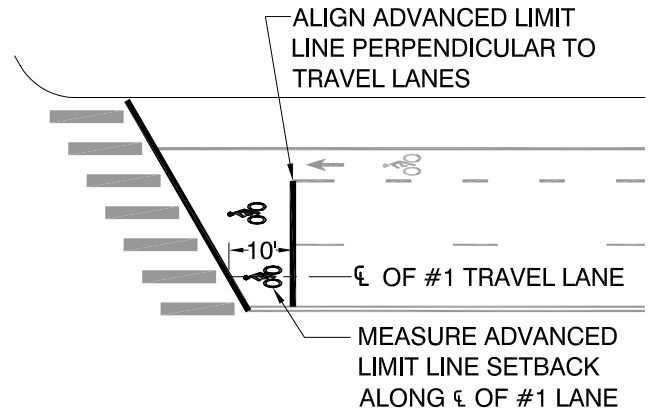
**RM-7**

DATE: MAR 2021

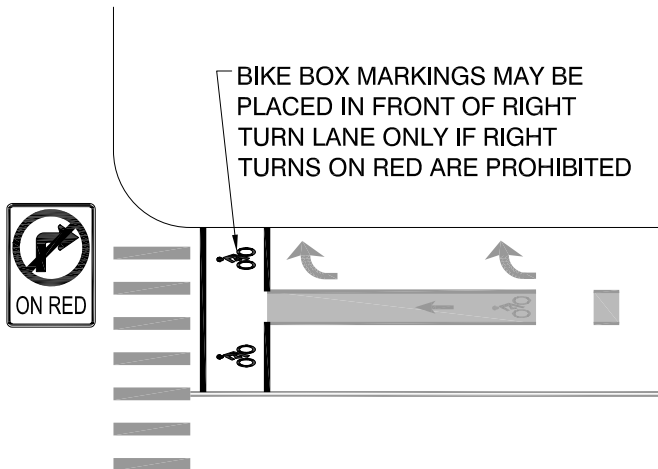
OBTUSE SKEW IN BIKE BOX



ACUTE SKEW IN BIKE BOX



RIGHT TURN ONLY LANES WITH TURN ON RED LIGHT PROHIBITED



NOT USED



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**BIKE BOX**

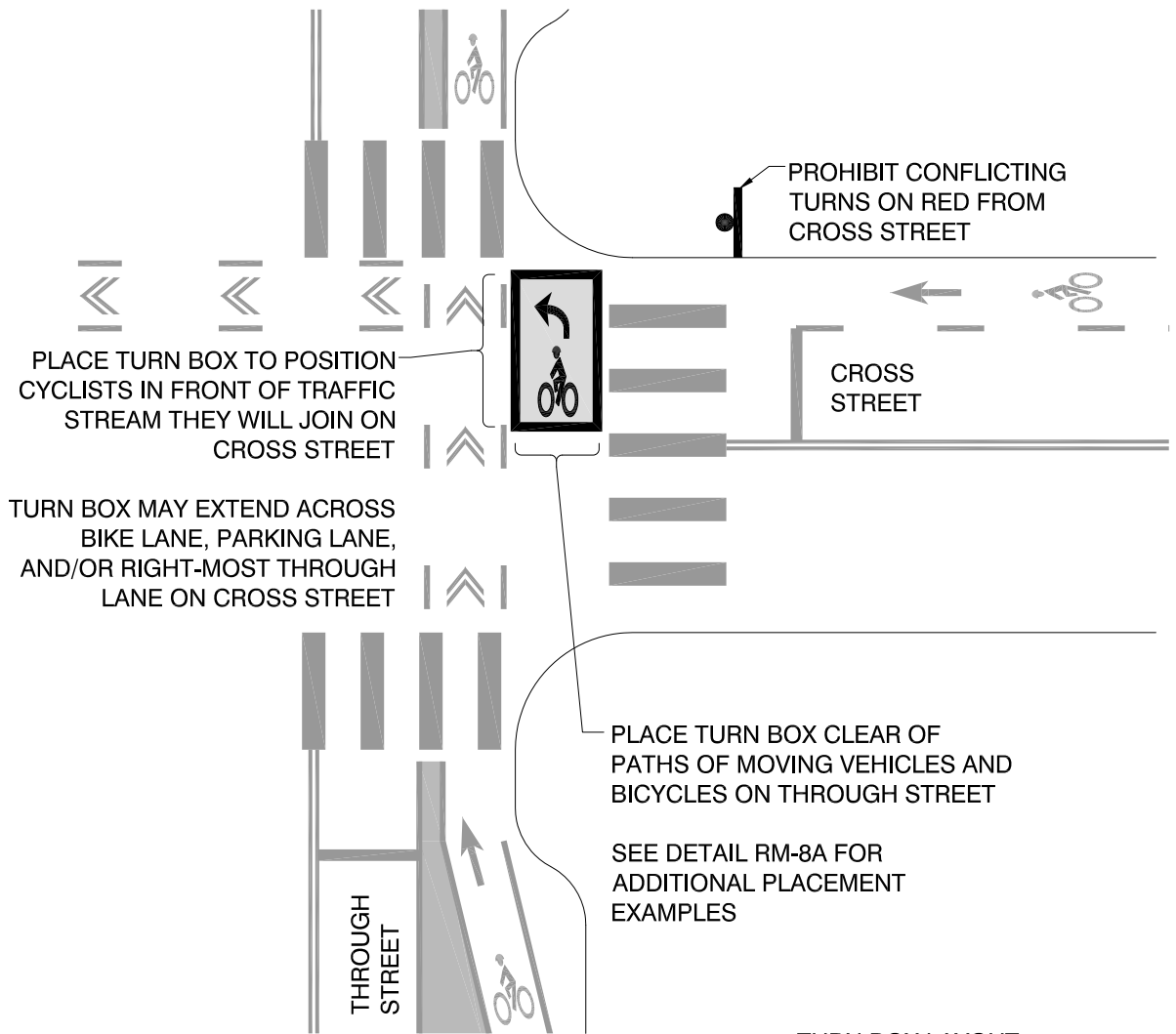
**SUPPLEMENTAL GUIDANCE**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

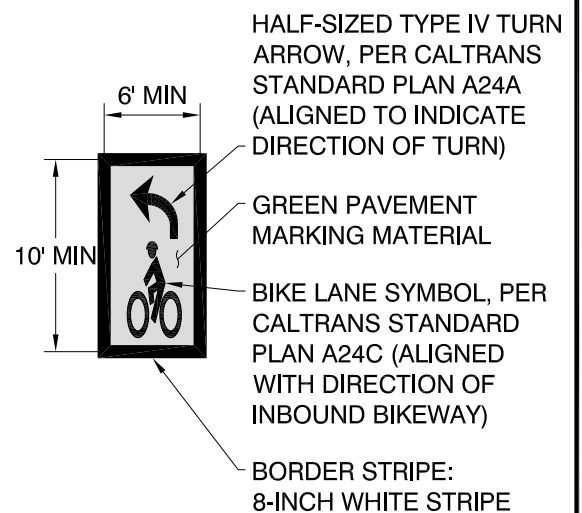
**RM-7A**



**TURN BOX LAYOUT**

**NOTES**

1. Install two-stage turn queue boxes (turn boxes) at signalized intersections where separated (Class IV) bikeways intersect with another bikeway, to facilitate two-stage turns from the separated bikeway.
2. Turn boxes may also be used at the intersections of other bikeway types, where comfortable and convenient turns are not otherwise supported.
3. Prohibit turns on red from intersecting streets where turn boxes are installed in the path of turning vehicles.
4. Turn boxes shall be placed in a protected area, outside of the path of conflicting vehicle, bicycle, and pedestrian movements.
5. Turn boxes may also be used at unsignalized intersections to simplify cyclist turning movements, but engineering judgement must be used to ensure the safe placement of queue boxes outside the path of conflicting vehicle movements.
6. At signalized intersections with passive detection for bicycles, provide passive detection within the turn box



NOT TO SCALE



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 BICYCLE & PEDESTRIAN PROGRAM  
 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: bikaped@oaklandca.gov

**TWO-STAGE TURN  
 QUEUE BOX**

**ROADWAY MARKING  
 DETAILS**

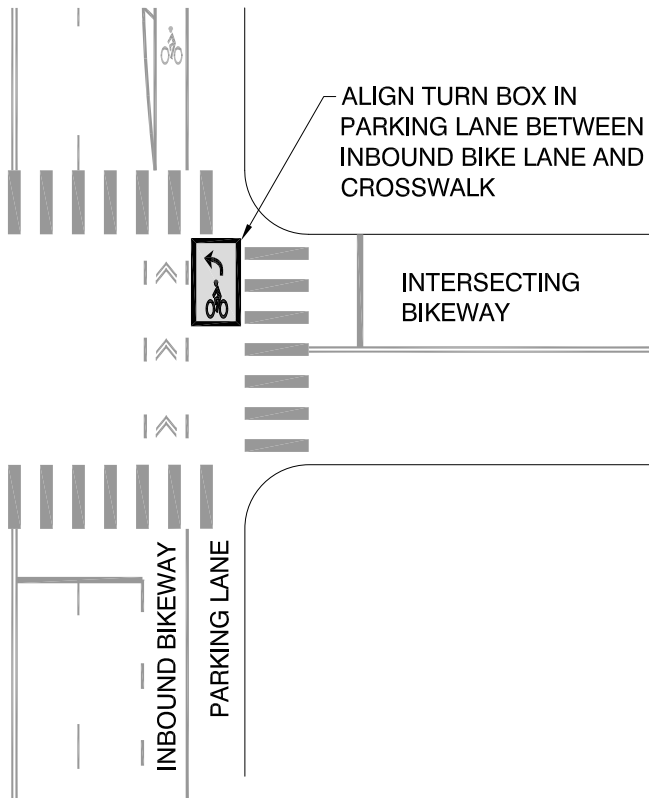
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DWG. NO.

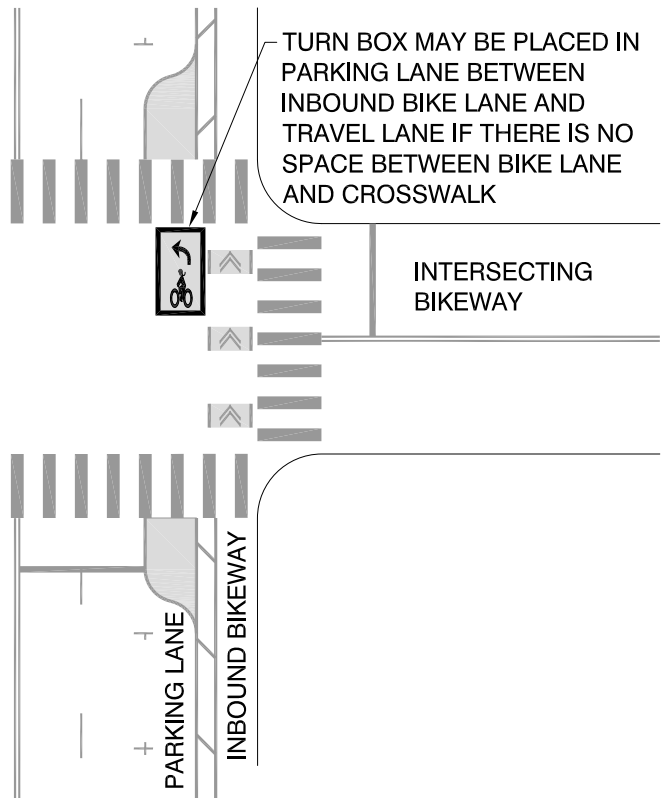
DATE: MAR 2021

**RM-8**

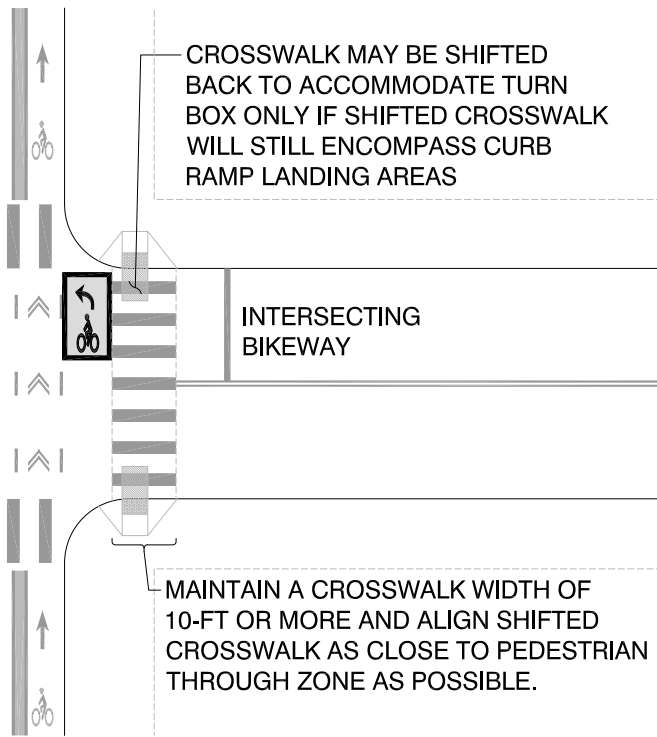
**BIKE LANES ADJACENT TO ON-STREET PARKING**



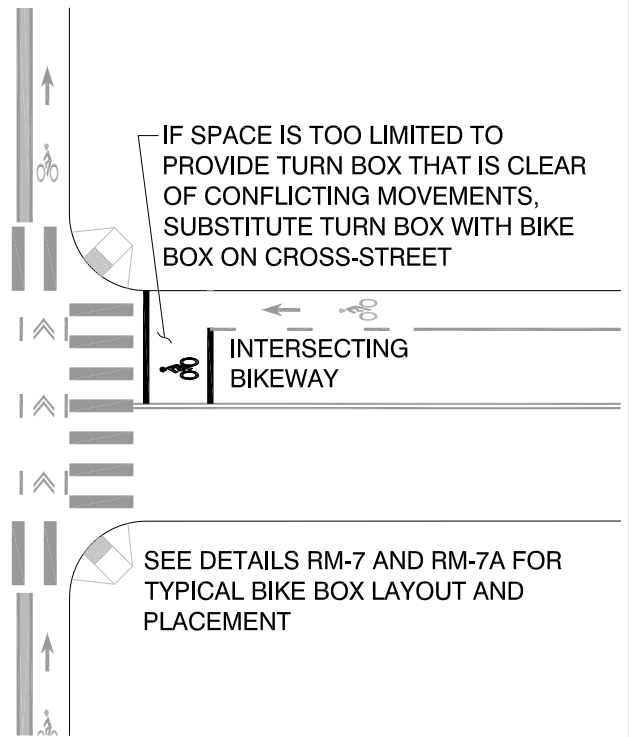
**PARKING SEPARATED BIKE LANES (CYCLE TRACKS)**



**SHIFTING CROSSWALK TO ACCOMODATE TURN BOX**



**SUBSTITUTING BIKE BOX IN CONSTRAINED LOCATIONS**



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**TWO-STAGE TURN  
 QUEUE BOX**

**SUPPLEMENTAL  
 GUIDANCE**

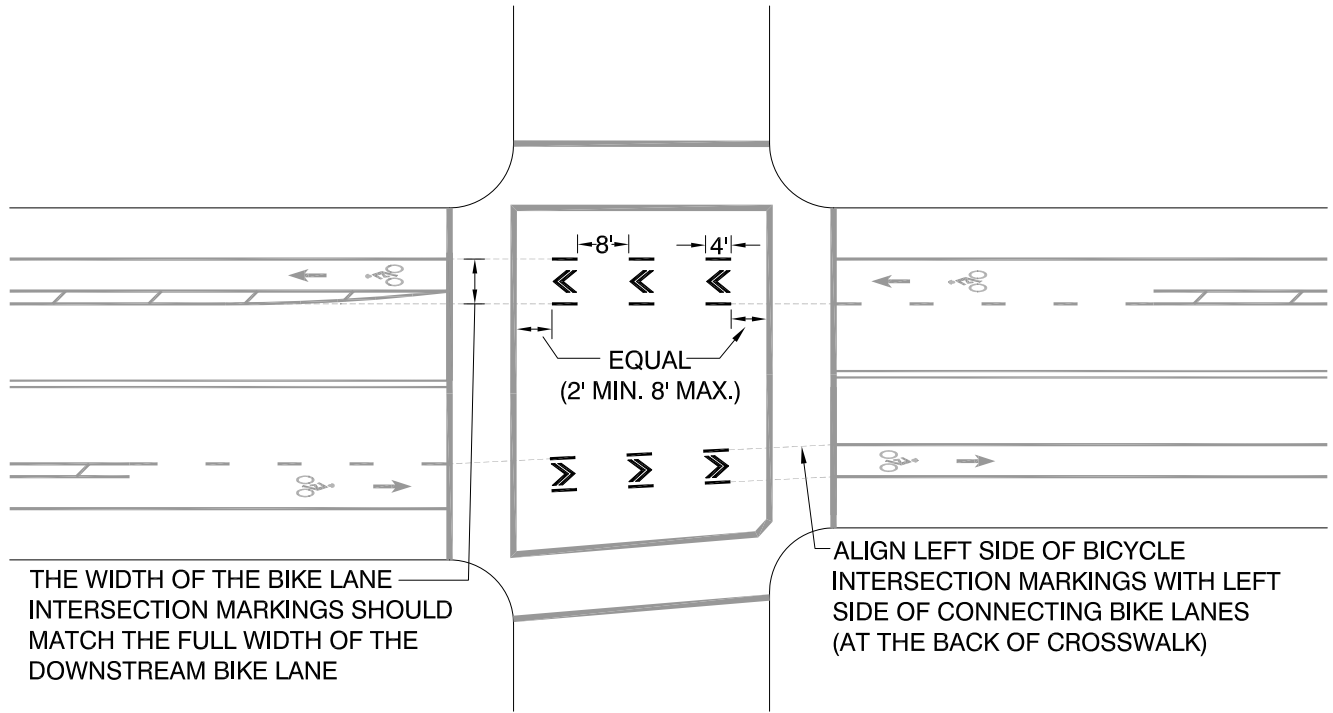
SCALE: NTS

DWG. NO.

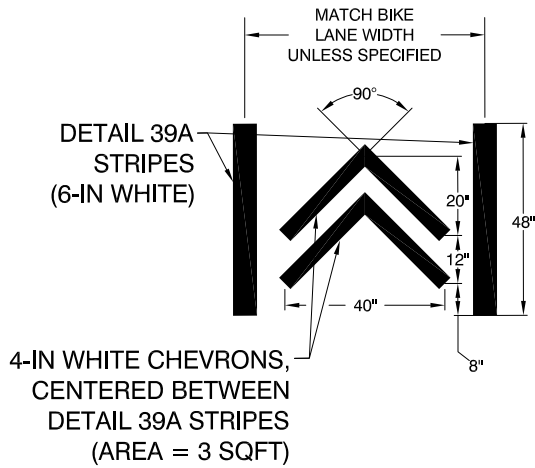
DATE: MAR 2021

**RM-8A**



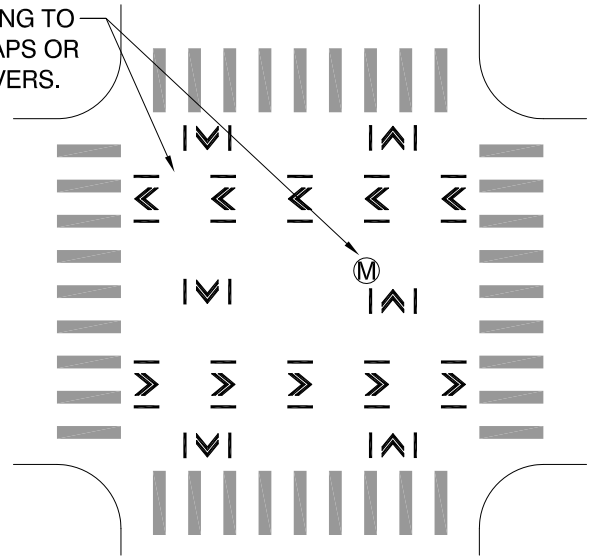


**MARKING DETAIL**



**INTERSECTING BIKE LANES**

MODIFY SPACING TO AVOID OVERLAPS OR MANHOLE COVERS.



**NOTES**

1. Install bike lane intersection markings to connect approaching and receiving bike lanes across intersections, unless otherwise specified.
2. See Green Bike Lane Detail GB-4 for standard bike lane intersection markings through complex intersections.

NOT TO SCALE



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: blkeped@oaklandca.gov

**BIKE LANE EXTENSION THROUGH INTERSECTION**

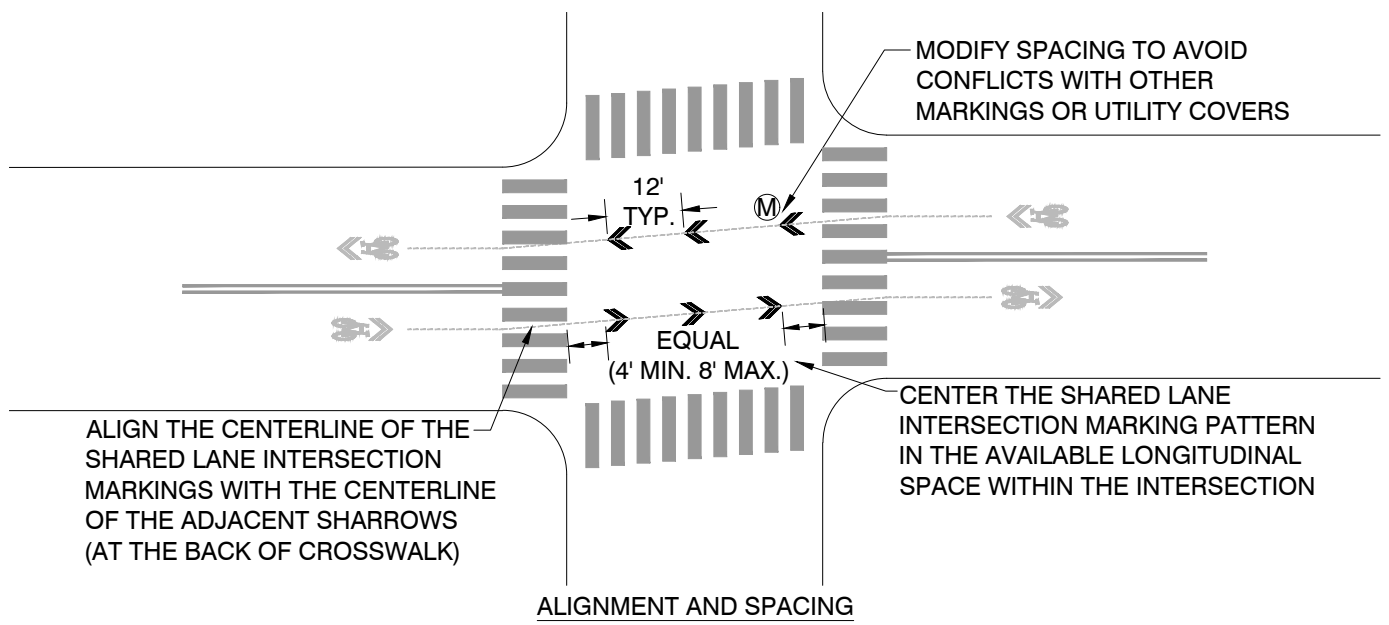
**ROADWAY MARKING DETAILS**

SCALE: NTS

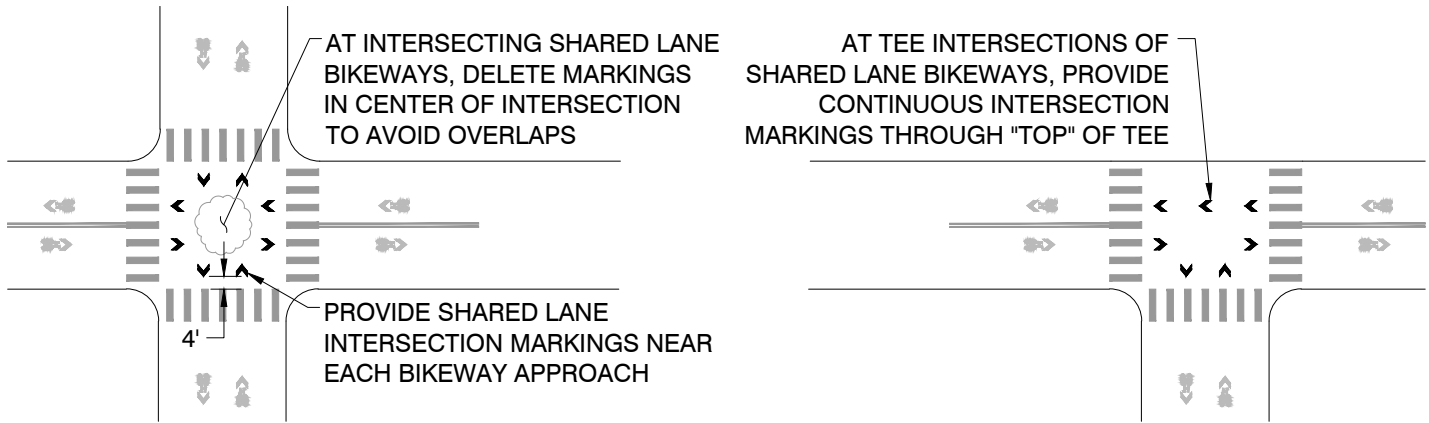
DWG. NO.

RM-9

DATE: MAR 2021



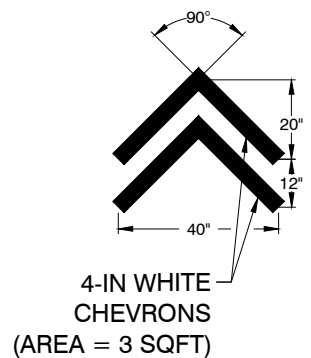
ALIGNMENT AND SPACING



INTERSECTING BIKEWAYS

NOTES

1. Shared lane intersection markings may be installed to connect shared lane bikeways through intersections with four or fewer approaches that are either signalized, skewed, and/or where one or more street is wider than 40 feet, or as noted on plans.
2. When a shared lane bikeway connects to a bike lane across an intersection (or vice versa) shared lane intersection markings may be installed to indicate the expected cyclist path of travel. Align the shared lane intersection markings with the centerline of the sharrows on the shared bikeway side of the intersection and the centerline of the bike lane on the other.
3. Shared lane intersection markings may be substituted with sharrow markings (per OakDOT design detail RM-2) with supplemental green backing at locations where increased conspicuity of the route through the intersection is deemed appropriate (including offset intersections, intersections where a single bike route turns, complex multi-legged intersections, and intersections where the bike route crosses a divided road).



SHARED LANE INTERSECTION MARKING DETAIL

NOT TO SCALE



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250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
EMAIL: bikiped@oaklandca.gov

SHARED LANE EXTENSION THROUGH INTERSECTION

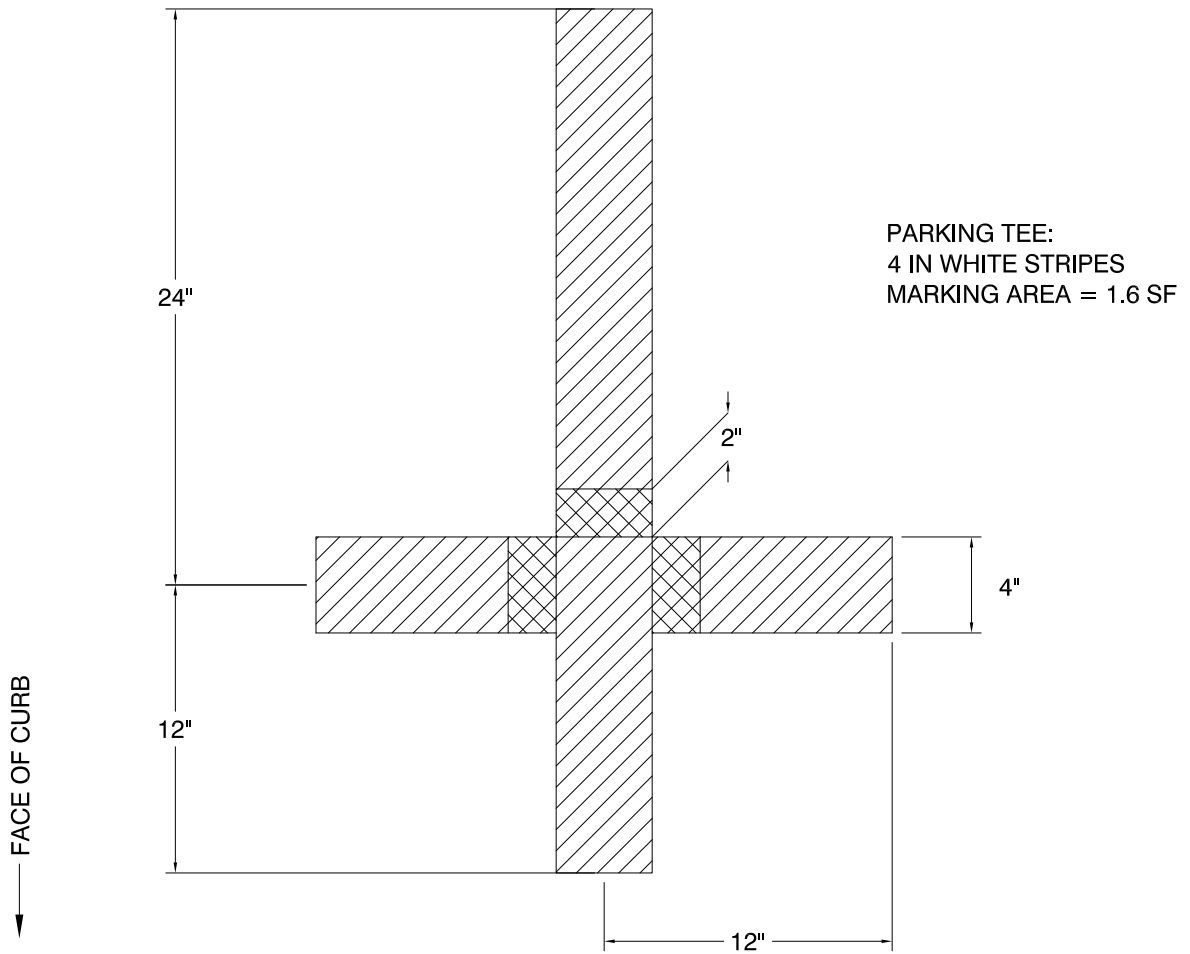
ROADWAY MARKING DETAILS

SCALE: NTS

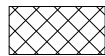
DWG. NO.

DATE: MAR 2024

RM-10

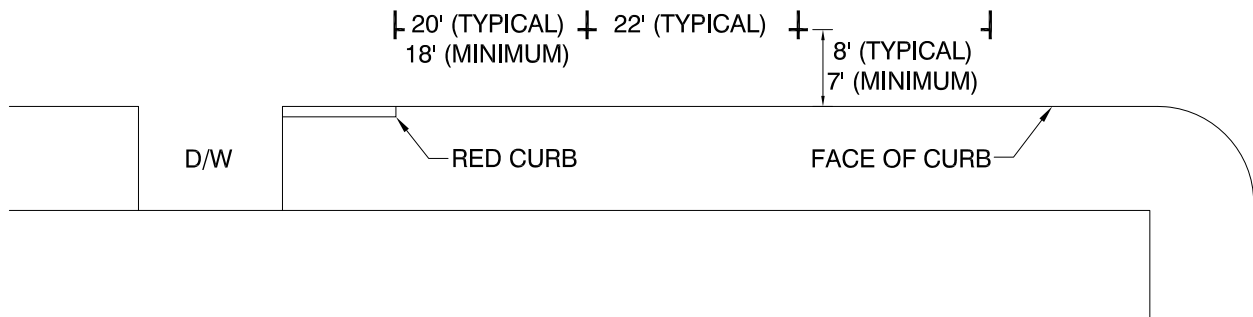


PARKING TEE:  
 4 IN WHITE STRIPES  
 MARKING AREA = 1.6 SF



OPTIONAL 2" GAPS FOR STENCIL-BASED APPLICATIONS

NOT TO SCALE



NOT TO SCALE



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 EMAIL: blkeped@oaklandca.gov

## PARKING STALL "TEE"

### ROADWAY MARKING DETAILS

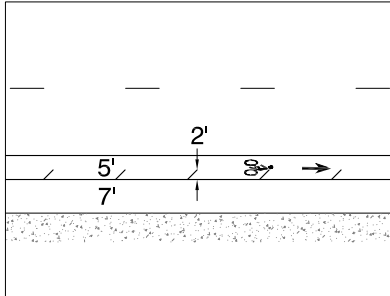
SCALE: NTS

DWG. NO.

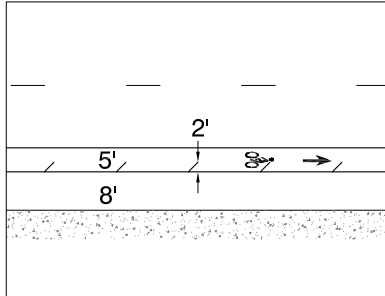
RM-11

DATE: MAR 2021

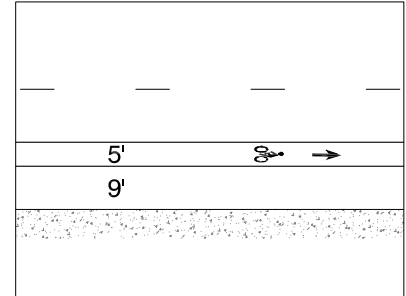
12' WIDTH



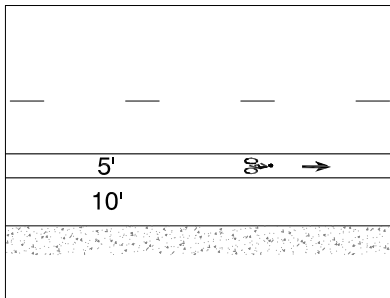
13' WIDTH



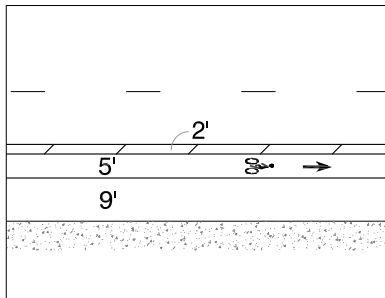
14' WIDTH



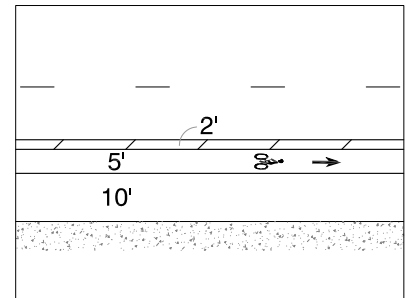
15' WIDTH



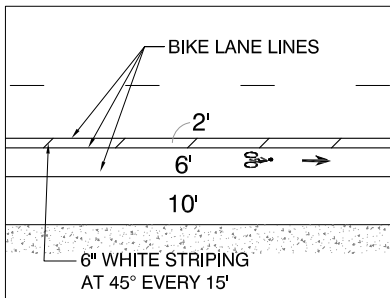
16' WIDTH



17' WIDTH



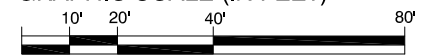
18' WIDTH



NOTES

1. Where width allows, use the 16', 17', or 18' cross-sections that include bike lane buffers.
2. If more than 18' is available, consider narrowing the cross-section with a striped median.
3. The parking-side diagonal buffer striping (for parking lanes 8-foot wide or narrower) is 2' in width, measured perpendicular to curb line.
4. On residential streets, the diagonal buffer striping spacing may be increased from 15' to 30'.

GRAPHIC SCALE (IN FEET)



CITY OF OAKLAND

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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: bikeped@oaklandca.gov

BIKE LANE, BUFFER, AND  
 PARKING LANE WIDTHS  
 (NON-METERED PARKING)

CROSS-SECTION  
 DETAILS

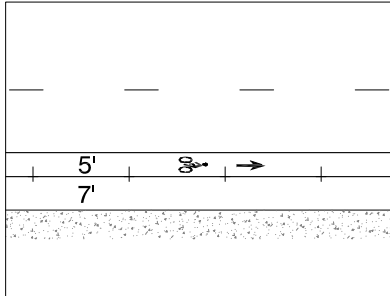
SCALE: 1" = 40'

DWG. NO.

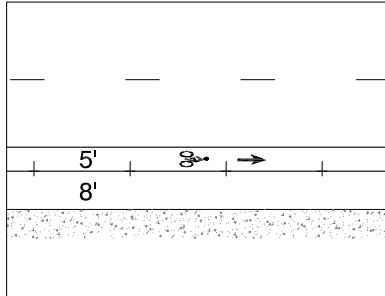
DATE: MAR 2021

CS-1

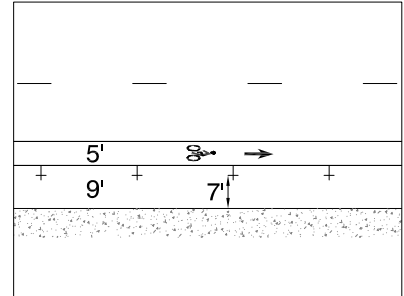
12' WIDTH



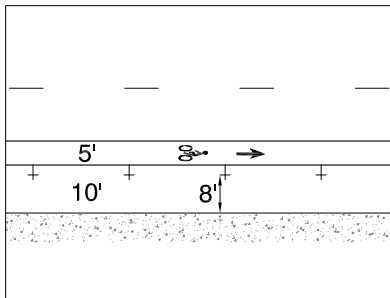
13' WIDTH



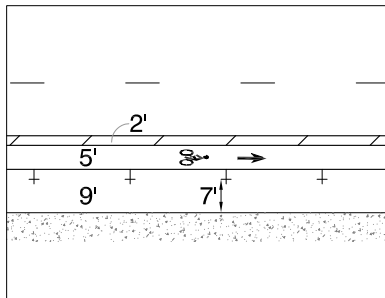
14' WIDTH



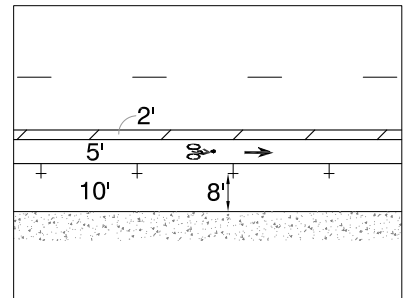
15' WIDTH



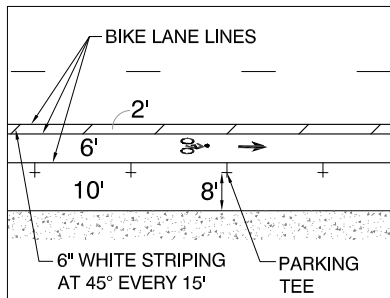
16' WIDTH



17' WIDTH



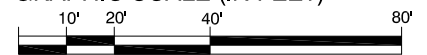
18' WIDTH



NOTES

1. Where width allows, use the 16', 17', or 18' cross-sections that include bike lane buffers.
2. If more than 18' is available, consider narrowing the cross-section with a striped median.
3. For parking lanes 8-feet wide or narrower, parking tees are placed on parking-side bike lane stripe, with long side extending into bike lane.
4. Mark parking tees with long side facing away from curb. See parking tee detail RM-11.

GRAPHIC SCALE (IN FEET)



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 EMAIL: bikeped@oaklandca.gov

BIKE LANE, BUFFER, AND  
 PARKING LANE WIDTHS  
 (METERED PARKING)

CROSS-SECTION  
 DETAILS

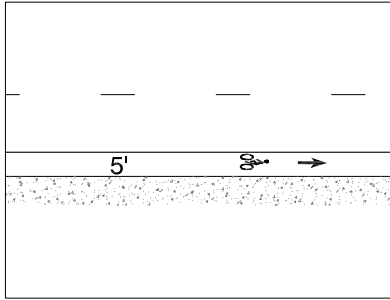
SCALE: 1" = 40'

DWG. NO.

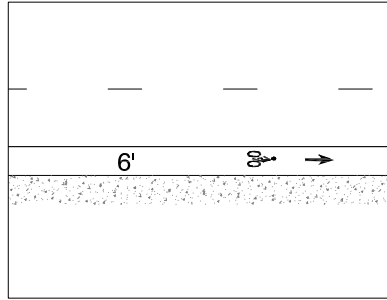
DATE: MAR 2021

CS-2

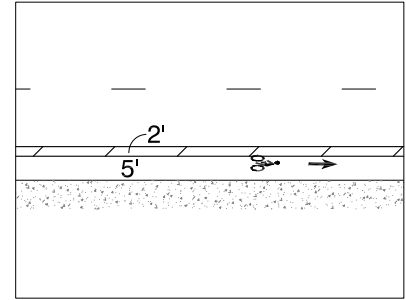
5' WIDTH



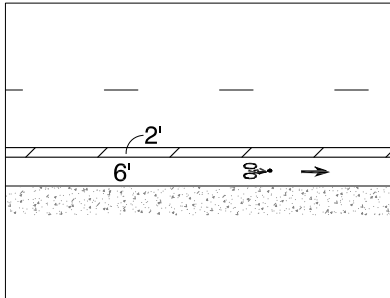
6' WIDTH



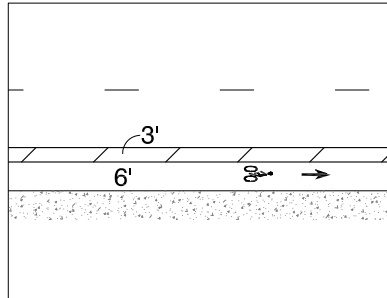
7' WIDTH



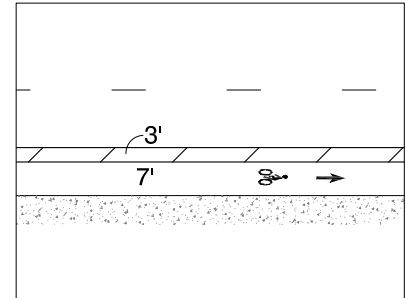
8' WIDTH



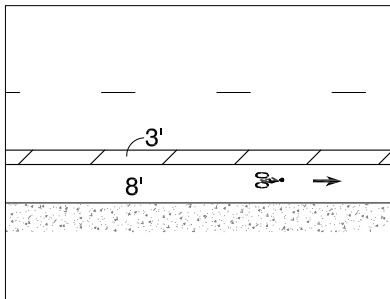
9' WIDTH



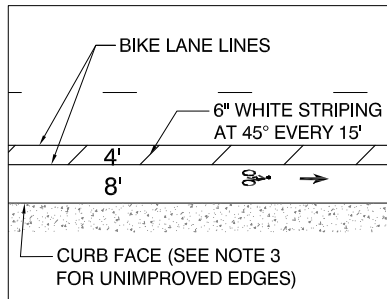
10' WIDTH



11' WIDTH



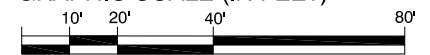
12' WIDTH



NOTES

1. The desired minimum width for a curbside bike lane is 5 feet, measured from the face of curb. However, on extremely constrained, low-speed roadways, where other lanes cannot be narrowed, a 4-foot wide curbside bike lane may be used if there is no gutter present or if the gutter is wider than 4-feet.
2. If existing drainage inlets (DIs) protrude into the bike lane, the bike lane should be at least 6-feet wide. For bike lanes less than 6-feet wide, the inlets should be moved if practical. All drainage inlet grates must be bicycle friendly and fit within their frames with no gaps larger than 1/2-inch.
3. If the edge of the road is unimproved (i.e. no curb and/or sidewalk), add a bike lane line to delineate the right side of the bike lane.
4. Curbside bike lanes with striped buffers may include additional vertical separation elements. See Cross-Section Detail CS-4 for minimum parking separated bike lane widths.

GRAPHIC SCALE (IN FEET)



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: blkeped@oaklandca.gov

CURBSIDE BIKE LANE  
 AND  
 BUFFER WIDTHS

CROSS-SECTION  
 DETAILS

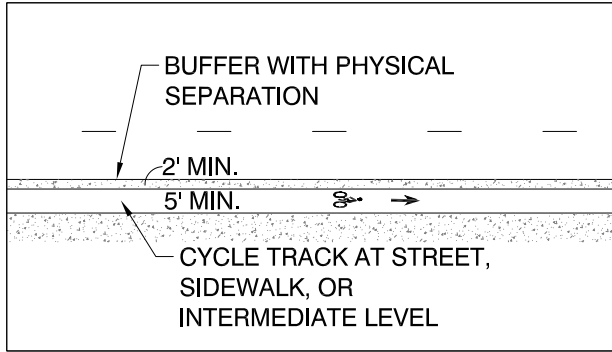
SCALE: 1" = 40'

DWG. NO.

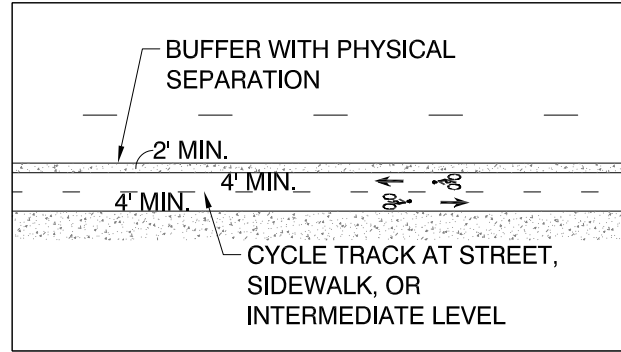
CS-3

DATE: MAR 2021

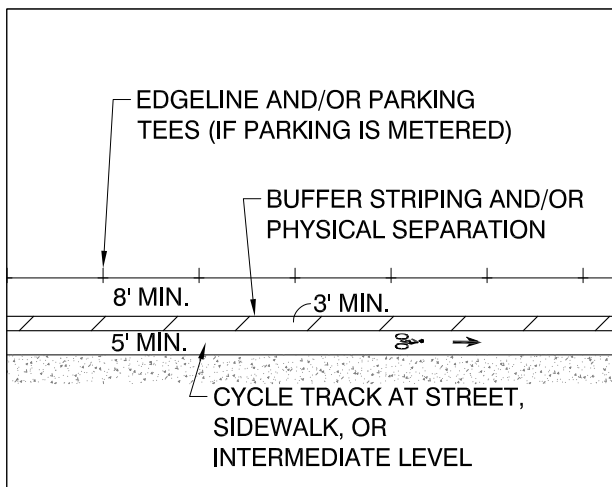
**ONE-WAY CYCLE TRACK WITH  
NO ADJACENT PARKING**



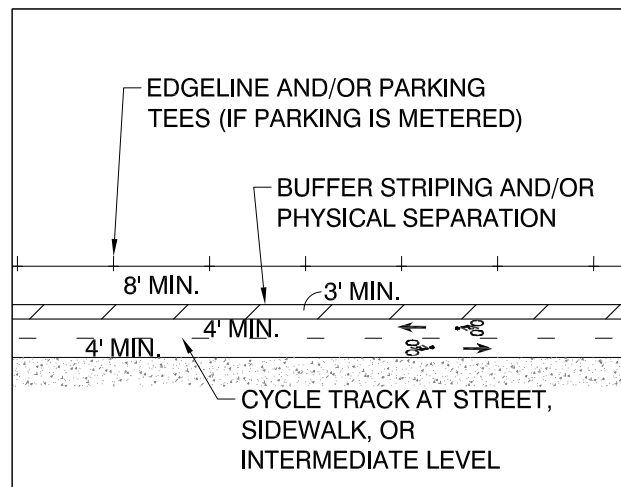
**TWO-WAY CYCLE TRACK WITH  
NO ADJACENT PARKING**



**ONE-WAY PARKING  
SEPARATED CYCLE TRACK**



**TWO-WAY PARKING  
SEPARATED CYCLE TRACK**



**NOTES**

1. This detail provides basic minimum desirable widths for cycle tracks, cycle track buffers and adjacent parking lanes (if present). These minimum dimensions should be exceeded in all but the most constrained conditions. How to distribute additional available width between these elements is context sensitive and should be determined using engineering judgement and the criteria below.
2. If existing gutters or drainage inlets protrude into the cycle track such that there is a longitudinal seam within the bikeway, and these structures cannot be reconstructed to move the seam out of the bikeway, the affected bike lane direction (if two-way) should be widened such that the rideable surface clear of the seam is at least 4-ft wide.
3. Where high bicycle volumes are expected, the cycle track should be 7-feet or wider in each direction, to allow for passing and/or side-by-side riding.
4. For parking separated cycle tracks, striped buffer areas may be widened and any vertical separation should include regular breaks to provide access to parked vehicles.
5. At accessible parking and loading zones, the striped buffer shall be 5-foot wide (min.) to provide an access aisle connecting to a crosswalk and/or curb ramp per ADA guidelines. The access aisle should be at the same grade as the cycle track and the cycle track may be narrowed to 4 feet (if necessary) for the length of the access aisle.
6. The width between the curb and any vertical separation elements should be at least the fleet maintenance vehicle width.

NOT TO SCALE



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EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**SEPARATED BIKE LANE  
(CYCLE TRACK)  
MINIMUM WIDTHS**

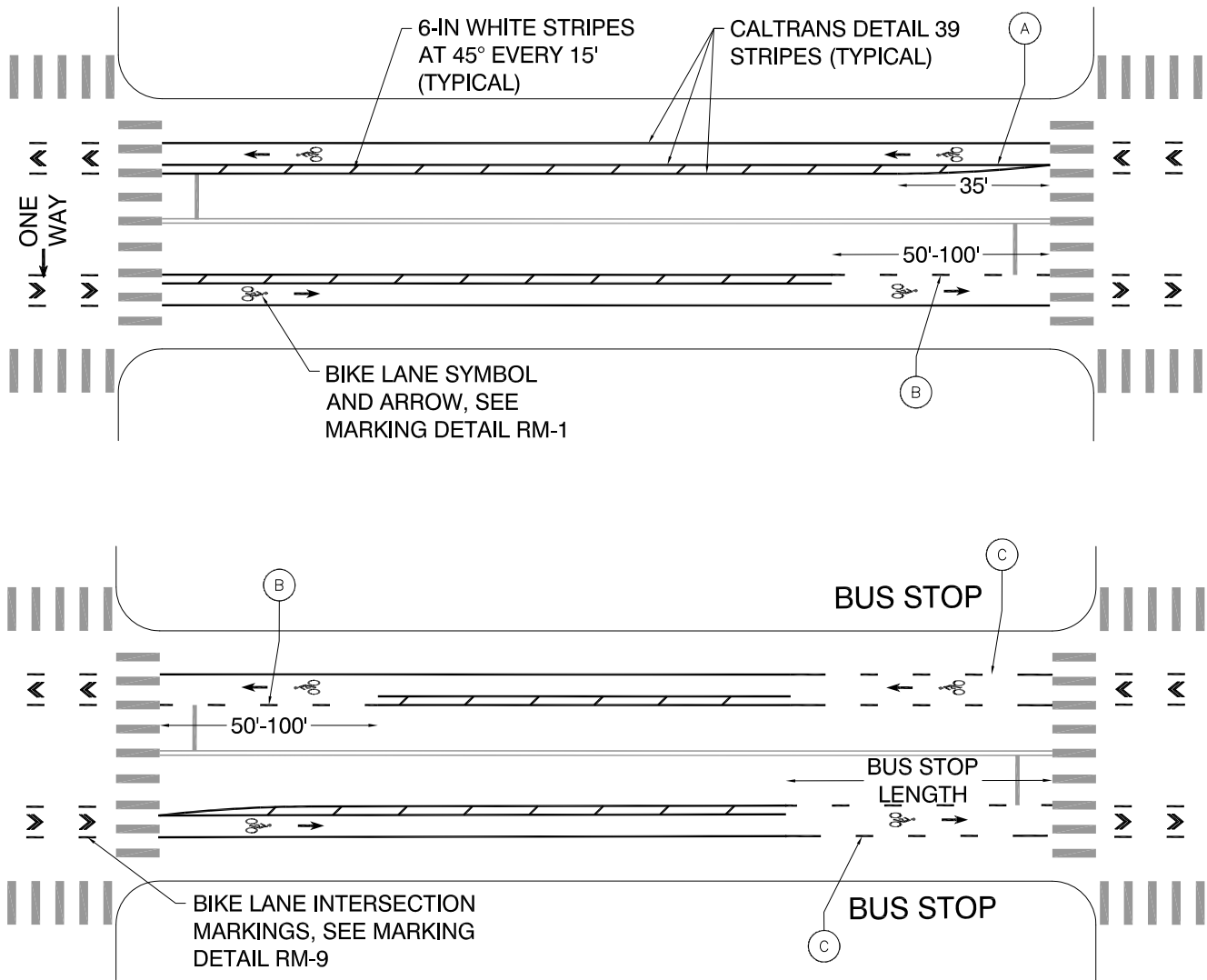
**CROSS-SECTION  
DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

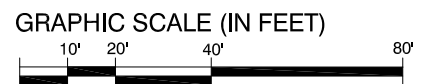
CS-4



**NOTES**

- (A) At locations where motorists will make right turns from side-streets, taper left buffer stripe over a 35' length.
- (B) On approaches where motorists will make right turns onto side-streets, drop left side bike lane buffer and use Caltrans detail 39A stripe to define left side of bike lane for 50' (typical) at minor intersections and in downtown, otherwise 100' (typical).
- (C) At bus stops, drop the buffer and use Caltrans detail 39A stripes to define both sides of the bike lane for the length of the bus stop.

See Details CS-1 and CS-2 for cross-section dimensions.



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 EMAIL: blkeped@oaklandca.gov

**BUFFERED BIKE LANES  
 (PLAN VIEW)**

**CROSS-SECTION  
 DETAILS**

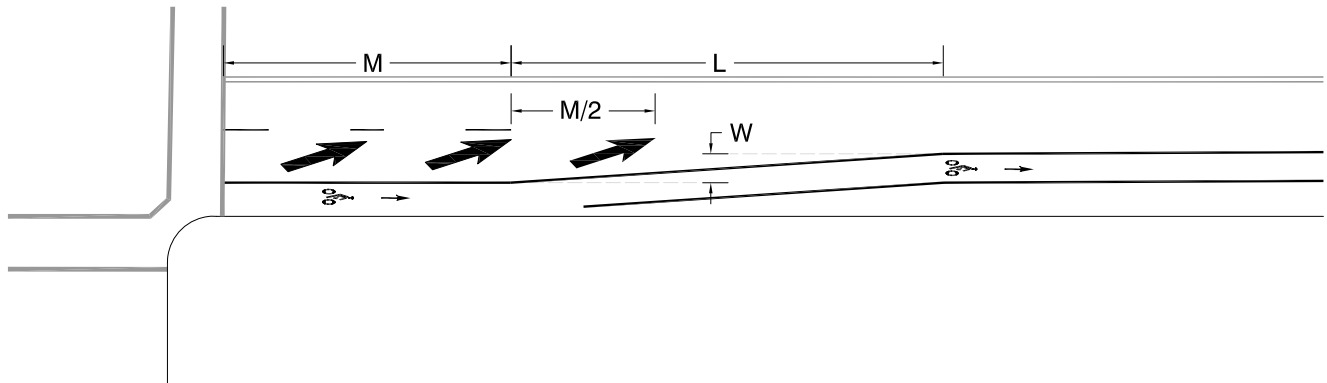
SCALE: 1" = 40'

DWG. NO.

DATE: MAR 2021

**CS-5**





NOTES:

Transition equation (40 mph or less):  $L = \frac{WS^2}{60}$  (CA MUTCD Section 3B.09)

**L** = Length in feet

**S** = Speed in mph

**W** = Offset in feet

**M** = Length of skip stripe in feet:  $M = \frac{2L}{3}$  &  $M \geq 55'$

**M/2** = Spacing of arrows in feet

Example Values				
S	W	L	M	L+M
25 mph	5'	52'	55'	107'
25 mph	6'	63'	55'	118'
25 mph	7'	75'	55'	130'
25 mph	8'	83'	56'	139'
30 mph	5'	75'	55'	130'
30 mph	6'	90'	60'	150'
30 mph	7'	102'	68'	170'
30 mph	8'	120'	80'	200'

GRAPHIC SCALE (IN FEET)



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**LANE REDUCTION  
 TRANSITION MARKINGS  
 WITH BIKE LANE**

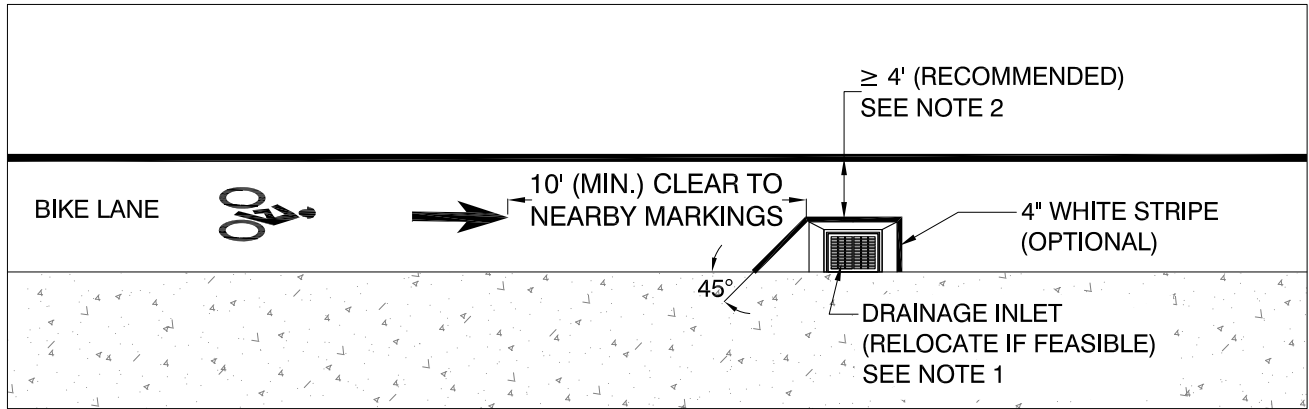
**CROSS-SECTION  
 DETAILS**

SCALE: 1" = 40'

DWG. NO.

**CS-6**

DATE: MAR 2021



**NOTES**

1. Drainage inlets in the bikeway should be removed and replaced where feasible with inlets recessed into the curb face. See City of Oakland Standard Type E Inlet Detail (DWG. D-8).
2. If a drainage inlet in the bikeway cannot be relocated, the recommended width of rideable surface between the bike lane stripe and edge of the inlet apron is 4-ft or greater. In extremely constrained locations, narrower rideable widths may be deemed acceptable by engineering judgement, if all other lanes have been narrowed to their minimum acceptable values.
3. The pavement adjacent to a drainage inlet should conform to the lip of the inlet apron.
4. All in-street drainage inlet grates must be bicycle safe and fit properly in their frames, in conformance with City of Oakland Standard Details D-3 through D-9, and Caltrans Standard Plan D77B.



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 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: bikeped@oaklandca.gov

**CURBSIDE BIKE LANE  
 AND  
 DRAINAGE INLETS**

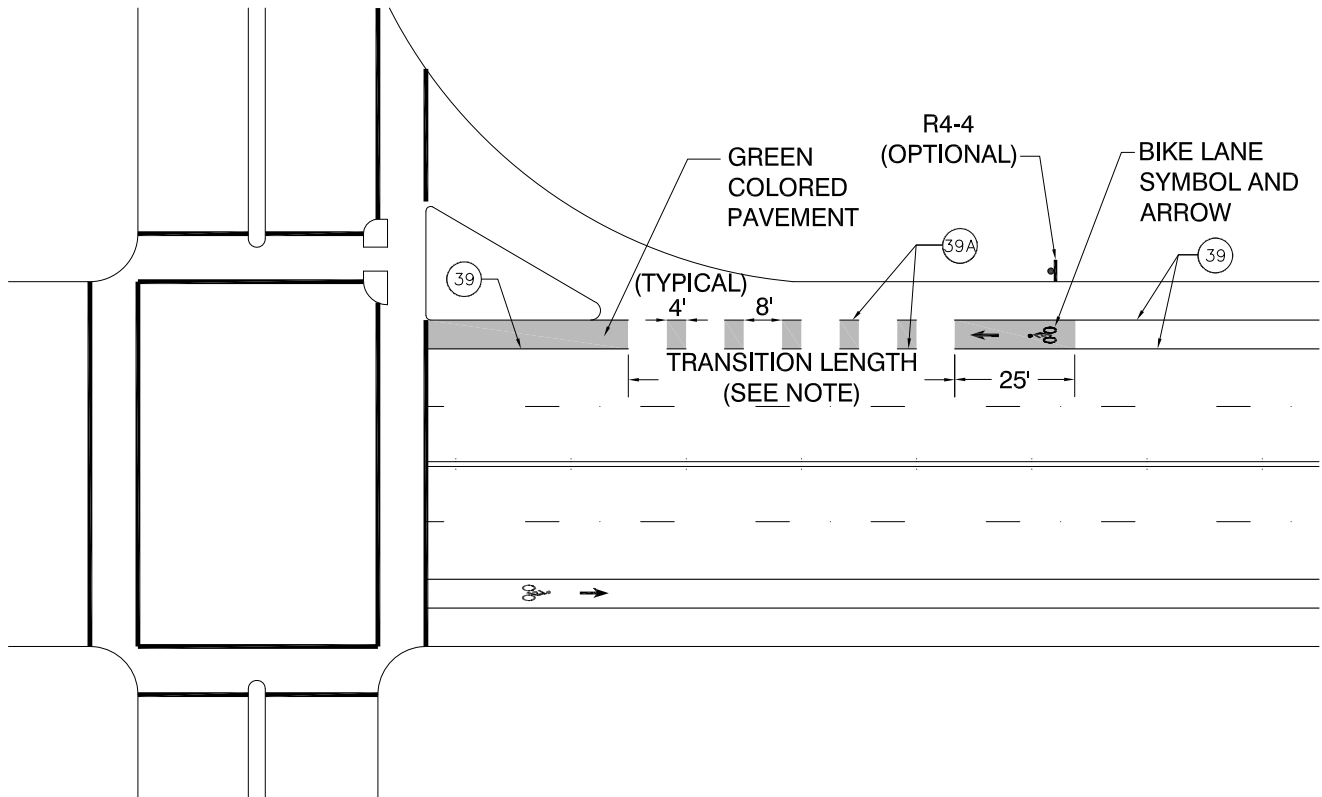
**CROSS-SECTION  
 DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

**CS-7**



**NOTES**

Transition length is determined by roadway geometry (68' as shown).



MUTCD R4-4 Sign

NOT TO SCALE



**CITY OF OAKLAND**

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**GREEN BIKE LANE  
 (TYPE 1)  
 SLIP TURN - UPSTREAM**

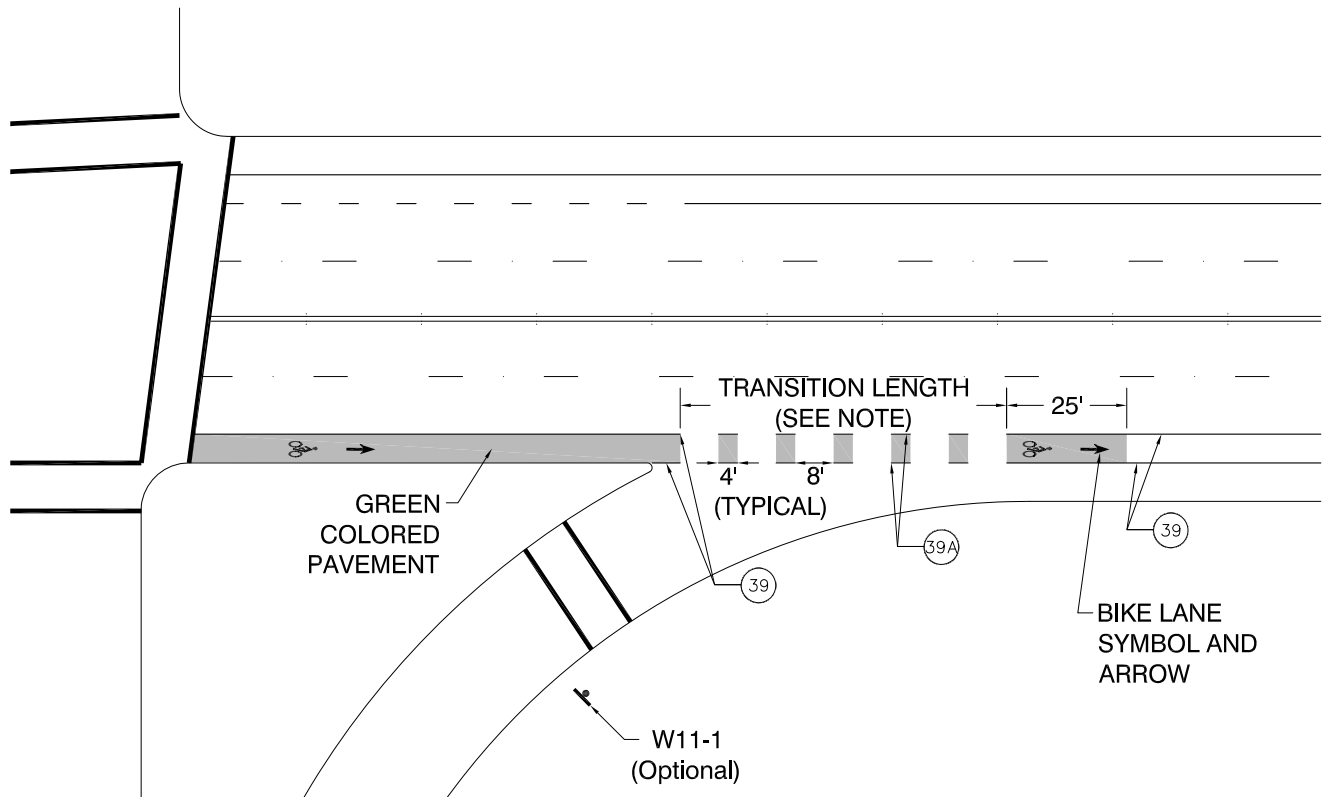
**GREEN BIKE LANE  
 DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

**GB-1**



**NOTES**

Transition length is determined by roadway geometry (68' as shown).



MUTCD W11-1 Sign

NOT TO SCALE



**CITY OF OAKLAND**

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**GREEN BIKE LANE  
 (TYPE 2)  
 SLIP TURN - DOWNSTREAM**

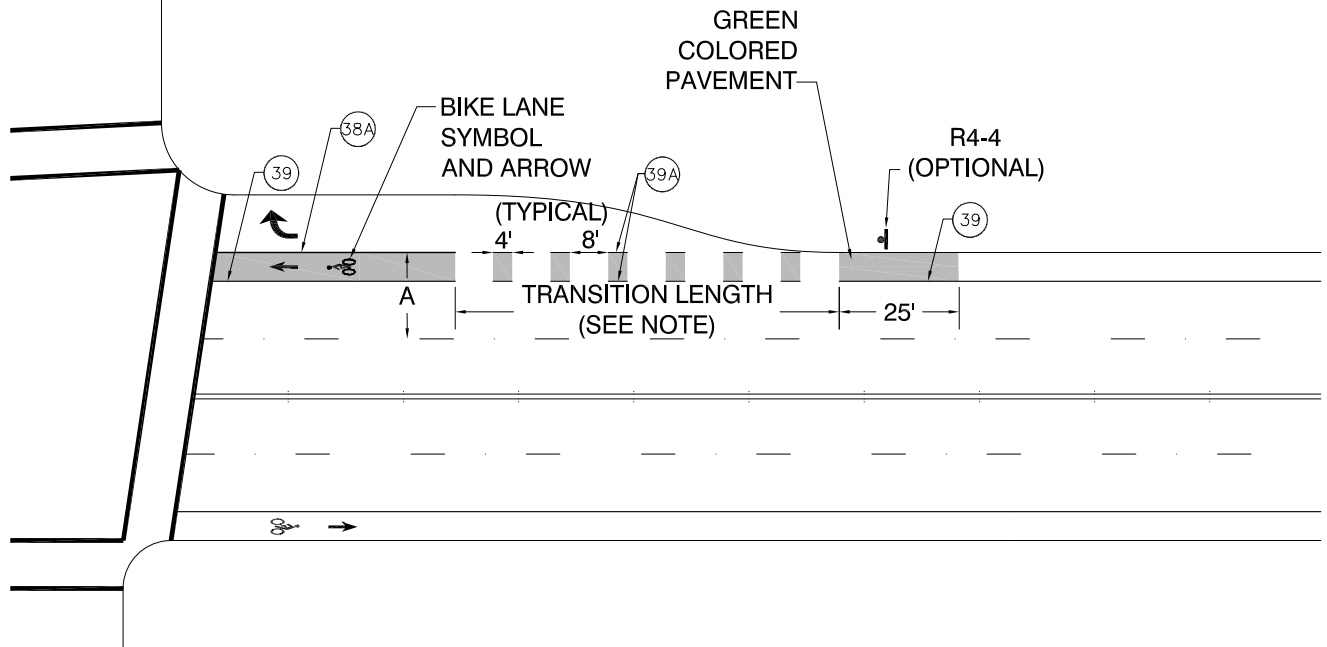
**GREEN BIKE LANE  
 DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

**GB-2**



**NOTES**

Transition length = 5 x A (typical, 80' as shown).



MUTCD R4-4 Sign

NOT TO SCALE



**CITY OF OAKLAND**

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**GREEN BIKE LANE  
 (TYPE 3)  
 TURN POCKET**

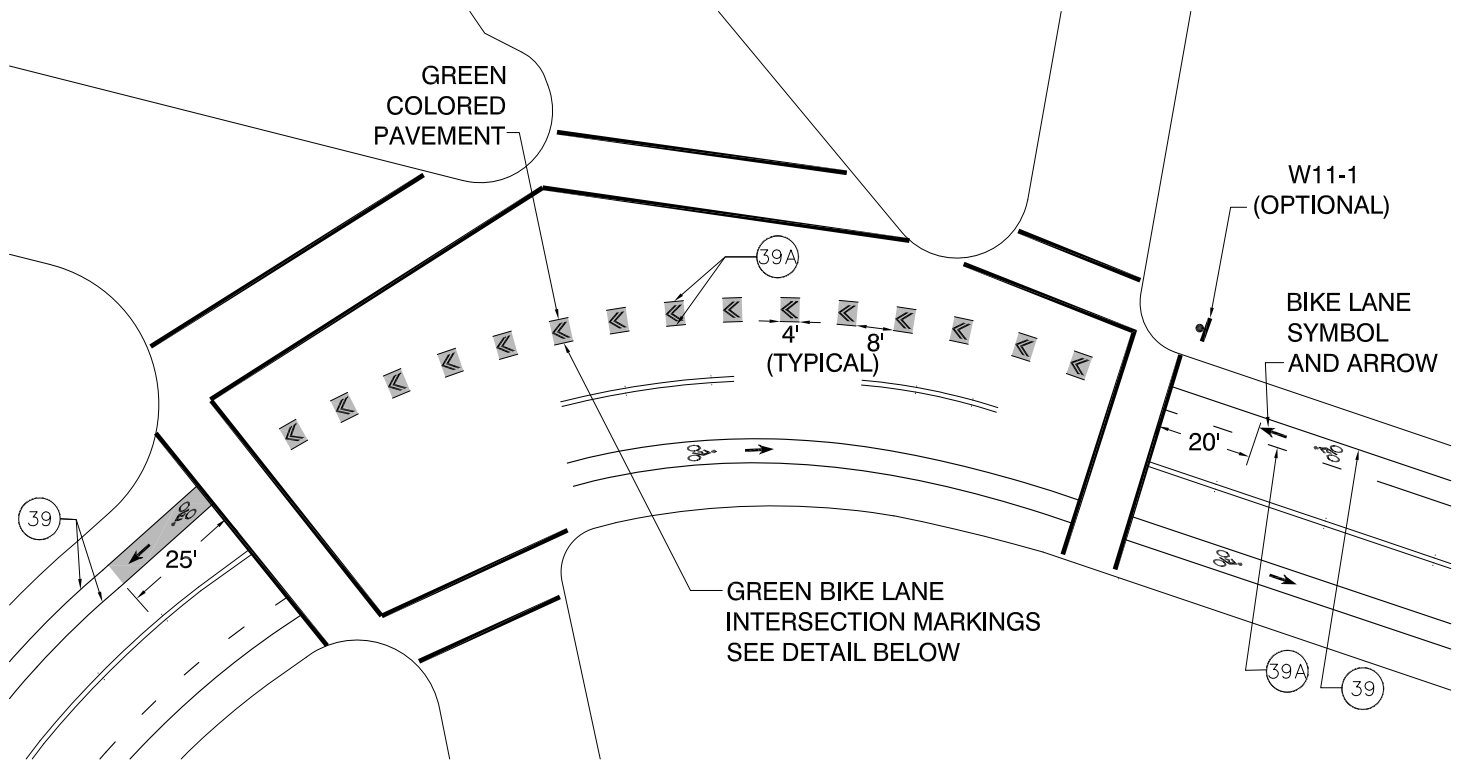
**GREEN BIKE LANE  
 DETAILS**

SCALE: NTS

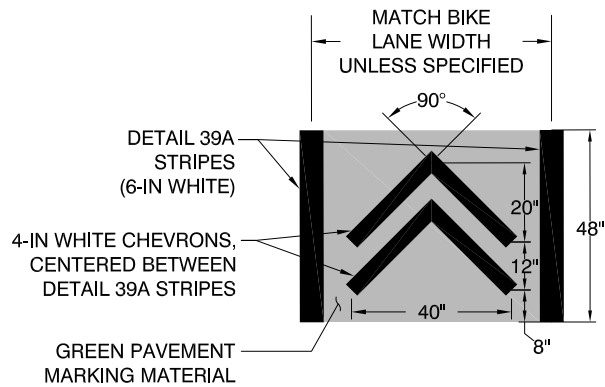
DWG. NO.

**GB-3**

DATE: MAR 2021



**GREEN BIKE LANE INTERSECTION MARKING DETAIL**



MUTCD W11-1 Sign

NOTE: UNLESS OTHERWISE SPECIFIED ON PLANS, THE LAYOUT OF BIKE LANE INTERSECTION MARKINGS SHALL CONFORM TO THE FOLLOWING:

1. SPACING PATTERN OF MARKINGS SHALL APPROXIMATE SPACING OF DETAIL 39A STRIPE (4-FT STRIPE, 8-FT SKIP MAY VARY, SEE BELOW)
2. THE LENGTH OF SKIPS BETWEEN MARKINGS MAY VARY TO ACCOMMODATE CURVES AND AVOID UTILITY COVERS OR OTHER IN-STREET APPURTENANCES
3. EACH INTERSECTION MARKING SHALL BE RECTANGULAR IN SHAPE, WITH SQUARE CORNERS AND PARALLEL SIDES.

NOT TO SCALE



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 EMAIL: bllkped@oaklandca.gov

**GREEN BIKE LANE  
 (TYPE 4)  
 COMPLEX INTERSECTION**

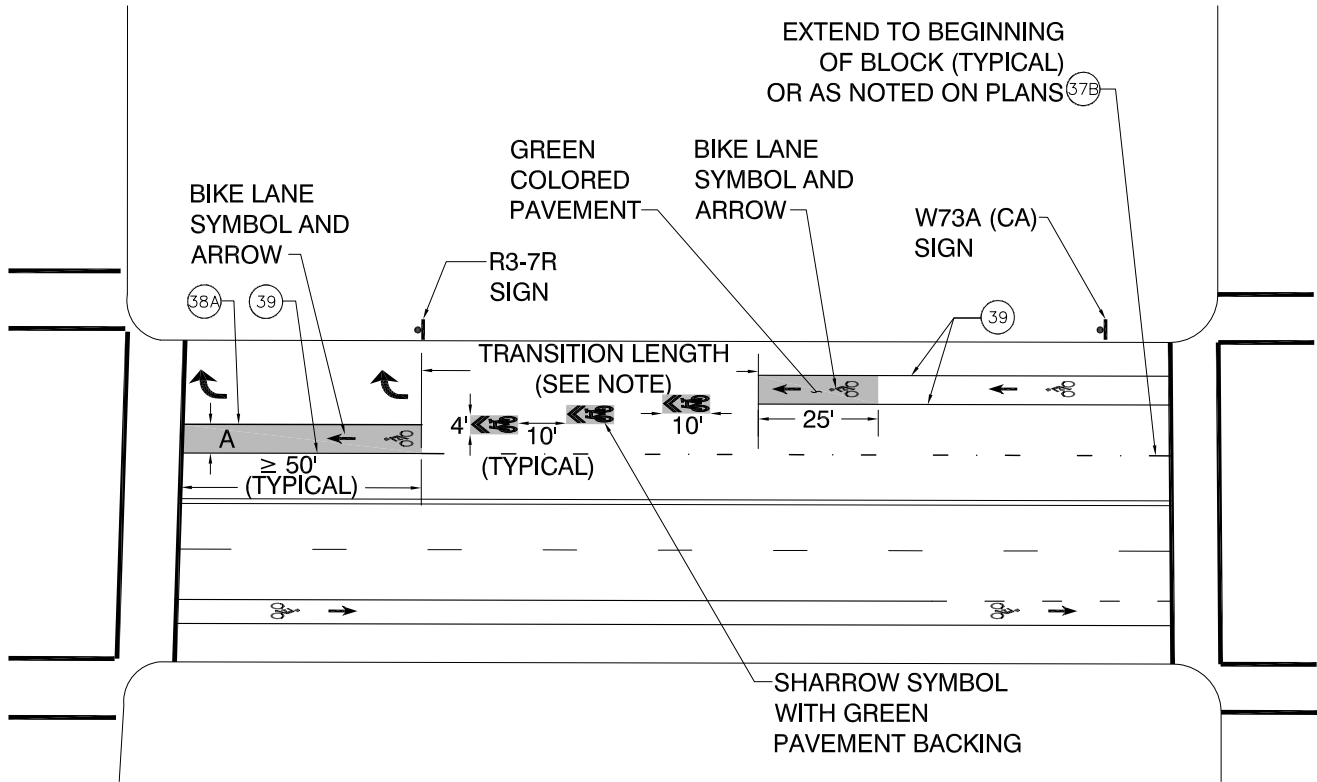
**GREEN BIKE LANE  
 DETAILS**

SCALE: NTS

DWG. NO.

GB-4

DATE: MAR 2021



**NOTES**

Downstream bike lane width (A) ≥ 6' recommended (4' minimum)

This treatment uses green-backed sharrows to mark the mixing zone. The first sharrow is centered on the right edge of the upstream travel lane. The last sharrow is centered on the left edge of the right turn lane. The sharrows in between shift evenly to the left. The typical transition length is 12 x A (70' as shown).



MUTCD R3-7R Sign



MUTCD W73A (CA) Sign

NOT TO SCALE



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 EMAIL: blkeped@oaklandca.gov

**GREEN BIKE LANE  
 (TYPE 5)  
 RIGHT-ONLY TRAP LANE**

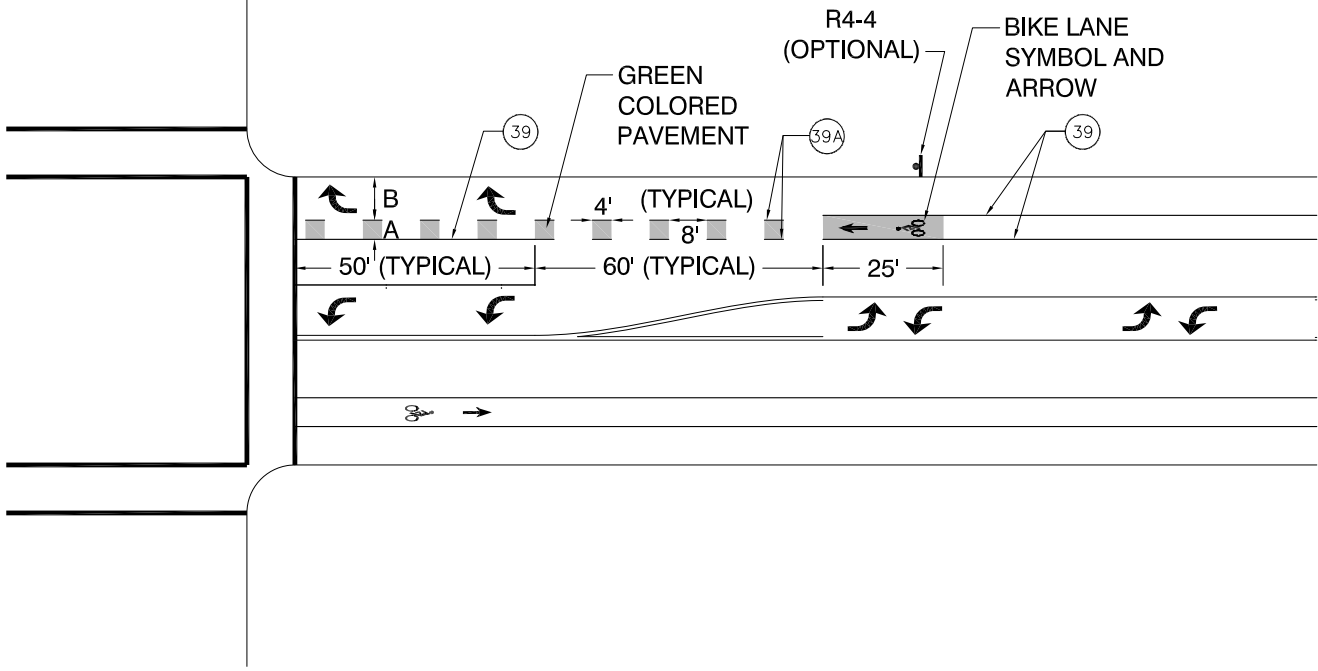
**GREEN BIKE LANE  
 DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

**GB-5**



**NOTES**

Downstream bike lane width (A) = 4' (Minimum)  
 Turn pocket width (B) = 8' (Minimum)

If  $A + B \geq 15'$ , use the Turn Pocket (Type 3) Detail for green bike lanes (DWG. GB-3)



MUTCD R4-4 Sign

NOT TO SCALE



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 EMAIL: b1keped@oaklandca.gov

**GREEN BIKE LANE  
 (TYPE 6)  
 COMBINED BIKE LANE  
 & RIGHT TURN POCKET**

**GREEN BIKE LANE  
 DETAILS**

SCALE: NTS

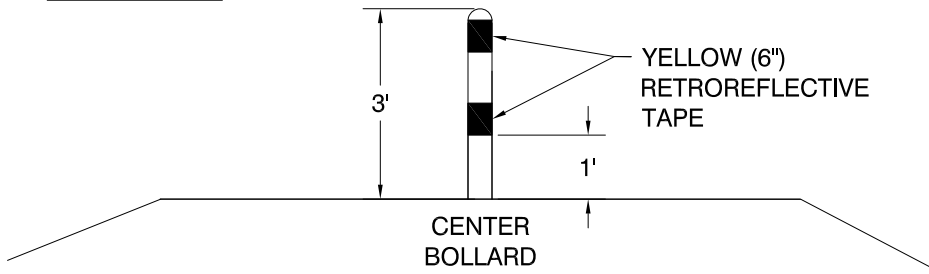
DWG. NO.

DATE: MAR 2021

**GB-6**



SECTION VIEW



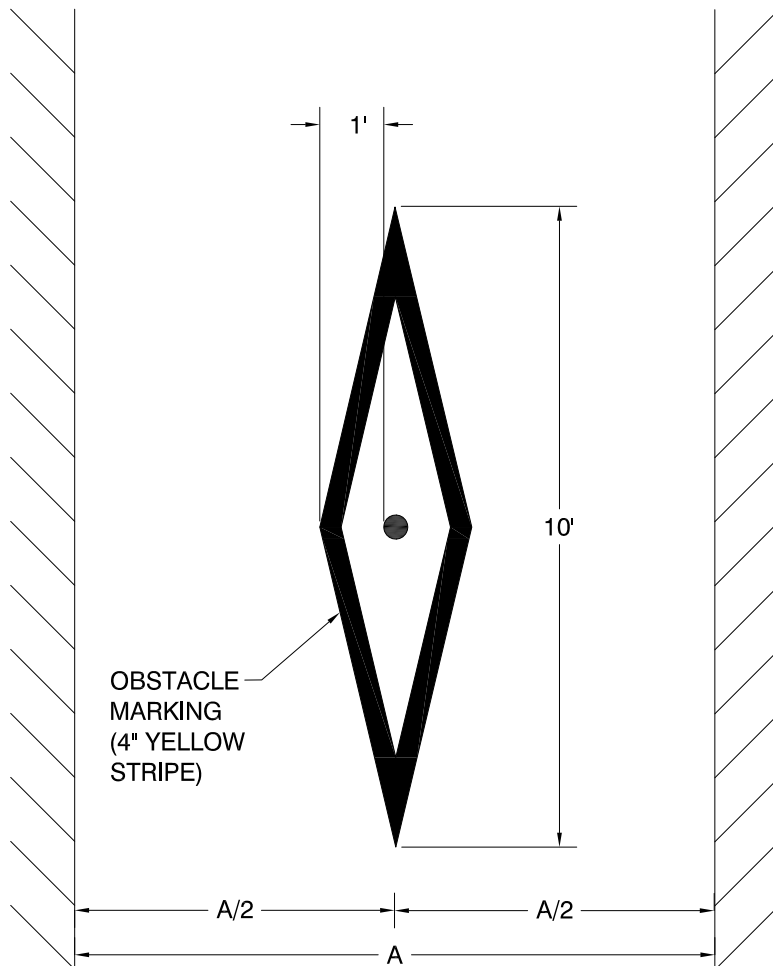
**MUTCD Section 9C.101(CA) Barrier Posts on Class I Bikeways**

**Support:** Before a decision is made to install barrier posts, consideration needs to be given to the implementation of other remedial measures, such as Bike Path Exclusion (R44A(CA)) signs (see Section 9B.08) and/or redesigning the path entry so that motorists do not confuse it with vehicle access.

**Guidance:** Such devices should be used only where extreme problems are encountered.

**Oakland Standard:** Removable bollards shall have a mount point that is flush with the travel surface.

PLAN VIEW



NOT TO SCALE



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 EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

**BOLLARD PLACEMENT  
 AND MARKINGS:  
 CENTER BOLLARD**

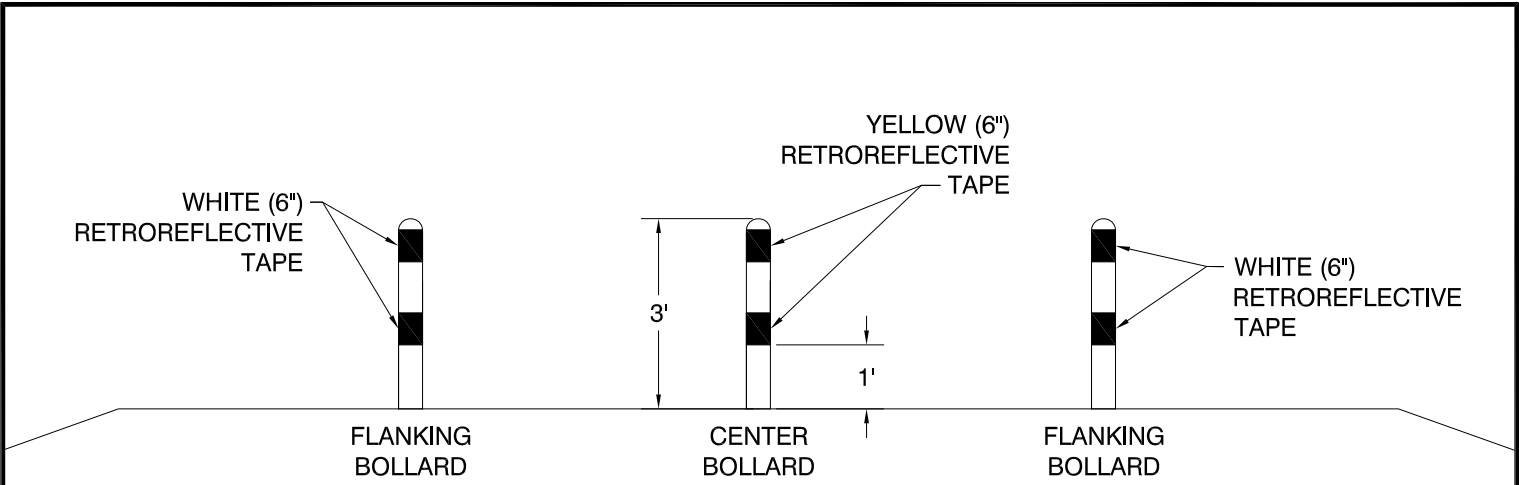
**BICYCLE PATH DETAILS**

SCALE: NTS

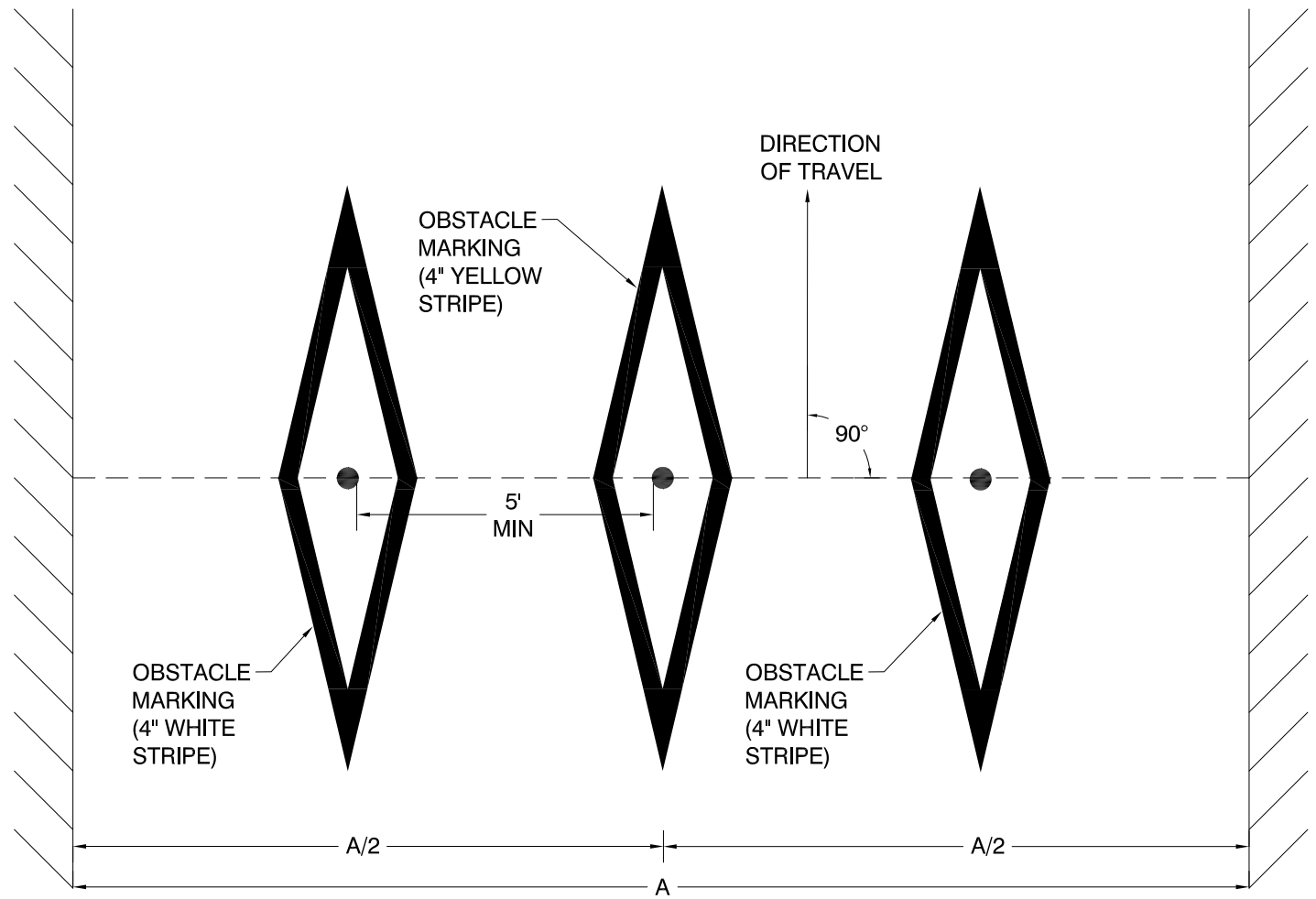
DWG. NO.

DATE: MAR 2021

**BP-1**



SECTION VIEW



PLAN VIEW

NOT TO SCALE



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**BOLLARD PLACEMENT  
 AND MARKINGS:  
 CENTER BOLLARD WITH  
 FLANKING BOLLARDS**

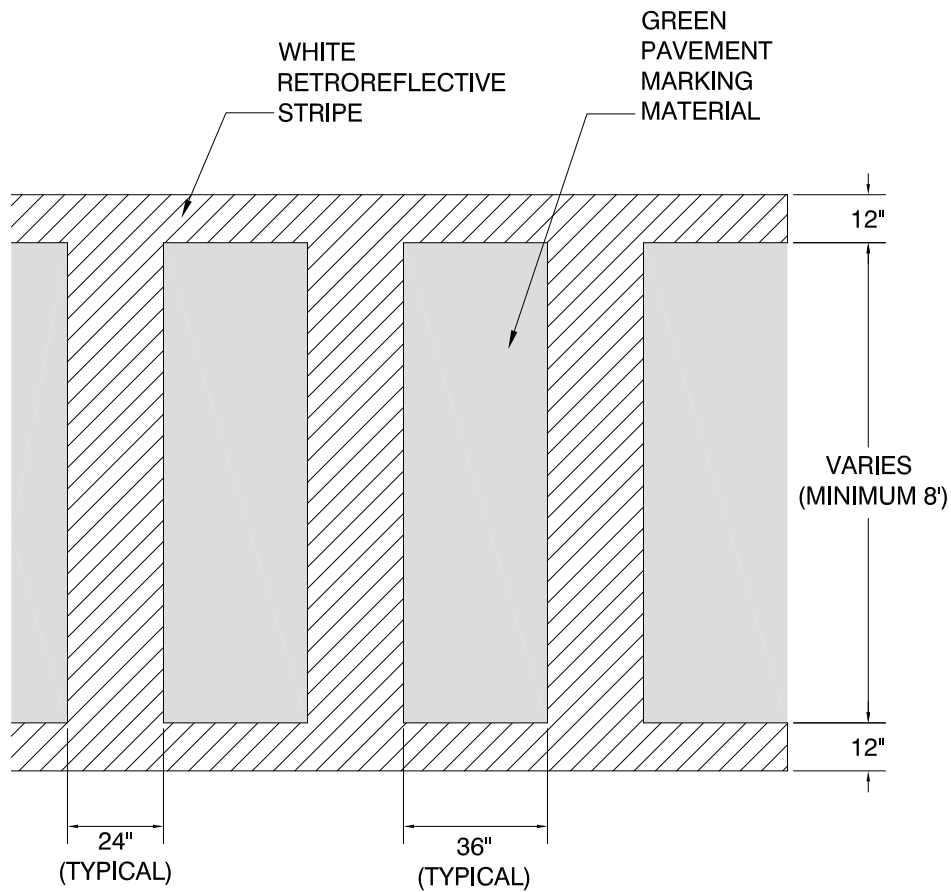
**BICYCLE PATH DETAILS**

SCALE: NTS

DWG. NO.

BP-2

DATE: MAR 2021



**NOTES**

1. The ladder crosswalk for bicyclist/pedestrian paths should be used at locations where a bicyclist/pedestrian path (multi-use trail) crosses an intersecting street. This detail may be used where driveways cross a bicyclist/pedestrian path.
2. The green and white pavement marking materials used to mark this crosswalk detail shall be installed to ensure a comfortable crossing surface, free of any large surface discontinuities, and with anti-slip properties (by incorporation of anti-skid particles or other means). If thermoplastic materials are used, green and white thermoplastic material shall be of the same thickness and the installation shall be free of any large seams, gaps, or overlaps that would create a "rumble strip" effect.

NOT TO SCALE



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 EMAIL: [bkped@oaklandca.gov](mailto:bkped@oaklandca.gov)

**CROSSWALK MARKING  
 FOR  
 BICYCLIST/PEDESTRIAN  
 PATHS**

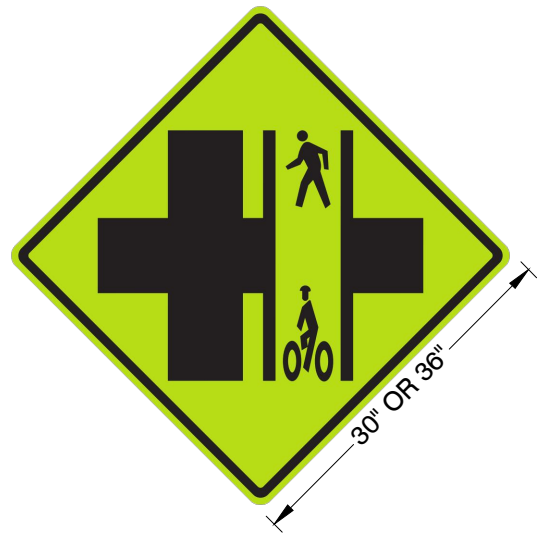
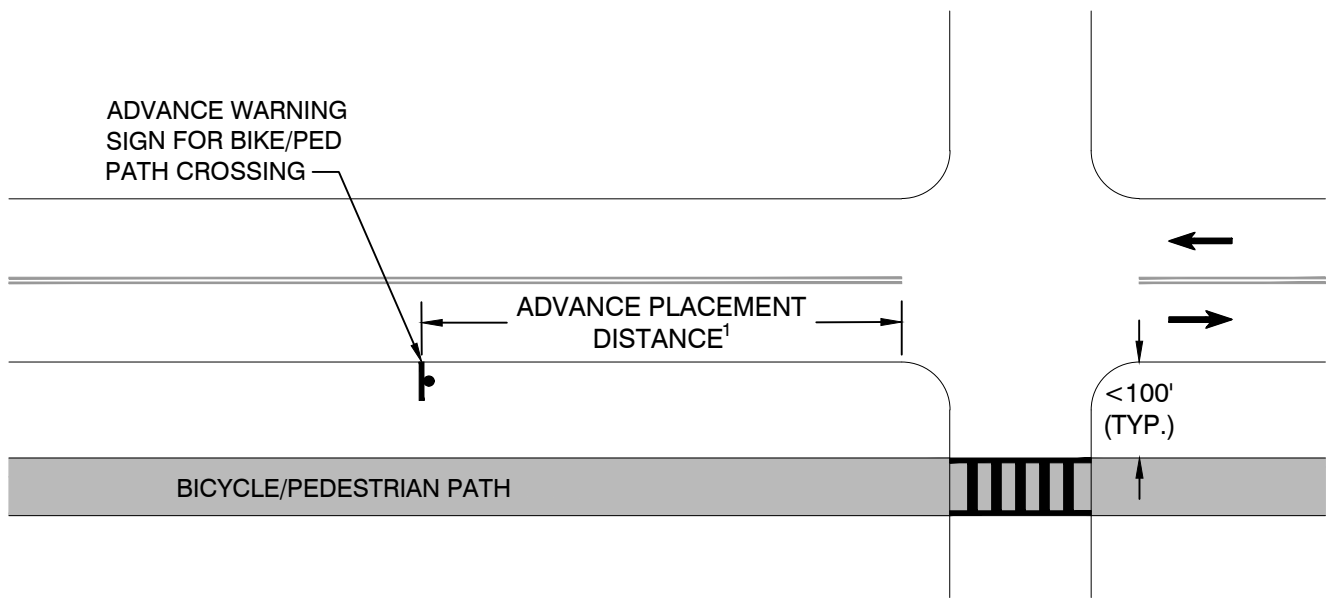
BICYCLE PATH DETAILS

SCALE: NTS

DWG. NO.

BP-3

DATE: MAR 2021



ADVANCE WARNING SIGN FOR BIKE/PED PATH CROSSWALKS (STANDARD INTERSECTION)

NOTES

1. For advance placement distance, see CA MUTCD, Table 2C-4
2. Sign background color = fluorescent yellow-green, retroreflective
3. Sign legend and border color= black
4. For source file (.pdf) for fabrication, email [bikeped@oaklandca.gov](mailto:bikeped@oaklandca.gov)

NOT TO SCALE



**CITY OF OAKLAND**

DEPARTMENT OF TRANSPORTATION | SAFE STREETS DIVISION  
 BICYCLE & PEDESTRIAN PROGRAM  
 250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
 EMAIL: [bikeped@oaklandca.gov](mailto:bikeped@oaklandca.gov)

**ADVANCE WARNING SIGN FOR BICYCLE/PEDESTRIAN SIDE PATH CROSSWALKS (STANDARD INTERSECTION)**

**BICYCLE PATH DETAILS**

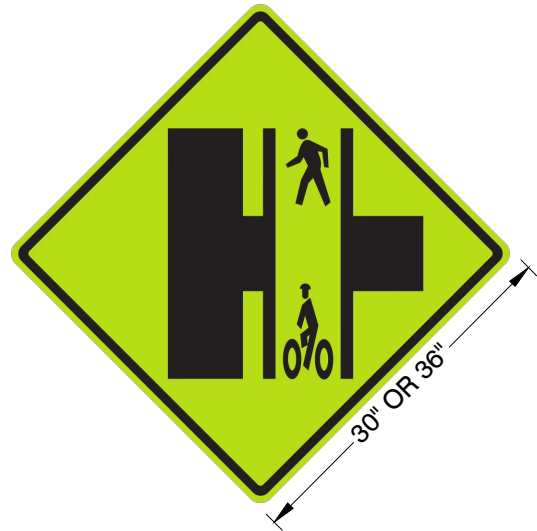
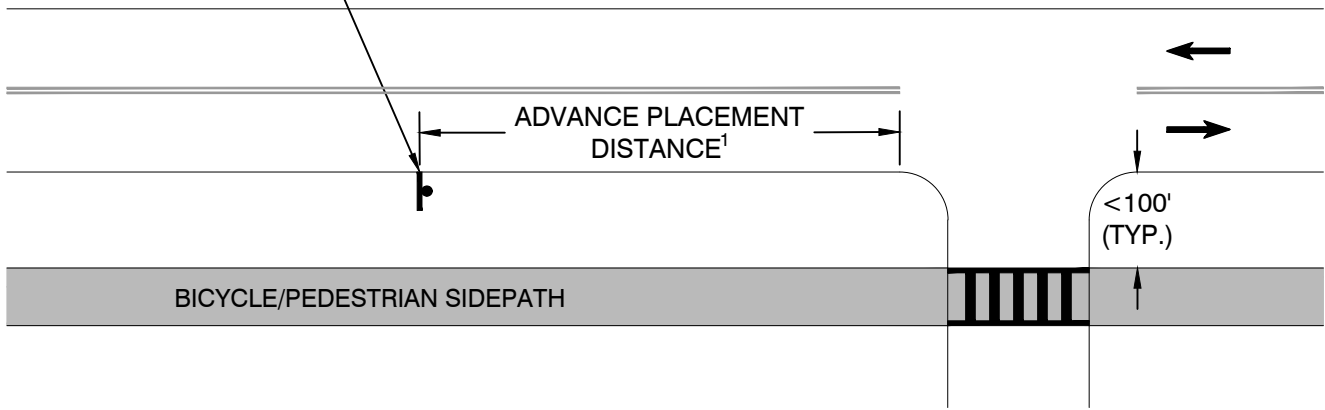
SCALE: NTS

DWG. NO.

DATE: MAR 2021

**BP-4**

ADVANCE WARNING  
SIGN FOR BIKE/PED  
PATH CROSSING



ADVANCE WARNING SIGN FOR  
BIKE/PED PATH CROSSWALKS  
(T INTERSECTION)

NOTES

1. For advance placement distance, see CA MUTCD, Table 2C-4
2. Sign background color = fluorescent yellow-green, retroreflective
3. Sign legend and border color = black
4. For source file (.pdf) for fabrication, email [bikeped@oaklandca.gov](mailto:bikeped@oaklandca.gov)

NOT TO SCALE



CITY OF OAKLAND

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BICYCLE & PEDESTRIAN PROGRAM  
250 FRANK H. OGAWA PLAZA, SUITE 4314 \* OAKLAND CA, 94612  
EMAIL: [bikeped@oaklandca.gov](mailto:bikeped@oaklandca.gov)

ADVANCE WARNING SIGN FOR  
BICYCLE/PEDESTRIAN SIDEPATH  
CROSSWALKS  
(T INTERSECTION)

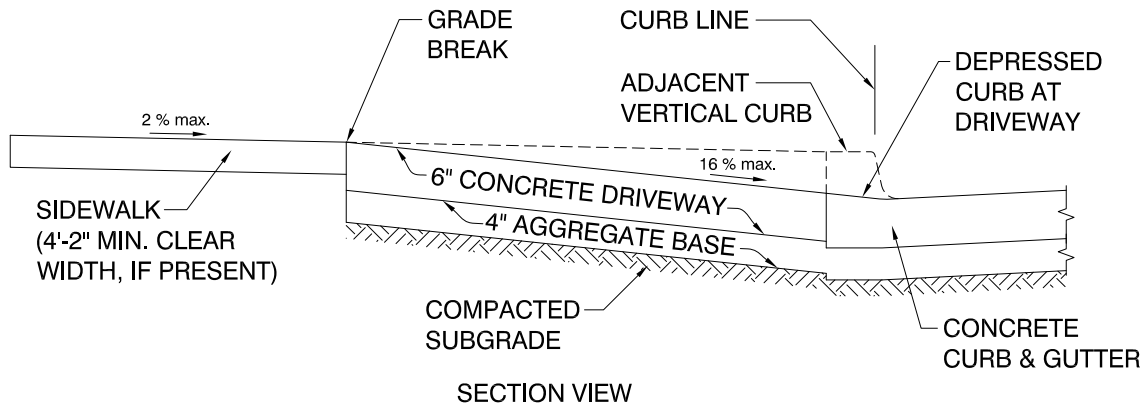
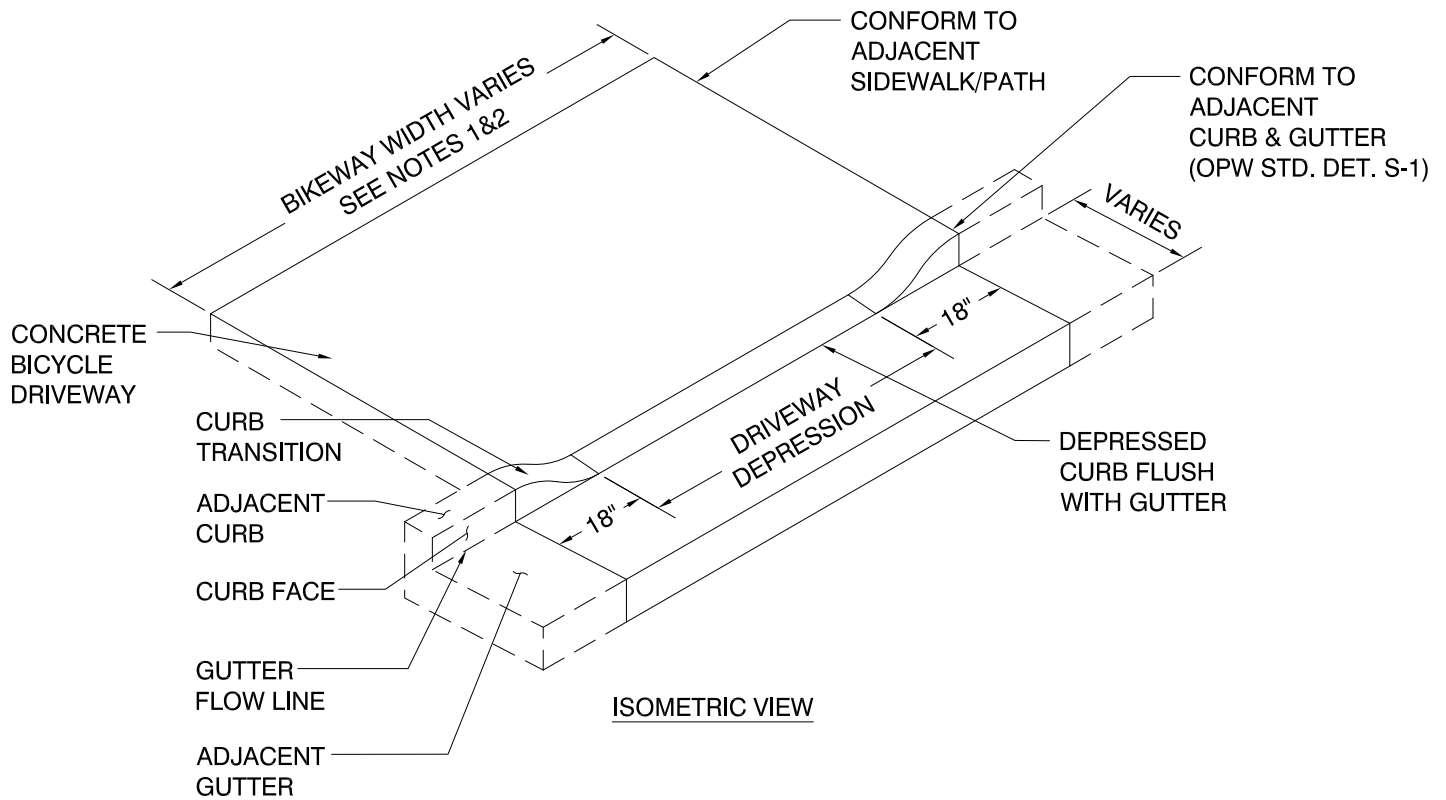
BICYCLE PATH DETAILS

SCALE: NTS

DWG. NO.

DATE: MAR 2021

BP-5



**NOTES**

1. Bicycle specific driveways for one-way bicycle travel should be a minimum of 7 feet in width (4-foot minimum driveway depression and two 18-inch curb transitions).
2. Bicycle specific driveways for two-way bicycle travel should be a minimum of 11 feet in width (8-foot minimum driveway depression and two 18-inch curb transitions).
3. Bicycle specific driveways shall be flush with the gutter for the entire width of the driveway depression, and shall be sloped to drain along adjacent gutter flow line.
4. Bicycle specific driveway, curb, and gutter shall conform to line, grade, and dimension of adjacent sidewalks, curbs and gutters.
5. If driveway crosses a sidewalk, the driveway should be designed to maintain a sidewalk clear width of 36 inches, minimum. The maximum cross-slope in the sidewalk shall not exceed 1/4-inch per foot (~2%).
6. See City of Oakland Standard Details S-1 and S-2 for general driveway, curb, and gutter construction and material notes.

NOT TO SCALE



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 EMAIL: blkeped@oaklandca.gov

**CONCRETE DRIVEWAY  
 BICYCLES ONLY**

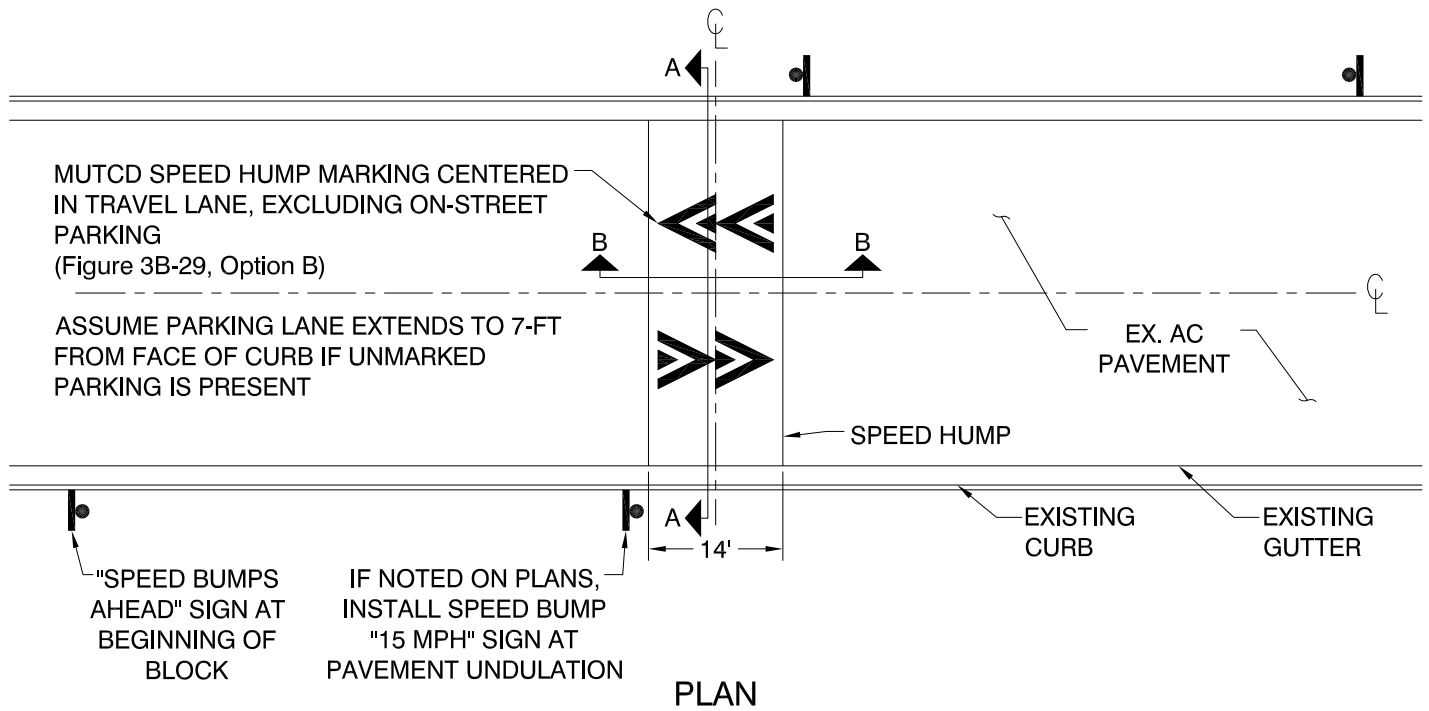
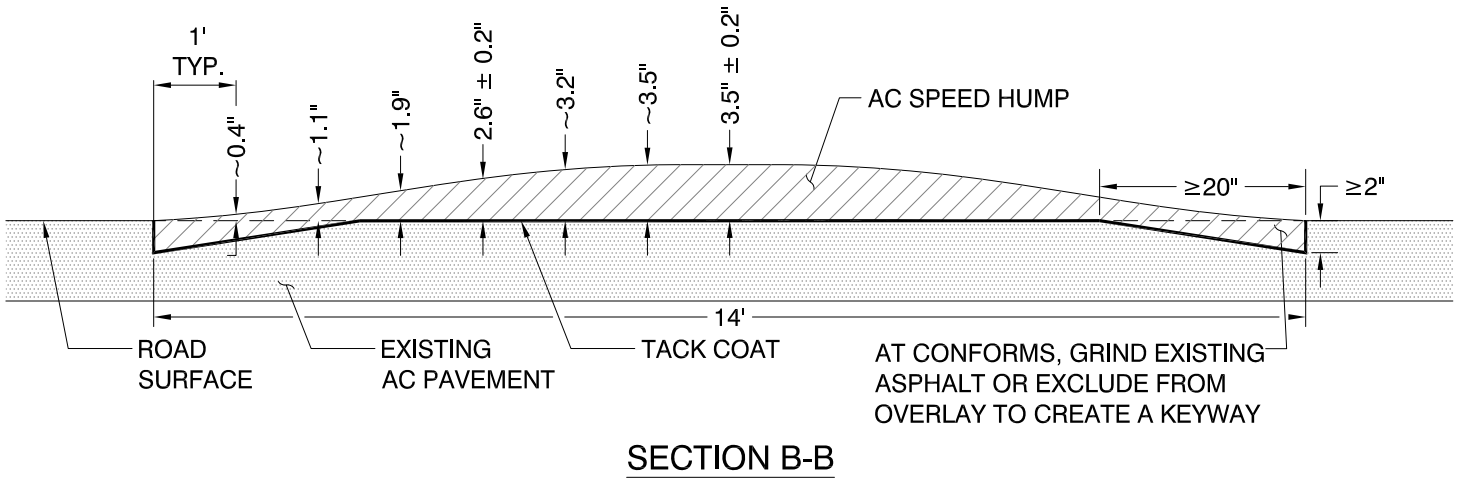
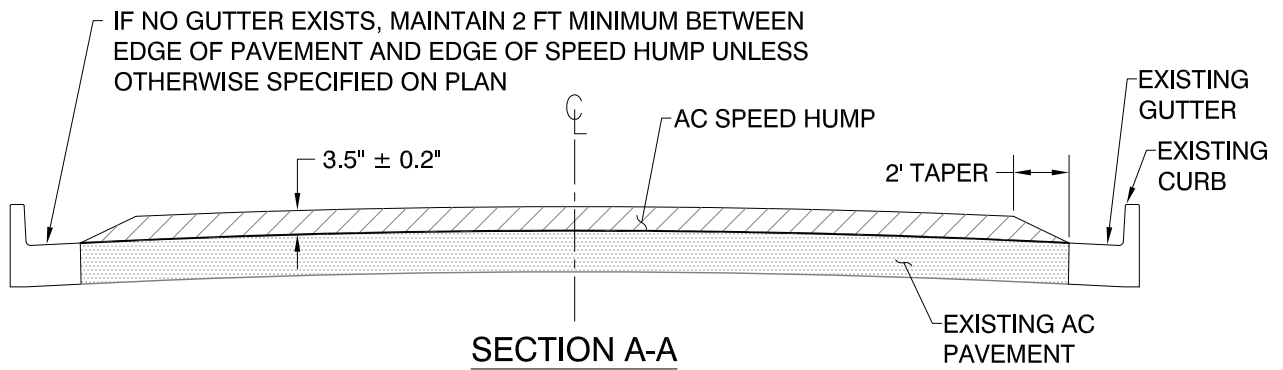
**BICYCLE PATH DETAILS**

SCALE: NTS

DWG. NO.

BP-6

DATE: MAR 2021



# CITY OF OAKLAND

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EMAIL: [blkeped@oaklandca.gov](mailto:blkeped@oaklandca.gov)

## SINUSOIDAL SPEED HUMP

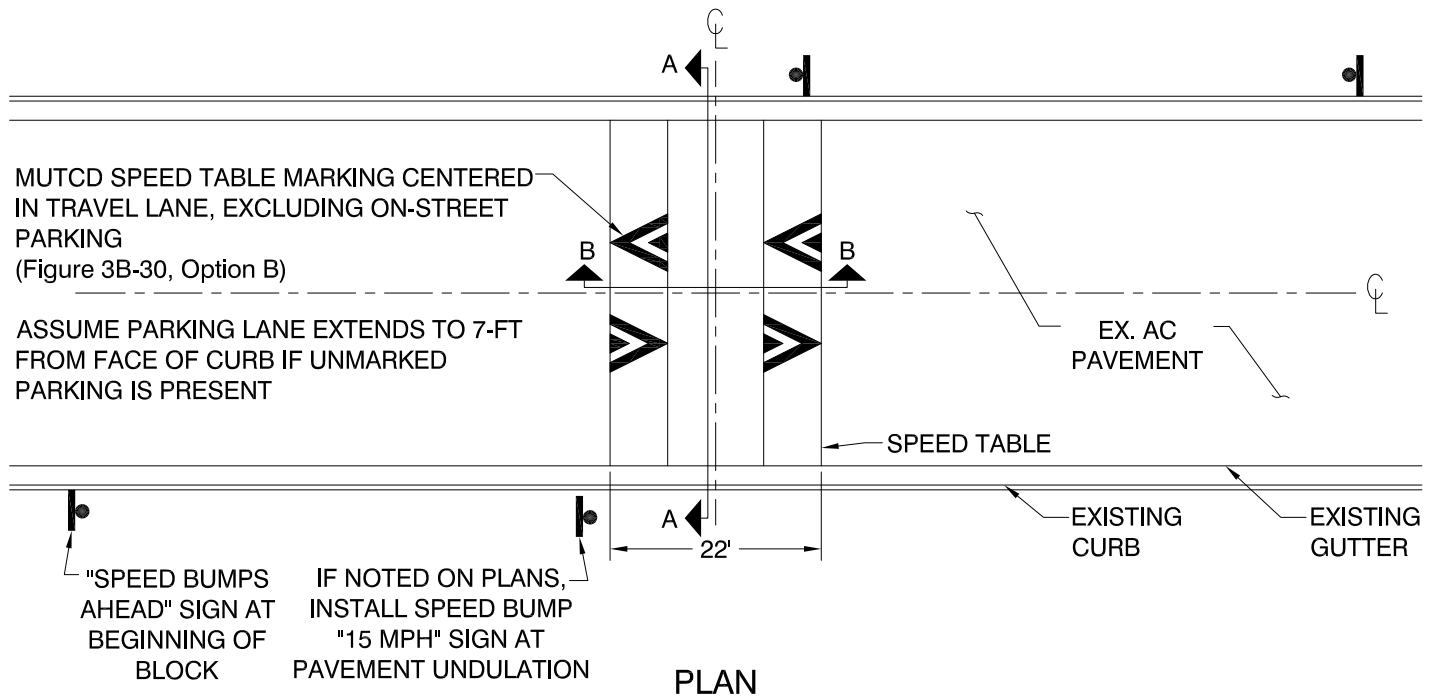
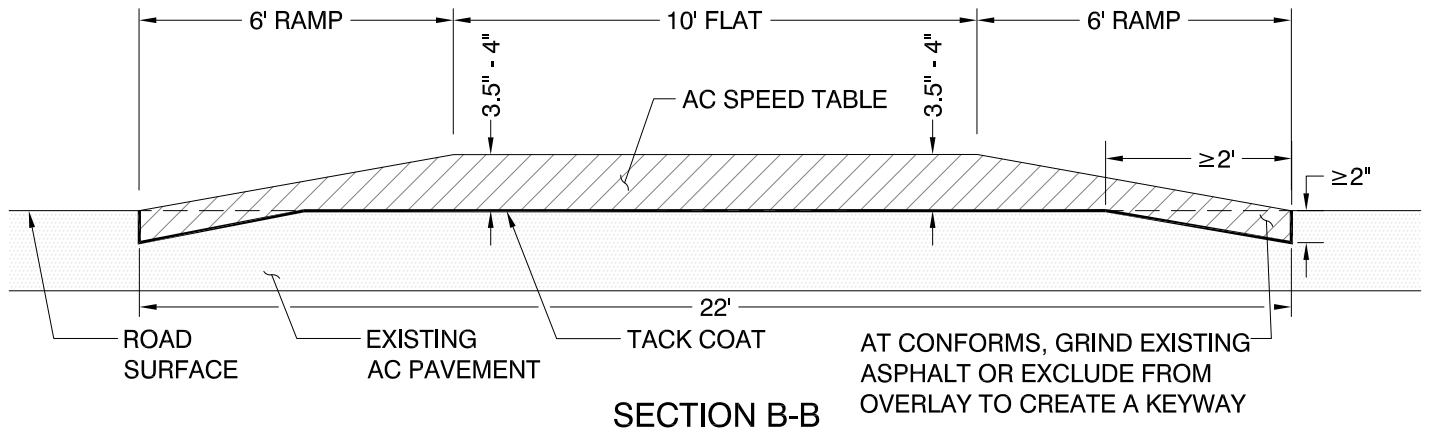
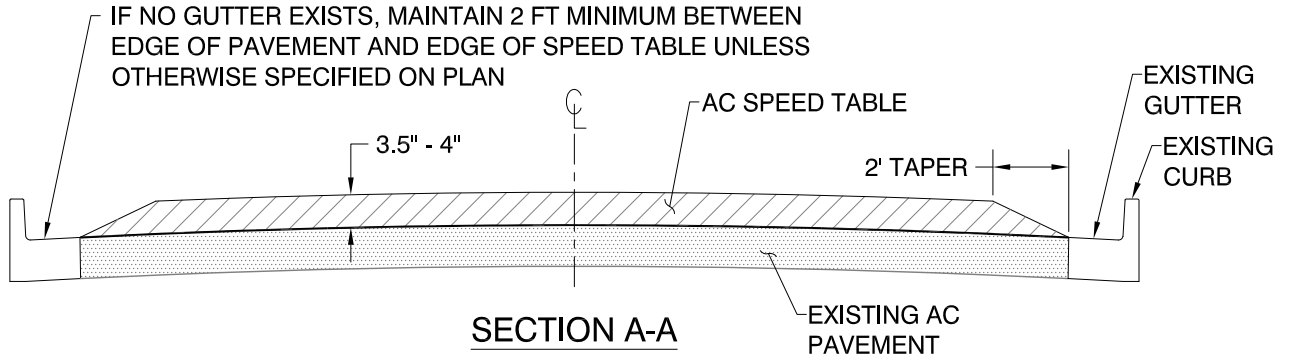
### TRAFFIC CALMING DETAILS

SCALE: NOT TO  
SCALE

DWG. NO.

DATE: MAR 2021

TC-1



# CITY OF OAKLAND

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EMAIL: blkped@oaklandca.gov

## SPEED TABLE

### TRAFFIC CALMING DETAILS

SCALE: NOT TO SCALE

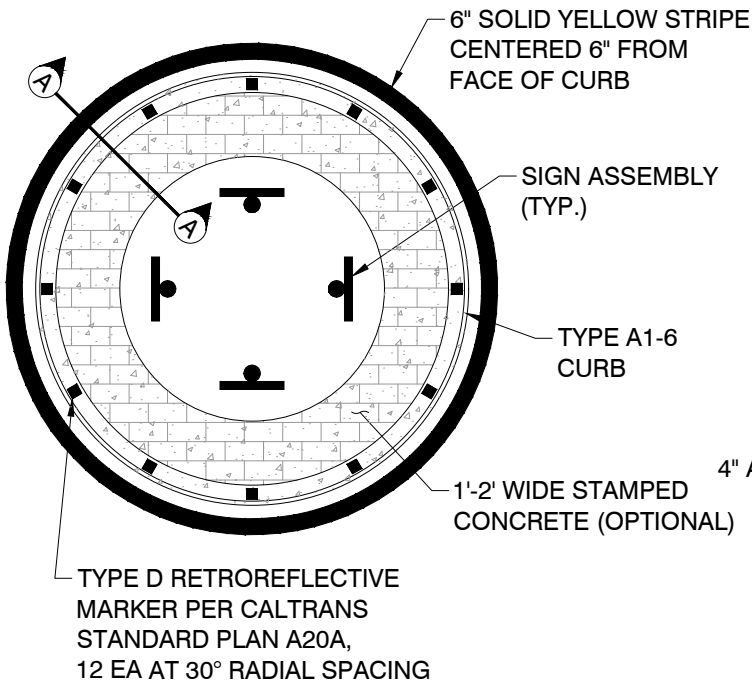
DWG. NO.

DATE: MAR 2021

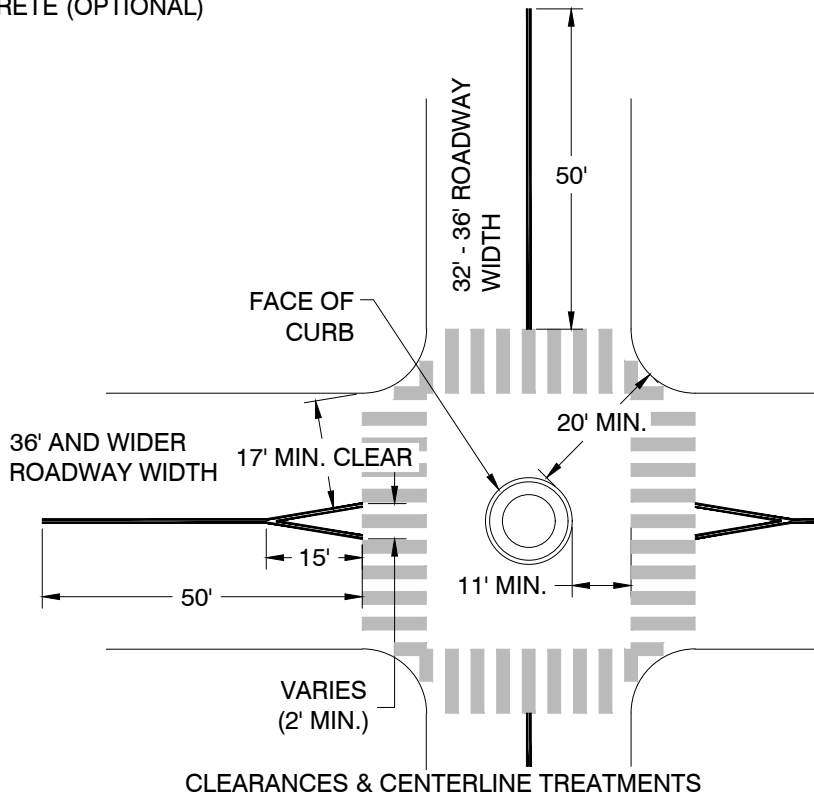
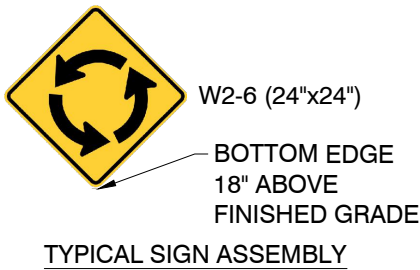
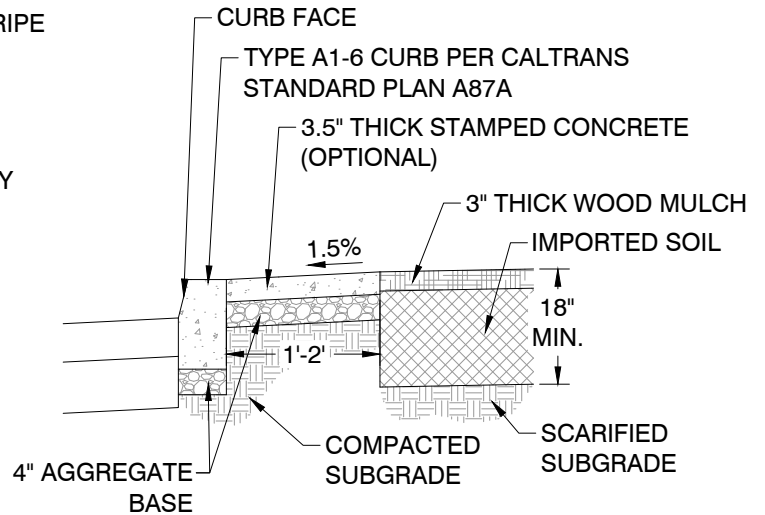
TC-2



**PLAN VIEW**



**SECTION A-A**



**NOTES**

1. Neighborhood traffic circles designed to these clearances typically fit within intersections of local streets of at least 30 feet in width, and with an inscribed circle diameter of at least 48 feet. Neighborhood traffic circles should typically have diameters of 8 feet or larger. Neighborhood traffic circles may be feasible in more geometrically constrained intersections. Consideration should be given to ensuring smaller circles are visible and whether the inclusion of landscaping and stamped concrete are practical.
2. Neighborhood traffic circles at rectilinear intersections of local streets will typically have all-way stop control. On approaches without stop control, Type K-2(CA) object markers may be added to the typical sign assembly.

NOT TO SCALE



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EMAIL: bikaped@oaklandca.gov

**NEIGHBORHOOD  
TRAFFIC CIRCLE**

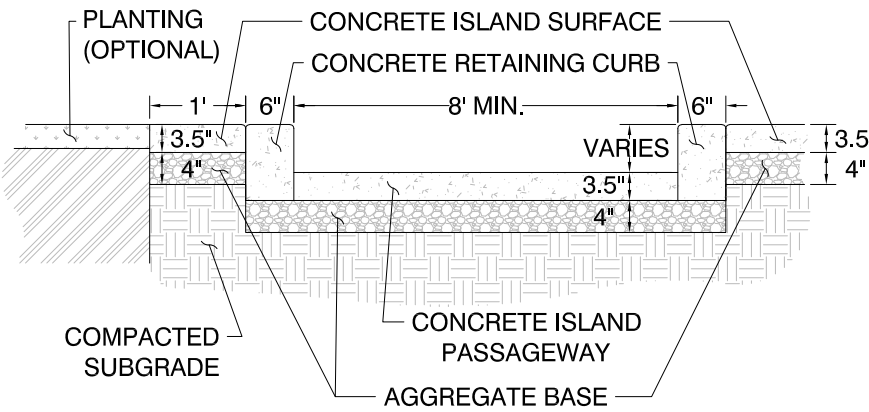
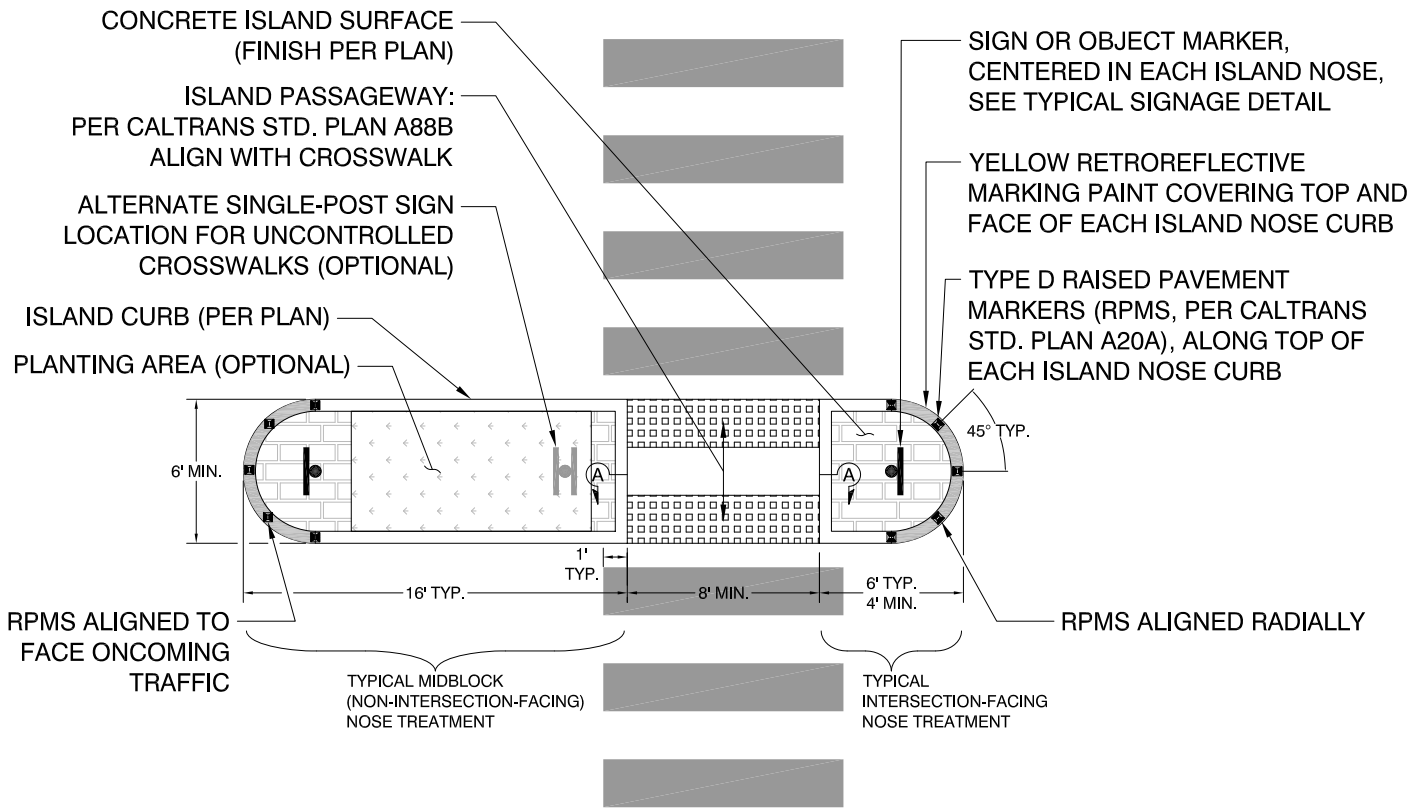
**TRAFFIC CALMING  
DETAILS**

SCALE: NTS

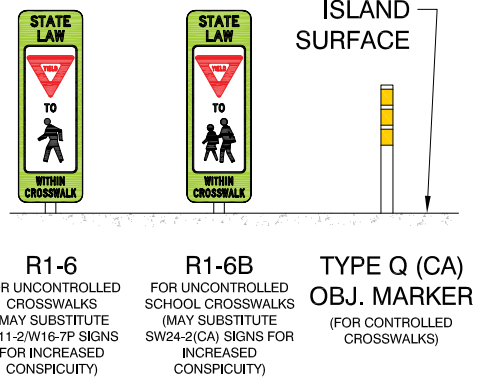
DWG. NO.

DATE: MAR 2024

TC-3



SECTION A-A



TYPICAL MUTCD SIGNAGE DETAIL

NOTES

1. The minimum width for a pedestrian safety island is 6 ft. Wider pedestrian safety islands may be beneficial, provided there is adequate cross-sectional width in the roadway. Median islands less than 6 ft in width are not pedestrian safety islands and do not have detectable warning surfaces in the island passageway. However, narrow median islands with passageways at crosswalks may be beneficial in constrained locations.
2. The raised surface within pedestrian safety islands typically consists of concrete with integral color admixtures to achieve a 'light brown' appearance, finished with a stamped pattern resembling 'London cobbles'. Other colors (e.g. 'moderate pink' or plain concrete) or finishes (e.g. broom finish) may also be specified in the project plans.

NOT TO SCALE



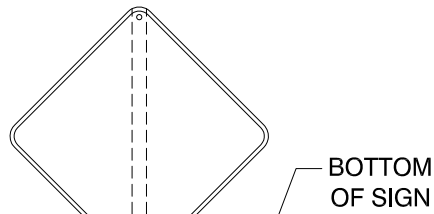
CITY OF OAKLAND

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BICYCLE & PEDESTRIAN PROGRAM  
250 FRANK H. OGAWA PLAZA, SUITE 4344 \* OAKLAND CA, 94612  
(510) 238-3466 \* FAX (510) 238-7415

PEDESTRIAN SAFETY ISLAND DETAIL

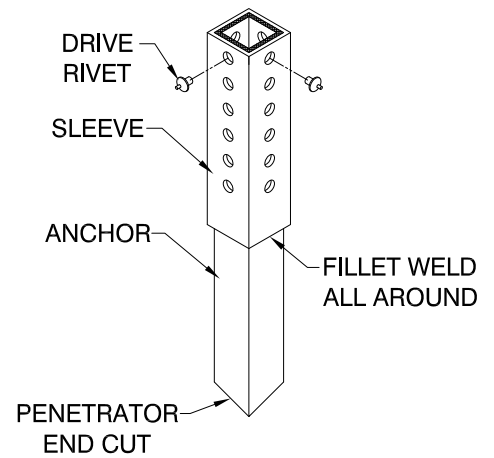
TRAFFIC CALMING DETAILS

SCALE: NTS	DWG. NO. TC-4
DATE: MAR 2024	



2"x2"x14 GAUGE SIGN POST  
(CUT POST TO MEET  
SPECIFIED SIGN HEIGHT)

7' MIN.



**ANCHOR/SLEEVE DETAIL**

SECURE USING 3/8" ZINC  
PLATED DRIVE RIVETS ON TWO  
ADJACENT SIDES OF POST  
SEE ANCHOR/SLEEVE DETAIL

TWO  
ANCHOR  
HOLES  
ABOVE  
GROUND

TOP OF  
SIDEWALK

FACE OF CURB 18" MIN.

2-1/2" x 2-1/2" x 12 GAUGE SLEEVE  
MIN. LENGTH = 12"  
WELDED TO ANCHOR  
SEE ANCHOR/SLEEVE DETAIL

2-1/4" x 2-1/4" x 12 GAUGE ANCHOR  
WITH PENETRATOR END CUT  
MIN. DEPTH = 24" (CONCRETE SURFACE)  
MIN. DEPTH = 30" (UNFINISHED SURFACE)  
SEE ANCHOR/SLEEVE DETAIL

NOT TO SCALE



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**STANDARD SIGN POST DETAIL**

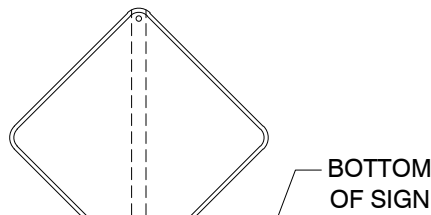
**SIGNAGE DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2021

**SD-1**



2" x 2" x 14 GAUGE SIGN POST  
(SIZE POST TO MEET  
SPECIFIED SIGN HEIGHT)



7' MIN.

SECURE POST TO BASE USING 3/8" ZINC PLATED DRIVE RIVETS ON TWO ADJACENT SIDES. SECURE BASE TO SIDEWALK USING FOUR 1/2" ZINC PLATED ANCHOR BOLTS. SEE SURFACE MOUNTED BASE DETAIL.

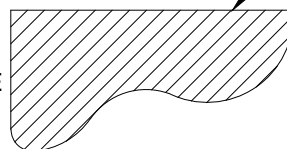
EMBED POST INTO FULL LENGTH OF BASE SLEEVE

FACE OF CURB

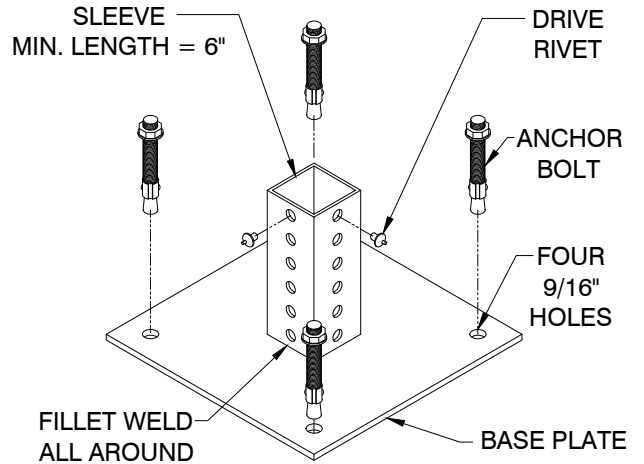
18" MIN.

TOP OF SIDEWALK

SQUARE BASE WITH 2-1/4" x 2-1/4" x 12 GAUGE SLEEVE WELDED TO 10" x 10" x 1/4" BASE PLATE SEE SURFACE MOUNTED BASE DETAIL



UNDERGROUND OBSTRUCTION. SEE NOTE 1



**SURFACE MOUNTED BASE DETAIL**

**NOTES:**

1. Surface mounted sign post bases may be installed where there are underground obstructions that are incompatible with standard sign post anchors (e.g. non-compliant basements or shallow utilities) and where these obstructions cannot be avoided by adjusting the sign post location.
2. Surface mounted sign post bases may only be mounted to rigid pavement (i.e. portland cement concrete).
3. The standard sign post detail (SD-1) should be used instead for cases not mentioned above.

NOT TO SCALE



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(510) 238-3466 \* FAX (510) 238-7415

**SURFACE MOUNTED  
SIGN POST DETAIL**

**SIGNAGE DETAILS**

SCALE: NTS

DWG. NO.

DATE: MAR 2024

**SD-2**



## DEPARTMENT OF TRANSPORTATION

---

**TO:** OakDOT/OPW Staff  
**FROM:** Wladimir Wlassowsky, Interim City Engineer  
**SUBJECT:** Supplemental Guidance – Application of Centerline Markings  
**DATE:** March 28, 2024

---

This memorandum provides guidance on the application of striped centerlines on Oakland streets. It supplements the standards and guidance included in the California MUTCD (Section 3B.01, “Yellow Center Line Pavement Markings and Warrants”), which are excerpted below for reference. The intent of this memorandum is to highlight applicable guidance in the CA MUTCD, document Oakland application of this guidance, and promote consistency in the application of centerline markings on Oakland roadways.

**CA MUTCD Standard:** Center line markings shall be placed on all paved urban arterials and collectors that have a traveled way of 20 feet or more in width and an ADT of 6,000 vehicles per day or greater. Center line markings shall also be placed on all paved two-way streets or highways that have three or more lanes for moving motor vehicle traffic.

**CA MUTCD Guidance:** Center line markings should be placed on paved urban arterials and collectors that have a traveled way of 20 feet or more in width and an ADT of 4,000 vehicles per day or greater. Center line markings should also be placed on all rural arterials and collectors that have a traveled way of 18 feet or more in width and an ADT of 3,000 vehicles per day or greater. Center line markings should also be placed on other traveled ways where an engineering study indicates such a need.

Engineering judgment should be used in determining whether to place center line markings on traveled ways that are less than 16 feet wide because of the potential for traffic encroaching on the pavement edges, traffic being affected by parked vehicles, and traffic encroaching into the opposing traffic lane.

***Oakland Guidance:***

- In this memorandum, the ‘traveled way’ is defined as the portion of the roadway for the movement of vehicles, exclusive of marked shoulders, bike lanes, and on-street parking lanes (assumed to be 8’ wide if unmarked).
- Where width allows, continuous centerlines should be installed on arterial streets.
- Where width allows, continuous centerlines should be installed on collector streets, except on streets being considered for reclassification as local streets.

- Continuous centerlines should not be installed on local streets, except for local streets with three or more striped vehicular travel lanes as required by the CA MUTCD.
- A 50-foot long section of solid double yellow centerline should be installed on all signal- and stop-controlled approaches to intersections where the traveled way width is 16 feet or greater (e.g., 32 feet curb-to-curb with on-street parking on both sides). These approach centerline markings should be omitted on uncontrolled approaches and approaches with narrower traveled way width, unless supported by engineering judgement.

**CA MUTCD Options:** Center line markings may be placed on other paved two-way traveled ways that are 16 feet or more in width.

If a traffic count is not available, the ADTs described in this Section may be estimates that are based on engineering judgment.



## DEPARTMENT OF TRANSPORTATION

---

**TO:** OakDOT/OPW Staff  
**FROM:** Wladimir Wlassowsky, Interim City Engineer  
**SUBJECT:** Supplemental Guidance – Application of Raised Pavement Markers  
**DATE:** March 28, 2024

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This memorandum provides guidance on the application of raised pavement markers (retroreflective and non-retroreflective) to supplement pavement markings in Oakland. It supplements the standards and guidance included in the California MUTCD (Section 3B.13, “Raised Pavement Markers Supplementing Other Markings”), which are excerpted below for reference. The intent of this memorandum is to highlight applicable guidance in the CA MUTCD, document Oakland application of this guidance, and promote consistency in the application of raised pavement markers supplementing pavement markings on Oakland roadways.

**CA MUTCD Standard:** The widths and patterns of raised pavement markers shall conform to the details shown in Figures 3A-101(CA) through 3A-114(CA). See Section 3A.06.

**CA MUTCD Guidance:** The use of retroreflective or internally illuminated raised pavement markers for supplementing longitudinal line markings should comply with the following:

A. Lateral Positioning

1. When supplementing double line markings, pairs of raised pavement markers placed laterally in line with or immediately outside of the two lines should be used.
2. When supplementing wide line markings, pairs of raised pavement markers placed laterally adjacent to each other should be used.

B. Longitudinal Spacing

3. When supplementing dotted lane line markings, a spacing appropriate for the application should be used.
4. When supplementing longitudinal line extension markings through at-grade intersections, one raised pavement marker for each short line segment should be used.

Raised pavement markers should not supplement right-hand edge lines unless an engineering study or engineering judgment indicates the benefits of enhanced delineation of a curve or other

location would outweigh possible impacts on bicycles using the shoulder, and the spacing of raised pavement markers on the right-hand edge is close enough to avoid misinterpretation as a broken line during wet night conditions.

***Oakland Guidance:***

Striping details with supplemental raised pavement markers (RPMs) may be used on roadways with one or more of the following conditions:

- Unimproved edges (without curbs);
- Significant horizontal curvature (common in hill areas above Highway 13/Mountain Blvd);
- Portland cement concrete pavement surface.

Note that the striping details listed below are those most commonly used on Oakland streets, with detail numbers as listed in Figures 3A-101 through 3A-114 of the CA MUTCD.

<b>Type of longitudinal pavement marking</b>	<b>Typical roadways (without conditions noted above)</b>	<b>Roadways with a condition noted above</b>
Centerlines	Detail 1	Detail 2
Centerlines (Two-Way No Passing)	Detail 21	Detail 22
Lane Lines	Detail 8	Detail 9
Left Edge Lines	Detail 24	Detail 25
Median Islands (Striped/All-Paved)	Detail 28	Detail 29
Two-Way Left Turn Lanes	Detail 31	Detail 32
Lane Drop Markings	Detail 37B (w/o optional RPMs)	Detail 37B (with optional RPMs)
Channelizing Lines	Detail 38A	Detail 38

**CA MUTCD Options:** Raised pavement markers also may be used to supplement other markings such as channelizing islands, gore areas, approaches to obstructions, or wrong-way arrows.

To improve the visibility of horizontal curves, center lines may be supplemented with retroreflective or internally illuminated raised pavement markers for the entire curved section as well as for a distance in advance of the curve that approximates 5 seconds of travel time.