



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

July 16, 2026

The Honorable Mike Thompson
U.S. House of Representatives
Washington, D.C. 20515-4703

Dear Representative Thompson:

Thank you for your office's outreach on behalf of your constituent, Mr. Mark Baker, inquiring about the status of the U.S. Department of Transportation's (DOT) response to a Congressional directive to the National Highway Traffic Safety Administration (NHTSA) to study LED headlamps. Your letter was forwarded to NHTSA, an operating administration of DOT. NHTSA's mission is to save lives, prevent injuries, and reduce economic costs due to road traffic crashes, through education, research, motor vehicle safety standards, and enforcement activity.

House Report 119-212 urged the Secretary to report to Congress on what gaps may exist related to the impact of the brightness of low beam headlamps on the vision and safety of drivers, pedestrians, and other road users, including the effect of varied terrain, including hills and curves.¹ Below is a summary of the issue as well as current and recent NHTSA research in this area.

Nighttime driving safety has long been a major focus area for NHTSA. The traffic fatality rate per mile travelled is approximately three times higher at night than during the daytime.² A variety of contributing factors influence this elevated risk. One of the primary factors is reduced driver visibility, which gives drivers less time to detect and respond to hazards. It is important to recognize, however, that headlamp performance requires a delicate balance between projecting adequate light for the driver to properly see the road and road users ahead (visibility) while limiting light that shines into the eyes of other road users (glare).

NHTSA is launching two headlamp glare research studies in 2026 to build on its previous work examining headlamp light color, beam patterns, and evolving lighting technologies. The new studies will focus on the industry's transition to legal original equipment LED headlamps and related changes in light output and beam patterns. The first study will measure and characterize the light output properties of modern vehicle headlamps to identify opportunities to reduce glare for other road users, including in challenging roadway conditions such as hills and curves. The

¹ <https://www.congress.gov/committee-report/119th-congress/house-report/212/1>, p.59

² NHTSA Research Note: Passenger Vehicle Occupant Fatalities by Day and Night – A Contrast 2007. DOT HS 810 637. Washington, DC: National Center for Statistics and Analysis, National Highway Traffic Safety Administration. <https://crashstats.nhtsa.dot.gov/api/public/viewpublication/810637>

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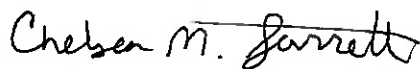
second study will evaluate how the use of modern headlighting technologies in one vehicle affect other vehicle drivers' glare perception and ability to detect objects. The research will examine factors such as beam pattern, light color, and cumulative glare exposure, while also collecting driver feedback on perceived glare. In addition, NHTSA will conduct a literature review of the latest research on headlamp glare and its relationship to crash risk.

NHTSA has a long history of researching headlamp performance and glare, including recent studies focused on lower beam headlamp performance and testing methods,^{3,4} as well as headlight aiming.^{5,6}

Recent research, some of which has not yet been published, has shown that headlamp aim remains an important factor affecting both roadway illumination and glare.⁷ Studies of newly purchased model year 2022–2024 vehicles found that a substantial portion of headlamps did not meet manufacturer aim specifications, highlighting the potential for misalignment to contribute to glare concerns. NHTSA also evaluated the relationship between headlamp aim and lower beam performance, generating data that can support the development of headlamp aim tolerances and future testing procedures. Additional research examined an on-vehicle testing approach for assessing headlamp performance as installed on vehicles. While these methods may better reflect real-world performance, the studies identified measurement and accuracy challenges compared with traditional laboratory-based testing.

I hope you find this information helpful. If you would like additional information, please feel free to reach me at chelsea.jarrett@dot.gov.

Sincerely,



Chelsea M. Jarrett
Director
Office of Governmental Affairs, Policy,
and Strategic Planning

³ Voyzey, N., Mazzae, E. N., Baldwin, G. H. S., & Andrella, A. (2025, September). Lower beam headlighting system performance on-vehicle test procedure examination (Report No. DOT HS 813 702). National Highway Traffic Safety Administration. <https://rosap.nhtl.bts.gov/view/dot/86560>

⁴ Mazzae, E. N., Andrella, A., & Baldwin, G. H. S. (2019, August). Lower beam headlighting system visibility confirmation test - Test procedure assessment. (Report No. DOT HS 812 701). Washington, DC: National Highway Traffic Safety Administration. <https://rosap.nhtl.bts.gov/view/dot/42404>

⁵ Voyzey, N., Mazzae, E. N., & Andrella, A. (2023, October). Assessment of headlamp aim for new vehicles (Report No. DOT HS 813 481). National Highway Traffic Safety Administration. <https://rosap.nhtl.bts.gov/view/dot/72347>

⁶ Voyzey, N., Mazzae, E. N., Baldwin, G. H. S., & Andrella, A. (2025, December). Vehicle headlamp aim angle test procedure and tolerance research (Report No. DOT HS 813 759). National Highway Traffic Safety Administration. https://rosap.nhtl.bts.gov/view/dot/88136/dot_88136_DS1.pdf

⁷ Material summarized in NHTSA Safety Research Public Meeting Fall 2025, Panel 1, slides 134-140, available at <https://www.regulations.gov/document/NHTSA-2025-0325-0004>.