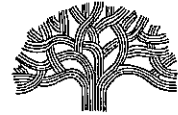



City of Oakland

Community & Economic
Development Agency (CEDA)
Design & Construction Services Department
Transportation Services Division



Memorandum

To: TSD Engineering Staff
From: Wladimir Wlassowsky 
Date: July 24, 2008
Re: Supplemental Design Guidance for Door Zone Treatments on Bikeways

This memo provides engineering and design guidance for delineating the door zone on bikeways with on-street parallel parking. It supplements bikeway design guidance included in the California MUTCD (Section 9C) and the Highway Design Manual (Section 1003.2). The additional guidance is intended to: (1) minimize incidences of “dooring” (where a bicyclist is hit by an opening car door); and (2) ensure consistent bikeway design on Oakland’s roadways.

At this time there is no traffic control device specifically intended for marking the door zone on bikeways. However, parking Tees, edgeline stripes (Caltrans Detail 27B), and other pavement markings can encourage cyclists to ride outside of the door zone and thereby reduce the risk associated with on-street parallel parking (City of San Francisco 2006, Van Houten and Seiderman 2005). To encourage adequate distance between cyclists’ path of travel and parked cars, motorists should be advised to park as close to the curb as possible. Bicyclists should be advised to ride at least 11’ from the face of curb. The 85th-ile of open car doors extend 9.5’ from the face of curb (City of San Francisco 2006) and the minimum operating width for a bicycle is 40” (AASHTO 1999, p. 5). The optimal lateral placement of parking Tees and edgeline stripes will vary depending on the available right-of-way width. The following dimensions shall be used for bikeway projects in Oakland:

Combined Parking Stall & Bike Lane Width (Class 2)	Right-of-way Allocation
12 feet *	7' parking 5' bike lane
13 feet	8' parking 5' bike lane
14 feet	8' parking 6' bike lane
Sharrows on arterial bike routes (Oakland Class 3A)	7' parking shared travel lane of maximum feasible width

* The combined parking stall and bike lane width should be wider than the minimum regulatory width of 12’ wherever possible. For recommended widths, see the Oakland Bicycle Master Plan (2007), pp. 69-72.

CA MUTCD Standard (Section 9C.04 Markings For Bicycle Lanes, page 9C-4):

- In areas where parking stalls are not necessary (because parking is light), a 100 mm (4 in) solid white stripe may be painted to fully delineate the bike lane. This may be advisable where there is concern that motorists may misconstrue the bike lane to be a traffic lane.

Oakland Standards – Bike Lanes (Class 2):

- Where parking stalls are not used, a solid 4” white stripe (Caltrans Detail 27B) shall be used to separate the bike lane from the parking lane. The consistent use of this design will encourage motorists to park close to the curb, encourage bicyclists to ride away from car doors, and prevent motorists from construing the bike lane as a travel lane.
- Where parking stalls are used, the City’s standard parking Tee shall be used. This Tee extends two feet into the bike lane (or shared travel lane).
- The bike lane symbol and arrow shall be placed so that the left side of the symbol is no more than 4” from the bike lane stripe (Detail 39).

Oakland Standards – Arterial Bike Routes (Class 3A):

- The width of the on-street parking stalls shall be 7’ and marked with parking Tees or a parking edgeline stripe to encourage motorists to park close to the curb.
- The width of the outer travel lane shall be as wide as feasible to facilitate lane sharing by bicyclists and motorists.

Attachments

- City of Oakland, Bikeway/Parallel Parking Striping Layout
- City of Oakland, Parking Stall “Tee” Standard Detail

References

American Association of State Highway and Transportation Officials (1999). *Guide for the Development of Bicycle Facilities*. Washington, DC: AASHTO.

City of San Francisco (2006). “Bike Lanes and Car Doors: Details for Designers.” San Francisco, CA: Municipal Transportation Agency.

Van Houten, Ron and Cara Seiderman (2005). “How Pavement Markings Influence Bicycle and Motor Vehicle Positioning: A Case Study in Cambridge, MA”. Washington, DC: Transportation Research Board.

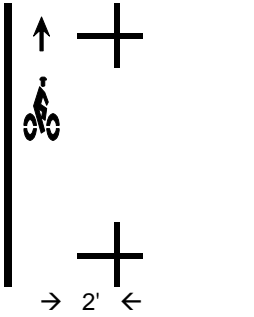
City of Oakland Bikeway / Parallel Parking Striping Layout

Bicycle Lanes (Class 2)

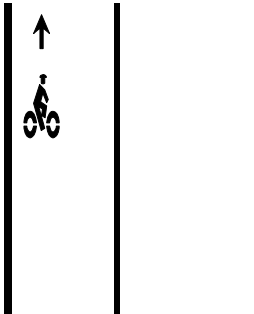
14 feet

bike lane | parking stall
 ← 6' → ← 8' →

with parking stalls

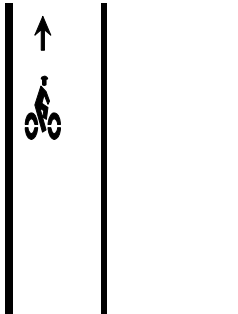
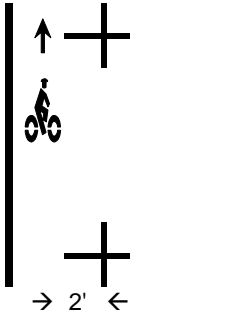


without parking stalls



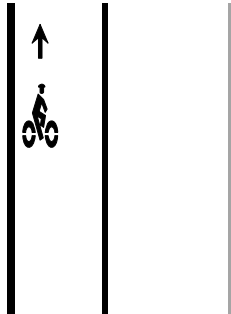
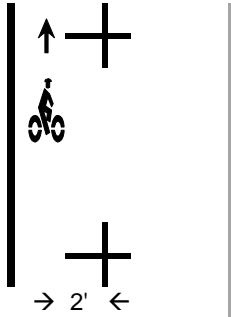
13 feet

bike lane | parking stall
 ← 5' → ← 8' →



12 feet

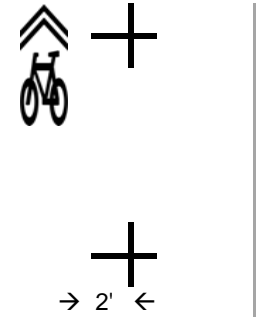
bike lane | parking stall
 ← 5' → ← 7' →



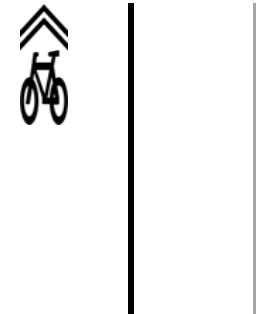
Arterial Bike Routes (Class 3A)

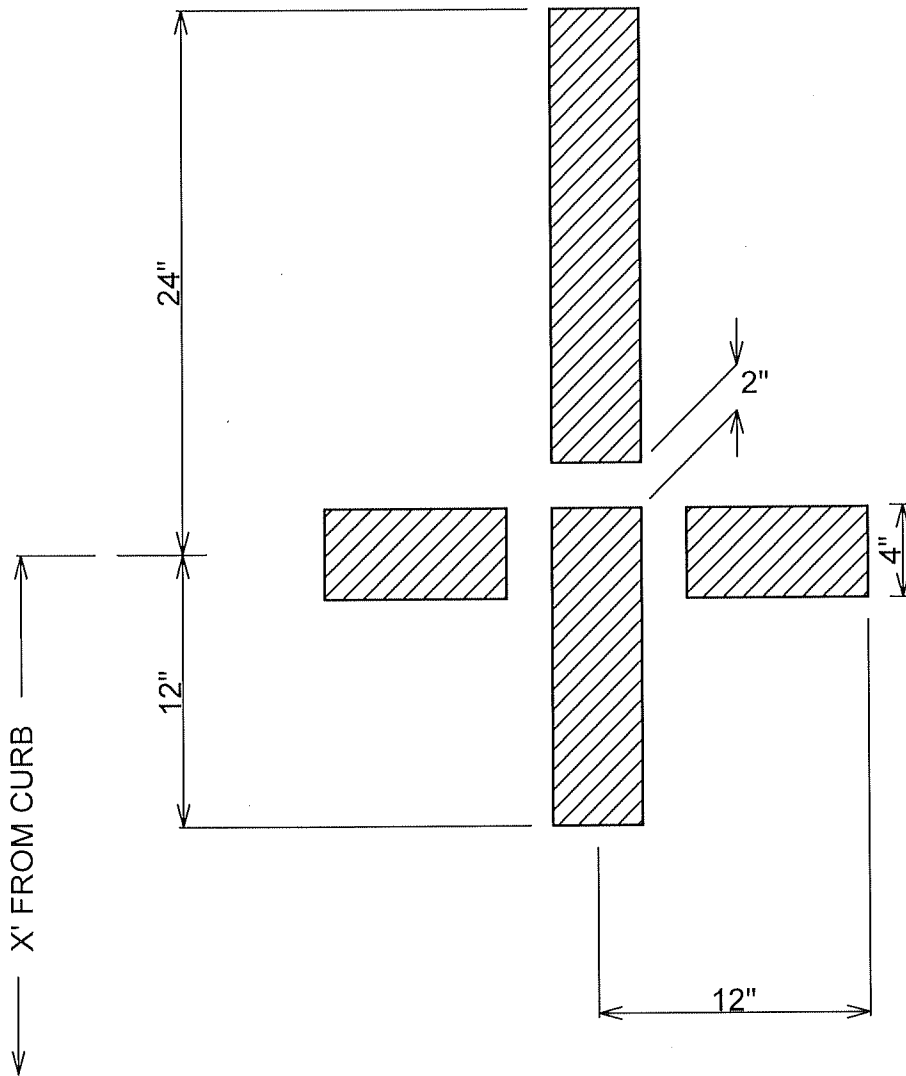
all lane widths

shared lane | parking stall
 ← varies → ← 7' →

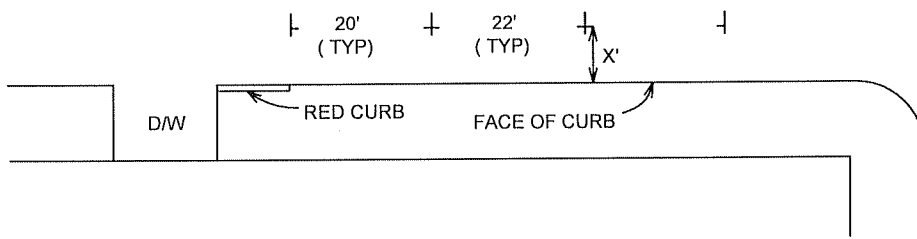


|← 11.5' min. →





NOT TO SCALE



NOT TO SCALE

CITY OF OAKLAND

DEPARTMENT OF ENGINEERING AND CONSTRUCTION



PARKING STALL "TEE"

[Signature]

TRANSPORTATION DIVISION MANAGER

DATE: APRIL 2009
REV. DATE: _____

DWG.
T-7