NCHRP 17-113 COUNTERMEASURES

Road Diet (Convert 4-lane Undivided Road to 2-lanes plus Turning Lane)

SPEEDING

A Road Diet enhances safety by reducing conflict points and vehicle speeds and is commonly implemented on urban or suburban roads with moderate traffic volumes.

Implementation Strategy

How and Where to Apply

- It can be installed on urban or suburban roads with moderate traffic volumes, typically under 20,000 vehicles per day.
- It is ideal for corridors with a history of crashes, excessive speeding, or inadequate pedestrian and bicycle infrastructure. Road Diets are also effective in areas seeking to improve multimodal access and enhance streetscape livability.
- Not recommended on high-volume roads over 20,000 vehicles daily or primary freight/emergency corridors causing congestion.

Use in a Safe System Approach

Road diets reduce vehicle speeds, manage lane use, and protect vulnerable users, supporting shared responsibility, proactive safety, and redundancy while acknowledging human mistakes and preventing severe crashes within the Safe System framework.

Key Stakeholders

State DOTs, MPOs, city traffic or public works department, active road users, engineering consultants.

Proactive Implementation

Proactive implementation of a Road Diet targets urban or suburban roads with moderate traffic and crash history, ideally during resurfacing projects. Key considerations include traffic flow, emergency access, transit coordination, and community engagement to ensure safe, multimodal use.

Countermeasure Overview

Objective: Ensure that roadway design and traffic control elements support appropriate and safe speeds.
Strategy: Use combinations of geometric elements to control speeds (horizontal and vertical curves, cross section), including providing design consistency along an alignment.

Selected Related Countermeasures

- CM1 Curb Extensions (Bulb-outs)
- CM2 Improve Intersection Design
- CM3 Enhanced Left-Turn Channelization

Cost: $$$$ (High)
Service Life: 20 years

Targeted Solution

CONTRIBUTING FACTORS	▪ High speed ▪ Frequent lane changes
TARGET CRASH TYPE	▪ Left turn
ROAD FACILITY TYPE	▪ Minor Arterial
AREA TYPE	▪ Urban

Safety Linkage

NCHRP 500 Series

Speeding-related crashes

AASHTO'S TOWARD ZERO DEATHS

Safer Infrastructure

SAFE SYSTEM APPROACH

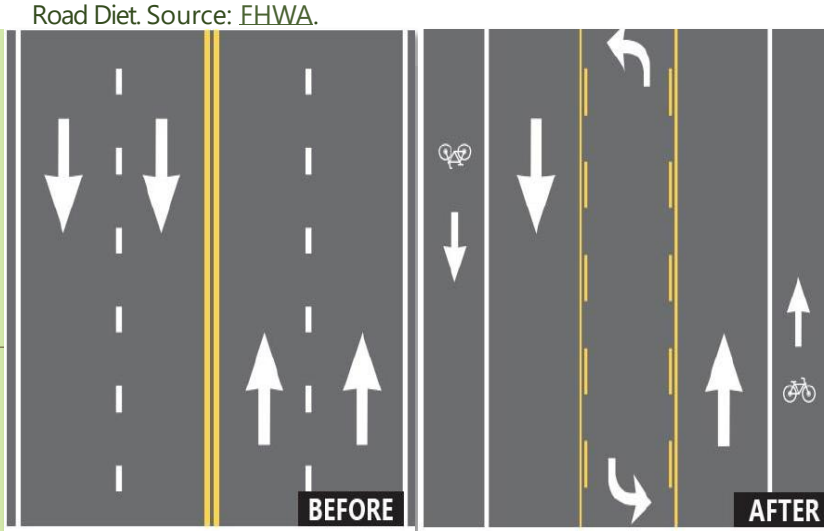
Safe Roads

SAFE SYSTEM ROADWAY DESIGN

TIER 1
TIER 2
TIER 3
TIER 4

Tier 1

Road Diet. Source: FHWA.



Safety Benefits

64% Reduces crashes of all types and severity levels K, A, B, and C on urban and suburban four-lane minor arterial roads (CMF ID: 11129)

59% Reduces crashes of all types and severity levels K, A, B, and C on urban and suburban minor arterial roads (CMF ID: 11136)

Resources

- Road Diets (Roadway Reconfiguration), FHWA (2022)
- Road Diet Summary Report, FHWA
- Road Diet Informational Guide, FHWA (2014)