

Wilmington red-light camera lawsuit joins nationwide effort against ‘fifty-year-old error’

By Benjamin Schachtman January 13, 2018



The intersection of 17th and Dawson streets, where Wilmington resident Todd Platzer got his red-light camera ticket. Platzer is suing the engineer, Pamela Alexander, who approved the yellow light timing — Platzer argues that Alexander is part of a 50-year-old problem. (Port City Daily photo / BENJAMIN SCHACHTMAN)

WILMINGTON — Like thousands of other residents and visitors, Todd Platzer received a ticket in the mail after running a red light at the intersection at 17th and Dawson streets. Platzer appealed to the City of Wilmington, unsuccessfully. Now, he’s taking the traffic engineer responsible for the yellow light timing at that intersection to court.

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Platzer isn't the first to go to court over red-light cameras. A high profile, **\$38.75 million settlement in Chicago** resulted from a number of abuses by the city's red-light camera program; in North Carolina, William Scott Kozel sued the town of Greenville – and the Pitt County Board of Education, which receive profits from the red-light program. Kozel's claim was that the equation used to engineer the duration of yellow lights in Greenville – and around the nation – is fundamentally flawed.

Platzer's lawsuit makes the same claim, but Platzer isn't suing Wilmington or New Hanover County; he's suing Pamela Alexander, the traffic engineer who signed off on the yellow light timing at the 17th and Dawson intersection.

To make his case, Platzer is enlisting the help of Brian Ceccarelli, a licensed professional engineer who has a long history with red light cameras.

The case against red light cameras is yellow lights

Ceccarelli has spent years identifying the engineering issues with red light cameras, but – according to him – the real issue is yellow light timing.

"Companies like American Traffic Solutions aren't off the hook. Instead of fixing the faulty engineering, they profit from it. The problem is the yellow light timing. Red light cameras do not solve the problem; they reveal the pr

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According to Ceccarelli, red light camera tickets are just part of the problem – when yellow lights are too short, accidents, injuries and fatalities increase.

Related story: [*Questions for Wilmington's red-light camera program after North Carolina lawsuit*](#)



In 2012, he took the town of Cary to court after receiving a red light camera ticket. Ceccarelli's core argument is that the equation used to determine the duration of yellow lights has been taken out of context from a **1959 industry paper written by General Motors physicists**.

In 1965, the General Motors formula was mis-copied into the Traffic Engineer Handbook issued by the Institute of Transportation Engineers, which guides governmental bodies – like the North Carolina Department of Transportation – in establishing specifications for yellow light durations.

According to Ceccarelli, the equation fails to take into account a variety of factors, including vehicles that slow down to make left or right-hand turns, that slow down to avoid cars egressing or entering the road from nearby business, or that slow down because of intersections the driver passes leading up to the intersection.

These factors change the drivers approach speed, which often makes it physically impossible for them, once unable to stop comfortably, to successfully reach the intersection in the allotted time between the start of the yellow light and the beginning of the red light.

AS CURRENTLY DESIGNED, THE NCDOT EXPECTS DRIVERS TO BRAKE AS HARD AS THEY WOULD IN AN EMERGENCY AT EVERY YELLOW LIGHT.

The flaws of the equation are not a secret. In fact, Alexei Maradudin, who co-wrote the 1959 GM paper and invented the formula, has spoken out against its continued use (you can read his 2015 letter to the Institute of Transportation Engineers at the end of this article).

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This photo, of a tree fallen across a road, is used by the current Washington State Department of Transportation handbook to illustrate the need for calculating stopping distance, as defined by AASHTO. There is no differentiation between emergency and non-emergency stopping rates. (Port City Daily photo / COURTESY WSDOT)

Just as important, Ceccarelli argues, is that the equation is based on the median perception-reaction time of a passenger-car driver, on dry pavement, responding to an emergency. The NCDOT uses a value defined by the American Association of State Highway Transportation Officials (AASHTO), which allows 1.5 seconds to see “perceive” the yellow and “react” to it.

That means that – statistically – half the driving population will automatically run the red light, even if they react as quickly as they can.

Also, when it comes to deceleration, Ceccarelli pointed out that the NCDOT’s definition of “comfortable deceleration,” is based on the AASHTO-defined rate of 11.2 feet per second per second.

At that rate it would take 200 feet to brake to a stop from a speed of 45 miles per hour. Ceccarelli points out that this is AASHTO’s “emergency deceleration” – the rate at which you would decelerate “if a cow wandered across the road.”

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In other words, as currently designed, the NCDOT expects drivers to brake as hard as they would in an emergency at every yellow light.





One of professional engineer Brian Ceccarelli's arguments against the current yellow light formula is that it does not accommodate the increased time it takes certain vehicles – like a school bus – to brake. (Port City Daily photo / BENJAMIN SCHACHTMAN)

Further, this deceleration applies only to the average passenger car driver on dry pavement. Commercial vehicles, like school buses, are neglected altogether. For example, the average deceleration of a school bus is 8.0 feet per second per second. The difference between what the passenger car driver and the school bus driver needs to stop is about 4 seconds on a 45 mph road. NCDOT ignores this, Ceccarelli argues.

Who is responsible for yellow light timings?

In the end, Wake County Superior Court Judge Paul Ridgeway found that **Cary was merely doing what a state-licensed engineer had permitted**, using engineering methods that are “widely accepted,” including by the state. It’s a familiar arrangement; Wilmington’s red light cameras are all installed in NCDOT managed intersections, with yellow light timings engineered by state-licensed engineers.

In an **interview about Wilmington’s red light camera program**, City Staff Engineer

Don Bennett, said, “(i)f someone had an issue with the yellow light timing, they could take it up with the state.”

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This wasn’t a total defeat, according to Ceccarelli. For one, the judge agreed with his math:

“The judge did not refute my physics. As a matter of fact, he and I worked a sample

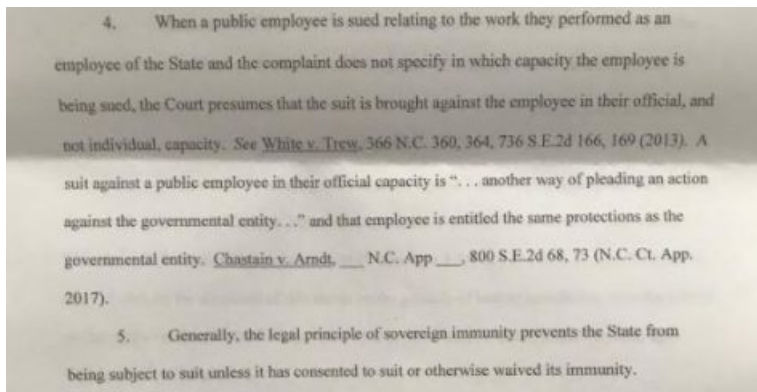
got the wrong answer,” Ceccarelli said.

More importantly for Ceccarelli, the court’s finding that the Town of Cary “did not have any involvement” in the computation of the yellow light duration made the traffic engineer – who did perform the computation – the person responsible for errors in traffic light timing.

That idea, that the traffic engineer is responsible for yellow light timings, is the precedent for Platzer’s lawsuit.

The North Carolina Department of Justice (DOJ) disagrees, however.

***Rex non potest peccare* (the King can do no wrong)**



Assistant District Attorney for North Carolina Kacy Hunt, in her motion to dismiss, argued the NCDOT, and by extension its former employee Pamela Alexander, are immune from law suits. (Port City Daily photo / COURTESY WAKE COUNTY)

North Carolina Assistant District Attorney Kacey Hunt responded to Platzer’s lawsuit with a motion to dismiss. The motion argues that Platzer’s attempt to sue Alexander was in effect an attempt to sue the NCDOT, who employed Alexander. According to Hunt, this authorizes the North Carolina Department of Justice (DOJ) to defend Alexander. The defense? The state, NCDOT and Pamela Alexander were all protected by sovereign immunity.

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“The legal principle of sovereign immunity prevents the State from being subject to suit unless it has consented to suit or otherwise waived its immunity,” Hunt wrote.

Hunt declined to answer questions about the legislation, instead forwarding them to NCDOT spokesman Steve Abott, who – after initially stating he would not comment on ongoing litigation – did not answer any follow up emails or phone calls



about whether or not *Ceccarelli vs Town of Cary* would, in general, make an engineer liable in a civil suit.

Another hypothetical question is presented by Platzer's case: is American Traffic solutions, a private company, also protected by sovereign immunity? In other words, if a red light camera company makes money by fining people who run red lights, because those red lights are improperly engineered, but the engineers involved cannot be sued because they work for the state, is ATS effectively immune from civil suits?

Hunt and Abott did not answer.

Video: Here's the intersection where Todd Platzer got his red-light camera ticket.

So, what happens if a North Carolina engineer *is* wrong?

Andrew Ritter, the executive director of the North Carolina Board of Examiners for Engineering and Surveyors (NCBELS), is very familiar with Ceccarelli's claims about errors in the yellow light formula.

NCBELS is responsible for investigating and dealing with violations of engineering and surveying practices as laid out in the North Carolina general statute section 89C – about 120 cases a year.

According to Ritter, NCBELS first got involved with “the red light camera issue” during Ceccarelli's lawsuit in Cary. Ritter said Ceccarelli made his case to the board – which includes four engineers – and that his point was “understood completely.”

The problem wasn't that the board disagreed with Ceccarelli – “we aren't rejecting what he said, at all,” Ritter said – but that it was outside the board's authority.

*THE NCDOT WAS ASKED: “IS THERE ANY S
CURRENT YELLOW LIGHT TIMINGS ARE PROBLEMATIC BECAUSE
OF POTENTIAL MISAPPLICATIONS OF THE STOPPING
TIME/DISTANCE FORMULA?”*

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THE NCDOT GAVE ONLY A ONE WORD ANSWER: “NO.”

Ritter said the board took Ceccarelli's case to the federal Department of

— “ .



"We went to the DOT with this. They said, 'this is the formula we tell every engineer in the United States to use,'" Ritter said. "So, if the engineer is applying the formula that is the industry standard, as they were taught, then that's not a violation."

Ritter admitted that, if Cecceralli's claim – that math misapplied by engineers causes unduly short yellow lights, leading directly to traffic accidents, injuries and deaths – was proven unequivocally true, NCBELS would not act.

If an engineer designed a faulty bridge, Ritter said, they could be disciplined – fined, or stripped of their license – but if an engineer uses that state-approved formula, even if that formula is proven faulty, NCBELS can't do anything.

For the time being, the 1959 formula remains the one included in its national exam study materials.

"Ultimately, if you have these kinds of concerns, your beef isn't with us, your beef is with who's teaching it, who's enforcing it," Ritter said. "Mr. Ceccarelli may be right, he might be wrong. But he might be correct. One day all the formulas might change because this gentleman decided to make this his – I don't want to say life's work – but definitely he's dedicated to it. But it's got to go to the national DOT, and then it will trickle down to the NCDOT, and to the colleges teaching engineering around the state."

To that end, Ceccarelli has since become a licensed professional engineer, and spoken at several industry conferences on the topic of the yellow light problem as he sees it; he's also published an article – **"Defying the Laws of Physics: Misapplication of the Yellow Change Interval Formula"** – in Traffic Technology International.

So far, NCDOT has not made any efforts to address Ceccarelli's claims. According to NCDOT spokesman Brian Rick, "ITE (Institute of Traffic Engineers) is currently putting together an updated Recommended Practice for traffic signal change and clearance intervals. When the Recommended Practice is finalized, we plan to review our practices."

However, when asked, "is there any sense at NCDOT that the current yellow light timings are problematic because of potential misapplications of the stopping time/distance formula," Rick gave only a one word answer:

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"No."

Nationwide efforts

North Carolina isn't the only state with efforts to combat alleged errors in yellow light timing. In 2002, Dr Chiu Liu, physicist and civil engineer for the California Department of Transportation, **published a paper highlighting flaws in the yellow light equation** and has been an advocate for updating the formula since then.

More recently, **there's been the case of Mats Järlström in Oregon**. The Swedish-born engineer began looking closely at how yellow-light timing is engineered after his wife got a red-light ticket. Järlström said he quickly noticed several flaws in the engineering and took his results to state officials.

They were less than pleased with Järlström's suggestions.

"TRAFFIC ENGINEERS THINK THEY'RE UNTOUCHABLE. THEY TAKE A TEST AND THEN THEY'RE AN ENGINEER, IT'S FUNNY, AND A LITTLE SCARY." – MATS JÄRLSTRÖM

The Oregon State Board of Examiners for Engineering and Land Surveying tried to silence Järlström by fining him under an obscure state law that forbid anyone without a state engineering license to criticize the state's engineering practices. The battle only recently ended with a court judgement in Järlström's favor, finding that the state board clearly violated his First Amendment rights.

"When it started, I felt my wife was treated quite badly by the court, and so I pursued it," Järlström said. "I've been pushed down in my shoes by the government, and – I don't want to say it was depressing – but it was hard work. This is self-funded, volunteer work to try and fix what is wrong. But I'm a stubborn Swede, and I was going to work to prove I was correct."

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Järlström said he was frustrated that many licensed engineers failed to understand the problem with yellow light timing.

"Traffic engineers think they're untouchable. They take a test and then they're an engineer, it's funny, and a little scary," Järlström said. "You come to a group of people and tell them, what you have been doing, for five decades, it is quite wrong – no one is going to like that. But, what I used to point out what they were doing



Järlström agreed that traffic engineers like Pamela Alexander should be responsible for the work they do, in no small part because – beyond the problems of red light cameras – yellow lights that are too short lead to more accidents.

“They hide behind the fact that they are licensed by the state, but they need to be accountable. We’re talking about public safety,” Järlström said. “We have 32,000 people killed in traffic accidents every year in this country. So, if this reduced that by only ten percent, that’s 3,200 people, why would you not want to address that?”

Järlström has been hard at work, designing not only a new formula to determine yellow-light duration, but an apparatus combining video and GPS, designed to test his theory out. Further proof, Järlström said, that he is dedicated to fixing the problem of the current formula.

A(nother) day in court

Platzer originally hoped to take Alexander to small claims court in Wake County, in part because of a North Carolina legal precedent that would allow Ceccarelli to examine Alexander as if he were a lawyer.

As part of the DOJ’s motion to dismiss the case, Platzer v. Alexander was moved to district court to be heard on Friday, Feb. 9; there, Ceccarelli will be allowed to serve as an expert witness, but not to question Alexander directly.

Still, according to Platzer, “I hope Brian (Ceccarelli) will be able to demonstrate to the judge that, due to misapplication of physics on part of the traffic engineer, the duration of the yellow light interval is wrong and should be longer. It is my belief that correcting this will result in less fatal accidents and also put pressure on the private organization (ATS) that contracts with the city of Wilmington to profit from issuing red light photo tickets to the public.”

Platzer does want his \$50 fee returned to him, but only on

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Platzer said, is to help bring public – and legal – attention to problem, and perhaps help to fix a 50-year-old problem.

Pamela Alexander did not respond to email and phone calls to her realtors office. A spokesman for American Traffic Solutions declined to answer questions related to yellow-light timing.



*Send comments and tips to Benjamin Schachtman at ben@localvoicemedia.com,
@pcdben on Twitter, and (910) 538-2001.*

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