NCHRP 17-113 COUNTERMEASURES

PEDESTRIANS AND BICYCLISTS

Install Bicycle Boulevard

A bicycle boulevard is a low-speed street optimized for bicycle travel by using traffic calming, signage, and pavement markings to prioritize bicyclist movement while discouraging through traffic by motor vehicles.

Implementation Strategy

How and Where to Apply

- Bicycle boulevards are applied to low-volume, low-speed local or collector streets that run parallel to major corridors or connect key destinations such as schools, parks, and commercial centers.
- Ideal candidate routes are continuous, have few stop signs or traffic signals, and intersect with major streets where enhanced bicycle crossing improvements can be added (e.g., median refuges, curb extensions, HAWK signals).

Use in a Safe System Approach

Bicycle boulevards advance the SSA by improving road design (Safe Roads) to separate bicyclists from high-speed vehicles, lowering crash risk (Safe Road Users), and supporting safer travel speeds (Safe Speeds). This creates a more forgiving and predictable environment for vulnerable road users.

Key Stakeholders

State and local transportation agencies, municipal public works departments, utility companies

Proactive Implementation

Bicycle boulevards can be proactively identified through active transportation plans, public input, or network gap analyses. Implementation often occurs alongside Safe Routes to School, Vision Zero, or local bike master planning efforts, particularly in communities aiming to increase bicycle mode share or reduce neighborhood cut-through traffic.

Countermeasure Overview

Objective: Reduce bicycle crashes along roadways

Strategy: Provide safe roadway facilities for parallel travel

Targeted Solution

CONTRIBUTING FACTORS	▪ Low visibility ▪ Driver distraction ▪ Failure to yield
TARGET CRASH TYPE	▪ Bicyclist ▪ Crossing-related
ROAD FACILITY TYPE (ARTERIAL, COLLECTOR, LOCAL)	▪ Not specified
AREA TYPE	▪ Urban ▪ Suburban

Safety Linkage

NCHRP 500 Series

Pedestrians and bicyclists

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 1

Selected Related Countermeasures

- CM1 Install Speed Humps
- CM2 Install Bicycle Wayfinding Signage
- CM3 Enhance Bicycle Crossings at Arterials

Cost: $ (Moderate)

Service Life: 20 years

Benefit-Cost Ratio: 6:1

Install Bicycle Boulevard. Source: rural design guide

Safety Benefits

63%

Reduce all crash severity types in urban and suburban areas

[1] CMF ID: 3092

Resources

- NACTO Urban Bikeway Design Guide
- FHWA Small Town and Rural Multimodal Networks Guide
- FHWA Separated Bike Lane Planning and Design Guide
- ITE Designing Walkable Urban Thoroughfares