NCHRP 17-113 COUNTERMEASURES

# Convert Traditional or Flush Buffered Bike Lane to SBL with a Blend of Flexi-post and other Vertical Elements

PEDESTRIANS AND BICYCLISTS

Separated bike lanes with vertical elements are enhanced bicycle facilities that use posts or barriers to physically separate cyclists from motor vehicle traffic.

## Implementation Strategy

### How and Where to Apply

- This is most applicable on urban or suburban corridors where traditional or buffered bike lanes are insufficient to provide protection.
- It should be considered on roads with higher speeds (≥25 mph), heavy turning traffic, or documented conflicts between cyclists and vehicles.
- According to **FHWA** and **NACTO**, upgrading to separated bike lanes improves comfort, reduces encroachment, and increases safety especially when connecting schools, neighborhoods, and business districts.

### Use in a Safe System Approach

This supports Safer Road Users by reducing the risk of side-swipe or turning crashes and helps provide Safer Roads by creating physical space separation.

### Key Stakeholders

Transportation agencies and bicycle infrastructure planners, Municipal engineering departments

### Proactive Implementation

Cities and MPOs can proactively upgrade buffered or traditional lanes to separated bike lanes based on network planning, crash history, or community demand. Corridors with known safety concerns or low cyclist comfort ratings are strong candidates. This countermeasure may also be bundled with green pavement, intersection markings, and daylighting for comprehensive bike safety enhancement.

## Countermeasure Overview

**Objective:** Reduce bicycle crashes along roadways

**Strategy:** Provide safe roadway facilities for parallel travel

## Targeted Solution

| | |
|---|---|
| CONTRIBUTING FACTORS | ▪ Lack of dedicated space for bicyclists |
| TARGET CRASH TYPE | ▪ Bicyclist<br>▪ Crossing-related |
| ROAD FACILITY TYPE | ▪ Not specified |
| AREA TYPE | ▪ Urban |

## Safety Linkage

NCHRP 500 Series

Pedestrian and Bicyclist Crashes

AASHTO'S TOWARD ZERO DEATHS

Safer Vulnerable Users

SAFE SYSTEM APPROACH

Safe Road Users

SAFE SYSTEM ROADWAY DESIGN

TIER 1
TIER 2
TIER 3
TIER 4

Tier 2

## Selected Related Countermeasures

- CM1 Add flexi-post or curb-separated bike lanes
- CM2 Introduce protected intersection elements
- CM3 Use painted buffers and intersection markings

**Cost:** $ (Moderate to High)

**Service Life:** 20 years

Separated bike lanes. Source: SBL

## Safety Benefits

**40%** Reduces urban vehicle–bicycle crashes[1]

[1] CMF ID: 11303


## Resources

- MUTCD Chapter 3B: Pavement and Curb Markings
- Unsignalized Intersection Improvement Guide
- FHWA Safety Evaluation of STOP AHEAD Pavement Markings