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DATE: February 11, 2023
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U.S. DOT
2023 FEB 22 A 9: 12
DOCKET OPERATIONS
SUBJECT:
RULE CHANGE PETITION

September 9, 1966 is the date of enactment of the National Traffic and Motor Vehicle Safety Act. The purpose of the Act being to reduce accidents involving motor vehicles and reduce injuries and deaths occurring in those accidents. Yet, in 1996, the Illinois Department of Transportation's Division of Traffic Safety concluded: *Based on the findings, the estimated number of school bus stop-arm violations each year in Illinois is over 1,900,000 making it a major traffic safety problem.*

That the State of Illinois is grappling with the reality of poor school bus stop-arm compliance is confounding because there are numerous technologies that have been developed to snag red signal warning lamp/stop arm lawbreakers, yet, even nationwide the crisis rolls on.

The National Association of State Directors of Pupil Transportation Services (NASDPTS) engaged its illegal passing survey team on the road during the 2021-2022 school year. *School bus drivers in 34 participating states reported that, on a single day more than 51,000 vehicles illegally passed stopped school buses. Showing this type of behavior yet remains at a national catastrophic level.*

The National Highway Traffic Safety Administration commissioned a 1997 survey: The National Survey of Speeding and other Unsafe Driving Actions. Three thousand drivers from age 16 through 65 participated (DOT HS 808 749). Revealing was that passing a stopped school bus with its red signal warning lights flashing and stop arm extended was regarded as more dangerous and viewed with more disdain than any other unsafe driving action.

REGARDING THE SCHOOL BUS:

COULD IT BE THAT MOTORISTS NEED A ZONE OF PROTECTION*?

COULD IT BE THAT MOTORISTS DON'T NEED A ZONE OF LIABILITY*?

(THE PETITIONER HUMBLY REQUESTS A PERIOD OF PUBLIC COMMENT IN THE FEDERAL REGISTER)

PETITIONER'S RULE CHANGE CONSIDERATIONS

A) The petitioner requests consideration of the following facts, School Bus Standard, FMVSS 108 5.1.4(b) has given more than fifty years of service; and asserts that an evaluation of the efficacy of any fifty year old standard is appropriate. Proper analysis of any subject requires an objective study of all pertinent data, including the credentials of the current standard, as it should receive the same scrutiny as any model suggested to modify that standard, to determine the most beneficial system to serve the public.

The petitioner believes the current standard to be demonstrably deficient because of its unpredictable messaging. That is, when will it switch from flashing amber signal warning lamps to red signal warning lamps and stop arm extended? That situation encourages driver apprehension, distraction and confusion concerning

themselves and the possible actions of other drivers. Yet the environment surrounding a school bus is high risk with very little tolerance for driver error. confusion concerning themselves and the possible actions of other drivers. Yet the environment surrounding a school bus is high risk with very little tolerance for driver error.

B) Additionally, the Manual of Uniform Traffic Control Devices considers flashing yellow traffic signals to be a permissive message for motorist's to pass with caution, yet the fact that the school bus' amber signal warning lamps may suddenly switch off to be replaced with red signal warning and stop arm extended, means that they could very well be caught in a **ZONE of NEGATIVE SAFETY MARGIN**.

C) Confusion over the meaning of school bus signal warning lamps is NOT an issue. It has been over 90 years of precedence that motorists have benefited from foreknowledge of a pending traffic command by an interim warning signal. That signal is the yellow traffic light which gives motorist time to safely pass or stop. Motorists when encountering the present day school bus signaling method are deprived of that important foreknowledge, thereby adding unnecessary risk factors.

D) If a scheme is *INGRAINED* into the public service as a safety feature then its performance should at a minimum be adequate. The petitioner believes that the current Eight-Way School Bus Traffic Control System is not, and thereby inefficient. This is based on the previously cited documented failures of the current system to address the ongoing, and egregious, red light and stop arm violation problem.

Motorist will appreciate the Enhanced School Bus Traffic Control System, a device that is comparable with the concept behind the well understood Red, Yellow and Green Traffic Control light system; New York City retired its Red/Green Traffic Light System some fifty years ago.

E) Driver Manuals of the several states stress that a school bus flashing amber signal warning lamps means that it will soon be stopped to pick-up or let off school children, and that passing a school bus flashing red signal warning lamps and stop arm extended is NOT permitted!

According to "School Bus Fleet", in the 2018-2019 school year, an estimated 479,867 school buses are on America's roads transporting 23,000,000 children each school day, thus, providing many opportunities for motorists to be distracted and apprehensive, aware that violating school bus traffic laws carry heavy penalties. The State of Delaware has a potential first offense penalty of not less than 30 or more than 60 days imprisonment.

Drivers that are recalcitrant need to be denied driving privileges and or otherwise punished. NHTSA data shows that they are about a 1% minority. Conclusion: **99% of drivers WANT to comply with school bus traffic law.**

F) Regarding the decoupling of the school bus entrance door from red signal warning lamps, I quote from Pennsylvania's School Bus Driver's Manual. PUB 117 (3-06). It requires as part of the Loading/Unloading Procedure for the school bus driver to, "*Open the front entrance door slightly, activating the red flashing lights of the eight-way light system, open door completely after traffic stops.*"

I believe that the comment in the preceding instruction: "*Open the front entrance door slightly*" is mentioned as it is the means necessary, other than the "override" function, or of course to fully open the door to activate red signal warning lamps. Checking the other forty-nine states revealed essentially similar school bus driver manual requirements as Pennsylvania's.

The petitioner's preceding statement suggests that the school transportation authority of any state would not disagree with the petition's change suggestion regarding the decoupling of the school bus service door because maintaining the service door closed when red signal warning lamps initially start, and then to "*open door completely after traffic stops*", is in fact their preference. It is reasonable to deduce that younger school children are more prone to bolt toward a just opened school bus door.

G) Michigan's 2022 drivers manual states in chapter four (page 29).....“SCHOOL BUS SIGNALS...When the YELLOW hazard lights are flashing, proceed with caution....When the YELLOW overhead lights are flashing, be prepared to stop.” Important: though well intended, such a unique hybrid signaling system dilutes the HAZARD FLASHER FUNCTION while increasing work loads.

H) The petitioner suggests that over time the school bus fleet would be incrementally fitted with the Enhanced System. Until the entire fleet has been upgraded and media messaging, informing the public of the change has been satisfactorily completed, implementation of the actual change would be void. Everyday new motorists enter in The to the public driving pool, while some already in it drop out. The driving public is a dynamic ever changing body of drivers and is malleable to new ideas and statues.

J) The Enhanced School Bus Traffic Control System, will provide unique information to the motorist in that critical period between flashing amber signal warning lamps and when the school buses' red signal warning lamps activate. That information is contained in the three second “Interim” period. The motorist's perception of the intent of the school bus driver is made transparent because of that very obvious visual cue. From a safety perspective, motorist's will be better positioned to react, to avoid becoming a traffic hazard and incurring a school bus traffic law violation.

STATEMENTS RELATED TO QUANTITATIVE ANALYSIS

The Enhanced School Bus Traffic Control System is unique in that it provides the motorist with a Zone of Protection when approaching a stopped school bus flashing its amber signal warning lamps. The Zone of Protection or Positive Safety Margin is a system calculated to function as an asset. It is similar to the benefit derived from the THREE second yellow signaling portion of the Red, Yellow and Green lamps of a typical traffic light at a vehicle's speed of 20 mph; when approaching a stopped school bus flashing amber signal warning lamps. Whereas the current method provides the motorist with a zone of liability.

Motorists Zone of Protection* and Zone of Liability* Formulas/Terms

TERMS

DPINPZ = depth of penetration into no pass zone = (NPZ + SDNPZI) – NPZ

FPM = feet per mile = 5,280

ITS = interim period in seconds = 3 seconds

M = minus

NPZ = no pass zone = school bus length in feet plus additional twenty feet at each end

SD = stopping distance = dry asphalt @ 20 miles per hour = 19.11 feet. Statement provided by “Forensic Dynamic Inc.”

SDNPZI = stopping distance no pass zone incursion = NPZ = 0 + SD = depth of NPZ violation in feet

SPH = seconds per hour = 3,600

VS = vehicle speed = 20 miles per hour

ZLI = zone of liability, an area wherein a motorist is at risk of causing an unintentional school bus traffic infraction*

ZP = zone of protection, an area wherein a motorist is guarded from an inadvertent school bus traffic infraction*

FORMULAS

1) *NPZV = no pass zone violation = (DPINPZ + NPZ) – NPZ > 0*

2) *ZP* = zone of protection = (FPM · VS · ITS) / SPH = 88 ft.*

3) *ZPMSD = zone of protection minus stopping distance = (FPM · VS · ITS) / SPH – SD = 68.89 feet*

4) *ZLIV* = zone of liability violation = (NPZ + VS @ SD = 19.11 feet) - NPZ > 0*

Examples of Motorist/School Bus Signaling Situations

Example #1 (Current System)

The school bus is stopped and its flashing amber signal warning lamps. A motorist is approaching it at 20 mph and is at its longitudinal boundary when its amber signal warning lamps switch "OFF" and red signal warning lamps and stop sign activate. The driver is now in violation of school bus traffic law. The applicable formula is: NPZV.

Example #1 (Enhanced System-zone of protection)

The school bus is stopped and is flashing amber signal warning lamps. A motorist is approaching it at 20 mph and has reached a longitudinal boundary of the bus when amber signal warning lamps switch "OFF" and the "Interim" period is activated. The driver will have lawfully passed the 45 ft. long school bus by 43 ft. when the red signal warning lamps and stop arm activate. The applicable formula is: ZP.

Example #2 (Current System)

The school bus is stopped and flashing amber signal warning lamps. A motorist is approaching it at 20 mph and is 30 ft. away when amber signal warning lamps switch "OFF" and red signal warning lamps and stop arm activate. The driver will be able to stop ~ 10 ft. from the longitudinal boundary of the bus yet is in violation of virtually every state's school bus traffic law because of stopping too close to the bus. The applicable formula is: NPZV.

Example #2 (Enhanced System-zone of protection)

The school bus is stopped and is flashing amber signal warning lamps. A motorist is approaching it at 20 mph and is 30 ft. from the school bus, when the school bus driver activates the 3 second "Interim" period. The motorist will have lawfully passed the 45 ft. long bus by 13 ft. and is moving away from it at 29 ft./second when red signal warning lamps and stop arm activate. The applicable formula is: ZP.

Example #3 (Current System)

Every motorist's vehicle, as it approaches a stopped school bus flashing amber signal warning lamps, will at 20 mph, project forward a 19 ft. zone of liability. That will, when red signal warning lamps and stop arm activate, assure a violation of any state's school bus traffic law if the "NO PASS" boundary is within that zone. The result is negative safety margin. All motorist' are therefore at risk of inadvertently committing a school bus traffic violation. The applicable violation formula is : ZLIV.

Example #3 (Enhanced System-zone of protection)

The Enhanced School Bus Traffic Control System at 20 mph turns a 19,11 ft. liability into a safety margin of 68.89 ft. before red signal warning lamps and stop arm activate. Thereby giving the motorist more distance (and time) to better make that critical Pass/Stop decision. The applicable formula is: ZPMSD.

PETITIONER'S CONCLUDING STATEMENTS

The following describes the operation of the Petitioner's Novel Flasher System for a school bus eight-way traffic control system:

- A) A manual master power switch to control flasher system power. Upon power-up the device shall be quiescent;
- B) A manual press "reset" switch to return the system to inaction except if flashing red signal warning lamps/active stop arm with the service door open or during the "interim" period;

C) A manual press to activate “mode advance” switch to control system function;D) From quiescence, a first manual actuation of the “mode advance” switch initiates flashing amber signal warning lamps

D) From quiescence, a first manual actuation of the “mode advance” switch initiates flashing amber signal warning lamps,

E) Only if the bus is stopped will a second manual actuation of the “mode advance” switch initiate a 3 second interim period of alternately flashing opposite side red and amber signal warning lamps;

F) The end of interim period initiates the flashing of red signal warning lamps and the stop arm is activated, the operator is signaled to open the service door if conditions permit;

G) Closure of the service door returns said flasher system to quiescence.

NOTES

1) Petitioner's previous Enhanced School Bus Traffic Control System Petition History: 1st Petition Original Filing Date: September 24, 2012, Date of Denial: January 26, 2018, 2nd Petition delivered to NHTSA, Date: April 4, 2018, Status: January 30, 2023, after many queries, no official NHTSA 2nd petition response.

2) My interest in filing this Petition is in the pursuit of improved School Bus/Motorist Traffic Safety.

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SIGNED:

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