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Expert in Traffic Engineering as Applied to Photo-Enforcement

H189 Frequent Questions – Long Explanation

1. **Are there cities in North Carolina that use red-light cameras?** Not anymore. Wilmington was the last city in North Carolina using red-light cameras. Wilmington ended its program on June 30, 2025. Yet the purpose of H189 is not moot. H189, if it becomes law, removes the financial temptation of other cities, like Greensboro, from using red-light cameras to wrongfully punish safe drivers for profit.

2. Why did Raleigh and Wilmington terminate their programs? A year ago, H189 appeared in the 2023-2024 legislative session as a section within H198. During the 2023-2024 session, the NCDOT had talked to Raleigh and Wilmington about its intent to introduce this engineering regulation. As a consequence, Raleigh terminated its program in March 2024 and Wilmington in June 2025. The cities canceled their contracts with their red-light camera firms according to the provisos within their contracts. These cities did not wait for the bill to become law.

   Raleigh's city manager explained it well: "This regulation means that there is not enough money to even cover a red-light camera program's operational costs." Once the NCDOT's impetus was announced, the city manager confessed that the program only increased crashes

   The NCDOT needs the state legislators to complete the legal end of the engineering regulation.

3. **Why didn't the red-light camera delay bill pass in 2023-2024?** I was told that the only reason why the "red light camera delay" section of H198 was removed at the 11th hour was that nobody was present in the committee meetings to explain the bill. This is not true for the 2025-2026 session. I am present. Rep. Erin Paré and Sen. Lisa Grafstein are present. All of us understand the engineering purpose behind this bill. The House's committees' have

asked us to explain the bill. The bill unanimously passed every House committee. The bill unanimously passed the entire House (minus 1 vote). The bill is now before the Senate.

4. **Will the NCDOT oppose this bill?** No. The NCDOT made it clear to me that it will not oppose the bill. After all, the NCDOT wrote the bill. The NCDOT also told me that it will not actively defend the bill. Defending the bill would put the NCDOT in the awkward position of explaining the reasons why it has been making drivers run red lights for decades. Some of the reasons I answer below.

5. **Are not red-light runners scofflaws?** "The scofflaws all must be punished. I have never ran a red light!"

   Casual observers--people unfamiliar with the engineering--categorize all red-light runners as scofflaws. Casual observers' perspective of a red-light runner is a reckless driver who runs a red light and kills a child. They do not think of a red-light runner as one who enters an intersection within an eye-blink. But it's the latter kind red-light runner where all the profit is made. Casual observers claim to have never run red lights, yet what they really mean is that they never have been caught or they never have caused a crash.

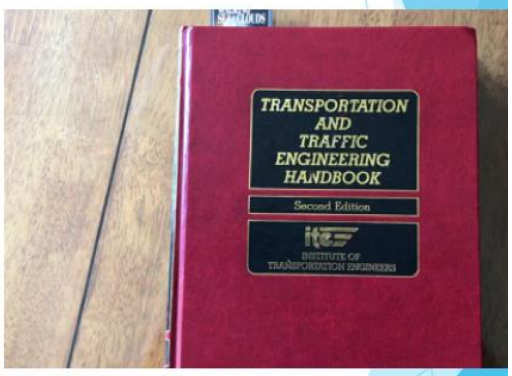
   Data reveals that 80% of red-light running is sub-second. The data exposes that over 90% are caused by math failures in a DOT equation. Data reveals that most of the remaining red-light runners is caused by drivers cautiously going very slow (~15 mph) into the intersection between 1 am and 6 am. (No one else is on the road.)

6. **What about those people beating the light?**

   Yes, people do beat the light . . . and they must. Beating the light is the mandate of the NCDOT engineering spec. The spec is from 1982. The NCDOT uses a variation of the spec, a variation which incites far more drivers to beat the light:

Yellow change and clearance intervals

At the termination of a green phase, motorists approaching a signalized intersection are advised by a yellow signal indication that the red interval is about to commence[35]. The speed and location of some approaching vehicles will be such that they can stop safely at the stop line; others will have to continue at their speed or even accelerate into or through the intersection. The minimum length of the clearance interval (which may include an all-red interval after the yellow indication) should accommodate both situations and eliminate the possibility of a dilemma zone in which a driver can neither stop safely nor legally proceed into or through the intersection. See Table 24-7.



Institute of Transportation Engineers,
Transportation and Traffic Engineering Handbook, 1982

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7. **Why are there crashes at signalized intersections?** Given the data, I estimate that over 90% of crashes are the fault of bad engineering, not bad driving. The crashes are the unavoidable outcome of the NCDOT using its old "ITE yellow change interval practice." ABC TV in Raleigh aired a good story on this problem. Crashes occur and red-light cameras take vigil at intersections where the NCDOT's math is furthest from Newtonian physics. The discrepancies between the NCDOT's math and Newtonian physics predicts red-light running and crash rates. The NCDOT math forces certain drivers and certain kinds of vehicles under certain scenarios to run red lights several seconds after the all-red clearance interval is over. Anyone with a knowledge of introductory physics, like me and including red-light camera firm employees, can tell a city where to place the cameras for maximum profit.

8. **What are the NCDOT's purposes?**

The engineers' purposes for this bill are the following. In order:

a. To prevent drivers from panicking for fear of getting a ticket, thus slamming on the brakes and causing rear-end crashes. The NCDOT engineers want this bill to become law mainly for this one outcome. Red-light cameras significantly increase rear-end collisions.

b. To make red-light camera companies live by their marketing gimmick of "Our cameras are for safety." The hypocrisy of a red-light camera program is exposed by watching the usual red-light camera clips and when one sees the "raw red-light camera event data." Red-light camera companies like to show city councils T-Bone crashes. But T-Bones are extremely rare. For every 100,000 red light running events, only 2 end in a T-Bone. In all, 112 end in a crash, and about 100 of those crashes were caused by the bad math of the NCDOT yellow light practice.

c. To reconcile the engineering requirement with the letter of the law so that the safe motion of traffic once again means the legal motion of traffic. "Safe = legal" and "Unsafe = illegal" are legal axioms. The NCDOT broke this equality in the 1980s when it shortened yellow lights while simultaneously introducing all-red clearance intervals. Once the NCDOT established the all-red clearance interval, drivers routinely entered intersections illegally though safely. This bill once again makes "safe = legal". In this respect, this bill is a beautiful reconciliation between law and engineering.

   It takes the NC legislature to seal the legal part of the engineering deal.

d. To prevent cities from wrongfully blaming drivers for NCDOT engineering defects.

9. **Is there an overall problem with photo-enforcement?**

"Yes." The NC legislature should simply enact a law prohibiting photo-enforcement altogether.

An NC Appellate Court beautifully described the overall problem in a 2023 ruling. Today's traffic control devices were never designed to be enforced by computer. Traffic signals, speed limits and school bus operators are imprecise, requiring likewise imprecise enforcement—that is, imprecise enforcement of a human mediator--the policeman.

For-profit photo-enforcement exploits the gap between imprecise engineering and precise law, framing innocent drivers on account of their collective deep pockets, for defects inherent in the engineering.

City councils and legislators are ripe for the picking. Photo-enforcement firms mark city councils and state legislators because city councils and legislators 1) know nothing about traffic engineering, and 2) have a preconceived bias that drivers are guilty.

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