

3.4E In-street curb-protected bike lanes



INTRODUCTION

In-street concrete curb protected bike lanes utilize a form-in-place concrete curb installed on the roadway surface to provide physical separation from motorized traffic. Form-in-place concrete curbs provide numerous advantages over bollard-delineated bikeways, including reduced annual maintenance costs and reduced vehicular encroachment into the bike lanes. They are typically implemented as an upgrade to non-protected or delineator-protected bike lanes. The considerations in this section build on the guidance for delineator-protected bike lanes, which should serve as the starting point for any in-street curb-protected bikeway.



In-Street Curb-Protected Bike Lanes on Oak Grove St

Figure 3.4E.1:
In-street curb-protected bike lane dimensions table

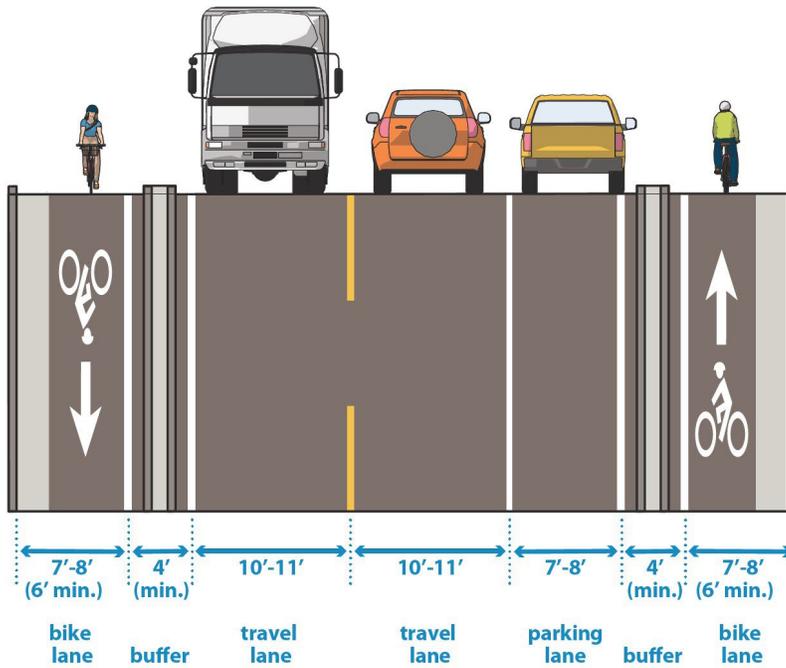
In-Street Curb-Protected Bike Lane	Bike Lane (widths include gutterpan)			Buffer		Form-in-Place Curb		
	Preferred Width (ft)	Minimum Width (ft)	Maximum Width (ft)	Minimum Width (ft)	Maximum Width (ft)	Minimum Spacing (ft)	Maximum Spacing (ft)	Minimum Lateral Clearance (ft)
One-Way	7-8	6	8	4 ^a	None	0 ^b	6 ^c	1
Two-Way	12	8	14					

^a Minimum buffer width assumes a 2' curb with 1' reactions on both sides of the curb.
^b Contiguous curbing should be utilized when not adjacent to parking with breaks for stormwater runoff and utility access covers where necessary depending on the characteristics on-site.
^c A maximum gap spacing of 6' should be utilized for mid-block curbing excepting breaks for driveways and alleys that may exceed 6'.

Figure 3.4E.2:

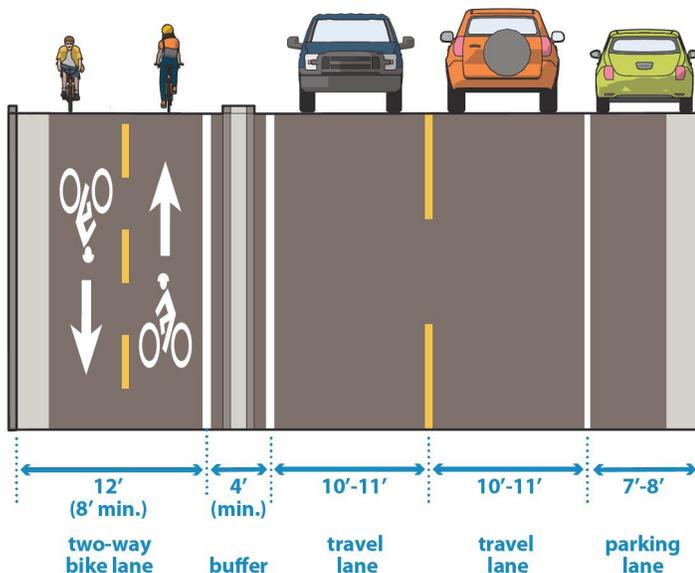
In-street curb-protected bike lane dimensions graphic

1-Way In-Street Curb-Protected Bike Lanes



Preferred widths shown - see chart for more information

2-Way In-Street Curb-Protected Bike Lanes



Preferred widths shown - see chart for more information

DESIGN CONSIDERATIONS

Follow all appropriate guidance for [delineator-protected bike lanes](#) with additional design considerations below.

A. Maintenance	Requires a minimum clearance of 6' between curbs to accommodate snow clearance/removal.
B. Bikeway curb width	Typical form-in-place curb width is 2'. Narrower curb designs can be used when the bike lane is not adjacent to a parking lane, but curbs are not recommended to be narrower than 9".
C. Curb reaction	A 1' curb reaction should be assumed on either side of the form-in-place curb, for a total minimum bike lane buffer width of 4' including the curb.
D. Striping	<ol style="list-style-type: none"> 1. The curb reaction distance should be reinforced on both sides of the curb with a single solid white longitudinal line for the length of the curb installation. 2. A cross-hatched buffer may also be utilized between the form-in-place curb and travel lane where excess roadway width exists.
E. Bollard placement	Plastic bollards should be placed at the beginning and end of each concrete curb section to inform winter maintenance operations.
F. Bikeway curb breaks	Should incorporate breaks for stormwater runoff and utility access covers where necessary depending on the characteristics on-site.
G. On-street to off-street transitions	May be designed to transition from on-street to sidewalk level in advance of intersections through the use of a slip ramp.
H. Parking lane considerations	<ol style="list-style-type: none"> 1. When a parking lane is located on the same side of the street as an in-street curb-protected bike lane, the parking lanes should be located between the bike lane buffer and travel lane, sometimes referred to as "floating" parking. 2. When locating a curb-protected bike lane adjacent to a parking lane, the concrete curb should be segmented into 15' curb segments with 6' gaps in between each segment to allow for easier pedestrian access across the concrete curb delineation and access to the nearest curb ramp via the bike lane.
I. Intersection guidance	See also bikeway intersection design guidance .