

Low-volume rural intersections: How much control do they need?

Iowa has upward of 50,000 stop signs on county roads. Are they all absolutely necessary?

Maybe not.

Results of research led by Iowa State University Professor of Civil Engineering Reg Souleyrette suggest that stop control does not necessarily improve safety when an intersection is

- rural,
- unpaved,
- ultra-low-volume (fewer than 150 vehicles enter the intersection daily), and
- has adequate sight distance.

About the research

Sponsored by the Iowa Highway Research Board (TR-527), Souleyrette and his team surveyed Iowa's county engineers about their practices and policies for traffic control at rural, local road intersections. Twenty-nine of the ninety-nine counties responded. Nineteen counties provided data describing the locations of STOP and YIELD signs.

The team analyzed ten years' worth of crash data for more than 6,000 locations in the nineteen counties. They compared the safety performance of stop-controlled versus uncontrolled intersections.

They also conducted three different analyses to try to quantify the relationship between the widespread use of stop control and intersection safety performance.

Research findings

Souleyrette and his team found that ultra-low-volume unpaved rural intersections exhibit much lower crash rates than local rural roads in general. When the sight distance is adequate at ultra-low-volume intersections, the type of control has a negligible effect on safety performance.

In fact, signs at ultra-low-volume intersections may be a maintenance issue, and signs that are not well maintained could become a liability issue.

The magic number seems to be near 150 daily entering vehicles. When that figure rises above about 150, crash rates go up on uncontrolled rural intersections compared to stop controlled.

Suggestions

If you think you have an intersection that may be appropriate for STOP sign removal, here are some suggestions.

Steps in deciding:

- Have a written policy approved by your board of supervisors and reviewed by your legal counsel.
- Visit the site(s) to be considered.
- Review crash records. Contact the Iowa Traffic Safety Data Service, www.ctre.iastate.edu/itsds, or your DOT District Office for support.
- Check traffic volumes and planned development that may affect volumes.

Steps to remove:

- Provide effective public notice.
- Plan removal steps (signage, time periods, traffic control).
- Monitor the operation of the intersection after removal and modify public notice or consider replacement, if needed.
- Document the entire process.

For seasonal sight distance issues, such as crops, consider using a YIELD application.

For more information

Contact Reg Souleyrette, 515-294-5453, reg@iastate.edu. You can download the report and a technology transfer summary from the project web page: www.ctre.iastate.edu/research/detail.cfm?projectID=1602955190. ■



Ultra-low-volume unpaved rural intersections like this one may not need stop signs