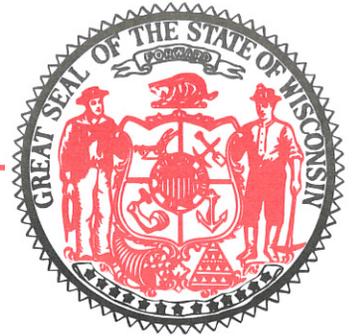# FRED A. RISSER
Wisconsin State Senator

Th, 9.26.13 | 10AM | 330 SW | Committee on Transportation, Public Safety, and Veterans and Military Affairs

SB 80 *Relating to: the operation of autonomous vehicles on the highways, granting rule-making authority, and providing a penalty*. By Senators Risser, Schultz, Taylor, and Lazich, and Representatives Jorgensen, Ohnstad, Ringhand, Sargent, and Berceau.

Senator Petrowski and members of the committee, thank you for holding a public hearing on Senate Bill 80. This legislation would allow the Department of Transportation to promulgate rules and regulations relating to driverless vehicles on Wisconsin roadways and clarify that these vehicles are legal to operate in our state.

It is not a matter of *if* driverless vehicles will someday drive on our roads, it's a matter of *when*. Today cars drive themselves via an integrated system of cameras, lasers, maps, sensors, GPS, and computers. Though a human driver is always in control and must activate the automated technology, these cars can pull out of parking stalls, navigate down roads and through traffic, arrive at destinations and park themselves. Cars already have cruise control, built-in GPS, cameras for driving in reverse, and features to activate anti-lock brakes—this is the next step.

Driverless car technology has the potential to make it easier for disabled and elderly drivers to get around and will be instrumental in improving road safety by correcting for accidents caused by those who might fall asleep behind the wheel, those who are inebriated or are incapacitated by a heart attack, stroke, or a seizure, and of course, people who are just bad drivers.

These cars are still in the developmental stage. Improvements are needed to account for temporary road signs, aberrant pedestrian behavior, and winter weather conditions. Wisconsin is a perfect testing ground, but we must first update our laws.

Nevada, California, Florida, and DC have passed legislation allowing for the testing of these vehicles, and are being considered in a dozen other state legislatures, including Minnesota and Michigan.

Current law does not address the operation of driverless vehicles on our roadways. There is no answer to law enforcement of how to proceed during a traffic stop should one of these vehicles be pulled over. Nor are there directives for the DMV to register these vehicles or provide for licensing. Legislation is necessary just as legislation concerning regular vehicle rules and operations are necessary. It is for the benefit of our car makers, those who are performing road tests, law enforcement officers, and drivers.

A recent Forbes article summed up the stumbling blocks facing this technology. It is not the development of the cars themselves; it is regulation not keeping up with the technology.

The intent of SB 80 is to open the door to manufacturers and developers of these vehicles and to provide a solid and legitimizing framework for their operation and prevent technology from outpacing and becoming stunted by state statutes. Allowing the DOT to legitimize these vehicles on Wisconsin roadways suits that aim.

The fiscal impact of this bill is low—a one-time cost related to IT programming of approximately $16,200.

Thank you and I am happy to answer any questions the committee may have.

March 2013

STATE LEGISLATURES

NATIONAL CONFERENCE *of* STATE LEGISLATURES

Driving the Future

INSIDE:

Voting
Matters

International
Students
Wanted

TABOR
Revisited

Driving the Future

Self-driving cars and smart phones that help you catch a bus are not as far-fetched as you may think.

BY ANNE TEIGEN, ALICE WHEET AND JAIME RALL

The proliferation of wireless technology has transformed American life—from flipping through an old book to scrolling through an ebook on a tablet, from calling mom for directions to grandma's to finding her with an app on your cell phone.

Technology is also changing the way we move from place to place, bringing not only convenience and safety advances, but also a few privacy questions and safety concerns.

Let Your Car Do the Driving

Most people would rather spend 45 minutes relaxing, listening to music or reading a book than spending time commuting in traffic. What if you could do both? What if you could read a book and wind down after a long day while your car drives itself? It may be possible in the near future with the development of autonomous, or self-driving, vehicles.

Nevada became the first state to authorize the operation of these vehicles on its roadways in 2011. The law defines an autonomous vehicle as one that "uses artificial intelligence, sensors and global positioning system coordinates to drive itself without the active intervention of a human operator." California and Florida followed Nevada's lead in 2012, while four other states debated, but did not pass, similar legislation.

Nevada issued the first license for an autonomous vehicle to be tested on public roads to Google, the first company to file an application. Google's self-driving prototype has also been successfully tested in California. In addition, the U.S. Department of Defense, auto manufacturers and universities have tested driverless cars with varying degrees of success.

Proponents of these smart cars note that approximately 35,000 highway fatalities annually and 95 percent of automobile accidents are caused at least in part by driver error. California Senator Alex

> *"Autonomous technology is not science fiction."*
>
> —SENATOR ALEX PADILLA (D) CALIFORNIA
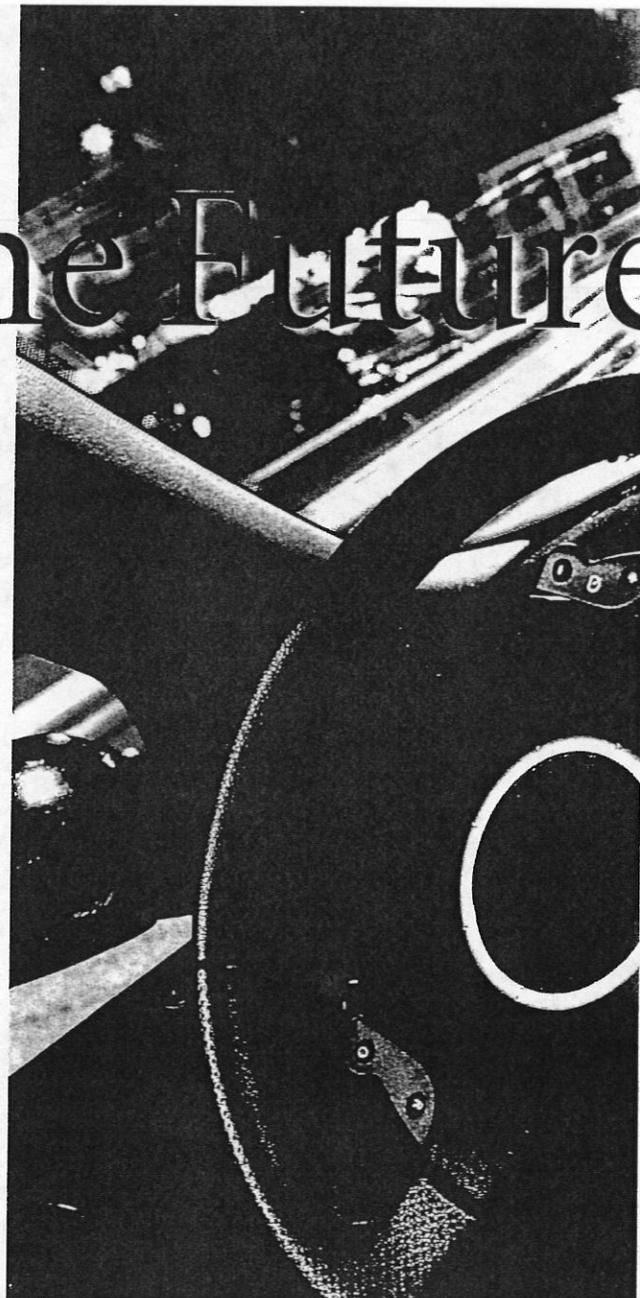
Padilla (D), who sponsored the bill there, is an advocate for the driverless technology. "Autonomous vehicle technology has the potential to reduce traffic accidents and save lives," he says.

Self-driving cars are designed to remove human error, in part by recognizing objects, other cars and hazards and choosing the best route to reach a destination. In fact, Google's 12 vehicles have completed more than 300,000 miles of testing in a wide range of traffic conditions without a single accident.

Senator Alex Padilla (D) California

Big Questions to Answer

Autonomous vehicles may be the cars of the future but there are plenty of legal roadblocks to pass through. Laws in every state on operating motor vehicles, driving while impaired and insuring cars all make one big assumption—that a human is behind the wheel of a moving vehicle.

Anne Teigen, Alice Wheet and Jaime Rall cover transportation issues for NCSL.

> *"I think you are going to see many states recognize this technology, begin to write rules and regulations to accommodate it, and hopefully do a lot of research."*
>
> —SENATOR JEFFREY BRANDES (R) FLORIDA

In self-driving cars, who's going to be at fault in an accident—the person riding in the car or the developer of the vehicle's software? Who should get the ticket when the police pulls the car over—the rider or the car?

How will auto insurance premiums work? Who should carry the auto insurance and what should it cover? And what if someone hacks into the car's computer or a virus attacks it or a worm wiggles in?

Then there's distracted driving to consider. Is it acceptable for a person in a car that drives itself to use a cell phone or tablet? What about texting?

Nevada lawmakers answered a couple of these questions when they passed legislation—in the same year they authorized the autonomous cars—allowing the use of wireless devices while legally operating a self-driving vehicle. The legislation also prohibited those activities while driving. As this technology spreads, states with distracted driving laws will also have to address these issues.

Get Ready for Reality

"I think you are going to see many states recognize this technology, begin to write rules and regulations to accommodate it, and hopefully do a lot of research," says Florida Senator Jeffrey Brandes (R).

Senator Jeffrey Brandes (R) Florida

For now, a few states are paving the way. In Michigan, the DOT conducted an online survey of companies involved in the industry to find out what is needed for a successful testing environment. Many in southeast Michigan hope it will be considered as a location for the autonomous vehicle industry. California's law requires the Department of Motor Vehicles (DMV) to establish safety regulations for driverless vehicles before January 2015. Florida's law requires a report from the DMV and Department of Highway Safety detailing the legislative action needed for autonomous vehicles by February 2014.

"Autonomous technology is not science fiction," says Califor-

Capturing New Revenues: There's an App for That

Smart phones have GPS technology that helps us navigate to our destinations, whether by car, by bus or on foot. Now, the Oregon Department of Transportation is trying out a smart phone app that can report vehicle mileage for billing purposes. It's part of a potential future trend in collecting user fees that may eventually replace the gas tax.

States are looking for new ways to fund transportation projects in light of declining gas taxes and rising construction costs. One widely discussed possibility is a Vehicle Miles Traveled (VMT) fee, which would charge users based on miles driven instead of gallons of fuel consumed. No state has established a broad VMT fee, but at least 18 have conducted pilot projects on the concept. A new phase of Oregon's well-known pilot project, which began in the fall of 2012, has four payment options, including a smart phone app.

"As well as the gas tax has served the road needs of Oregonians in the past, it has become a declining revenue source," says Senator Bruce Starr (R), chair of Oregon's Road User Fee Task Force. "Oregon will be well served in finding a solution to this concern before it becomes an emergency." A report to the legislature was due in February.
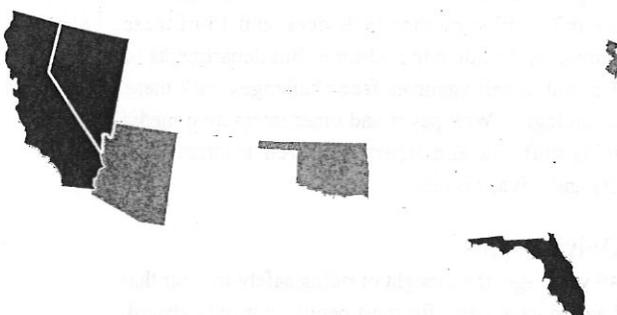
Senator Bruce Starr (R) Oregon

Federal officials are looking into a Vehicle Miles Traveled option as well. U.S. Representative Earl Blumenauer (D) from Oregon introduced a bill (H.R. 6662) last December to require a study of a national VMT fee. The idea reportedly has bipartisan support.

The States Driving Changes
Bills on self-driving cars are gaining traction.

■ Have passed autonomous vehicle laws
▨ Have considered legislation in the past two years
Are considering legislation this session

Source: NCSL, January 2013.

nia's Padilla. "We are living in the era of Moore's Law, where every two years we double our computer processing speeds. This is allowing us to make exponential leaps in advanced technology. To a large extent, that progress has made self-driving cars possible sooner, rather than later."

Putting Smart Phones to Work

Each day, buses and trains take millions of Americans to work and back. These riders include people who may have few other options because of a disability or lack of income. Many others love the idea of being able to work, read or enjoy the sights while "somebody" else worries about parking spots, rush-hour traffic and the price of gas.

Today, transit agencies, state transportation departments and private companies are using new technologies to make public transit more user-friendly. In some American cities, transit riders can use their smart phones to know exactly when the next bus or train will arrive at their stop. Transit systems are using social media and computerized displays at transit stops to share travel information.

The Chicago Transit Authority now has a real-time information system—called "CTA Bus Tracker"—that follows city buses with GPS and displays their locations and expected arrival times on its website, in emails or text message updates,
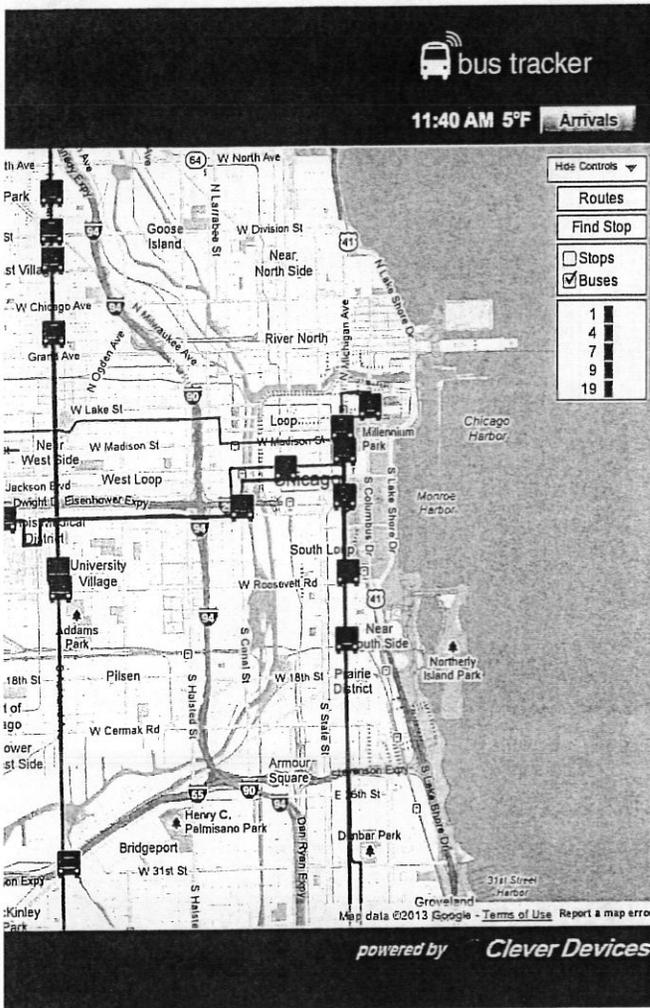
Yesterday's Science Fiction, Today's Traffic Efficiency

Cars that drive themselves and phones that tell you where your bus is? Even though these technologies are taking off, they still seem like science fiction. But just a few decades ago, some of the transportation technologies we now take for granted were also cutting-edge. Known as intelligent transportation systems, these advanced systems are now widespread, offering cost-effective strategies that help ease traffic jams and keep us safe on the road. Here are a few examples.

Electronic Tolling. Remember when pitching change into toll baskets was the only option? Today, almost every toll agency in the country uses an electronic system to collect tolls through transponders—and often you don't even have to slow down.

Dynamic Message Signs. They didn't even exist until the mid-1980s, yet it's as if they've always been there: portable or permanent electronic signs with amber-colored texts that let you know when you need to slow down, when accidents or icy roads lie ahead, or how long it will take to get to your exit.

High-Tech Traffic Signals. Tired of getting stuck at every stoplight? In many cities, traffic signals are now coordinated to improve traffic flow or to respond to real-time traffic conditions. Another common sight is traffic signals at on-ramps that pace how quickly vehicles get onto the freeway.

Traffic Management Centers. Behind the scenes, high-tech "nerve centers" called traffic or transportation management centers allow crews nationwide to monitor highways 24-7 using traffic cameras and other data so they can keep traffic moving and respond quickly to emergencies.

and via smart phone apps.

In 2011, the transit authority also launched audio announcements on electronic signs at 400 bus stops to make real-time, GPS-powered bus information available to people who don't have cell phones, or who have visual impairments.

Many of these new technologies are developed by private companies and used by transit agencies and local governments. States can also help spur development, for example, by collecting and sharing the needed data.

Massachusetts' Department of Transportation openly offers data on its website to developers. The licensing agreement allows individual citizens and companies to use the real-time and static information to build mobile applications for travelers. As a result, more than 50 applications are available in Massachusetts, and residents are using them to find convenient public transportation.

"Where there is valuable, customer-relevant data owned or maintained by state or local governments, it's good practice to make it public," says Josh Robin, director of Innovation and Special Projects at the Massachusetts Bay Transportation Authority. "It helps government and it helps citizens," he says.

Nationwide, public transit ridership was up 5 percent in early 2012 from the year before, and the number of passenger-miles traveled by 16- to 34-year-olds increased by 40 percent from

2001 to 2009. The availability of real-time information may be one reason for the trend.

According to a national survey, 45 of 276 transit agencies provide some information on mobile devices, and 15 of these offer the information to riders in real-time. But departments of transportation and transit agencies face challenges with these advanced technologies. Web pages and other interactive media require ongoing staff time and expertise, as well as attention to cyber security and privacy issues.

We Can Only Imagine

A mere 40 years ago, the thought of riding safely in a car that steers itself would have been, for most people, not only absurd, but unimaginable. And the idea that you could find instant answers to just about any question with a swipe of a finger across a device that fits in a pocket would have been laughable.

But now, knowing that you can send cries for help from that same little device if a crash sends your car into a ravine or that you can avoid the accident altogether because your car is driving itself, are no longer mildly amusing possibilities, but seriously wonderful realities.

And for those who were not yet around 40 years ago, who may already be taking this technology for granted, imagine—if you can—what might lie ahead. It's mind-boggling.

Forbes

Tim Worstall, Contributor
I write about business and technology.

TECH | 8/21/2013 @ 10:41AM | 3,453 views

Google's Driverless Car Problem Isn't Technology, It's Liability And Regulation

We're all aware that Google's driverless cars have been buzzing around the streets for the past couple of years without accident. I think we're all also all aware that it's going to be pretty cool when we can all get our own car that doesn't have to be driven but drives itself. The big question is of course well, how long between now and then? And the point is that there's no real technological reason why it won't be pretty soon. The actual problems that must still be overcome are about insurance liability and the regulations that allow us to use them or not on the roads. As an industry consultancy points out:

> 66 The industry consensus is that autonomous driving will be available by 2020, but significant hurdles still remain. These obstacles are not technological. Advances in computing power and software development mean that features such as high-end image processing and sensor fusion are now ready for production. Rather, the factors that remain to be solved before rollout to the public are those of liability and legislation.

Liability I think will be surprisingly easy to sort out. For the insurance companies are going to realise pretty early on that computer controlled cars are going to be rather safer, less likely to have accidents, than human controlled cars are currently. And if the insurance companies are able to charge what they do now (which they will be able to do at the start at least) and shoulder a lower risk burden then they're going to be just overjoyed. So as I say, I think that's going to be a reasonably easy one to solve.

The legislative, regulatory, part, that I think is going to be rather more difficult. It's a common enough theme around here that regulation is the major brake on economic development at present. Even if there isn't some major interest group (as with the various taxi commissions trying to slow down the expansion of Uber and Lyft etc.) trying to prevent a new way of doing things from outcompeting that established interest, it still takes years to get major legislative change enacted. And such major legislation doesn't come about because there's something pretty cool that we'd all like to do. There has to be, again, some major interest group willing to spend the time and money to get Congress to address the issue.

My own, entirely personal, opinion is that that major interest won't be Google either. I have a feeling that it will only be when the Big Three, GM, Chrysler and Ford, are ready to introduce driverless cars of their own (one or all of

which might be based upon Google's technology of course) that the necessary push will come to legitimise the technology for use on the roads in general. All of which is possibly rather depressing for Google itself. For while they are obviously pioneering this technology I'm not all that sure that they'll profit mightily from having done so. I simply doubt that the legislative barriers will be removed until others are willing to support their being removed. Something they're only likely to do when their own technology is ready for prime time.

I see the basic idea, the technology, of driverless cars as being both hugely welcome and massively successful. I'm just not sure that Google's going to make all that much money out of it.

This article is available online at:
http://www.forbes.com/sites/timworstall/2013/08/21/googles-driverless-car-problem-isnt-technology-its-liability-and-regulation/

From:	Robert Biederman <rbiederman@google.com>
Sent:	Thursday, September 26, 2013 9:44 AM
To:	Punches, Derek
Subject:	Google opposes SB 80

Hi Derek,

Thank you for your call this morning! Below is our short written testimony:

Chairman Petrowski and Members of the Committee on Transportation, Public Safety, and Veterans and Military Affairs:

Senate Bill 80, Wisconsin's attempt at regulating autonomous vehicles, is conceptually similar to efforts in a few other states. However, as currently drafted, SB 80 is a step backwards despite the drafters good intent to send a tech-friendly message. As drafted, Google opposes SB 80.

It is important that any legislation passed in Wisconsin and other states sends a positive message to companies that are researching and developing this technology, rather than one that signals that the state wants to restrict technological innovation in this field. Google feels it is premature to consider autonomous vehicle legislation at this time.

We have talked with Senator Risser, the bill's sponsor, and we are hopeful to continue discussions for a positive outcome.

Sincerely,
Rob Biederman
Midwest Public Affairs and Government Relations Manager
Google

Rob Biederman | Google Midwest Public Affairs & Government Relations Manager | rbiederman@google.c