



Red Light Robber

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PRESS RELEASE ([Brief](#), [Brief--North Carolina](#))

Fatal Safety Problem – Death by Yellow Light



Cary, North Carolina. On September 23, 2014, 15 year-old Panther Creek High School student [Laura Yost](#) died from a crash related to the improper timing of yellow traffic signal lights. Such tragic consequences stem from physics errors in a formula the nation's departments of transportation (DOT) use to calculate yellow signal light durations. The errors create a dilemma zone, a zone upstream from the intersection where if a driver is in it when the light turns yellow, the driver either must accelerate to beat the light or run a red light involuntarily. The length of the zone expands to several hundred feet for commercial vehicles and/or for drivers who need to slow down once past their ability to stop. The formula in question is called the "[ITE yellow change interval formula.](#)" Traffic engineers do not understand this formula and so misapply the formula and plug the wrong numbers into it.

The vast majority of people run red lights and crash because of underlying physics errors embedded within this federal guideline; for example, those found in the North Carolina [DOT specifications](#). With degrees in physics and engineering we know that the problem is egregious but that its solution is simple. We expected government to take action and resolve the mistakes for the sake of our lives, health and property. But our simple request to "fix the formula" has been being vehemently opposed by for-profit businesses, by city governments who partner with those businesses, and by traffic engineers whose admission of the problem would jeopardize their careers.

Engineering must first be correct before law enforcement can fairly punish drivers. Engineering, education and enforcement are the three "E"s. One cannot do the latter without first doing the former. As for red light cameras, the cameras expose the engineering problems; not solve them. In this one sense the cameras are good. Without the cameras the problem could have gone unnoticed for another 100 years. We would have continued to think that beating the light or running a red when turning were our faults.

Legal Solution Exhausted

Our encounters with red light cameras start in the legal world. We sued the Town of Cary, North Carolina over the physics problem. It took four years for us to travel this road and in the end we can only say, "The courtroom is the not the venue to discuss physics." The case came to trial in January 2013. The Court ruled that the Town of Cary and the NCDOT was abiding by its own yellow light specifications. It did not matter whether the specs were wrong. The case turned into a question of



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culpability not one of truth. Because Cary followed the specs, the Court ruled in Cary's favor--a ruling which indirectly struck the laws of physics. The ruling never addressed our physics complaints.

It is true that 2 months after class-certification and still 4 months away from trial, Cary shut down its red light cameras. Cary first turned off those cameras affected by the lawsuit. By August 2012, Cary had shut down all its cameras. The trial ended in January 2013. In November 2013, Cary and I agreed that I would not appeal and Cary would not charge us legal costs.

Cary's red light cameras are gone but the physics problems remain everywhere in the world.

Affirmation & Confidence

The highest authorities in the engineering and science communities verify our position. We seek your personal affirmation too, affirmation not based on the opinions of authorities but rather on the self-evident truths of nature's law. It takes about 30 minutes to understand the physics problem. One does not need to blindly trust us. One can independently duplicate the issues.

We do realize that it sometimes takes famous others, authorities and credentialed individuals who demonstrate their affirmation, so that the people of the press take us seriously. To this end, we present to you the very inventor of the yellow light formula himself, [Dr. Alexei Maradudin](#), a physics professor at UC Irvine. His original [paper](#) describes the formula in its proper context. He confirmed our position in a Raleigh [ABC WTVD 11 interview](#) and with a [letter](#) to the California Traffic Device Committee. Second is [Chiu Liu](#), Ph.D. Physics and Civil Engineering, an engineer at [CalTrans](#). In 2002 Liu published the follow-up [paper](#) in ASCE's peer-reviewed *Journal of Transportation Engineering*. Liu said the same things in 2002 we discovered 8 years later in 2010. Along with Maradudin and Liu, are Joseph Shovlin, Ph.D. Physics—a research scientist at Cree; Elizabeth George, Ph.D. Physics and Chair of the Physics Department at Wittenberg University; William Lynch, Ph.D. Physics, retired. There are also Charles Manning, Jr., Ph.D. Materials Engineering, P.E. (in charge of analyzing Space Shuttle Challenger disaster) and Johnnie Hennings, P.E., B.Sc. Mechanical Engineering. Manning and Hennings are [accident reconstruction engineers](#). Mr. Hennings was an expert witness for the Cary trial and now volunteers his talents to see this problem through. Mr. Hennings has created visual [simulations](#), true to physics, illustrating the problem. I, who discovered the problem in North Carolina, have a B.Sc. in physics.

Board of Engineers Solution Exhausted

We filed complaints against specific traffic engineers with the North Carolina Board of Examiners for Engineers and Land Surveyors (NCBELS). We expected the Board to discipline its engineers whose work does not comply with the laws of physics—a mandate of [NC General Statute 89C-3 \(6a\)](#).

But on September 11, 2014, NCBELS notified us that it will do nothing. NCBELS closed the [cases](#). NCBELS offered no justifications. NCBELS did not counter a single one of our 70 presented violations. NCBELS did not contact a single Ph.D. or P.E. on our side. NCBELS did not acknowledge the field data



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verifying all 70 violations. NCBELS did not do the physics for itself. Instead NCBELS chose to blind itself to the problem. It listened only to the source of the problem--traffic engineers.

A week later we discovered the reason for NCBELS' bias. NCBELS itself disseminates the errant formula to 25,000 North Carolina professional engineers. NCBELS is guilty. It is complicit. To discipline its engineers would be to condemn itself. Its national affiliate, National Council of Examiners for Engineers and Surveyors (NCEES), [teaches the errant formula](#) to [800,000](#) professional engineers nationwide.

SPECIFIC NATIONAL EVENTS

Laura Yost

[Miss Laura Yost](#) died from a September 16, 2014 car crash in Cary, North Carolina. The circumstances impute failures in the federal yellow light guidelines. The intersection is [55 and McCrimmon](#). Yost was riding in an SUV in the northbound left turn lane of Hwy 55. The SUV turned on a yellow into the path of an oncoming dump truck. The driver of the SUV was Spencer Saunders and the driver of the dump truck was Jerry Middleton. The crash revolved around a yellow light. There are three different yellow light engineering failures acting in tandem contributing to the crash:

1. **The NCDOT, like all DOTs, in their yellow time specs never provide the safe and comfortable stopping distance requirements of [commercial trucks \(p. 5\)](#).** The NCDOT does not add the extra yellow time required by commercial vehicles' [air brakes \(p. 5-9\)](#), slower deceleration rates and their drivers' [reaction times \(p. 2-14\)](#). As for the reaction times, it is not that truck drivers are mentally slower than car drivers. It is rather that truck drivers have more worries than car drivers. When braking harder than comfortably, bus drivers worry about passengers falling out of their seats. Tractor-trailer drivers worry about jackknifing.

Traffic engineers are more concerned about traffic flow than they are with safety. Increasing yellow time for the sake of one kind of vehicle decreases flow efficiency for the majority of traffic. The majority is sedans and the minority is commercial vehicles. By design spec, the NCDOT explicitly ignores commercial vehicles in yellow light timing, forcing commercial drivers to run a red light up to 4 seconds upon approaching an intersection at a constant speed, and up to 8 seconds for decelerating movements such as turning or slowing for [hazards](#).

Therefore to attain traffic flow goals, the NCDOT always creates type I dilemma zones at every signalized intersection for commercial truck drivers no matter what kind of motion the truck drivers do. A type I dilemma zone is a zone upstream from the intersection where if the driver is in it when the light turns yellow, he can neither stop safely nor can he reach the intersection at the maximum allowable speed while the light is still yellow. On southbound Hwy 55 at



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McCrimmon, the NCDOT created a dilemma zone at least 195 feet long for Middleton. The dilemma zone extends at least from 575 feet to 380 feet upstream from the intersection.

2. **NCDOT ignores the laws of physics.** Once a driver sees a light turn yellow and he is too close to safely and comfortably stop, the driver must proceed to the intersection. He will reach the intersection only if he goes the speed limit or more. Slowing down will make him run a red light. The yellow light does not allow a driver even to slow down, not even for hazards. According to the Cary Police accident report, Spencer Saunders and Jerry Middleton saw the same yellow light phase. The dump truck driver, Middleton, admits to seeing two cars turning left “cutting it close” crossing his path in front of him. But Middleton is committed to enter the intersection because of the dilemma zone. Middleton knows that slowing down could make him enter the intersection so late after the red that conflicting traffic could pull out into the intersection from McCrimmon. He could hit those cars instead. So Middleton does what the engineering of the yellow light requires. He goes full speed . . . until it is too late. It takes Saunders about 3 to 4 seconds to pull into the intersection. Saunders enters the intersection.
3. **The NCDOT violates a standard in the Manual of Uniform Traffic Control Devices ([MUTCD](#)).** The NCDOT shows different lengths of yellow light which face the driver in the left turn lane. This problem confronted Saunders. When the driver approaches the intersection after the protected green arrow, he faces a yellow light which is 3.5 seconds long. If the driver instead shows up at the intersection after the permitted green ball, he faces a yellow that is 5.2 seconds long. Changing the yellow light durations on a cycle-to-cycle basis makes the yellow light unpredictable and its consequences perilous. By [North Carolina State Law](#), it is illegal for an engineer to do this. On this single point, one can argue that the [NCDOT is guilty of wrongful death](#). [MUTCD 4D.26-09, 4D.04-3B, 1A.13-258, 4D.17-07.](#)

In defense of Spencer Saunders:

1. According the Cary Police report, Saunders thought that the dump truck was going to stop. This is good thinking, not reckless. Saunders was last to enter the intersection on the yellow light. According to the skid marks, Middleton was still about 200 feet from the intersection. Tail end of yellow. Middleton still far off. Saunders has the right to think how he thought.
2. Saunders is not aware of what a dilemma zone is. He does not know that the NCDOT is going to force Middleton to run a red light.
3. The NCDOT’s yellow light spec does not allow Middleton to slow down for a hazard. The hazard is Saunder’s SUV.



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4. Saunders faced a yellow light that is 5.2 seconds long. Because of left turn lane queue is so long at this time of day, Saunders most likely sat through both the 3.5 protected yellow and now the 5.5 second yellow. No one knows the NCDOT illegally flips yellow light durations like this. Not wanting to be in the intersection while the light turns red, Saunders proceeds. It will take Saunders 3 to 4 seconds to pull to traverse the intersection from a stop. Middleton enters the intersection.
5. The accident report does not say whether Middleton ran a red light. It only says that Middleton was too close to the intersection to stop for the yellow. The fact that Middleton refrained from saying, "I did not run a red light." likely indicates that he did. But the circumstances were beyond Middleton's control. The NCDOT made him do it.
6. One cannot convict Saunders of anything. There is *reasonable doubt* that it was his fault.

While the plight of Laura Yost happened in North Carolina, the DOTs of every State make commercial truck drivers suffer the same issues.

Mats Jarlstrom

Mr. Mats Jarlstrom lives in Beaverton, Oregon. He is an electrical engineer. Mr. Jarlstrom runs into the same government gauntlet as we did. Jarlstrom [sued](#) the City of Beaverton for physics errors. He discovered that the Court is not a venue to discuss physics and the Oregon State Board of Examiners for Engineers and Land Surveyors ([OSBEELS](#)) is more concerned about who wears the title "engineer" than with ensuring its engineers do not kill people with bad physics. OSBEELS, like NCBELS, is also complicit. It also disseminates the same errant formula to its tens of thousands of engineers. And in Oregon, OSBEELS's complicity is even worse. The formula OSBEELS puts into [the Fundamental Engineering Reference Handbook](#) is doubly wrong in Oregon.

The problem in Oregon doubles because Oregon enforces a "restrictive yellow law". States under a restrictive yellow law, [require \(p. 10\)](#) the yellow light time to incorporate additional time for a driver to *clear* the intersection before the red display. Oregon does not give the driver the time to clear the intersection during the yellow phase time. Oregon is not the only State which makes this mistake because there are 7 other states enforcing the "restrictive yellow law". For instance the State of Michigan and the State of Virginia are both "restrictive yellow law" states and they are making the same error as Oregon. The common denominator is the National Council of Examiners for Engineers and Surveyors (NCEES) which teaches the errant information nationwide.

The misinformation and traffic engineers' lack of understanding of basic physics cause safety hazards. The City of Beaverton neither adds the clearance time to the yellow phase nor does it assign the time to



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an all-red clearance interval. Cars travelling the speed limit that cannot stop by the laws of physics will find themselves entering intersections when conflicting cars and pedestrians get the right-of-way. For vehicles with air brakes or vehicles that need to slow down to make turns, the misapplication of the ITE formula exacerbates the problem.

The ITE formula and its abuses have a long history. States vary abuse of the formula. All States misapply the formula. Most States enter the wrong variables into the formula. It is just a matter of degree. The common denominator is that the traffic engineers responsible for its application are not properly trained.

INTERNATIONAL

Todd Dube, Winnipeg, Manitoba, Canada

Mr. Dube leads <http://wiseupwinnipeg.com>. Winnipeg is facing a different flavor of same engineering problems and getting the same inaction. Dube took his yellow timing issues to the Association of Professional Engineers and Geosciences, Manitoba (APEGM).

Winnipeg's additional problem is that Manitoba engineers believe that physics stops at 38 mph. They cap the yellow at 4.0 seconds regardless of speed and other approach factors. The most profitable red light cameras are at intersections greater than 38 mph--with red light violations 750% greater than slower speed intersections where 4.0 seconds of yellow is adequate. Additionally these most profitable intersections consistently record the highest collision rates.

Self-Driving Cars

Google, Tesla, Mercedes-Benz and Audi are currently developing the self-driving car. To these manufacturers, the same yellow light formula not only poses the same safety concerns but also liability issues. A self-driving car involved in a yellow-light related crash would invite lawsuits. The liability issue alone could prevent the industry from putting its cars on the market. In a Nevada test on September 26, Google's car got a black mark for a hard-stop at a yellow light. Had a car been behind it, there may have been a rear-end crash.

Google is not aware of the problem. People in general are not aware of error in the physics of the yellow light. For 100 years we misplaced blame giving it to the driver.

NORTH CAROLINA - SPECIFIC



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Raleigh

1. The City of Raleigh [still commits fraud](#) by making vehicles owners who are not driving the car pay. All a person has to do to remove culpability is to submit an affidavit saying, "I was not driving at the time and location on the citation." The vehicle owner does not have to give up the driver. The owner does not have to appeal. The citation never reveals this legal option to the owner.
2. Raleigh is [currently shortening](#) its yellow lights at all intersections, including the red light camera intersections. Raleigh is not shortening the lights with intent to make more money, but is simply allowing the NCDOT to set the yellows to the current "standards" NCDOT adopted in 2006. It takes years for the NCDOT to implement changes. The end result of shortening the yellows is the same: a sustained dramatic increase of red light runners. Cary made such changes years ago. Such changes permanently increased red light running 100% to 700%. To alleviate the crashes, the DOT increases the all-red clearance time.
3. [AECOM](#), an engineering company, wrote a [report](#) to justify that Raleigh's red light camera program is effective. The study reports that rear-end crashes increased by 32% and right-angle crashes decreased by 41%. Raleigh concludes that because newly produced rear-end crashes are less severe than right-angle crashes, the cameras are *effective*. A victim of a newly-produced rear-end crash would not concur.

The study itself does not follow the [scientific method](#). A study which does not follow the scientific method is automatically invalid, the results specious. A conclusion, whether good or bad, is invalid. To the scientist, the study immediately exhibits 2 flaws. 1) The study ignores causality. It assumes drivers are at fault even though engineering design plays the dominant role in red light running. 2) The study incorrectly makes the association that the functionality of cameras is to reduce crashes. The functionality of cameras is not to reduce crashes but to measure red light runners and issue tickets for money. Measuring crashes and measuring red light running are apples and oranges. The *safe* motion of traffic does not imply the *legal* motion of traffic. It is easy to design an intersection where everyone is safe yet everyone runs a red light. (A four-way stop using red lights.) It is easy to design an intersection where everyone crashes and no one runs a red light. (An intersection where everyone sees a green light.)

Given the false premises, the bias, the omission of causality, the lack of observation, and the premature conclusion that drivers are at fault, AECOM still did not produce a glowing report for Raleigh.

Though one cannot draw serious conclusions from such reports, shifting right-angle to rear-end crashes is typical of red light camera enforcement. Because the engineering of the yellow light leaves no wiggle room for human error or forces drivers to run red lights, the only modification of human behavior which red light cameras can affect is to induce panic. Drivers slam on the brakes.



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4. David Wysochanski

Mr. Wysochanski appealed his Peace St and West red light camera ticket. The policemen at the hearing, Officer Tom Paul Hughes and Sergeant L. W. Codrington, neither knew the [law](#) necessary to do their jobs nor would carry it out when we taught it to them. Instead the policemen convicted Wysochanski in order to save the reputations of themselves and their employer.

According to law, the yellow light duration at Peace and West must be at least [3.8 seconds](#). If the yellow light duration is less than that, it is illegal for Raleigh to operate the camera. Wysochanski's citation, the official record of the event, shows the yellow light duration to be [3.79 seconds](#). 3.79 is less than 3.8. It is illegal for Raleigh to operate the camera. When we taught the policemen the law and then showed them the discrepancy between the citation and the traffic signal plan, Officer Hughes would not admit that 3.79 is less than 3.8. Codrington would say nothing. Though 1/100th of a second seems insignificant, Raleigh has made millions of dollars over this specific quibble.

Raleigh, however, actively preys on drivers caught in more obvious traps. At Peace and West, a train trestle blocks the view of the traffic signal. If the light turns yellow during the two seconds of blind spot, the driver must run a red light. Raleigh puts a camera there to profit from the problem. Raleigh caught Wysochanski is this trap.

On a different topic, we asked Hughes and Codrington whether they knew about Raleigh's owner-not-driver citation fraud. One knew and the other didn't. Hughes said that issue does not matter by the time one gets to the hearing because by the time one gets to the hearing the person has confessed. *That is our case in point.* Raleigh only gives options to confess. The fourth option to not confess, a legal option, Raleigh conceals.

5. Eric Tengowski

Raleigh hit Mr. Tengowski's credit record without him ever knowing his car ran a red light. One day Tengowski went to apply for a mortgage loan. The bank charged him 2% higher interest because of the black mark on his credit rating. Tengowski saw that the attack was done by "ACS Raleigh." He discovered that ACS Raleigh is Raleigh's red light camera vendor. But Tengowski never received a citation.

For this to happen, Raleigh has to violate a number of laws including due process in the 14th Amendment, and the Fair Credit Reporting Act. By federal definition, such a civil fine is not a debt. In the process of Tengowski getting Raleigh to fix this, Raleigh violated its own [Session Laws](#).

Fayetteville



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The impediment with operating red light camera programs in North Carolina lays with the conflict between the red light camera vendor's high cost of enforcement and collections and the laws of North Carolina. The laws insist that 90% of gross penal fines go exclusively to the public schools. A city cannot afford to pay the costs and give 90% of the fines to the schools at the same time.

This past summer the NC legislature granted the City of Fayetteville the [provision](#) to fashion an agreement with Cumberland County Schools so that Cumberland Schools can cover the operation costs of Fayetteville's red light camera program. Fayetteville pays the Schools 90%. The Schools kick back the operation costs.

But the provision violates the [NC Constitution IX Sec 7, NCGS 115C-437](#) and the NC Court of Appeals ruling [Shavitz vs City of Point](#). These existing and higher laws establish that 90% of gross penal fines must go *exclusively* to the public schools. Exclusively means no kick backs. The purpose of the higher laws is simple: to prevent government from using the power of government to create criminals for profit, whether that profit be for the government or for a private contractor.

Wake County

Wake County red light camera programs have always been illegal just as the new Fayetteville law is illegal. For Wake County only, the NC legislature tailored a session law which redefines "clear proceeds" so that Wake County municipalities could give the lion's share of money to the red light camera companies. The redefinition conflicts with clear proceeds as defined in [NC Constitution IX Sec 7, NCGS 115C-437](#) and the NC Court of Appeals ruling [Shavitz vs City of Point](#).

The NC legislator introduced and approved the law which conflicts with existing laws. The only way for a citizen to get relief from such conflicts is via litigation. It appears that the common citizen is responsible for cleaning up the legal mess of legislators.

Wilmington

For the last five years, the City of Wilmington has been violating the higher laws which Fayetteville intends to break: [NC Constitution IX Sec 7, NCGS 115C-437](#) and the NC Court of Appeals ruling [Shavitz vs City of Point](#). Even without a special NC legislative provision, the City of Wilmington has been making a [kick back deal](#) with New Hanover County. The City of Wilmington pays New Hanover County 90% of gross penal fines if New Hanover County pays back to Wilmington around \$200,000 of the red light camera operation costs. New Hanover County is the funding source of New Hanover County Public Schools. The deal is both money laundering and a kick back.