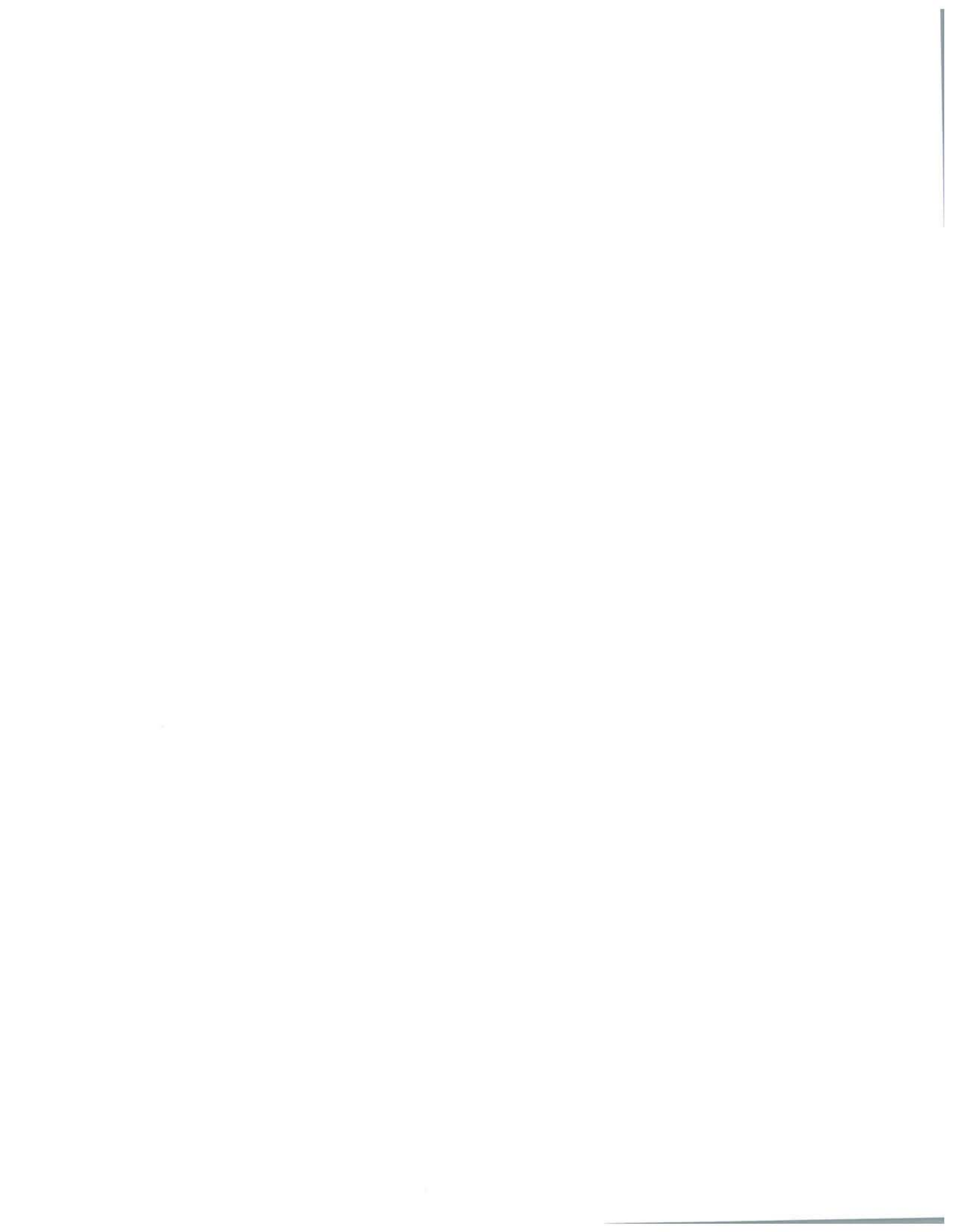


SB

92

<TARGET><BILL>SB 92</BILL><SUBJECT>SB
92</SUBJECT><COMM>STRA29</COMM></TARGET>



ALASKA STATE LEGISLATURE

SESSION

State Capitol, Rm30
Juneau, Alaska 99801-1182
(907) 465-3873 Phone
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SENATOR BERT K. STEDMAN

To: Senator Peter Micciche
Chair, Senate Transportation Committee

From: Senator Bert Stedman 

Re: Hearing Request for SB 92

Date: April 2, 2015

I respectfully request a hearing for Senate Bill 92. *"An Act relating to the use of headlights; and providing for an effective date."* The bill, a sponsor statement, and a sectional analysis are attached.

Staff contact: Randy Ruaro (907) 465-6581

District R

Angoon • Coffman Cove • Craig • Edna Bay • Elfin Cove • Hollis • Hoonah • Hydaburg • Hyder • Kake • Kasaan
Ketchikan • Klawock • Klukwan • Kupreanof • Metlakatla • Meyers Chuck • Naukati • Pelican • Petersburg
Point Baker • Port Alexander • Port Protection • Saxman • Sitka • Tenakee Springs • Thorne Bay • Whale Pass • Wrangell



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SENATOR BERT K. STEDMAN

Senate Bill 92 Sponsor Statement

SB 92 would limit the Alaska Department of Transportation and the Department of Public Safety from arbitrarily deciding and forcing Alaskans in selected areas using certain roads to use their headlights at all times even when weather or light conditions do not require it. Alaskans know when weather conditions require them to turn on their headlights and have been doing so for decades. Current safety regulations requiring headlight use at dawn and dusk would remain in effect.

District R

*Angoon • Coffman Cove • Craig • Edna Bay • Elfin Cove • Hollis • Hoonah • Hydaburg • Hyder • Kake • Kasaan
Ketchikan • Klawock • Klukwan • Kupreanof • Metlakatla • Meyers Chuck • Naukati • Pelican • Petersburg
Point Baker • Port Alexander • Port Protection • Saxman • Sitka • Tenakee Springs • Thorne Bay • Whale Pass • Wrangell*

Sectional Analysis

Senate Bill 92

Section 1 of the bill requires operators of a motor vehicle to use headlights between:

- 1) the hours of one half-hour after sunset and one half-hour before sunrise; or
- 2) any other time when there is not enough light to clearly discern persons or motor vehicles at a distance of 1,000 feet.

Section 2 of the bill annuls two existing regulations that grant the State Department of Transportation authority to decide which specific areas or roads of the state require operators to use headlights on a different basis than set out in section 1.



Fiscal Note

State of Alaska
2016 Legislative Session

Bill Version: SB 92
Fiscal Note Number: _____
() Publish Date: _____

Identifier: SB092-DOT-TMS-1-19-16
Title: PROHIBIT DAYLIGHT MANDATORY HEADLIGHT
USE
Sponsor: STEDMAN
Requester: Senate Transportation Committee

Department: Department of Transportation and Public Facilities
Appropriation: Administration and Support
Allocation: Transportation Management and Security
OMB Component Number: 2607

Expenditures/Revenues

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

| | FY2017 Appropriation Requested | Included in Governor's FY2017 Request | Out-Year Cost Estimates | | | | |
|-------------------------------|--------------------------------------|------------------------------------------------|-------------------------|----------------|----------------|----------------|----------------|
| | | | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| OPERATING EXPENDITURES | FY 2017 | FY 2017 | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 |
| Personal Services | | | | | | | |
| Travel | | | | | | | |
| Services | | | | | | | |
| Commodities | | | | | | | |
| Capital Outlay | | | | | | | |
| Grants & Benefits | | | | | | | |
| Miscellaneous | | | | | | | |
| Total Operating | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Fund Source (Operating Only)

| | | | | | | | |
|--------------|------------|------------|------------|------------|------------|------------|------------|
| None | | | | | | | |
| Total | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Positions

| | | | | | | | |
|-----------|--|--|--|--|--|--|--|
| Full-time | | | | | | | |
| Part-time | | | | | | | |
| Temporary | | | | | | | |

Change in Revenues

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
|--|--|--|--|--|--|--|--|

Estimated SUPPLEMENTAL (FY2016) cost: 0.0 (separate supplemental appropriation required)
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY2017) cost: 0.0 (separate capital appropriation required)
(discuss reasons and fund source(s) in analysis section)

ASSOCIATED REGULATIONS

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? No
If yes, by what date are the regulations to be adopted, amended or repealed? N/A

Why this fiscal note differs from previous version:

| |
|------------------|
| Initial version. |
|------------------|

Prepared By: Mike Lesmann, Legislative Liaison
Division: Commissioner's Office
Approved By: Mary Siroky, Director
Agency: DOT&PF

Phone: (907)465-4772
Date: 01/19/2016 12:00 AM
Date: 01/19/16

FISCAL NOTE ANALYSIS

STATE OF ALASKA
2016 LEGISLATIVE SESSION

BILL NO. SB 92

Analysis

If SB 92 should become state law, the department would need to remove some highway signs that were previously erected with federal Highway Safety Improvement Program (HSIP) funding. These signs require that drivers have their headlights on at all times.

In the department's Southcoast Region, 81 'Headlights On At All Times' signs have been erected in Juneau, Haines, Ketchikan, Klawock, Petersburg and Sitka.

In the department's Central Region, 62 'Headlights On At All Times' signs are placed in Alaska's four Safety Corridors.

The department will remove these signs as part of routine maintenance.



September 4, 2015

Sen. Bert Stedman
State Capitol, Room 30
Juneau, AK 99801

Dear Sen. Stedman:

The City of Craig supports the passage of Senate Bill 92, prohibiting the implementation of a "headlights on at all times" rule on Alaska highways.

The Alaska Department of Transportation's efforts to implement the headlights on rule are a poor fit in Craig. The proposed enforcement zone here splits the city into two parts: one where the rule is not enforced, and another where the rule applies. Motorists can be excused for being confused as to why the rule does not apply in the area of town with the most traffic, and why it is applied in the part of the community with lower traffic volumes.

Local residents have yet to see empirical justification for why the rule should apply here at all. The City of Craig is not aware of accident-prone stretches of state highway in town where the "headlights on" rule is likely to have prevented motor vehicle mishaps.

The rule is clumsily applied here in Craig, and likely other locations on Prince of Wales Island. SB 92 is a sensible approach to ensuring that motor vehicle headlights are used at appropriate times, and also providing for the appropriate use of driver discretion at other times. Motorists should be free to use their own judgement as to the merits of headlight use outside the times identified in SB 92.

Sincerely,

Jon Bolling
Craig City Administrator

January 30, 2016

Sen. Peter Micciche, Chairman
Senate Transportation Committee
Alaska State Legislature
Juneau, AK

RE: SB 92 -An act relating to the use of headlights

Dear Chairman Micciche and Members of the Senate Transportation Committee:

Because I will be unable to provide oral testimony on SB 92 at the hearing scheduled in your committee on February 4, I am writing to express my opposition to this legislation.

While I understand that some people are unhappy about the way DOT went about implementing the experimental mandatory headlights areas, I think it is DOT's responsibility to find low-cost, simple ways to protect public safety, and testing the effectiveness of mandatory headlight use in reducing vehicle accidents is a good step in that direction. In my own research into this topic, I have found many studies that show that requiring the use of headlights at all times is effective.

Two years ago I survived a bad, high-speed, daytime auto accident. I spent three and a half months in a hospital bed and, while I am among those fortunate enough to have recovered quite well after such an accident, the effects of that crash will be with me the rest of my life. If we can prevent even a few accidents by simply requiring daytime use of headlights -- thus saving some of our fellow Alaskans from painful, crippling injuries or death, and their families, friends, and society from the resulting pain, loss, disruption, and expense --- why would we not do that?

I encourage the committee to either not pass SB92, or to amend the bill to at least grant explicit authority to DOT to set up areas to test out the effectiveness of mandatory daytime headlights.

Thank you for your consideration.

Sincerely,



Mary McDowell
PO Box 7
Angoon, AK 99820

⊕ **13 AAC 04.010. When lights are required**

⊕ (a) Every vehicle traveling on a highway or other vehicular way or area within the state must illuminate lights

(1) between one half hour after sunset and one half hour before sunrise; or

(2) at any other time when, because of insufficient light or other atmospheric conditions, persons or vehicles on the highway are not clearly discernible at a distance of 1000 feet.

(b) Stop lights, turn signals, and other signaling devices must be illuminated as required by this chapter.

(c) Every vehicle traveling on a highway or vehicular way or area must illuminate lights when traveling on any roadway that is posted with signs requiring the use of headlights.

(d) For the purposes of (c) of this section, lights include low intensity headlights and daytime running lamp devices that meet the standards in 49 C.F.R. 571 (revised as of August 29, 1996), if the headlights are not otherwise required under (a)(1) or (2) of this section.

⊕ **History: In effect before 7/28/59; am 12/15/61, Register 3; am 8/10/66, Register 22; am 12/31/69, Register 31; am 6/28/79, Register 70; am 4/2/94, Register 129; am 6/12/97, Register 142**

⊕ **Authority: AS 28.05.011**

1000

1000

1000

1000

1000

1000

| Fatal Motor Vehicle Crashes by Borough/Census Area 2010-2014 | | | | | | | | |
|-----------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------------------|-----------------------|-------------------|
| Borough | 2010 | 2011 | 2012 | 2013 | 2014* | 3 yr. (11-13) AVG. | 3 yr. (12-14) Avg. | 3yr. +/- Trend |
| Municipality of Anchorage | 12 | 15 | 12 | 16 | 25 | 14.3 | 17.7 | 24% |
| Bristol Bay Borough | 0 | 0 | 0 | 0 | 1 | 0.0 | 0.3 | 100% |
| Denali Borough | 1 | 1 | 1 | 1 | 2 | 1.0 | 1.3 | 30% |
| Fairbanks North Star Borough | 12 | 5 | 10 | 7 | 10 | 7.3 | 9.0 | 23% |
| Haines Borough | 0 | 1 | 0 | 0 | 0 | 0.3 | 0.0 | -100% |
| City and Borough of Juneau | 1 | 3 | 1 | 0 | 2 | 1.3 | 1.0 | -23% |
| Kenai Peninsula Borough | 7 | 15 | 10 | 4 | 6 | 9.7 | 6.7 | -31% |
| Ketchikan Gateway Borough | 1 | 0 | 1 | 0 | 0 | 0.3 | 0.3 | 0% |
| Kodiak Island Borough | 1 | 2 | 0 | 1 | 0 | 1.0 | 0.3 | -70% |
| Lake and Peninsula Borough | 0 | 1 | 0 | 0 | 0 | 0.3 | 0.0 | -100% |
| Matanuska-Susitna Borough | 12 | 9 | 11 | 10 | 12 | 10.0 | 11.0 | 10% |
| North Slope Borough | 0 | 0 | 0 | 0 | 1 | 0.0 | 0.3 | 100% |
| Northwest Arctic Borough | 0 | 1 | 1 | 1 | 1 | 1.0 | 1.0 | 0% |
| City and Borough of Sitka | 0 | 0 | 1 | 0 | 0 | 0.3 | 0.3 | 0% |
| Census Area | | | | | | | | |
| Bethel Census Area | 0 | 0 | 1 | 1 | 1 | 0.7 | 1.0 | 43% |
| Dillingham Census Area | 0 | 2 | 1 | 1 | 0 | 1.3 | 0.7 | -46% |
| Nome Census Area | 0 | 2 | 0 | 0 | 1 | 0.7 | 0.3 | -57% |
| POW-Hyder Census Area | 1 | 0 | 1 | 1 | 0 | 0.7 | 0.7 | 0% |
| Southeast Fairbanks Census Area | 2 | 3 | 2 | 2 | 2 | 2.3 | 2.0 | -13% |
| Valdez-Cordova Census Area | 0 | 0 | 1 | 2 | 1 | 1.0 | 1.3 | 30% |
| Wade Hampton Census Area | 0 | 1 | 0 | 1 | 2 | 0.7 | 1.0 | 43% |
| Yukon-Koyukuk Census Area | 2 | 2 | 0 | 1 | 1 | 1.0 | 0.7 | -30% |
| Total | 52 | 63 | 54 | 49 | 68 | 55.3 | 57.0 | 3% |

Source: Fatality Analysis Reporting System, 2015

*2014 data is preliminary and subject to change.

Note: If a borough or census area is not listed, then it had no fatal motor vehicle crashes between 2010-2014.



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The Federal Register

The Daily Journal of the United States Government

Proposed Rule

Federal Motor Vehicle Safety Standard No. 108; Lamp, Reflective Devices and Associated Equipment

A Proposed Rule by the National Highway Traffic Safety Administration on 06/29/2009

Action

Denial Of Petition For Rulemaking.

Summary

This document denies a petition for rulemaking submitted by General Motors on December 20, 2001. The petitioner requested that the agency amend the Federal motor vehicle safety standard (FMVSS) on lamps, reflective devices, and associated equipment to require the installation of daytime running lamps on passenger cars, multipurpose passenger vehicles, trucks, and buses that have a gross vehicle weight rating under 4,536 kilograms (10,000 lbs). NHTSA has reviewed the petition and performed an extensive analysis of real world crash data. Based on the results of our study we were unable to find solid evidence of an overall safety benefit associated with daytime running lamps and are therefore denying the petition for rulemaking. The agency maintains its neutral position with respect to the safety benefits from the use of daytime running lamps.



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- A. NHTSA Studies and Comparison
- B. Differences in Statistical Methodology
- V. Conclusion
- Footnotes

Tables

- DRL-Equipped Vehicles
- Non-DRL Vehicles

FOR FURTHER INFORMATION CONTACT:

For non-legal issues, you may call Mr. Markus Price, Office of Crash Avoidance Standards (Phone: 202-366-0098; FAX: 202-366-7002).

For legal issues, you may call Mr. Ari Scott, Office of the Chief Counsel (Phone: 202-366-2992; FAX: 202-366-3820).

You may send mail to these officials at: National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590.

SUPPLEMENTARY INFORMATION:

Table of Contents

- I. Summary
- II. Background
- III. Petition



IV. Agency Analysis and Decision

- a. NHTSA Studies and Comparison
- b. Differences in Statistical Methodology

V. Conclusion

I. Summary

This document denies a 2001 petition from General Motors (GM) requesting that the National Highway Traffic Safety Administration (NHTSA) mandate the installation of daytime running lamps (DRLs) on all vehicles with a gross vehicle weight rating (GVWR) under 4,536 kilograms (10,000 lbs). The rationale for denying the petition is that, overall, studies of the effectiveness of DRLs have not indicated that they are an effective means of preventing crashes. While GM presented studies that appear to indicate a degree of effectiveness, NHTSA's own studies contradict that finding. Furthermore, for reasons described in detail below, a careful analysis of the various studies of DRL effectiveness indicates flaws in the studies GM cites and that NHTSA should place greater weight on its own studies. Given the information currently available, the agency has been unable to determine if there are any demonstrable safety benefits associated with mandating DRLs, and therefore has decided that leaving them as a manufacturer option is the best course of action.

II. Background

Federal Motor Vehicle Safety Standard (FMVSS) No. 108; *Lamps, reflective devices, and associated equipment*, establishes lighting requirements for motor vehicles. Daytime Running Lamps (DRLs) are steady burning lamps that illuminate when the regular headlamps are not required for driving. While FMVSS No. 108 does not require DRLs, it does specify requirements that they must meet if a vehicle manufacturer voluntarily decides to install them.¹¹¹

The requirements for DRLs were first established on January 11, 1993 in response to a petition from General Motors (GM) that asked the agency to facilitate the introduction of DRLs on motor vehicles. At that time, GM's view was that an amendment "would allow manufacturers to install DRLs on new vehicles without being in violation of the multitude of State laws" which at that time had "the unintended effect of prohibiting them." Also, GM did not believe that there was justification for mandating DRLs as standard equipment because there was not yet evidence of a "national safety need" in the United States. As a result of GM's petition, FMVSS No. 108 was amended to permit, but not require, DRLs that comply with various marking and performance requirements.¹²¹

III. Petition



On December 20, 2001, GM petitioned the agency requesting that DRLs be made required equipment on passenger vehicles, trucks and buses that have a gross vehicle weight rating under 4,536 kilograms (10,000 lbs). In support of its petition, GM provided information from a study that reported a 5 percent decrease in daytime multiple vehicle crashes and a 9 percent reduction in vehicle to pedestrian crashes.^[3] GM claimed that this report “demonstrates that DRLs are preventing crashes and injuries, and saving lives.” The data supporting this study were collected in 12 States from the years 1994 to 1997, using vehicle registration as a measure of exposure, and the ratio of crash rates estimated by the Poisson regression statistical method (described in detail below).

As an update to the 2000 study, GM most recently sponsored a study written by Steffey, Lau, and Ray of Exponent, Inc in 2008.^[4] This study examined vehicles manufactured by GM, Saab, Toyota, Subaru, Volkswagen and Volvo. Crash data were analyzed from 18 States between the years 1996 and 2005. This study used two mathematical methods to determine if there was a link between DRLs and crash rates, the ratio of odds ratio method and the ratio of crash rates. This study reported the impact of DRLs on various types of vehicle crashes including head-on, rural area, highway, rain/fog, angle, urban area, sideswipe, pedestrian, and motorcycle.

The Steffey *et al.* (2008) study reported a statistically significant reduction in crashes associated with DRLs. For passenger cars, it reported a reduction in daytime head-on multi-vehicle crashes of 12.35 percent using the ratio of crash rates method. This study also reported a significant reduction in rural area daytime multi-vehicle crashes of 9.1 percent for passenger cars using this method.^[5] Similar results were reported for light trucks. Similar to the 2001 GM study, this study reported a 5 percent decrease in daytime multiple vehicle crashes, but contrary to the 2001 study, a non-significant increase in vehicle to pedestrian crashes of 2.5 was observed. No statistically significant results were found for fatal crashes.

This study also analyzed the data using the ratio of odds ratio technique. GM stated that this methodology produced findings that correlated DRLs with a reduction in certain crash types. However, NHTSA's analysis found, with regard to the overall crash rates experienced by vehicles equipped with DRLs, the Steffey *et al.* study's analysis using the ratio of odds ratios method did not produce a statistically significant decrease in the crash rates of those vehicles.^[6]

IV. Discussion and Analysis

After carefully reviewing the data in GM's petition, NHTSA has come to the conclusion that the evidence linking DRLs to lower incidents of crashes is not persuasive. To begin, NHTSA believes that one of the statistical techniques used in the two GM studies, the ratio of crash rates method, is less effective in this case than the ratio of odds ratio method used in the three NHTSA studies (to be fair, this methodology was also employed in the Steffey *et al.* study). Additionally, certain correlations in the GM study raise questions as to the validity of its findings. Contrary to this,



NHTSA's studies do not show that DRLs are an effective means of crash avoidance. Given these issues, NHTSA does not believe that the case has been made to incorporate a change to require DRLs.

A. NHTSA Studies and Comparison

In 2000, NHTSA published a study that examined the effectiveness of DRLs installed on passenger cars manufactured in the 1990s.¹⁷¹ In that study, no statistically significant results were found using the ratio of odds ratio method. In 2004, NHTSA again reported on the effectiveness of DRLs on crashes within the U.S.¹⁸¹ Again, using a broader data set and a different control group, no results using the ratio of odds ratio method produced statistical significance.

In 2008, NHTSA completed a new study on the effectiveness of DRLs.¹⁹¹ The data source is FARS (2000-2005), and State data from 9 States (2000-2005). The results of this NHTSA study (2008) are inconclusive regarding overall DRL effectiveness. When both light truck and cars are evaluated together, the result of DRL installation is a non-statistically significant decrease in two vehicle, all severity crashes of 0.3 percent (-2.5-3.1, 0.95 confidence). A statistically significant decrease of 5.7 percent (0.7-10.7, 0.95 confidence) in two vehicle type crashes for light trucks is somewhat offset by a non-significant 2 percent (-5.4-1.4, 0.95 confidence) increase in passenger car crashes of the same type and severity. Further complicating attempts to find a definitive pattern of safety impact that DRLs have, this study finds a non-significant increase of 12.2 percent (-50.1-25.7, 0.95 confidence) in light truck-motorcycle crashes. Contrarily, it also reports that a non-significant decrease of 1.2 percent (-18.5-20.9, 0.95 confidence) is observed for passenger cars of the same crash type. Continuing, this study was also unable to find a clear pattern of effectiveness between States. An overview of the results finds some positive and some negative results depending on crash type and crash severity. When all crashes are considered, a non-significant decrease of 0.1 percent is observed, demonstrating the overall safety benefits of DRLs in this study are inconclusive.

The agency is aware of some groups' concerns that DRLs may have a detrimental impact on motorcycle safety. The concern is that as motorcycles have historically been the only class of vehicles using DRLs, as other vehicle classes begin to use DRLs the unique conspicuity provided to motorcycles by DRLs will be diminished. Neither the GM, nor the agency's studies are able to establish new evidence with respect to this concern. Therefore, the potential "masking effect" is still unknown and was not considered in this denial notice analysis.

The agency believes that the result derived based on the ratio of odds ratios are more plausible and defensible than those based on crash rates used in GM's study. The Steffey *et al.* study found a 4.28 percent decrease in nighttime multi-party car crashes as a result of DRL installation. It also found a 3.67 percent decrease in single vehicle light truck crashes. Additionally, the report found that DRLs would reduce nighttime fatal crashes by 11.4 percent for passenger cars and daytime single-vehicle



crashes by 9.4 percent for light trucks.^[10] These results cast doubt on the validity of the GM study because we do not believe these crash types are plausibly affected by DRL installation. The authors claim these numbers “serve as useful control groups and benchmarks for comparison.”^[11] The agency respectfully disagrees, and believes this may demonstrate the lack of control for changes that may have occurred during the study period. Another limitation regarding this GM study is the different time period for which vehicle registration was recorded compared to the times that the crashes occurred. The registration numbers were recorded as a snapshot in time on July first, but the crashes occurred throughout the entire year. This time difference may cause inaccuracies in the number of vehicles in the exposure group.

B. Differences in Statistical Methodology

As discussed above, numerous studies exist that attempt to quantify the crash risk relative to the installation of DRLs. Among these studies, various statistical techniques have been used for determining the effectiveness in real world crashes, including the ratio of odds ratios method (used in the NHTSA studies), and the ratio of crash rates method (used in the GM studies). NHTSA believes that the ratio of odds ratios is the most effective means for the analysis in these studies.

The primary statistical technique used in the studies submitted by GM in support of its petition is the ratio of crash rates method. This was used in the 2001 GM study, and was also used in certain parts of the 2008 Steffey *et al.* study. This technique compared the ratio of crashes to the number of vehicles of that type registered. This collision rate is calculated and compared for both vehicles with DRLs and for vehicles without DRLs. This comparison reportedly represents the effectiveness of the DRL. This is mathematically represented as follows:

[Graphic not available; [view image of printed page](#)]

Continuing, this expression is modeled using a Poisson regression model to estimate the overall DRL effect across all model pairs. Because this method uses vehicle registration as the measure of exposure, it may not reflect the actual on-road exposure of vehicles in use that, in actuality, may be involved in a crash. For example, this methodology would assign equal weight to a vehicle driven five miles per day as to a vehicle driven 25 miles per day, despite the fact that the latter vehicle is far more exposed to the risk of a crash.

The ratio of odds ratios method, which was used in NHTSA's studies and in some parts of the Steffey *et al.* study, avoids using vehicle registration as a method of exposure. This method compares the ratio of target crashes in the daytime with control crashes in the daytime. It continues by calculating the ratio of target crashes at night compared to the control crashes at night. The ratio of these ratios is then considered the odds of a vehicle becoming involved in a DRL relevant crash. This ratio is calculated for both a group of DRL-equipped vehicles, and for a group of vehicles



which do not have DRLs installed. A comparison of the two groups' odds then determines the effectiveness of the DRL. This method is demonstrated as follows:

DRL-Equipped Vehicles [Back to Top](#)

| Light condition | Target crashes | Control crashes |
|-----------------|----------------|-----------------|
| Daytime | N ₁ | N ₂ |
| Nighttime | N ₃ | N ₄ |

Non-DRL Vehicles [Back to Top](#)

| Light condition | Target crashes | Control crashes |
|-----------------|----------------|-----------------|
| Daytime | N ₅ | N ₆ |
| Nighttime | N ₇ | N ₈ |

[Graphic not available; [view image of printed page](#)]

The value of R represents the relative odds of daytime target crashes involvements between DRL-equipped vehicles and non-DRL vehicles. The agency believes the ratio of odds ratio is the optimal method because it has a strong confounding-factor-control ability. With regard to the previous example, the ratio of odds ratios would factor in a higher expected crash rate for the vehicle driven 25 miles per day than the vehicle driven five.

The ratio of odds ratios avoids using crash rates because the true exposure data generally do not exist. In GM's case, with regard to the portion of the study that utilized the ratio of crash rates method, vehicle registrations were used as the exposure data. However, registration data do not differentiate driving between DRL and non-DRL vehicles. They do not separate daytime and nighttime driving. Consequently, vehicle registrations are not considered to be an appropriate exposure measure for a DRL study. The contradicting results from the GM study demonstrate this. In contrast, the ratio of odds ratios method compares the ratio of target crashes (DRL-relevant) to control crashes (non DRL-relevant) in the daytime.

The Steffey *et al.* study incorporated both of the methodologies in arriving at its conclusions. Using the ratio of crash rates method, the study found an overall decrease in crash rates of 4.61 percent, which was noted as statistically significant.^[12] However, using the ratio of odds ratios method, the same report found a non-significant decrease in the crash rates of 1.36 percent.^[13] Given the significant divergence in results from the different methodologies, we feel that the results from the ratio of crash rates methodology should be assigned less weight in NHTSA's analysis of the safety effect of DRLs.



V. Conclusion

The agency's 2008 DRL study is a more robust study than previous attempts by the agency to quantify the effectiveness of DRLs. This newest study was unable to find solid evidence of overall safety benefits associated with DRLs installed on passenger vehicles using the ratio of odds ratio statistical technique. While DRLs may be beneficial for certain scenarios, the agency has been unable to document overall safety benefits due to DRL installation which could serve as a basis for mandating them. NHTSA is therefore denying this petition from GM. However, the agency is willing to re-examine the DRL issue if additional data is presented demonstrating overall safety benefits. Any such study should consider using the ratio of odds ratios technique as used in the latest NHTSA study, or provide compelling evidence that an alternative technique is superior at predicting the effectiveness of DRLs. In the meantime, the agency remains neutral with respect to a policy regarding the inclusion of DRLs in vehicles. Although we do not find data that provides a definitive safety benefit that justifies Federal regulation, we are not making recommendations that vehicle manufacturers should change their policies regarding DRLs. Manufacturers should continue to make individual decisions regarding DRLs in their vehicles.

Authority:

49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50.

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Nathaniel Beuse,

Director, Office of Crash Avoidance Standards.

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Footnotes

1. See 49 CFR 571.108, S7.10.1, Table I-a.

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2. See 59 FR 3501 January 11, 1993.

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3. Docket No. NHTSA-2001-8876-11.



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4. Docket No. NHTSA-2001-8876-15.

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5. Docket No. NHTSA-2001-8876-15 Steffey *et al.*, p. 21.

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6. Docket No. NHTSA-2001-8876-15 Steffey *et al.* page 38.

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7. DOT HS 808 645 Table 24 25 Available at
http://www.nhtsa.dot.gov/people/ncsa/pdf/DRL7_RPT.pdf.

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8. DOT HS 809 760 Appendix B Available at <http://www-nrd.nhtsa.dot.gov/Pubs/809760.PDF>.

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9. HS 811 029.

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10. Docket No. NHTSA-2001-8876-15 Steffey *et al.*, p. 24-25.

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11. Docket No. NHTSA-2001-8876-15 Steffey *et al.* p. 20.

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12. Steffey *et al.*, p. 34.

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13. Steffey *et al.*, p. 38.

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