NCHRP 17-113 COUNTERMEASURES

Self-Enforcing Roads

SPEEDING

Self-enforcing roads are designed with physical and visual elements that naturally encourage drivers to travel at safe speeds without the need for frequent enforcement.

Implementation Strategy

How and Where to Apply

- These treatments are ideal for corridors with speeding concerns especially in residential, school, or transition zones between high-speed and low-speed areas.
- They can be implemented through new designs or retrofitted using speed-reducing geometry, narrowed lanes, horizontal deflection, and high-contrast pavement markings.
- Best suited for urban and suburban roads with high crash risks, where features like narrow lanes and visual cues naturally slow drivers. Avoid where high-speed rural highways or emergency routes, where restrictive designs may impede access or delay response times.

Key Stakeholders

State and local roadway design engineers, traffic safety and speed management planners, Law enforcement agencies

Proactive Implementation

Agencies can apply systemic analysis to identify corridors where observed speeds exceed posted limits. Integration into complete streets policies and corridor reconstruction projects can cost higher but it can be low cost if integrated at the design state Treatments such as gateway signage, narrow lane striping, and roadside environment changes can create intuitive, self-regulating environments.

Use in a Safe System Approach

Self-enforcing roads support the Safe Speeds and Safe Roads pillars of the Safe System Approach. They use design elements to naturally slow drivers, addressing human errors and vulnerabilities to prevent crashes and serious injuries.

Countermeasure Overview

Objective: Keep vehicles from encroaching into opposite lane.
Strategy: Provide center two-way left-turn lanes for four- and two-lane roads.

Targeted Solution

CONTRIBUTING FACTORS	▪ Speeding ▪ Driver complacency
TARGET CRASH TYPE	▪ Speeding ▪ VRUs
ROAD FACILITY TYPE (ARTERIAL, COLLECTOR, LOCAL)	▪ N/A
AREA TYPE	▪ Urban ▪ Suburban

Safety Linkage

NCHRP 500 Series	SAFE SYSTEM APPROACH
Speeding	Safe Road Users
AASHTO'S TOWARD ZERO DEATHS	SAFE SYSTEM ROADWAY DESIGN (TIER 1, TIER 2, TIER 3, TIER 4)
Safer Infrastructure	Tier 2

Selected Related Countermeasures

CM1 Narrowed lane widths and edge lines

CM2 Horizontal alignment or chicanes

CM3 Raised crosswalks and curb extensions

Cost: $$$$ (High)

Service Life: 20 years

Benefit-Cost Ratio: 2.7:1

Safety Benefits

This treatment does not have an established CMF but has promise for improving safety performance.

Self Enforcing Roads. Source: FHWA

Resources

- Self-Enforcing Roadways Guidance
- FHWA Self-Enforcing Roadways