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**RESEARCH PROJECT TITLE**

School Bus Safety Study – Kadyn's Law

**SPONSORS**

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# School Bus Safety Study – Kadyn's Law

tech transfer summary

Results from this study will assist the Iowa Department of Transportation/Department of Education/Department of Public Safety (DOT/DOE/DPS) in addressing the goals and safety study elements placed within Kadyn's Law.

## Background

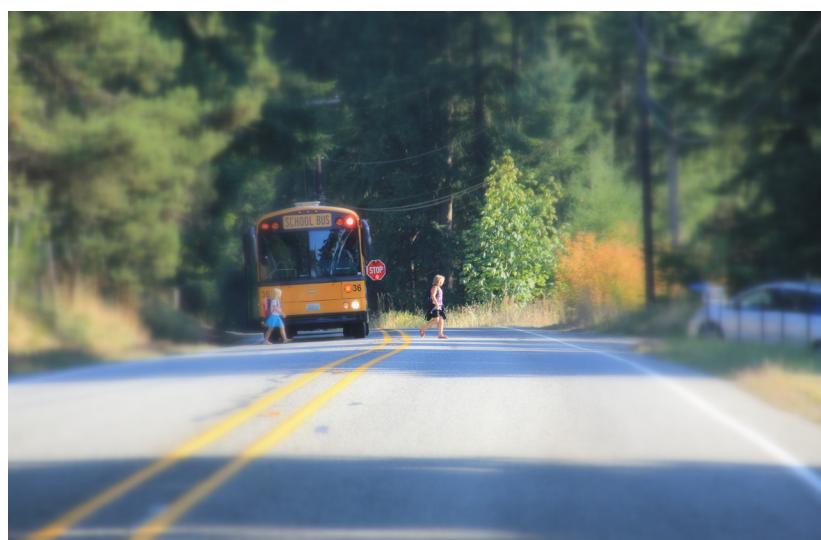
In 2012, the Iowa legislature passed a bill for an act relating to school bus safety, including providing penalties for failure to obey school bus warning lamps and stop signal arms, providing for a school bus safety study and administrative remedies, and making an appropriation. The bill, referred to as Iowa Senate File (SF) 2218 or "Kadyn's Law," became effective March 16, 2012.

## Project Scope

A multiagency committee requested assistance from a team comprised of researchers from both Iowa State University and the University of Iowa in addressing the safety study elements of Kadyn's Law as follows:

- Use of cameras mounted on school buses to enhance the safety of children riding the buses and aid in enforcement of motor vehicle laws pertaining to stop-arm violations
- Feasibility of requiring school children to be picked up and dropped off on the side of the road on which their home is located
- Inclusion of school bus safety as a priority in driver training curriculum

Key findings and recommendations for each study element are included in the final report and also summarized in this document.



*Students being let off their school bus on a rural curve*

## Findings and Recommendations

### Do Cameras Reduce Stop-Arm Violations?

Stop-arm cameras by themselves are of little value without a supporting process that results in violations for those who break the law. The technology needed to record and process violations varies. However, the technology is becoming much easier to acquire, given that many school districts have already equipped their buses with internal cameras and, therefore, adding an additional camera for stop-arm violations is a logical next step.

Twenty Iowa school districts confirmed they are using stop-arm cameras as a deterrent. Districts ranged from one or two cameras up to 56 cameras (one for every route bus used) within a specific district.

Although some district personnel felt it was too early to tell, most commented that the stop-arm cameras are considered to be effective and assist in verifying violations. Although the literature search did not provide a detailed field evaluation on the effectiveness of using cameras as a deterrent, other studies did document the effectiveness of other bus strategies (to increase awareness).

Stop-arm cameras do aid in enforcement of motor vehicle laws and enhance safety if there is an effective and sustainable process to turn camera images into violations. Whether or not Iowa school districts currently have an effective and sustainable process to rely on is up for debate. Currently, they do. However, as more cameras are added each day, they probably do not.



Rear view of a school bus with front and back stop arms in Buffalo, New York

Processing violators is a laborious task for all parties involved. It is currently up to the school bus driver to note each stop-arm violation. The school district must then isolate the images and provide this to the local law enforcement agency. Law enforcement then has to verify and deliver the violation to the motorist.

As noted in the report, North Carolina went through a decade of increased penalties and fines for stop-arm violations, yet little progress was made until they enacted a law that allowed for automation and third-party involvement.

If the stop-arm violation rates are even close to that reported by the National Association of State Directors of Pupil Transportation Services (NASDPTS)—with 100,000 bus drivers reporting that 88,025 vehicles passed their buses illegally on a single day—the addition of stop-arm cameras on a fraction of the school buses in Iowa could swamp the school district and law enforcement agency abilities to prosecute these dangerous violations.

As with any new law, some enhanced judicial outreach will help to align convictions with the revised penalties. Given that the law was enacted in March, a review of the “failure to stop for a school bus” convictions between August 15 and October 31 showed that even though Kadyn’s Law requires a minimum fine of \$250 for the first offense, 105 of the 162 convictions (65 percent) had a fine amount of less than \$250.

Thinking forward, the research team suggests that consideration be given to modifying the current Iowa model and penalties to be more aligned with the administrative model commonly used for red light running.

Enhancing child safety by reducing the frequency of stop-arm violations begins with swift and effective enforcement. Enforcement should not be limited by bus driver capabilities or the time restraints of each school district or law enforcement agency. A forward-looking model would provide flexibility for smaller districts to work with law enforcement to process violations manually and at the same time allow larger districts the option of third-party involvement to assist with higher numbers of violations and vigorous compliance with the law.

### **Feasibility of Requiring Home-Side Loading**

As a general rule, the research team found that many school districts use home-side loading when possible and are conscientious about every stop made where children must cross the street to load or unload from the bus.

In an effort to evaluate the impact requiring home-side loading for all stops, the research team worked with a school district to evaluate both an urban and rural route scenario. The existing bus routes were revised to comply with home-side loading and a comparison was made in terms of number of student stops, distance traveled, and student ride time.

The results show that requiring home-side loading for all stops has dramatic effects on routing efficiency (33 more student stops on the urban route and 17 more miles of travel on the rural route) and considerable cost impacts. At a minimum, this requirement resulted in more than \$8,000 and \$24,000 in additional annual costs for the single urban and rural routes, respectively. At the district level, this had an impact on the district operating costs by a factor of 1.6.

Although a more detailed evaluation across multiple districts study could refine these estimates, home-side loading has the potential to affect the cost per pupil transported significantly without a defined quantifiable benefit to justify these costs.

Looking forward, districts should continue to be encouraged to consider home-side loading as a matter of best practice and discretion and stop short of a specific requirement. The decisions made regarding every bus stop and route should be derived, reviewed, and modified using the local knowledge and resources from the district.

### **Driver Training Curriculum**

Based on review of other state driver manual content, the researchers noted several illustrations that could possibly be used to improve driver comprehension of school bus stop requirements. However, no research has been done to verify the public's understanding or opinion of the illustrations. Including similar illustrations in driver training manuals are suggested as best practices based on the expert opinion of the researchers.