

# Common Safety Countermeasures for Local Agencies



## Roadside Design Improvements at Curves

- Increased clear zone:
  - ◇ A 16.7-foot clear zone (increased from 3 feet) can provide a 22 percent reduction in crashes.
  - ◇ A 30-foot clear zone can provide a 44 percent reduction in crashes.
- Roadside barriers:
  - ◇ Guardrail can be used when fixed objects cannot be removed from the clear zone or if space is limited.

Source: Federal Highway Administration (FHWA), [https://safety.fhwa.dot.gov/provencountermeasures/roadside\\_design/](https://safety.fhwa.dot.gov/provencountermeasures/roadside_design/)



## Benefits of Using Enhanced Delineation and Friction for Horizontal Curves in Michigan

- Chevron signs:
  - ◇ 20 percent reduction in crashes on curves.
- High-friction surface treatment:
  - ◇ 35 percent fewer wet roadway crashes.

Source: Michigan Department of Transportation (MDOT), [www.Michigan.gov/documents/MDOT/TZD\\_Safety\\_Fact\\_Sheet\\_495542\\_7.pdf](http://www.Michigan.gov/documents/MDOT/TZD_Safety_Fact_Sheet_495542_7.pdf)



## Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections

- Doubled-up, oversized signs (Stop Ahead and Stop).
- Reflective sheeting on sign posts.
- Clearing obstructions that limit sight distance.
- Double-arrow warning sign (for T-intersections).
- Benefits of these improvements:
  - ◇ 10 percent reduction in injury and fatal crashes.
  - ◇ 15 percent reduction in nighttime crashes.
  - ◇ 12:1 average benefit-cost ratio.

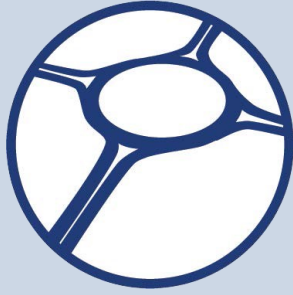
Source: FHWA, [https://safety.fhwa.dot.gov/provencountermeasures/syst\\_stop\\_control/](https://safety.fhwa.dot.gov/provencountermeasures/syst_stop_control/)



## Benefits of Installing Longitudinal Rumble Strips and Stripes in Michigan

- Centerline rumble strips:
  - ◇ 50 percent reduction in head-on crashes.
  - ◇ 55 percent reduction in opposite-direction sideswipe crashes.
- Shoulder rumble strips:
  - ◇ 46 percent reduction in run-off-the-road crashes.
  - ◇ 51 percent reduction in fatal crashes.
  - ◇ 41 percent reduction in incapacitating injury crashes.

Source: MDOT, [https://www.michigan.gov/documents/MDOT/Non-Freeway\\_Rumble\\_Strips\\_Spotlight\\_7-30-15\\_495960\\_7.pdf](https://www.michigan.gov/documents/MDOT/Non-Freeway_Rumble_Strips_Spotlight_7-30-15_495960_7.pdf)



### Benefits of Roundabouts in Michigan

- Converting a signalized intersection to a roundabout:
  - ◇ 20 - 70 percent reduction in injury crashes.
- Changing a stop-controlled intersection to a roundabout:
  - ◇ 35 - 45 percent reduction in injury crashes.

Source: MDOT, [https://www.Michigan.gov/documents/MDOT/MDOT\\_Research\\_Spotlight\\_Evaluating\\_Roundabouts\\_382373\\_7.pdf](https://www.Michigan.gov/documents/MDOT/MDOT_Research_Spotlight_Evaluating_Roundabouts_382373_7.pdf)



### Road Safety Audit

- A proactive formal safety performance examination of an existing or future road by an independent and multi-disciplinary team:
  - ◇ 10 - 60 percent reduction in total crashes.

Source: FHWA, [https://safety.fhwa.dot.gov/provencountermeasures/road\\_safety\\_audit/](https://safety.fhwa.dot.gov/provencountermeasures/road_safety_audit/)



### Benefits of Road Diets in Michigan (Roadway Reconfiguration)

- Can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life.
- Four-lane to three-lane conversion:
  - ◇ 40 percent reduction in crashes.

Source: MDOT; [https://www.Michigan.gov/documents/MDOT/Research\\_Spotlight\\_road\\_diets\\_423935\\_7.pdf](https://www.Michigan.gov/documents/MDOT/Research_Spotlight_road_diets_423935_7.pdf)



### Left and Right-Turn Lanes at Two-Way Stop-Controlled Intersections

- Left-turn lanes:
  - ◇ 28 - 48 percent reduction in total crashes.
- Right-Turn Lanes:
  - ◇ 14 - 26 percent reduction in total crashes.

Source: FHWA, [https://safety.fhwa.dot.gov/provencountermeasures/left\\_right\\_turn\\_lanes/](https://safety.fhwa.dot.gov/provencountermeasures/left_right_turn_lanes/)



For Additional Information:

MDOT – Toward Zero Deaths: [www.Michigan.gov/ZeroDeaths](http://www.Michigan.gov/ZeroDeaths)

FHWA – Proven Safety Countermeasures: <https://safety.fhwa.dot.gov/provencountermeasures/>