MINUTES OF THE MEETING
OF THE
ASSEMBLY COMMITTEE ON TRANSPORTATION

Seventy-Ninth Session
March 23, 2017

The Committee on Transportation was called to order by Chairman Richard Carrillo at 3:19 p.m. on Thursday, March 23, 2017, in Room 3143 of the Legislative Building, 401 South Carson Street, Carson City, Nevada. The meeting was videoconferenced to Room 4406 of the Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. Copies of the minutes, including the Agenda (Exhibit A), the Attendance Roster (Exhibit B), and other substantive exhibits, are available and on file in the Research Library of the Legislative Counsel Bureau and on the Nevada Legislature's website at www.leg.state.nv.us/App/NELIS/REL/79th2017.

COMMITTEE MEMBERS PRESENT:

Assemblyman Richard Carrillo, Chairman
Assemblywoman Ellen B. Spiegel, Vice Chair
Assemblywoman Shannon Bilbray-Axelrod
Assemblyman John Ellison
Assemblyman Ozzie Fumo
Assemblyman Richard McArthur
Assemblywoman Daniele Monroe-Moreno
Assemblyman Michael C. Sprinkle
Assemblyman Justin Watkins
Assemblyman Jim Wheeler

COMMITTEE MEMBERS ABSENT:

Assemblywoman Melissa Woodbury (excused)

GUEST LEGISLATORS PRESENT:

None

STAFF MEMBERS PRESENT:

Jann Stinnesbeck, Committee Policy Analyst
Joan Waldock, Committee Secretary
Trinity Thom, Committee Assistant

OTHERS PRESENT:

Jude Hurin, Administrator, Division of Management Services and Programs, Department of Motor Vehicles
Pete Vander Aa, Program Administrator, Program for the Education of Motorcycle Riders, Office of Traffic Safety, Department of Public Safety
Erin Breen, Director, Vulnerable Road Users Project, Safe Community Partnership Program, Transportation Research Center, University of Nevada, Las Vegas
Steven D. Hill, Executive Director, Office of Economic Development, Office of the Governor
Terri L. Albertson, C.P.M., Director, Department of Motor Vehicles
Cory Hunt, Northern Regional Director, Office of Economic Development, Office of the Governor
Bruce Breslow, Director, Department of Business and Industry
Alaina Burtenshaw, Chair, Nevada Transportation Authority, Department of Business and Industry
Alisa Nave-Worth, representing Waymo, Mountain View, California
Paul Moradkhan, Vice President, Government Affairs, Las Vegas Metro Chamber of Commerce
George Ivanov, representing Waymo, Mountain View, California
Lorne Malkiewich, representing General Motors, Washington, D.C.
Matthew Burton, Legal Director, Regulatory Development, Uber Technologies Inc., San Francisco, California
Curt Augustine, Director of Policy and Government Affairs, Alliance of Automobile Manufacturers, Sacramento, California
Gail Tuzzolo, representing Transportation Resources Advisory Committee and Regional Transportation Commission of Southern Nevada
Anthony J. Ruiz, Senior Director of Communications and Public Affairs, Las Vegas Global Economic Alliance
Robert T. Eglet, representing Nevada Justice Association
Graham Galloway, Board Member, Nevada Justice Association

Chairman Carrillo:
[Roll was called. Committee protocols and rules were explained.] Today we have two bills on the agenda. We are going to take them out of order to accommodate a scheduling issue.

[Assemblywoman Spiegel assumed the Chair.]

Vice Chair Spiegel:
We will open the hearing on Assembly Bill 261.

Assembly Bill 261: Revises provisions governing motorcycle drivers' licenses and instruction permits. (BDR 43-837)

Assemblyman Richard Carrillo, Assembly District No. 18:
Assembly District No. 18 covers portions of unincorporated Clark County and southeast Las Vegas and parts of Henderson. The bill you have before you is in response to a loophole in current law that essentially allows a motorcycle permit holder to ride indefinitely without ever fully getting a motorcycle operator's endorsement or a motorcycle driver's license. Essentially, this bill limits to six months the amount of time a motorcycle instruction permit is valid for anyone over 18 years old. It will only allow someone to renew a motorcycle instruction permit one time within a five-year period after the initial six-month period expires. There are also limits on how many times the person can take the motorcycle driving test without passing it before being denied a motorcycle endorsement or a motorcycle driver's license and must, instead, take a motorcycle safety course in order to get such an endorsement.

With your indulgence, I will briefly walk through the bill, and then be available for questions. Sections 1 and 2 contain current language in *Nevada Revised Statutes* (NRS) that establishes the provisions for a person under the age of 18 to obtain a driver's license after meeting the requirements for driver training and supervised driving. Section 2 adds language that allows for a motorcycle driver's license to be issued to a person after meeting the requirements of having held an instruction permit for not less than six months, having taken a motorcycle safety course, and having a log of 50 hours of motorcycle driving experience, signed by a parent or guardian.

Section 3 adds provisions for any person aged 15 1/2 to 18 to be issued a motorcycle driving permit after passing vision and written tests. This permit will enable the permit holder to drive the motorcycle for one year. The permit can only be renewed once and expires when the permit holder reaches the age of 18. This section also outlines that a person over the age of 18 may be issued a motorcycle driver's instruction permit after passing vision and written tests. The permit is valid for six months, and may only be renewed once within a five-year period. For both age groups, the instruction permit holder may not carry passengers or ride on a controlled-access highway. The permit holder may only drive between sunrise and sunset.

Section 5 of the bill requires that a person between the ages of 16 and 18 must meet the same requirements as someone in the same age range who is applying for a driver's license with motorcycle endorsement and must pass written and driving tests. For a person aged 18 or older, no written test is required if applying for the license right after the permit. All ages can skip the written test if they already have a regular driver's license; one only needs the driving test or to take the course to get the endorsement.

In closing, this bill is intended to ensure that those who are issued a motorcycle instruction permit go through the proper steps to obtain a motorcycle driver's license or endorsement which, in turn, leads to safer riders and fewer motorcycle crashes. I am happy to answer any questions that you may have at this time.

I do not know if you would like me to go through the conceptual amendment now. It may clarify some points.

Vice Chair Spiegel:
Yes, please.

Assemblyman Carrillo:
The conceptual amendment to A.B. 261 can be found on the Nevada Electronic Legislative Information System (NELIS).

In section 2 of the bill, add a new subsection 4 which will nearly duplicate existing subsection 2, which provides, in reference to the requirements of subsection 1, an exception for a situation where a course of motorcycle safety is not offered within a 30-mile radius of a person's residence. Such a person may substitute an additional 50 hours of experience in driving a motorcycle.

The new subsection 4 will reference the course of motorcycle safety requirements of subsection 3, and will allow substitution of an additional 50 hours of experience in accordance with paragraph (b) of subsection 3 if a course of motorcycle safety is not offered within a 30-mile radius of a person's residence. That aligns it with existing language.

Vice Chair Spiegel:
We have questions from Assemblywoman Bilbray-Axelrod.

Assemblywoman Bilbray-Axelrod:
I think I understand the genesis for this bill, although it was not clear to me in my reading of the bill. People were simply renewing their permits over and over, without ever getting their license to drive a motorcycle. Is that correct?

Assemblyman Carrillo:
Yes. Drivers over the age of 18 are renewing their permits. There is nothing that tells them they must test and actually get the endorsement. If they were to be pulled over, there is no statute they are violating. Much as a driver under the age of 18 cannot do certain things, there are restrictions for motorcycle permit holders. When I held my permit, I could not drive on major highways and could only drive between sunrise and sunset. I could have kept on with the permit and never gotten the license. Having the endorsement on my license means those restrictions no longer apply and that I passed the skills test.

Assemblywoman Bilbray-Axelrod:
I have a question about the conceptual amendment regarding the 50 hours of experience. Who monitors that? Am I logging my hours? Are we taking people at their word that they have completed their 50 hours?

Assemblyman Carrillo:
I am going to ask for support from the Department of Motor Vehicles (DMV) on this. I am not sure if there is a log that must be maintained that has to be signed by a parent or guardian. That already exists in statute. For the record, DMV nodded.

Assemblyman Sprinkle:
I am looking at the requirements under section 3—the classes and the driving hours. It is my understanding that if a person is outside a certain radius of where a class is offered, the class is no longer required; it may be replaced by a requirement for additional hours of driving experience. Is that correct?

Assemblyman Carrillo:
Yes, that is correct.

Assemblyman Sprinkle:
Did the class used to accomplish everything you needed to do in order to get your license? I do not think you had to keep a log of driving hours if you went through a formal class. Is that correct?

Assemblyman Carrillo:
If you take either a private course or one through a community college, you would be able to take that certificate to the DMV and get your license. You would have completed all of the requirements. You can take the course and be done with it, or you can teach yourself, learning out in the real world of traffic. With this bill, you would only be able to make two attempts to get your license that way. The only option after that is to wait five years or take the course.

Assemblyman Sprinkle:
The class does not change with this bill. You can still just take the course.

Assemblyman Carrillo:
That is correct.

Assemblyman Sprinkle:
In the original bill, section 2, subsection 3 gives the option of having 50 hours of experience. If you are between the ages of 15 1/2 and 18, you have to do all of the things listed.

Assemblyman Carrillo:
Yes. If you are under the age of 18, you cannot get an endorsement or a Class M license without meeting the requirements. We want to make sure that anyone under the age of 18

is operating under a permit only, not licensed. At the age of 18, the permit expires. The reason the lower age is 15 1/2 is because you can get a driver's license six months before turning 16. At the age of 16, you can get a driver's license with restrictions, such as you cannot carry passengers and you must maintain a certain grade point average. You cannot do that in getting a motorcycle license—the permit is maintained until the permit holder reaches the age of 18.

Vice Chair Spiegel:
Section 2, subsection 3(c), which starts on line 6 of page 5, talks about submitting to the Department on a form provided by the Department, a log which contains the dates and times and hours of experience and must be signed by the parent or legal guardian. I knew many teens who would forge their parents' signatures on documents if they wanted to do something their parents did not approve of. If it were discovered that something like that happened, would the teen lose the privilege? If so, would there then be a longer-term ramification as well?

Jude Hurin, Administrator, Division of Management Services and Programs, Department of Motor Vehicles:
You are correct—it is very hard to enforce. My daughter will not do that; I guarantee it. There is nothing in place that enforces that. The Department has introduced a program that can electronically put an app on your mobile phone. We have expanded that role, but the enforcement piece is very tough. It is an honor system with the parents, and we hope they comply.

Vice Chair Spiegel:
On page 6, section 3, subsection 6 says that the holder of an instruction permit cannot carry any passengers or operate the motorcycle on a controlled-access highway. What happens if a permit holder is caught doing one of these things?

Jude Hurin:
I would have to check on this for accuracy, but I believe there is a violation code for that.

Vice Chair Spiegel:
Are there any further questions from members of the Committee? [There were none.] Is there anyone here in favor of this bill? [There was no one.] Is there anyone in Las Vegas in support of this bill? [There was no one.] Is there anyone in Carson City who is neutral?

Jude Hurin:
The Department of Motor Vehicles is neutral. As Assemblyman Carrillo has indicated, this bill provides for closing a loophole. I believe this is a good practice bill, but the Department's position is neutral.

Pete Vander Aa, Program Administrator, Program for the Education of Motorcycle Riders, Office of Traffic Safety, Department of Public Safety:
We also are neutral on this bill. I have prepared information, if you would like me to proceed with that. Otherwise, I am available for questions.

Vice Chair:
I think the Committee has no further questions. Is there anyone in Las Vegas who is neutral?

Erin Breen, Director, Vulnerable Road Users Project, Safe Community Partnership Program, Transportation Research Center, University of Nevada, Las Vegas:
Motorcycle riders are, in fact, vulnerable road users. This was never more evident than in 2016 when we had a 48 percent increase in motorcycle fatalities. If we were talking about motorcycle fatalities five years ago, we would say they were fairly evenly split between middle-aged drivers who thought they knew more than they did or that they remembered more than they did, many involving alcohol and young people whose accidents were caused by speed and inexperience. However, when we look at the statistics for the past two years, it has become an issue when looking at young motorcycle riders—the increase in fatalities is now mainly among motorcycle riders under the age of 30. I would like to commend Assemblyman Carrillo for this effort. Graduated driver's licensing is the law to which we point to prove that good laws save lives. I believe that a law such as this, if passed, would help young motorcycle riders gain the experience they so desperately need. Taking the class would help them understand that riding is critical business; they are putting their lives on the line. Maybe they would grow to be safe riders for their entire riding careers.

Vice Chair Spiegel:
Are there questions from the Committee?

Assemblywoman Bilbray-Axelrod:
I had pulled up the same statistics you did. Are you testifying as neutral because you do not think this bill is going far enough?

Erin Breen:
I am in the neutral position because I am required to be since I receive federal funds. I think this is a very good law that will save lives. This is a time when all of our motor vehicle fatalities are on the increase, but especially motorcycle fatalities of young people with the most life to lose. They are the ones who are losing their lives most often. I think this bill could make a dramatic change.

Vice Chair Spiegel:
Is there testimony in opposition in Carson City or in Las Vegas? [There was none.] I will invite Assemblyman Carrillo to make closing comments.

Assemblyman Carrillo:
I got my motorcycle license, then I took an advanced rider course. It helped me immensely, teaching me how to brake correctly and how to avoid vehicles on the road. I would be the first one to tell you that the course works. We do not want to have riders permitted forever.

Vice Chair Spiegel:
I will now close the hearing on Assembly Bill 261.

[Assemblyman Carrillo reassumed the Chair.]

Chairman Carrillo:
We will now open the hearing on Assembly Bill 69.

Assembly Bill 69: Authorizes the use of an autonomous vehicle to transport persons or property in certain circumstances. (BDR 43-246)

Steven D. Hill, Executive Director, Office of Economic Development, Office of the Governor:
We have offered an amendment to our bill that completely replaces what we submitted several months ago. With your permission, as we talk through our presentation, we will be referring to our amendment and not the original legislation.

I would like to thank all who have been involved in this process—Director Terri Albertson at the Department of Motor Vehicles (DMV) and her staff, and many in the industry representing a wide variety of involvement. We look forward to working with all involved as we move ahead.

Over the past six years, Nevada has become a center for the future of transportation, in both our country and in the world. It is an important economic opportunity for Nevada. It started in 2011 with the passage of a bill [Assembly Bill 511 of the 76th Legislative Session] that permitted testing of autonomous vehicles. Since that time, we have been designated a test site for unmanned aerial vehicles from the Federal Aviation Administration (FAA). Tesla Motors and its efforts in autonomous vehicles are a major presence in the state now. In southern Nevada, Faraday Future and Hyperloop One are both moving forward in North Las Vegas. This activity has attracted the attention of the globe and provided a real opportunity for Nevada to diversify its economy. The transportation industry is one of the five largest industries in the world. The last number I saw was that they are a $17 trillion per year industry. Just being able to participate in a slice of that would make a significant difference for Nevada. We are certainly making progress in that area.

Assembly Bill 69 is designed to reestablish Nevada as a leader in autonomous vehicles. We were the leader in 2011 and as we moved into 2013. Because the industry has evolved over that period of time, the law we have in place needs to catch up with where the industry

is today. For example, some parts of the industry, such as transportation network companies (TNCs), were not even contemplated in 2011 when this legislation passed. We feel that A.B. 69 is a responsible way to accomplish this.

Regardless of the economic opportunities, safety has to be the top priority in the consideration of autonomous vehicles. We also feel that the autonomous vehicles industry will provide a number of benefits for the state. With respect to safety—when applied appropriately, autonomous vehicles are already safer than drivers. When I say "appropriately," I mean in the correct locations and under the correct conditions, they already exceed the ability of automobiles operated by a driver. More than 90 percent of the accidents in the United States are caused by drivers. Those accidents include 35,000 fatalities.

The technology that is available now can do things that drivers simply cannot. That technology has advanced past what most of us would have considered possible. Technology can now determine what hand signals from a traffic manager at a construction site mean. It can see through vehicles—if there is a child behind a car, the technology can pick up that child and anticipate that the child may dart out into the road. It can do those things in a 360-degree view, which is certainly something a driver cannot do. It can do them all at the same time, all the time. It does not get tired or lose attention. Those technology advances will allow this to be a great step forward in safety as well as economic development.

The industry will be disruptive; it will cause changes that may reduce driving jobs in the future; it will readjust industries; it will change the insurance industry. All of this will take time. Some of these jobs are not as easily automated as one might think. I spent the first 25 years of my career in Las Vegas in the ready-mix concrete industry. Those drivers do much more than just drive a truck. To the extent that someone would look to automate that function, the automation would have to spread across the entire range of responsibilities or be reconfigured. That will take time. In addition, the rollout of these vehicles will take time. This will be more of an evolution in the disruption. A part of our intention with A.B. 69 is to allow Nevada to have the opportunities, from a job-creation standpoint, that this industry would bring to help offset the disruption that occurs as this industry evolves.

I would like to go through a presentation we have prepared. Assembly Bill 69 is intended to update Nevada law on autonomous vehicles, to provide clarity, and to provide access to the benefits we see from this industry [page 1, (Exhibit D)]. Those benefits include increased passenger safety and increased opportunities for mobility for disadvantaged populations [page 2, (Exhibit D)]. There is a highly viewed YouTube video of a 95 percent blind person in Austin, Texas, who is riding in a fully autonomous vehicle. Those types of opportunities will be available for a broad cross section of our citizens. This technology has the potential to reduce road congestion and to increase productivity. As we become more automated, quite a number of jobs associated with the industry will be created. It also has the potential to provide an environmental benefit. Most of these vehicles are electric vehicles. As the industry becomes safer, some of the weight can be removed from vehicles, as a portion of current vehicle weight is there as a safety precaution.

There is a little bit of legislative history on the next page (page 3). In 2011, Assembly Bill 511 of the 76th Legislative Session was originally passed. In 2013, the law was updated a little. The next page is a chart that shows the current status of some of the other leading states in this industry (page 4). We talk about Nevada having been a leader but having lost that position recently. The shaded section of the chart—policies of permit testing without a human through regulations for operating—shows the difference among the states that are currently considered to be leaders in this area and where Nevada is currently. The line regarding the policy permitting operation without a human present has a faint check mark in Nevada. There are questions about whether operation without a human at the wheel is permitted for commercial use. When this law was originally passed, the focus was more on individual use of autonomous vehicles, so there is concern that this is not currently allowed by our law.

I will now talk a little bit about the levels of autonomy. These are definitions that are taken from the Society of Automotive Engineers (SAE) International (page 5). There are five levels that they define. The levels relate significantly to the safety of the vehicles. I will come back to this page a little later in my presentation.

The next three pages are copied from *Wired* magazine, showing the levels of autonomy. Level zero is no automation. Level one is driver-assisted. Virtually every car out there now is at least at level one with cruise control and those types of driver-assistance mechanisms (page 6).

Level two steps up to partial automation—the car is helping the driver, but the driver is still responsible (page 7). Level three is the level where that transformation from the driver obviously being responsible and in control of the vehicle at all times to automation in the vehicle, with the driver at times taking control, exists. Levels four and five are very high or full levels of automation (page 8). I cannot speak for all companies that are working on automation—but at level four, the concept generally is that the car will be operated autonomously. If the car is, for any reason, not capable of being operated autonomously, it would shift into what we call a "minimal risk condition." That means, the car will pull over to the side of the road and stop. There would not necessarily be the interim step of the driver taking control of the car. Level three is where the transition takes place. So, back to page 5, at level three, there is a human in the vehicle who is responsible for reacting when the technology cannot. Level four shifts the liability away from a person who is driving to the car, the companies, and the manufacturers themselves.

The National Highway Transportation Safety Administration (NHTSA) has the authority to investigate, recall, create requirements, and enforce civil penalties. The Department of Motor Vehicles and the Department of Public Safety have the responsibility for enforcing vehicle registration requirements, which requires a certification by these companies that they are capable of operating at these individual levels. The Department of Public Safety and local law enforcement enforce the traffic laws.

The next slide is a different depiction of how those SAE levels are defined [page 9, (Exhibit D)]. The bill does not change insurance requirements or liability law in the state, other than to clarify that manufacturers are protected from liability if unauthorized third-party modifications occur [page 10, (Exhibit D)]. Autonomous vehicles will change the insurance industry as we go forward. KPMG, our consultant accounting firm, has projected that the automobile insurance industry, which is currently a $125 billion industry—about the size of the economy of Nevada—will drop to being about a $50 billion industry by 2040. This reflects the additional safety benefit that the autonomous vehicle industry will bring. I will stop my presentation at this point. We have summarized what changes to *Nevada Revised Statutes* (NRS) Chapter 482A and NRS Chapter 706A would be (pages 11-13).

Terri L. Albertson, C.P.M., Director, Department of Motor Vehicles:
I would like to start by saying that the DMV has worked very closely on A.B. 69 with the Office of Economic Development, Office of the Governor (GOED), industry representatives, and relevant state agencies relating to autonomous technology. The Department originally proposed to address autonomous technology changes in Assembly Bill 68, which was heard before your Committee on March 21. After meeting with GOED, autonomous vehicle language was removed from A.B. 68 and placed into A.B. 69 to provide a comprehensive revision to NRS 482A. The Department's proposal is to ensure that the safe testing of platooning technology on Nevada's highways and the ability to create regulations regarding the testing and operation of driver-assistive platooning technology exist. The language regarding driver-assistive platooning technology is defined in the proposed amendment under NRS 482A.036. Also in the amendment, NRS 482A.110 would provide for our ability to adopt regulations and NRS 482A.115 authorizes driver-assistive platooning technology to be operated in Nevada. The remainder of the autonomous technology language in A.B. 69 is being proposed by GOED.

Chairman Carrillo:
We had some concerns about going through the physical bill itself.

Cory Hunt, Northern Regional Director, Office of Economic Development, Office of the Governor:
I am happy to walk you through the bill. Would you like to take questions as we go, or would you prefer that I go through the entire bill?

Chairman Carrillo:
Please go through the entire bill. We have many questions. It would be hard to pick one thing out at a time, so we will go through the entire bill.

Cory Hunt:
The first section of the bill creates a number of definitions related to autonomous vehicles and autonomous vehicle technology [pages 1-2, (Exhibit E)]. These are standard definitions that we have taken from the Society of Automotive Engineers International—these are industry-recognized definitions, so that we are not creating our own. It allows industry to

comply with these and understand clearly what they are. The SAE document is one of the most comprehensive areas where technology companies, engineering, and automotive engineering companies have come together to define the terms so that everyone understands what they are and are not. "Automated driving system" is a key definition. It is the hardware and software that are capable of operating the entire vehicle. You see that we have replaced "autonomous technology" with this broader definition that is focused on the driving of the vehicle.

The term "dynamic driving task" appears throughout the bill. This refers to all the things the vehicle needs to do to be able to move on the road. Steering, braking, accelerating, and signaling are standard dynamic driving task features. The "operational design domain" is another important concept. It has to do with where the vehicle is approved to be able to operate. It may be urban or rural environments—environments that have already been mapped extensively, or it may be weather or road conditions—is it foggy, snowy, or raining? When manufacturers design the automated driving system, they must specify what the operation design domain is in order for the software to know where it can and cannot properly operate.

The term "SAEJ3016" is the standard document that we reference. This is like a document building code. The Department is able to adopt later updates to this version by regulation. We think that provides great certainty for industry and is something that they understand. It also allows the Department to update as the technology progresses.

The "minimal risk condition," as Director Hill mentioned, is an important feature.

Chairman Carrillo:
Mr. Hunt, can you specify the locations of the definitions?

Cory Hunt:
Nevada Revised Statutes 482A.029 is the "minimal risk condition." That condition is important in level four and level five autonomous vehicles, where the vehicle itself has a backup system. If the technology fails, that system will take over and bring the vehicle to a safe state. The technology must be smart enough so that it does not just immediately slam on the brakes in the middle of the roadway. It must take the vehicle off to the side of the road at a safe time and come to a safe stop. The minimal risk condition is an important safety feature that we would require for any autonomous vehicle.

Nevada Revised Statutes 482A.030 defines that we are only talking about levels three, four, and five autonomous vehicles in this bill. We are not asking or looking to regulate cruise control, adaptive cruise control, or lane-controlling systems. We are looking at systems that can control a vehicle throughout a range of operating modes. A "fully autonomous vehicle" is defined in NRS 482A.035. It is one that is designed to function without a human driver—a level four or five in the SAE system.

Director Albertson mentioned NRS 482A.036 language regarding "driver-assistive platooning technology." This is technology that would allow vehicles, typically trucks, to draft off of one another. It is not an automated driving system, but a system of technologies and communication technologies that allow the trucks to communicate with one another so that they can operate safely.

Moving to NRS 482A.070, we include testing or operating autonomous vehicles. This breaks into two subsections. Subsection 1 refers to a level three autonomous vehicle, in which a human operator must be present in order to take over control of a vehicle or reach a minimal risk condition. We require that the human must be seated in a position to take over immediate manual control and that the human take over that control if the autonomous vehicle system fails. We have eliminated the second paragraph because the monitoring of the safe operation of the autonomous vehicle is an SAE level three in which the vehicle is responsible for monitoring the driving environment.

Subsection 2 of NRS 482A.070 talks about level four and level five autonomous vehicles. It is important to note that, regardless of whether testing or operating, we require that if the vehicle operates without a human operator, it must meet the requirements of NRS 482A.080. Remember that as we go through the next section. Everything in it is required for any vehicle that is tested or operated without a human driver.

Nevada Revised Statutes 482A.080, subsection 1, says the base vehicle must meet Federal Motor Vehicle Safety Standards—the brakes, the crumple zones, the airbags, or whatever the case may be must meet those federal standards before it can be operated on Nevada roads.

Subsection 2 of NRS 482.080 breaks into paragraphs. Paragraph (a) talks about vehicles that are not fully autonomous—level three vehicles. They must be equipped with a means to engage and disengage the automated driving system, equipped with an indicator—we do not specify whether or not it is a visual indicator [page 3, (Exhibit E)].

Chairman Carrillo:
Which section are you on now?

Cory Hunt:
I am on NRS 482A.080, at subsection 2, paragraph (a), subparagraph (2). It must be equipped with a means to alert the operator if the automated driving system is unable to perform a driving task within its operational design domain so that the individual can take over. Those are all requirements for a level three vehicle. If there is a human in the vehicle, that human can take over if there is a failure of technology, so they have to know the technology is failing.

Paragraph (b) of subsection 2 talks about fully autonomous vehicles, which are levels four and five. This requires that any vehicle tested or operated must be capable of achieving minimal risk condition if there is a failure of the system. That is an important safety feature—if a vehicle detects that it has gone outside of its operational design domain, for

example. That could happen if it comes into a neighborhood that it has not mapped; it would be required to pull over and come to a safe stop. If it is not designed to operate in the rain and it starts to rain or the car detects a wet roadway, it would be required to pull over and come to a safe stop, whether testing or operating.

Paragraph (c) of subsection 2 requires that any vehicle testing or operating must be capable of operating in compliance with the applicable motor vehicle laws in the state. The last section where we have "an exemption has been granted by the Department" is to allow for the Department to permit testing of certain capabilities. For example, if there is a construction worker standing in the road and there is a double yellow line, and the car is programmed so that it cannot cross a double yellow line, the Department could grant an exemption that would allow the computer to say, "There is a human in the road. I need to move out of the way of that and cross a double yellow line to achieve that." That is something that would not put the vehicle out of compliance with these sections.

Nevada Revised Statutes 482A.080 is an important section, but the big thing to remember is: if it is an autonomous vehicle without a human, we are requiring that it be able to reach the minimal risk condition and also to comply with any applicable motor vehicle laws.

I am now on NRS 482A.090, regarding unauthorized modification. This section originally talked about manufacturers of a motor vehicle that had been modified to become an autonomous vehicle. It protected the original manufacturer from liability if someone made their vehicle into an autonomous vehicle and the technology failed. It would not be the original manufacturer's fault. This section extends that liability. Now there are third-party manufacturers designing these systems. This section would extend that protection to manufacturers who manufacture and develop that software. If I were to purchase a system and put it on my truck, then I hacked into so that it would allow me to go 80 miles per hour, that would not be the fault of the manufacturer of the automated technology. We are extending the liability protection to manufacturers. It prevents unauthorized third-party modifications.

Chairman Carrillo:
When you get to the end of NRS Chapter 482A, we will have some questions for you.

Cory Hunt:
Nevada Revised Statutes 482A.100 is where we talk about adopting regulations concerning the testing and operation of autonomous vehicles for the Department of Motor Vehicles. We require the Department to adopt regulations and bring them in line with NRS Chapter 482A. Subsection 2 talks about the testing and operation of vehicles. We want this technology to come forward, so we allow for manufacturers and companies that have this automated technology to certify that, if they can comply with the requirements of NRS Chapter 482A—if their vehicle and technology can meet all the minimal risk condition requirements and can comply with all applicable motor vehicle laws—they can self-certify that they can operate when this bill is enacted. The second part of subsection 2 allows for a grace period so that once regulations are adopted, the companies do not have to stop

operating, then come into compliance. This gives them a 180-day grace period to fill out the necessary forms with the Department of Motor Vehicles without stopping operations. That extension would continue for future versions of regulations adopted so that once a new standard comes out, they would have the grace period for coming into compliance. If there was a safety issue involved, we would take note of that and ask people to stop operating.

Subsection 3 of NRS 482A.100 has much stricken language, replaced by much of the rest of the requirements for complying with the motor vehicle laws and the minimal risk condition [pages 3-4, (Exhibit E)]. Paragraph (a) of subsection 3 allows the Department to adopt regulations that require that, prior to operating on a highway of the state, an autonomous vehicle be certified by the manufacturer of the vehicle, the manufacturer or developer of the automated driving system, or a licensed autonomous vehicle certification facility—a unique facility we have in Nevada that tests these vehicles and equipment for certification. That self-certification provision is consistent with the Federal Motor Vehicle Safety Standards.

In 2011, we did not have a solid idea on what this technology was, so the regulations were broad, providing for things that are within the domain of federal regulations. For 50 years, the federal government has established, through the National Traffic and Motor Vehicle Safety Act, motor vehicle safety and performance standards. They adopt the standards for the equipment on your vehicle. States are responsible for enforcement, licensing, and registration. They are like two lanes. This language restores that balance between the two. We go back to a self-certification standard in paragraph (a). Self-certification is done at the federal level as well with regular motor vehicles. This is not something we are doing that is outside of the box; this is how the motor vehicle industry is operated at the federal level. The federal government establishes standards; companies certify that they are in compliance. Then the federal government has enforcement authority to issue recalls, to conduct investigations, and to apply penalties. It is important to note that the federal government has not adopted specific standards for autonomous vehicles yet. They have issued guidelines that have not been adopted and have noted that they intend to go through a rule-making process in the coming months to do that formally. In the absence of that, other federal motor vehicle standards still apply, and the federal government still has the authority to enforce those standards. For instance, everyone heard about the Tesla accident that occurred in Florida, a tragic accident in which an individual was killed when a vehicle was operating with some autonomous technology. The federal government stepped in and did an investigation; they immediately inquired and looked at the technology; they collected data. They found vehicles that had this technology installed were 40 percent safer than Tesla vehicles without it. They showed that they have the ability to step in and do that with autonomous technology, both software and equipment.

Another example is a technology company called comma.ai. They crafted software that they proposed you could buy for $1,000. It was a system that you could plug into an Acura that would give you some limited autonomous technologies and capabilities. The federal government and the California Department of Motor Vehicles wrote comma.ai with some serious questions about the technology, asking them to respond on certain points. They also said they would assess criminal penalties and call for an injunction that would preclude them

from selling the technology if they did not respond. The next day, the company announced they would no longer be in this business. Those are important instances where the federal government has demonstrated its enforcement authority on this point. The National Highway Traffic and Safety Administration (NHTSA) has also issued a docket regarding its Enforcement Guidance Bulletin 2016-02. I would be happy to introduce this for the record. It is titled "Safety-Related Defects and Automated Safety Technologies." In it, they outlined their specific enforcement authorities for all of these technologies. The point of this soapbox is to say the federal government has the authority to step in and take over, preemptively, proactively, and retrospectively if they see a safety risk.

Paragraph (b) of subsection 3 of NRS 482A.100 includes provisions regarding the Department's ability to adopt regulations pertaining to vehicle license plates and registrations, driver licensing, and driving training, which are standard Department of Motor Vehicles areas [page 4, (Exhibit E)]. The registration component is important, because under this bill the Department would be able to revoke a registration if someone unlawfully self-certified their vehicle. That is another mechanism we can use along with the authority the Department would have to preclude a vehicle from operating autonomously in this state.

Nevada Revised Statutes 482A.110 regards the driver-assistive platooning language that Director Albertson mentioned. It allows the Department to adopt regulations regarding testing of a truck or other vehicle that would use this technology. Those regulations may establish minimum requirements that the truck or vehicle must meet in order to be tested. They may set forth requirements for insurance and may establish exceptions for traffic violations. One that comes to mind is following a vehicle too closely. It allows the Department to work with companies that want to test these technologies, which have great opportunity for industry and for safety. They can also work with the Department of Public Safety and the Nevada Highway Patrol so that if officers see two or three vehicles following each other very closely, they would not get pulled over or be cited.

Nevada Revised Statutes 482A.115 is an authorization for operation. Right now, there is nothing that prohibits driver-assistive platooning technology from operating in the state. This is a clear statement that if the vehicle can meet the applicable motor vehicle and traffic laws of the state, unless granted a specific exemption by the Department, that technology may be used. They have to certify that they can meet and comply with all of those state motor vehicle laws.

Nevada Revised Statutes 482A.200 is the endorsement on driver's license. That section is stricken. For a level four or five autonomous vehicle, we would not want to require this, particularly in the case that Director Hill mentioned—an individual who has a disability. An individual who is vision-impaired may not be able to get a driver's license, so requiring a license plus an endorsement to get in a vehicle that does not require a driver is not consistent with the technology. This is not saying we do not have to train people who are using level two or three vehicles—those individuals have the responsibility to know how to use them. But a level four or level five vehicle that truly requires no driver may have

no steering wheel, brakes, or pedal, and could be used by someone unqualified to hold a driver's license. We think this is a tremendous opportunity to increase mobility and service in our community. We think that is consistent with the technology.

Nevada Revised Statutes 482A.200 states that no motor vehicle laws shall be construed as requiring a human driver to operate a fully autonomous vehicle if the automated driving system is operating. When that system is engaged, it is deemed to fulfill any physical acts required of a human driver. What this means is that when we refer to a human driver in other statutes, if the automated driving system is driving the car, then the automated driving system fulfills that definition. Without this, we would have to add "or automated driving system" every time we mentioned "driver."

Nevada Revised Statutes 482A.300 is about controlling authority [page 5, (Exhibit E)]. Here our intent is to say that the Department of Motor Vehicles is responsible for the licensing and registration of these vehicles and for getting the self-certification on these vehicles. It is not the responsibility of any other state agency to do that from a performance and safety standard. We are not trying to limit the authority of the Department of Public Safety to apply motor vehicle laws or to enforce them. We want to make sure that the Department of Motor Vehicles is clearly the lead agency that regulates and oversees the testing and operation of these vehicles. Subsection 2 says that, except for the Legislature, no state agency other than the Department of Motor Vehicles may impose additional requirements on those autonomous vehicles just because they are autonomous vehicles.

Nevada Revised Statutes 482A.400 empowers the Department to be able to enforce these provisions. Subsection 1 allows the Department to impose administrative fines if someone knowingly falsifies a document. If a company were to self-certify that they can comply with all of the motor vehicle laws of the state and that they can reach a minimal risk condition but they cannot, they would be guilty of both of these penalty sections. The second penalty section allows for a criminal penalty to be available for those fraudulent actions related to this. This is an important additional barrier that allows the Department to help protect from bad actors who might abuse this opportunity in the state.

The last section is transitory language requiring the Department to update regulations by January 1, 2018. It also says that if a company can comply with the provisions of the law and demonstrate that prior to the adoption of those regulations, it is permissible to self-certify and operate. That brings us to the end of NRS Chapter 482A.

Chairman Carrillo:
We have questions from Committee members.

Assemblyman Fumo:
I want to preface everything I am going to say with I believe the technology exists, and it is here to stay. It scares me, so I have a ton of questions about that. It is like the first time I went scuba diving—it was unnatural for me to consider breathing underwater. It is unnatural for me to consider having someone else in control of a car. There is no doubt in

my mind that driving is a divided-attention task, and a computer can process that information better than a human mind can. The technology is only as good as what is put into it. Computers crash and have glitches all the time. It seems as if every time Apple has a new version coming out, coincidentally my current phone crashes and no longer holds a charge. Are we going to have problems like that with whoever is designing this technology, such as Google? How do we deal with that?

Steve Hill:
We have a representative from Waymo here today. I will try to be brief with my answers to questions that the industry is better at answering. The companies certify that they have the ability to achieve the minimal risk condition in the event of a glitch or computer crash. Waymo has a computer in the car that is there specifically in the event that the main computer operating the vehicle fails. The backup computer has the ability to cause the car to achieve the minimal risk condition—to pull over to the side of the road and stop.

Assemblyman Fumo:
So if something happens, the car will pull over and stop. You talked about the Tesla accident in Florida. There was a video of an autonomous car driving through a red light in San Francisco. Things are going to happen. In your presentation, you spoke of a child darting out into traffic and having the car move over the center lane to avoid hitting that person. Let us say that a family of four is driving the opposite direction in that center lane—how does the computer calculate those ethical decisions that a human can make very quickly? Is there an algorithm for that? I realize the car might see there is a car in that lane, but it might crash. How does it determine that kind of decision?

Steve Hill:
The representative from Waymo and others here today will be able to answer your question better than I can. You said that a human can process this very quickly—not nearly as quickly nor as thoroughly as an autonomous vehicle can. That autonomous vehicle now has the ability to look out about 200 yards; that distance will grow as time goes on. It can see everything ahead in that 600 feet and everything behind in that 600 feet. The algorithms take all of what is going on into consideration and will start to move the car away from risk well before, in most cases, a human would have the ability to do so. While those situations may continue to occur, they will come up less often with an automated vehicle than they would with a human driver.

Assemblyman Fumo:
Accidents will occur; we know that certainly. You talked about insurance rates being reduced because there will be fewer drivers. I assume that the Department of Motor Vehicles will lose money because there will be fewer drivers getting licenses. The way I understood, you will make up for that lost income by the DMV overseeing fines, imposing penalties, operating costs, and testing procedures for autonomous vehicles.

Steve Hill:
My comment about the size of the insurance industry was not necessarily related to the number of people who would be insured. At some point well in the future, if we reach a point where no one is driving, that would certainly be the case. It is not just an issue for the DMV; insurance taxes make up one of the larger revenue sources for the State General Fund as well. That will have to be taken into consideration as time passes. Largely, the cost of insurance now and in the future is related to the cost of claims. The reduction that is projected over time would be a result of the cost of accidents being lower, not the number of people buying insurance.

Assemblyman Fumo:
When you said that the DMV would be responsible for fining and collecting fees, from whom would they be collecting fines and fees? Is it Joe's Plumbing who now has an autonomous vehicle to go to people's houses? Is it Google, the manufacturer of the computer? Is it General Motors, who made the car?

Steve Hill:
As it relates to autonomy, which is at the core of what is in A.B. 69, the company that provided the certification on the car—the company itself or the third-party certifier of the car would pay fees and fines.

Terri Albertson:
We would also include those individuals or companies that were operating without permission from the Department. We would have the ability to penalize them. Currently we do not. If there was an instance where someone wanted to operate or test in Nevada without our approval, we would have the ability to penalize them for doing so. Mr. Hunt has alluded to the company in California that was attempting to operate without the permission of the California Department of Motor Vehicles. The DMV there had the ability to apply civil penalties if the company continued without the proper approval. We are asking for that same authority for Nevada.

Assemblyman Fumo:
This is groundbreaking—I think Nevada may be the first state to pass or look into these sorts of laws. The federal government does not even have anything on the books yet; they just step in. This is like breathing underwater—it is unnatural, so I want to get it right the first time.

I would like to go back to the scenario in which the autonomous vehicle hits a family of four while avoiding hitting a child who darts out into the street. Who do the survivors seek justice from? Where do they go? Do they go to Google? Do they go to Joe's Plumbing? If there is no driver of this car, is this a product liability claim, not a negligence claim?

Steve Hill:
I am certainly not an attorney. We have looked at liability issues as a result of the change in technology. I realize that for whatever answer I give, there is an attorney out there who can

find an exception to what I am getting ready to say. At its core, the company that is responsible for the technology, which most of the time will be the manufacturer of the car, is going to be responsible for the liability. I know that the Nevada Justice Association has an amendment they will want to talk about later in the hearing. Their amendment requests that the manufacturer be negligent per se in the event of a driver not being at the wheel of a car. Currently, I believe it would be a product liability case.

Assemblyman Fumo:
That troubles me. I am an attorney. I do not practice personal injury, I handle criminal cases. Your answer worries me.

Assemblyman Watkins:
Are there any level five autonomous vehicles in existence right now that can operate under any condition?

Steve Hill:
No. The target level for the leaders in the industry currently is level four.

Assemblyman Watkins:
If we were to pass this bill, we would give somebody authorization to operate that vehicle when the technology comes, even though we do not know what it looks like yet?

Steve Hill:
That is probably a good question for the automobile companies that are here. I think we know what it will look like. The difference between level four and level five is not, from our viewpoint, all that significant. They are close together. The difference between level four and level five is that, in level five, the car will be capable of all driving modes.

Assemblyman Watkins:
The reason I asked that question is that I feel as if we are being asked to regulate in the dark. The bill asks us to set up regulation for something that does not yet exist with the idea that it will exist in some form that this bill will work with. Why would we not create in this bill regulations for what currently exists, with the idea that once new technology exists we then regulate that?

Steve Hill:
The bill provides the authority to change the regulations over time in order to be responsive to the industry and the innovation as it moves forward. It does not set in stone anything based on the technology that exists today.

Assemblyman Watkins:
Right. But, this does authorize somebody with the technology for a level five autonomous vehicle to operate on the public highways in this state right now.

Steve Hill:
That is true only if that person can certify to NHTSA that they have the ability to do so; the DMV is willing to provide a registration for that vehicle to operate on the road; they can operate according to all the traffic laws in the state of Nevada; and they can achieve a minimal risk condition. If they can meet all of those standards, we feel it is appropriate to allow them to do so. If they cannot meet any one of those criteria, we do not feel it is appropriate, and we will not allow them to operate.

Assemblyman Watkins:
That leads me to two other questions. Is my understanding correct that we do not currently have federal guidelines for level five autonomous vehicles that we could consult?

Cory Hunt:
There are no adopted regulations or Federal Motor Vehicle Safety Standards. There are guidelines for all autonomous vehicles that are not regulatory right now. The federal government has said that their current authority covers all of those vehicles. We know what a level five vehicle will look like and what it will be capable of doing. We know the difference between a level four and a level five. It is not that we do not know what it looks like or will be capable of doing. There may not be a vehicle that can do that now. A fully autonomous vehicle will be able to operate in any operational design domain. It can go on any road anywhere it goes, make decisions, and reach the minimal risk condition.

Assemblyman Watkins:
We know what it looks like, but we do not know how it works.

Cory Hunt:
We know how it works, too.

Assemblyman Watkins:
If we have both of those components, then do we not have it?

Cory Hunt:
Those are technical questions that the companies would have to answer. Level four is very near; level five is not far off.

Assemblyman Watkins:
In testimony, we were told that in the minimal risk condition maneuver, the car senses that something is going wrong or is in an unsafe situation and pulls over to the side of the road until there is a fix to the computer system or the traffic conditions change. Do we know what would happen or how this is programmed if the minimal risk condition is necessarily going to result in injury or death to somebody? There may be a situation where the computer has to make a choice—do I run into this child crossing the street, or do I go into the oncoming traffic with a vehicle carrying a family of four? It cannot just float up into the air and stop all conditions. Who makes that decision?

Steve Hill:
That is a question that, from a technical standpoint, representatives here from the industry are going to be able to answer better than we can. The point that we would make is that this type of situation will happen less often.

Terri Albertson:
Staff is advising me at this time that we currently have in our regulations the ability for manufacturers to test all the way up to level five. We do not need to amend our regulations.

Assemblyman Watkins:
To go back to the answer to the last question, is that something we want technology companies to decide—how to evaluate life, whose life is more valuable? Or, is that something that we, as the legislative body, should be deciding for them?

Steve Hill:
I think that answer would be up to you.

Assemblyman Sprinkle:
To confirm, this amendment was submitted two days ago?

Steve Hill:
I believe that is correct.

Assemblyman Sprinkle:
You just touched on this—would you remind me when we first passed laws to allow testing in Nevada?

Steve Hill:
The original law was passed in 2011 and modified in 2013.

Assemblyman Sprinkle:
Are those laws still in place? Are those the laws we are using to continue testing here?

Steve Hill:
Yes.

Assemblyman Sprinkle:
Where is testing of these vehicles occurring today?

Steve Hill:
The Department of Motor Vehicles would have more thorough information than I have. Testing is occurring today at some level. When you ask where it is happening primarily, do you mean within Nevada or throughout the country?

Assemblyman Sprinkle:
I mean throughout the country.

Steve Hill:
There are several primary locations where testing occurs—Pittsburgh, Pennsylvania; Austin, Texas; and the state of Arizona. Unless it has been periodically interrupted, the state of California is a center for testing, as is the state of Florida. There may be additional locations.

Assemblyman Sprinkle:
How are you obtaining the results of the testing that is going on with these vehicles throughout the entire United States? What is that source?

Steve Hill:
I am not sure I understand your question. Are you asking how do I know where the testing is taking place?

Assemblyman Sprinkle:
How do you know that the testing is appropriate, that they are achieving the goals they are setting forth to begin with? Have there been failures that we would want to know about before we as a body actually allow these vehicles on our roads? Where are the results from all the testing that is going on?

Steve Hill:
These vehicles are already allowed on the roads in Nevada. We are only modifying the process with this bill. The information of how these cars perform in Nevada is reported to the DMV.

Assemblyman Sprinkle:
That gets back to my previous question. I assume that you would be well aware of anything that happens in Nevada. If we are now going to allow the certification label on a vehicle rather than actual testing that shows it to be proven in the state, how are we to know that certification label is accomplishing whatever it is accomplishing, that those certification standards are accurate if the testing is being done elsewhere? What you just told me is that we only know what is happening in Nevada.

Terri Albertson:
If you want to get into detail on this, I will ask Jude Hurin to answer. We currently have eight companies that are licensed to test in Nevada. Through our testing regulations and requirements, they have to report any incidents to the Department.

Assemblyman Sprinkle:
Where can we obtain this information? Is it proprietary?

Jude Hurin, Administrator, Division of Management Services and Programs, Department of Motor Vehicles:
Could you please restate your question?

Assemblyman Sprinkle:
Which one?

Jude Hurin:
Let me give you an overview. The way the program is set up, and the intent of A.B. 511 of the 76th Legislative Session, was for the Department to create a testing program with requirements, insurance, definitions and so forth. We also have the ability, based on language, to create a consumer deployment-type of program. The way the program is created today is that we work with each company. They fill out an application in which they provide nonproprietary information to the Department that explains their safety redundant system—how it operates, the training test drivers have for their test vehicles under a testing program. The current language of the regulations as well as NRS does not require us to collect data, with the exception of the regulations that we added in 2012. We collect data on citations that were issued during testing and/or any accidents that occurred while they were in the testing license. That data is collected and provided to us within ten days of an incident. We do not collect any of the technical data. I think California is the only state that actually collects data. What they collect is how many times an individual engaged and disengaged the technology in the vehicle.

What we are concentrating on right now is providing the ability to law enforcement to extract the data needed to add to their investigative tools at the scene of what might be an accident under a testing license or when an autonomous vehicle is sold to the public in the future. Under current laws, we can subpoena that information due to litigation. However, we do not feel that we would know what to do with the technical information we might collect. The way that we work with the companies and try to understand the redundant systems helps us to understand what the limits and capabilities of their technology are prior to licensing them to test on our roadways.

The current regulations already have a self-certification process in place. If I were Toyota and I wanted to start selling my technology to a licensed Nevada dealership, I could do that today. If there is an after-market company that wants to attach that technology to your existing vehicle, they can do that today, but they have to provide the recipient a certification that we have provided to them or they have created that says that, under *Nevada Administrative Code* (NAC) 482A.190, they comply with all the requirements to operate in our state. The bill today is putting that into statute and enhancing it. But the regulations have been there since 2012.

Assemblyman Sprinkle:
You have answered where I was going with my questions. The certification label is a one-stop place that allows us to know that all of Nevada's regulations are being met.

Jude Hurin:
You are correct. The label is based on our current certification requirements. As Mr. Hunt indicated, there are no updates to the Federal Motor Vehicle Safety Standards for automated technologies, but they are soon to come. Until then, autonomous vehicles still have to abide by the rules of the road and the requirements under NHTSA and the U.S. Department of Transportation.

Assemblyman Sprinkle:
Mr. Hill, you stated that we are already operating vehicles in the state. The language in this amendment that states that "a fully autonomous vehicle may be tested or operated without a human operator" is already in statute?

Steve Hill:
As I said when we showed the state comparisons, there is a lighter check mark on the authorization to operate in Nevada without a driver. There are some differences of opinion on whether that is broadly available on any application or whether it is only available for personal use. The statute authorizes at least personal use without a driver. What I tried to say then is that authorization is available, but they would have to go through the entire process of certification to achieve that. To my knowledge, there is no vehicle operating in the state in a fully autonomous manner, but the law allows it.

Assemblyman Sprinkle:
Does the law allow that within what we passed in 2011 and the cleanup in 2013 in regard to testing?

Steve Hill:
It is with respect to the laws that were passed in 2011 and 2013, which authorized testing and at least the ability to operate for personal use.

Assemblyman Sprinkle:
Subsection 3, paragraph (b) of *Nevada Revised Statutes* 482A.100 references licensing of drivers and license plates for vehicles. Is that all new? Are we just starting the process of determining whether an individual is even capable of being in the vehicle with the car in control? Would you have to have a special permit on your driver's license to be in one of these vehicles?

Steve Hill:
I will let Mr. Hunt answer that.

Assemblyman Sprinkle:
The language in the amendment is vague, so I would like to know what you mean.

Cory Hunt:
Are you referring to the section that reads "include provisions regarding vehicle license plates and registration?"

Assemblyman Sprinkle:
Yes.

Cory Hunt:
That language is intended to provide the DMV authority to adopt regulations pertaining to traditional DMV actions regarding license plates, registrations, driver education, driver licensing, and driver training. They could adopt regulations pertaining to those, particularly at level three. If there is no steering wheel and there are no pedals, then you do not need a driver education test because no one is driving. A level three vehicle in which someone could take control of the vehicle would need to have someone with a driver's license to operate the car. The DMV may also require certain education demonstrating that a driver understands how to use the technology. Right now, we do not require that anyone take a driver education class on how to use cruise control. Maybe the licensing has to do with adoption of the technology. This would allow the DMV to adopt regulations pertaining to those standard-issue items.

Assemblyman Sprinkle:
I assume that would also include registration of these new vehicles.

Cory Hunt:
Absolutely.

Assemblyman Sprinkle:
That is what we are starting to build the framework for with this bill.

Cory Hunt:
I think we are restructuring the framework. The framework is there; we are clarifying it.

Assemblyman Sprinkle:
Mr. Hill, earlier you testified to the effect that in the fully autonomous vehicles, liability would rest with the manufacturer. Are they in agreement with that interpretation of the liability?

Steve Hill:
We have had some conversations with them. In any accident, there can be a broad variety of claims. I do not think they will agree that in every situation they would be liable, because in every situation they probably would not be. The operator and the manufacturer of the car are one and the same. It is our opinion that is the predominant situation. They are here and can answer.

Assemblyman Sprinkle:
I will say, as an overarching statement, that will probably need to be a lot better defined.

Steve Hill:
I understand the issue. We have done a fair amount on this subject. The third-party think tanks that are watching this industry and providing input—the RAND Corporation, the Brookings Institution, and those types of organizations—have relatively uniformly advised not changing the liability statutes until there has been more experience with the process. They have also made the point that the court system has historically been very adept at dealing with new technology as it comes up. We think their recommendation makes sense.

Assemblyman Sprinkle:
That is relevant and important information for me as a legislator. I will need to see more definition with all of this.

Steve Hill:
We would be happy to forward that information to you and the Committee.

Assemblywoman Spiegel:
When I read through the bill and the amendment, I did not see a requirement for there to be any public notice of safety track records that would give the public the ability to make an informed decision about whether or not they would want to ride in one of these vehicles or purchase one. Is there a requirement that safety data be available to the public?

Cory Hunt:
There is not any language in the law that requires that at this time. I think, from a liability perspective, manufacturers and companies that offer this as a service will be overly cautious in terms of consumer product notifications and disclaimers related to this technology. There is a large standard of that. I recognize that is not the hard standard that is in the law, but I hope it is something that gives you some comfort. To answer your question directly, no, there is not language in this law right now that requires that.

Assemblywoman Spiegel:
After seeing what happened with Volkswagen last year, I do not have a high level of confidence without there being mandatory public reporting. My other question is also related to the liability issue. I understand that there can be a whole series of liability questions if you have an autonomous vehicle in an accident with a real human driver. What would happen if there was an accident that involves two autonomous vehicles? How would a determination of liability be made?

Cory Hunt:
All of these vehicles have systems that are tracking all of their movements. Many of these vehicles use cameras, so there will be lots of data related to crashes that could be reviewed to determine fault.

Assemblywoman Spiegel:
My car emails me if it has a problem. Are there any requirements that problems with the vehicle itself and/or incidents that happen to contribute to accidents that would cause the vehicles themselves to provide reporting to the state?

Cory Hunt:
No, there is nothing in this law that would require that. Consumer product notifications are standard for cars like the Tesla Model S and other vehicles that have some of these technologies.

Terri Albertson:
Staff is informing me that at this time we have the ability to access data collected on a box three seconds before an accident. That information is provided to law enforcement for investigative purposes. I also have a follow-up response to Assemblyman Sprinkle's question. Currently in *Nevada Administrative Code* (NAC) 482A.020, operator is defined:

> For purposes of this chapter, unless the context otherwise requires, a person shall be deemed the operator of an autonomous vehicle which is operated in autonomous mode when the person causes the autonomous vehicle to engage, regardless of whether the person is physically present in the vehicle while it is engaged.

Assemblyman Watkins:
Do we have that in the bill, as being amended or changed in any way?

Terri Albertson:
That is actually in NAC 482A.020, not in NRS.

Assemblyman Watkins:
It is not in our NRS, it is an administrative regulation that was adopted by the Department.

Terri Albertson:
That is correct.

Assemblyman Watkins:
Mr. Hill, if I understood your previous testimony and your presentation, we would not want to change the current liability laws so that in a car accident with a level five autonomous vehicle you would have to go after the manufacturer on the basis of a product liability claim, rather than going after the owner of the autonomous vehicle as the driver under a strict negligence claim.

Steve Hill:
Our intent is not to change the legal process at all as it relates to accidents. The plaintiff could sue whoever it made sense to sue at the time, as they can do now.

Assemblyman Watkins:
That is my point—maybe we do need to change the legal process when we are dealing, for the first time in human history, with artificial intelligence that is stepping into the place of a person. Where does liability go when a machine makes a mistake? Human history and the court system have never dealt with this. Maybe we need to look at making changes for situations dealing with artificial intelligence.

Steve Hill:
I understand your point, and I look forward to working with you on this over the next several weeks.

Assemblywoman Bilbray-Axelrod:
I want to go back to what you said about having policy you created within the DMV. In this proposed amendment, it specifically says that no state agency can create its own policy. I think you said that the Legislature is an exception, but I do not see that in here either. Would that preclude the DMV from creating a more stringent role if they saw fit?

Cory Hunt:
The Department in that section refers to the Department of Motor Vehicles throughout this bill. They would clearly be able to authorize that. We would be happy to clarify the section of the statute you are referring to you. Nothing would prohibit the Legislature from changing that law or any other law, for that matter.

Assemblywoman Bilbray-Axelrod:
I am still concerned. What if another state agency found something about the technology that does not yet quite exist that they wished to create policy for? Trying to create these rules is rather like putting the cart before the horse.

Steve Hill:
To be clear, the technology does exist all the way through the entire process. What does not exist in breadth yet is the testing, the repetition, the reliability to allow it to be broadly applied. We know what this looks like. It is not as if it is a concept that we do not know how to implement. It is just in its formation period, but it is out there and operating now.

Cory Hunt:
This section is intended to say that the Department of Motor Vehicles is responsible for the oversight of the registration process and making sure that manufacturers of these systems, when they certify that they can meet all these standards, are complying with that. That is just for the vehicles and the autonomous technology. If the Department of Public Safety needs to adopt some other regulation or standard, they are not precluded from doing so as relating to traffic laws. However, from a regulatory perspective on safety and certification, registration, and licensing of these vehicles, that is the responsibility of the Department of Motor Vehicles.

Chairman Carrillo:
Are there questions from other members? My question has to do with NRS 482A.100, subsection 3, paragraph (a) [page 4, (Exhibit E)]. It mentions a "licensed autonomous vehicle certification facility." How are these vehicles licensed, and who licenses them?

Terri Albertson:
The DMV does, through our current statutes and regulatory authority.

Chairman Carrillo:
In paragraph (b) of that same subsection is the phrase, " . . . or in any way impede the testing and operation of autonomous vehicles." It essentially provides no room for regulation of any sort. Perhaps the phrase should read, "or in any way unreasonably impede the testing and operation of autonomous vehicles."

Cory Hunt:
We would agree with your suggested wording.

Chairman Carrillo:
Are there any other questions or comments from Committee members?

Assemblywoman Spiegel:
I know this was in the original bill, but I am not sure it is in the amendment. The original bill said that the state may not regulate the technology or the human-machine interface. That leaves me uncomfortable, as it creates the potential for abuse. Things like longhauling could be programmed in, and the state would then not have the ability to get involved. Could you please speak to that?

Steven Hill:
That concept has been removed.

Chairman Carrillo:
Would you please start your walk-through of NRS Chapter 706A?

Cory Hunt:
I am on page 7 of the amended bill (Exhibit E). Our intent in NRS 706A.110 is to allow for commercial operations using fully autonomous vehicles to transport passengers and cargo. That is the overarching goal of the remainder of this bill. The way we accomplish that is by creating a new class of company, called an "autonomous vehicle network company." If you look at the old version of Assembly Bill 69—it is a giant bill because every time we mentioned "driver," we had to reference "or autonomous vehicle." Then we ran into conflicting issues on both the transportation network company (TNC) side as well as on the common motor carrier side. This language is intended to be a middle ground, where both TNCs and cab companies could apply for permits from the Nevada Transportation Authority (NTA) to operate an autonomous vehicle network company. Nothing in the rest of this bill would prohibit either company from applying for

that permit and then operating a joint company of both a TNC and an autonomous vehicle network company, or a common motor carrier or a transportation for-hire company as well as an autonomous vehicle network company. That is our overall goal for the changes we have made in NRS Chapter 706A.

I can walk through a few high points. On page 5 of the amended bill we define a fully autonomous vehicle, so only level four or level five vehicles would be within an autonomous vehicle network company. In NRS 706A.055, we define the "autonomous vehicle network company" as an entity connecting a passenger to a fully autonomous vehicle for transportation—including for-hire, so a car service or a transportation for compensation. The "transportation services" envisioned in the definition in NRS 706A.060 was originally for a TNC. You will see that the second part of that paragraph includes "when a driver accepts a request by a passenger." That is where we start to deal with the difference between a driver and a passenger or an autonomous vehicle and a passenger.

Throughout the bill, you will see "a transportation network company or autonomous vehicle network company." For the sake of time and to prevent boring everyone to death, I will not go over every section that says that, but if there are questions on why they are inserted, I am happy to answer them. *Nevada Revised Statutes* 706A.085 makes clear that you can use a fully autonomous motor vehicle with an autonomous vehicle network company to provide transportation services.

Steve Hill:
This requires that all of the requirements that we talked about in NRS Chapter 482A are met in order for these companies to operate this way. This allows that companies in this sphere, as long as they meet all the requirements of NRS Chapter 482A, can operate.

Cory Hunt:
Nevada Revised Statutes 706A.090 makes changes that allow an autonomous vehicle network to direct a motor vehicle, to tell it where to go. Under current law, a TNC cannot tell a vehicle where it needs to go to wait to pick up a passenger. *Nevada Revised Statutes* 706A.100 allows the Transportation Authority to adopt regulations relating to autonomous vehicle network companies. That provision also allows them to use the current process in the interim while they adopt regulations to be able to be licensed and receive a permit as an autonomous vehicle network company while those regulations are being adopted.

Nevada Revised Statutes 706A.110, subsection 4 mentions that a transportation network company can be an autonomous vehicle network company—nothing precludes them from being both, but it requires that the entity adhere to both of the requirements of the chapter. Subsection 5 says that we will not preclude these companies from partnering together to provide these services as a whole.

Nevada Revised Statutes 706A.120 talks about submitting an application for permit, either as one entity or as a combined entity, saying that whatever form is currently there can be used

until those regulations are adopted and updated. *Nevada Revised Statutes* 706A.130 authorizes an autonomous vehicle network company to use a dispatch center, a software package, or other means of digital communication to connect passengers with these autonomous vehicles. In subsection 3 we make clear that a company regulated under Chapter 706 of NRS as a common motor carrier can also apply to be an autonomous vehicle network company. Nothing in the chapter prohibits a common motor carrier from operating also as an autonomous vehicle network company.

Moving on to page 11 (Exhibit E), NRS 706A.170 allows an autonomous vehicle network company with a permit issued by the Nevada Transportation Authority to charge a fare for transportation services. Currently, in a transportation network carrier environment, you are required to notify the passenger before you arrive with a photograph of the driver and the license plate number. *Nevada Revised Statutes* 706A.200 states that the autonomous vehicle network company would have to provide the license plate number.

Nevada Revised Statutes 706A.210 requires that autonomous vehicle network companies provide passengers with a receipt in a timely manner. On page 13, NRS 706A.230 outlines the reporting requirements that an autonomous vehicle network company must maintain for at least three years and make available to the Transportation Authority—trip records, vehicle inspection records, and complaints and resolutions of complaints.

On the bottom of page 14 (Exhibit E), NRS 706A.270 requires reports to the Nevada Transportation Authority regarding any vehicle crashes with a fully autonomous vehicle while the vehicle is providing transportation services. On page 15 (Exhibit E), NRS 706A.280 prohibits an autonomous vehicle network company or its vehicles from longhauling unless specifically requested to do so by the passenger. That provides similar protection as provided with TNCs, but for autonomous vehicles.

Nevada Revised Statutes 706A.300 on page 16, provides for suspension or revocation of a permit and fines in a similar fashion as is done with transportation network companies. *Nevada Revised Statutes* 706A.310 requires that the autonomous vehicle network company be a properly licensed company to operate. That takes us through the end of the bill.

Assemblyman Sprinkle:
You answered several of my questions with your presentation. Where will the specific regulations be located in statute for this new autonomous TNC that we are establishing?

Cory Hunt:
Those would be under NRS Chapter 706A, so I imagine they would be under NAC Chapter 706A, under the authority of the Nevada Transportation Authority.

Assemblyman Sprinkle:
I did not see those in the mockup. It has yet to be determined what that will look like?

Cory Hunt:
Correct.

Assemblyman Sprinkle:
Who has the authority for that?

Cory Hunt:
The Department of Business and Industry would have the authority. We have representatives here from that department, the Nevada Transportation Authority, and the Taxicab Authority.

Assemblyman Sprinkle:
In reference to NRS 706A.280, subsection 3, if those infractions occur, what are the consequences?

Cory Hunt:
In NRS 706A.310, the Nevada Transportation Authority can determine if some term of the permit has been violated. If that is the case, the result can be suspension or revocation.

Assemblyman Sprinkle:
Do we know that through the report that they submit? Or will there be periodic audits done with the data that is required to be gathered?

Cory Hunt:
I will defer to Director Breslow on that.

Bruce Breslow, Director, Department of Business and Industry:
Alaina Burtenshaw, Chair of the Nevada Transportation Authority is also here. We would have public hearings and workshops in order to adopt regulations to address those things as they develop. I was the Director at the DMV back in 2011. All of your questions and more were asked and argued—not only by the Legislature, but also by the DMV in drafting the first framework to do this. We had Toyota, Ford, General Motors, Audi, Bosch, Stanford University, Carnegie Mellon University, the insurance network, the Department of Public Safety, the court system, the National Highway Transportation Safety Administration, Google, and more meeting in Nevada, creating the first-ever framework and the law that is on the books today. While there are no level five vehicles being sold to customers, if there were, you could buy one and go to the DMV today and get a green license plate under the current law. They are being tested across the country. What this bill is doing is updating the law. Because Nevada was the first state to do this, the definitions you saw were developed because Nevada created the framework.

Assemblyman Sprinkle:
My question was, where are these regulations going to be and what are the consequences going to be?

Bruce Breslow:
The process I was describing will take place as we develop the regulations.

Assemblywoman Spiegel:
There could be a cab company that has both autonomous vehicles and traditional vehicles. What if someone were waiting at a queue at the airport and the next cab up is an autonomous vehicle and they do not want to ride in it? Would there be the ability to turn down that ride without losing a place in line?

Bruce Breslow:
Someone hailing a vehicle always has a choice as to whether or not to accept the vehicle.

Assemblywoman Spiegel:
I know that one or two TNCs will charge a no-show fee if the car comes up and you do not want to take the ride. What if that happens? If someone uses a TNC, orders a vehicle, thinks the ride will be a traditional car, but an autonomous vehicle shows up? Would a no-show fee be charged? Would there be any recourse if the ride in an autonomous vehicle was turned down?

Bruce Breslow:
That is one of the questions that we would ask the companies during the regulatory process in one of the workshops. We would create regulations to protect the Nevada consumer.

Assemblywoman Spiegel:
What is your intent?

Bruce Breslow:
My intent is to follow the law that is passed by the Legislature.

Assemblywoman Spiegel:
Has this situation been contemplated? What are your thoughts?

Bruce Breslow:
The technology exists in other states. We pioneered it, but other states have passed us. Updating this would allow this technology to once again come to the forefront, be tested, and eventually be on the streets in Nevada. Because of the way the original law was written, there is reference to a driver, so cab companies or TNCs would not ever be allowed to use autonomous cars in their fleets unless we updated this law. That is all this does. It creates a definition that would allow those industries to purchase autonomous vehicles if they so choose to use them, and also a licensing application under NRS Chapter 706A which would allow the NTA to create regulations to go with the law for that to take place. It is a regulatory framework that has yet to be developed, but it is necessary because that technology is currently on the roads across America, but it cannot be used in a fleet. You could buy an autonomous car from Toyota and register it, but a taxicab company could not buy it and add it to its fleet unless we change this.

Steve Hill:
Assemblywoman Spiegel, our recommendation would be that no one would be forced to use an autonomous vehicle without their consent, nor should any penalty be incurred for rejecting a ride in an autonomous vehicle.

Assemblyman Watkins:
If level five autonomous vehicles exist, how are they programmed to deal with the scenario I laid out before in which someone is likely to be severely injured or killed? How do they evaluate who should be hurt and who should not?

Steve Hill:
Could we allow the manufacturers that are here to address that? They will be able to do that a lot better than we can.

Chairman Carrillo:
I have follow-up questions pertaining to amendments to NRS Chapter 706A governing TNCs. Is it your intent with these amendments that autonomous vehicle companies which operate fully autonomous vehicles be subject to permit requirement regulations by the NTA and payment of annual fees based on gross operating revenue in the same way that TNCs currently are?

Cory Hunt:
That is our intent. We would not establish that by law, but that would be governed by the Nevada Transportation Authority and decided through regulation and their process.

Chairman Carrillo:
On the middle of page 7, amendments to NRS 706A.100, I have a question regarding the last sentence added. Is it your intent that the autonomous vehicles used in this chapter by autonomous vehicle networks companies not be subject to any of the safety, licensing, or registration requirements imposed on the autonomous vehicles in NRS Chapter 482A?

Cory Hunt:
No, that is not our intent. In NRS 706A.085, we state that the vehicle must meet the requirements of NRS Chapter 482A. That is our clear intent.

Chairman Carrillo:
Are the provisions of NRS 706A.075 intended to be the sole requirement for such vehicles? Can you elaborate on that?

Cory Hunt:
What is the question?

Chairman Carrillo:
Is this intended to be the sole requirement?

Cory Hunt:
I am not sure I understand the question. We would be happy to follow up with you on that. The intent of that section is that the motor vehicle laws that we have in statute apply.

Chairman Carrillo:
That was just to confuse you. I think I did a good job.

Cory Hunt:
Our intent in NRS 706A.100 and NRS 706A.075 is to clarify that any regulations adopted under the NTA would not cover vehicle safety, licensing, or registration as we mentioned in NRS Chapter 482. These sections are saying that we want the NTA to govern the consumer side of the deployment of these vehicles and the Department of Motor Vehicles to govern that they can be driven on the public roads in Nevada.

Chairman Carrillo:
There appear to be no other questions from Committee members, so I would like to move on to testimony in support of Assembly Bill 69.

Bruce Breslow:
I am here today to support this bill. I would like to introduce to the Committee the Chair from NTA.

Alaina Burtenshaw, Chair, Nevada Transportation Authority, Department of Business and Industry:
The NTA supports A.B. 69. I am here to answer any questions you might have.

Chairman Carrillo:
There are no questions from the Committee members. Is anyone else here in support of A.B. 69?

Alisa Nave-Worth, representing Waymo, Mountain View, California:
Waymo is a member the Self-Driving Coalition for Safer Streets, which consists of Ford, Lyft, Volvo, Uber, and Waymo (formerly known as the Google Self-Driving Car Project). They have asked us to submit to the record a letter of support for A.B. 69 as revised (Exhibit F).

Paul Moradkhan, Vice President, Government Affairs, Las Vegas Metro Chamber of Commerce:
The Chamber would also like to offer its support for A.B. 69 and support the amendment that has been offered by GOED as presented today. The Chamber supports the transportation policy that has been brought forth to this Committee for its consideration. Obviously transportation is an important part of our commerce. Our Chamber supports many of the benefits you heard earlier today in the presentation. We have also been asked to offer the support of The Chamber, Reno-Sparks-Northern Nevada.

Chairman Carrillo:
I have a question for Waymo.

George Ivanov, representing Waymo, Mountain View, California:
Waymo, formerly known as the Google Self-Driving Car Project, has been developing self-driving technology since 2009 to improve safety and mobility on our roads. We support the amendment to Assembly Bill 69 proposed by the Governor's Office of Economic Development and the Department of Motor Vehicles, which would enable the safe operation and commercial use of fully self-driving vehicles in Nevada by updating key provisions in the existing statutes. We look forward to working with the Committee throughout this process and look forward to answering any questions.

Assemblyman Watkins:
Are you able to answer my question? How does the technology prioritize life and injury when making a minimal risk condition maneuver?

George Ivanov:
I think we are describing two different things. A minimal risk condition is achieved when there is a failure of the automated system. In normal operating circumstances, vehicles are designed to not put themselves in any situation that forces them to make a decision that is life threatening to any entity. In prior testimony, there was mention of the range in detection these vehicles have. For our specific technology, our sensors' accommodation of radar, laser, and camera sensors can see up to two football fields out on all sides—360 degrees, day or night. That technology is detecting every single car on the road, every pedestrian, every cyclist, in real time. It detects hazardous situations as they are happening all around the car and ensures that it does not put itself into any situation of the nature you described. If there is a failure of the main system, however, the minimal risk condition is designed to put the vehicle into a state in which it would not create any form of injury. The backup computer of our system is designed to either stop the vehicle safely in its place or, if that is not possible, to pull over safely to the side of the road away from incoming traffic.

Assemblyman Watkins:
What if the road conditions are created in such a way that there will be an accident and the system knows it. How does it prioritize what to do in that situation—who to hurt and who not to hurt?

George Ivanov:
I will give you an example of some of the circumstances we have seen. In California, we have been involved in accidents in the course of our testing over the past couple of years. The vast majority of those have been rear-end collisions in which our vehicle stopped and was rear-ended at a light or as it was about to make a turn. In those situations, unfortunately, there is nothing we can do. These are the types of collisions that technology cannot prevent, and we cannot accommodate a change, especially when a vehicle is boxed in on all sides.

There is simply nothing we can do to prevent a rear-end collision, no matter what the technology is. Whether it is a level four or level five system, we believe that those types of collisions will continue to occur.

Assemblyman Watkins:
That does not answer my question. If your level five vehicle is driving down the street when a little girl steps out right in front of it and if there are vehicles on both sides, how does the system decide whether to kill that little girl or to run into the car next to it?

George Ivanov:
With apologies, the vehicle would see the little girl before even reaching that situation. We would detect the situation as far out as possible, and avoid being put in that circumstance.

Assemblyman Watkins:
Are there no systems in place in the technology right now to prioritize, if there is nothing that can be done to avoid the accident, who will be hurt or who will be killed?

George Ivanov:
Our systems have buffers in place to identify the types of entities we have detected on our public roadways—whether they are cyclists, trucks, motor vehicles, small children, or large adult human beings. We have detected enough over the 2.5-plus million miles we have driven on the roads that we know which entities are of higher and lower risk. One of the key things we have to see beyond just what is on the road around us at all times is being able to predict what those entities are likely to do based on the velocity of the vehicles around us, and the actions they are taking. We need to understand which types of entities are likely to be high risk.

For example, if the technology sees that child, seeing through or around a vehicle to detect the child, we would classify that as a higher-risk entity than an adult, one who is more likely to run into a street, or an entity more likely to break the law by stepping off the curb at the wrong time. Our vehicles are designed to ensure that we are always detecting for those situations, switching into adjacent lanes when necessary. We have run into situations in which we have had cyclists going the wrong way on a one-way road into oncoming traffic, and the vehicles around us have not detected the situation in pitch-black night conditions. Our sensors had detected those and accommodated for them. Those are the types of situations we have put into our systems and run in simulation for billions of miles over the last couple of years. We simulate a billion miles every year from those real-world situations and try to accrue as much real-world driving to catch those situations. Right now, we are doing roughly 30,000 miles per week of real-world driving in California, Arizona, Texas, and Washington State.

Assemblyman Watkins:
I do not think you answered my question. Does your technology currently prioritize who or what will be injured or damaged when an accident is unavoidable? Is that part of the algorithm?

George Ivanov:
As I mentioned, in situations in which an accident is unavoidable because there is no ability to move, the vehicle will not, for example, run into the car ahead of it or the vehicles around it. In those situations, we have been rear-ended. Fortunately, we have not had any situations in which our test drivers sustained personal injury.

Assemblyman Watkins:
I understand that you have not had any situations in which this has happened; what if it does happen in the future? What do we do?

George Ivanov:
The key element for us has been to improve the sensing as much as we can. For us, that has meant designing the systems in-house. We started with many off-the-shelf parts over the years. As the Committee knows, these sensors and technologies are expensive, making a high cost on top of the base vehicles on which they are installed. We have managed to reduce the cost by roughly 90 percent by designing the lasers, radar, cameras, and computing designs in-house. That is, in part, to reduce costs, but also to improve the safety, range, and fidelity of what we are seeing. As described in earlier testimony, our technology now recognizes hand signals. In early 2009 when we began, that was not something we were capable of. When we began in 2009, we also were not capable of working on surface streets, which are much higher-density, much more complex. We were only able to do highway driving. In those early days, we were not confident that we could be fully self-driving.

In fact, that inflection point occurred in late 2012. At that time, we provided training to 140 Google employees who were not affiliated with the project on how they could use our vehicles for a one-month period of time on highways in the Bay Area. We found, in the course of testing, that the vehicles handled as intended in highway-only conditions, which were intended to hand control back to a human driver. But we found that the people in the vehicles were not following the instructions—they were not monitoring the vehicles and were not ready to take control when needed. Oftentimes they were conducting unsafe movements and tasks, such as moving into the backseat of a vehicle, looking for items, checking their phones—being distracted in ways that, unfortunately, we have seen in drivers on the roads today. That is when we made the jump on our end. First, we shut down the testing because, in our view, it was not safe. Second, we moved toward developing fully self-driving technology. That is why we made a pivot, investing in that fully self-driving technology. October 2015 is when we completed the world's first fully driverless trip in Austin, Texas. Unfortunately, the test is not something that could ever have been done in Nevada, based on current statute.

Assemblyman Fumo:
What does your company do to prevent hacking? I have seen on the news that cars are hacked by teenagers who take control of braking. Are there algorithms and programs in place to guard against that?

George Ivanov:
We have the benefit of leveraging Google's security team, which is made up of over 400 security professionals who, day-to-day, protect both Google's data centers and people's emails and phones. We have leveraged much of that experience for how we protect our vehicles. A couple of measures come into play in that respect. Those are industry best practices in both the technology and automotive industries. They include system encryption, communication encryption, and a reduction of the number of wireless access points in the vehicle. They ensure that safety-critical systems are segmented from nonsafety-critical systems wherever possible. In many of the reports we have seen, we have found that in most of those situations, one of those elements had been missing. We are regularly going through exercises that include pressure-testing our systems with those security teams to ensure that we have adequate protections.

Assemblyman Fumo:
Even with adequate protections, there is no way to know for sure that you can prevent hacking, correct?

George Ivanov:
There is no way to know for sure. There are always threat actors out there. One element that we have found to be extremely valuable is the federal government's action on this. Recently they issued cybersecurity guidance as well as separate guidelines for autonomous vehicles. The autonomous vehicle guidance included cybersecurity, privacy provisions, as well as provisions for complying with federal, state, and local law around setting your operational design domains. In their view, all of those elements would be provided back to the National Highway Traffic Safety Administration by a company such as Waymo in the form of a safety assessment letter for the agency to view and understand.

Assemblyman Fumo:
I heard that there is data collection that the computer saves three seconds before an accident. It sounds similar to a black box. Does your company do that as well?

George Ivanov:
Under the California statute there is a 30-second data collection after an accident. We are required under the current law and under current regulations to disclose those.

Assemblyman Fumo:
If a vehicle is in an accident does that information become part of the Nevada public record? Or do you consider that proprietary information, requiring a lawsuit to get it?

George Ivanov:
My understanding is that information is provided to the Department of Motor Vehicles under the California law. I am not as familiar with the Nevada process, but my understanding is that it is similar.

Assemblyman Fumo:
I have not heard the answer to this question yet. I would like a yes or no answer regarding the ethical decision in our hypothetical situation in which a child is standing still, so the system thinks she is a fencepost. A truck is going 80 miles per hour down the highway. At the last second, the child jumps out, forcing the vehicle to make a decision in the blink of an eye. Does the vehicle hit the child or move over into another lane and kill a family of four that is coming in the other direction? Do you have an algorithm that decides that?

George Ivanov:
Our algorithm is a program to ensure that we do not end up in that situation.

Assemblyman Fumo:
Yes or no. Do you have an algorithm that prevents that?

George Ivanov:
We are designing the system to ensure that we do not face such a situation.

Assemblyman Fumo:
Then the answer to my question is no.

George Ivanov:
Politely, with due respect, we are designing to ensure we do not face that situation.

Assemblyman Fumo:
Your answer is no.

Assemblywoman Monroe-Moreno:
In the event that your system is hacked, who takes responsibility for the liability for the accident that is caused by the hacking?

George Ivanov:
We are currently operating our own testing fleet. Under California law and regulations, as well as other existing state laws and motor vehicle codes in the states in which we are testing, all of the existing rules and liability and insurance requirements and, ultimately any legal action that may be taken, are ones that we would be complying with and subject to. That applies to any cybersecurity-related actions or any other matters that may occur that would impede the safety of the vehicle.

Assemblywoman Monroe-Moreno:
Going back to the scenario that Assemblymen Fumo and Watkins brought up—let us say the little girl was hit after your vehicle was hacked. Could her parents sue you?

George Ivanov:
We expect that the existing tort framework will settle this. Ultimately, we expect that there will be an evaluation of this in the courts. For the companies that are operating or testing this technology—we are all adequately preparing for that, with the expectation that those questions will arise.

Assemblywoman Spiegel:
As I was reading through this, I could imagine an incident in which an autonomous bus that is driving in a dedicated bus lane, so that it would count under the framework as detailed in this amendment, could be behind a vehicle that stalls while crossing train tracks. Are you saying that the technology exists today that a bus that is traveling at a fair amount of speed would have the wherewithal to see that something in its path has stalled and be able to stop?

George Ivanov:
That is correct.

Lorne Malkiewich, representing General Motors, Washington, D.C.:
You have a copy of a statement prepared by General Motors on NELIS (Exhibit G). I will not read the statement to you, but will indicate that General Motors appreciates the opportunity to collaborate with the state, GOED, the Department of Motor Vehicles, and the other stakeholders. They look forward to working with the Committee and stakeholders on this bill. I would be glad to answer any questions.

Assemblyman Watkins:
There was a question posed earlier as to whether the current liability construct was okay with the automobile manufacturers and/or the amendment submitted for consideration by the Nevada Justice Association. Have you seen that amendment, or do you have an opinion on that debate?

Lorne Malkiewich:
I have just seen this provision. We will check with General Motors. I assume this is one of the issues that will be addressed by the Committee again with this bill.

Matthew Burton, Legal Director, Regulatory Development, Uber Technologies Inc., San Francisco, California:
Thank you for taking so much time on this bill. I realize it is late, so I will limit my comments to echoing the support from the coalition for the amendment of NRS Chapter 482A. I would like to note a couple of points on the proposed amendment to NRS Chapter 706A. While we think the current draft is heading in the right direction with respect to amendments, we still have some questions with respect to the timing of the legislation and the contours of the approach taken there. We are not aware of another state in the Union that has adopted comprehensive laws regarding the use of autonomous vehicles in a for-hire capacity. We urge some caution on legislating in this area too quickly, as this is an area of rapid technological innovation. Establishing a new statutory framework too soon can have the unintended effect of slowing that innovation. As just one example,

we believe there is a spectrum of operational models for the introduction of fully autonomous vehicles in a ride-sharing capacity. For instance, Uber has introduced vehicles with certain capabilities on its network in places like Pennsylvania and Arizona. Other companies may want to do something similar in the future; however, the current amendments do not obviously embrace this iterative approach that autonomous vehicle ride sharing may take. We are still reviewing these changes and what these would mean in the short term and in the long term. We look forward to continuing to work on this bill throughout the rest of the session.

Chairman Carrillo:
Are there any questions from the members? [There were none.]

Curt Augustine, Director of Policy and Government Affairs, Alliance of Automobile Manufacturers, Sacramento, California:
I want to thank the Department of Motor Vehicles and GOED for all their work on this bill. We still have some concerns with the bill which we have shared with them. Based on the working relationship we have had with the two entities, we are confident that they will fairly evaluate our comments and incorporate them through the process as we go. There are many issues that are still in play as highlighted by the gentleman who spoke before me. We look forward to working with the Legislature and the Executive Branch on trying to resolve the concerns for the manufacturers, the motoring public, and everyone else in society that will be affected by these vehicles.

Gail Tuzzolo, representing Transportation Resources Advisory Committee and Regional Transportation Commission of Southern Nevada:
Tina Quigley of the Regional Transportation Commission (RTC) of Southern Nevada had to go to another hearing. She asked me to add the RTC as being in favor of this bill. The Transportation Resources Advisory Committee is also in support. We appreciate the amount of work that GOED has put into this bill. We believe that transportation is critical to our economic development in Nevada. We look forward to continuing to work on these issues.

Chairman Carrillo:
Seeing no one else in support in Carson City, we will take testimony in support of A.B. 69 in Las Vegas.

Anthony J. Ruiz, Senior Director of Communications and Public Affairs, Las Vegas Global Economic Alliance:
The Las Vegas Global Economic Alliance is the regional development authority for southern Nevada. It is a public-private partnership that includes local communities and businesses. It supports the amendment to and the passage of Assembly Bill 69 through the bill and amendment as we believe it will create additional economic opportunities in an emerging target industry for the region.

I have submitted a new study as an exhibit (Exhibit H) which should be on NELIS for your consideration. It focuses on the ways in which different target industries need to shift over

time to promote continued growth and economic success in southern Nevada. I know it is getting late, so I will just say that the study will guide our economic development efforts over the next five years. Among its key findings and recommendations is that autonomous systems be one of the seven focus industries, with a specific focus on terrestrial autonomous systems as an important emerging element within that cluster.

That report builds on the Brookings Mountain West report that was developed in 2011. This legislation has the support of the Las Vegas Global Economic Alliance.

Chairman Carrillo:
Are there questions from members of the Committee? [There were none.] There is no one else in support in Las Vegas, so we will take neutral testimony in Las Vegas. [There was no one.] Is there anyone neutral in Carson City? [There was no one.] Is there anyone in opposition to A.B. 69?

Robert T. Eglet, representing Nevada Justice Association:
The Nevada Justice Association is supportive of the concept and the purpose for A.B. 69. We hesitated as whether to testify as neutral or opposed to the bill, but we cannot offer our support unless certain proposed amendments designed to protect Nevada's citizens who are also using our roadways are adopted into the final iteration of the bill. As a preliminary measure, I would like to thank the Committee for the time it is spending on this bill and for the concerns you have raised. While A.B. 69 does much to create the enabling legislation necessary to regulate the autonomous vehicle industry, we have concerns that this bill stops short of doing enough.

Despite a draft version of A.B. 69 and a new version containing substantial changes that was provided to us this morning by GOED, we still have many concerns. Those concerns relate to the lack of key terms that should be defined in statute, as opposed to being done in regulation. Additionally, we believe that traditional theories of negligence should apply in auto accident cases by autonomous vehicles. To that end, the Nevada Justice Association is proposing several amendments to A.B. 69. I would like to walk the Committee quickly through our proposed changes, which you can find on NELIS (Exhibit I).

To begin with, we wish to clarify in NRS Chapter 482A the definition of "autonomous vehicle." Existing law provides that an autonomous vehicle is "a motor vehicle that is equipped with autonomous technology." In the most recent draft of the bill prepared by GOED, the definition has been amended to include, among other things, that the "vehicle is equipped with an automated driving system." In light of this recent amendment, the Nevada Justice Association is requesting that the word "safely" be interposed before the phrase "function as a level three, four, or five system." We feel this additional language is necessary in order to emphasize the fact that these vehicles should be safely operated, irrespective of whether the automated driving system is engaged. Additionally, the Nevada Justice Association is recommending the terms "autonomous mode," "driver," and "manufacturer" be added to the statute. Having these terms defined in statute promotes clarity in the law and will be essential to clarify liability in car accident cases involving autonomous vehicles.

In its amended draft of A.B. 69, the bill defines an "automated driving system." The Nevada Justice Association wishes to take that one step further by also defining "autonomous mode." In doing so, we seek to distinguish between when a vehicle is being operated by a human driver versus when the car is driving itself with the automated driving system engaged. This applies to the level three automated vehicles. It also takes into consideration existing technology that allows a vehicle to switch from one mode to another, either for emergency reasons or otherwise.

Additionally, we believe that the term "human operator" should be kept in the bill. While the term was removed from the most recent draft, this language is critical in ensuring we are able to properly distinguish between a vehicle operated by an actual driver rather than the automated driving system on the level three vehicles. In keeping the original definition from A.B. 69, we merely wish to add the word "safely" to emphasize the safe operation of these types of vehicles.

In defining "manufacturer," we correct an oversight in Nevada law, which does not presently define who a manufacturer of an autonomous vehicle actually is. We define a manufacturer as "the person that originally manufactures a vehicle and equips autonomous technology on the originally completed vehicle" or, in the case of a third-party modification, "the person that modifies the vehicle by installing autonomous technology to convert it to an autonomous vehicle . . ." after manufacturing.

Defining "driver" is the key to our request. Throughout NRS and common law in Nevada, "driver" is the term that is used. We include both the human operator and the manufacturer in the definition. This ensures that in the case of an auto accident either a human driver, if physically driving the vehicle, or the manufacturer, if the automated driving system is engaged, can be held responsible for negligence or other applicable theories of liability by failure to observe the rules of the road. Additionally, the "driver" would also include an autonomous vehicle network company that may be remotely controlling the autonomous vehicle irrespective of whether they are a first-party manufacturer or a third-party manufacturer of the vehicle. This definition contemplates a situation in which a transportation network company purchases a fleet of autonomous vehicles and is controlling them through their own software, independent of the first-party manufacturer. By clearly defining manufacturers and autonomous vehicle network companies as drivers, as well as human drivers, we ensure that both will be subject to traditional negligence claims in auto accident cases when an automated driver system is engaged in driving the vehicle.

In general, motor vehicle accident lawsuits are mainly negligence actions. This type of claim is commonplace in Nevada and throughout the country; however, manufacturers may take the position, with autonomous vehicles, that if a driverless vehicle causes a car accident, only a product defect claim can be asserted against them. If we were to allow that, autonomous vehicle manufacturers would receive a significant windfall at the consumer's expense. Product defect litigation is anything but straightforward. For 30 years, it has encompassed the vast majority of my practice. It is more complex and costly. For instance, expert witnesses must be retained as a matter of course in product liability cases instead of having

a jury decide if a driver violated the rules of the road by running a stoplight or failing to yield the right-of-way. Hiring a product liability expert can cost upwards of $150,000 to $200,000 and can be prohibitively expensive for cases involving nonserious or nonlife-threatening injuries. Inevitably, this would deter people from pursuing compensation for their medical expenses, lost income, pain and suffering, and property damages in cases with values of less than $150,000 to $250,000 despite having a legitimate claim. Injured people will go uncompensated for their injuries because these cases will be too cost-prohibitive to bring. It would undoubtedly have a chilling effect on injured victims from being compensated for their injuries resulting in the cost of these damages being passed on to the state or federal governments instead of the responsible party, in this case the autonomous vehicle manufacturer.

In sections 22, 32, and 55 of A.B. 69's original draft, the bill would require motor carriers, taxicabs, and transportation network companies operating autonomous vehicles to maintain $5 million or more in insurance coverage for bodily injury claims. To my knowledge, those provisions were not included in the most recent draft circulated by the Governor's Office of Economic Development—the insurance was removed. However, those provisions should be included. It is the Nevada Justice Association's position that the insurance be raised to a minimum of $25 million when these vehicles are actually deployed. Existing law requires businesses to obtain $5 million in insurance coverage before testing autonomous vehicles on state highways. While this may be adequate for the purposes of testing a small number of vehicles, full-scale deployment necessarily involves higher risk and warrants a higher insurance policy limit. We believe a $25 million policy is reasonable and necessary, given the safety concerns with adopting such new and unproven technologies and putting them directly into the public.

In sections 71-76 of our amendment, we are proposing supplemental language to be added to NRS Chapter 482A. This language reiterates the definition of driver and reaffirms manufacturers are considered drivers of vehicles if the autonomous mode is engaged. It further establishes that manufacturers will still be subject to traditional negligence claims, not just product defect claims, in the event their vehicles cause an auto accident. These provisions are critical in ensuring that people injured by autonomously-driven vehicles are not precluded from bringing traditional negligence claims against the manufacturers and are not limited to very expensive product liability claims.

Mr. Hill testified that he believed that the proposals by the Nevada Justice Association required that, if an autonomous vehicle is in an accident, then it is negligence per se under the amendment. That is not true; it is a misunderstanding of our amendment. Just as any driver who violates a statutory rule of the road can be held negligent per se if their violation of the law caused the accident and injured somebody, our amendment asks the same be true of autonomous vehicles.

In sections 77-91 inclusive of our proposed amendments, we ask this Committee to create a new chapter in the *Nevada Revised Statutes,* dedicated to autonomous vehicle network companies. In my meeting with Mr. Hunt this morning, he said that the Governor's Office

had considered that and still may be considering it. Traditional car ownership, precipitated in large part by the millennial generation, may be relegated to the dustbin of history, and a new model of rideshare may emerge in its place. Instead, auto manufacturers may choose to deploy their own vehicles, using their own autonomous vehicle networks accessible through a smartphone application. Owning or leasing a car may still be an option provided by the manufacturer, but a flat per-month fee in exchange for transportation services offered directly by the auto manufacturer may be the predominant way we travel in the future. Therefore, it is advisable, in our opinion, to create a new chapter to deal with such issues, and A.B. 69 can be amended to accommodate those changes. While the Governor's Office of Economic Development's draft bill incorporates autonomous vehicle network companies into the same chapter governing transportation network companies, these autonomous vehicle network companies arguably pose their own unique set of challenges.

I will not go through all of the key provisions that we have in our proposed addition to NRS Chapter 482A. It repeats some of the requests we have on amendments. I want to highlight that in sections 83-84 of our proposed amendment, we believe the definitions of "autonomous vehicle network company" and "transportation services" must include autonomous vehicles transporting goods as well as passengers. In doing so, businesses like UberEATS and Postmates that are primarily engaged in food delivery service, will be covered under the law if using autonomous technology. In comparison, these types of companies are not technically considered transportation network companies, based upon the plain reading of NRS Chapter 706A. I do not see them including transporting goods in the new proposed and amended bill. Our amendment would put motor carriers, taxicabs, and commercial motor vehicles within the ambit of the statute, provided that these vehicles are being autonomously operated in conjunction with a digital network or software application.

We have a concern about platooning, which Mr. Hunt talked about earlier. I want the Committee to understand exactly what platooning means. We are talking about trucks stacked up behind each other—one after the other after the other—with no limit in the legislation that I see as to how many can stack up. I know there are some truck drivers on the road that think they can already platoon and draft behind each other, but under the law there is a certain amount of space based upon the speed they are travelling that must be left between vehicles. The sponsors of this bill are asking the Nevada Transportation Authority or the DMV to allow exemptions to that law, allowing them to stack these vehicles up in close proximity to draft off of each in order to save fuel or battery power. I understand the economic reasons for that; however, the risk that poses if just one of the vehicles' software fails—the pileup and the injuries that could cause—requires that more research be done before it is let loose in our communities.

I agree that this Committee and this Legislature has the power to be at the forefront in this type of legislation, setting the standard for the entire country. There has been much written by leaders in this technology so that other states are looking to see what Nevada does and

will likely follow your lead. As a result, it is important that you spend a lot of time on this bill, and I appreciate your allowing this hearing to extend into late hours, and I appreciate the questions you have asked. We were glad to hear GOED say that safety must take a priority over economics. We agree with that. The governor's Office of Economic Development also stated that it is not their intent to change the legal process. We need these amendments placed in the bill to make the autonomous software become the driver—this is not like cruise control in which technology is assisting us. Negligence laws should apply. This bill changes liability laws in Nevada. People with nondeath or nonserious injury cases may not have any recourse. This bill could cause the hard-working citizens of Nevada to suffer.

We are not opposed to this legislation. We understand the purpose and the concept. We know this technology is coming faster than a lot of us believed it would. We think there has to be a fair balance throughout the legislation and, as GOED stated, we believe that safety needs to be the priority.

Assemblywoman Spiegel:
Did I understand your definition of manufacturer correctly? If General Motors makes a car, someone buys it then takes it to a local auto shop to have it modified to make it an autonomous vehicle, would General Motors not be considered the manufacturer?

Robert Eglet:
That is correct. The company that manufactured the software that made the vehicle autonomous would be considered the manufacturer.

Assemblywoman Spiegel:
Would that then void the original manufacturer's warranty?

Robert Eglet:
Existing law in Nevada regarding product liability cases maintains that if a product is altered and the alteration of the product is what caused the failure, then the original manufacturer is not responsible.

Assemblywoman Spiegel:
I understand that. Let me give you an example. Let us say that the product defect of the car had nothing to do with the autonomous equipment that was installed. Let us say that an old Ford Pinto with a known product defect was made into an autonomous vehicle. The defect with the gas tank may not have had anything to do with the autonomous technology. Would Ford still be responsible for the product defect, even though it was separate and apart from the autonomous technology?

Robert Eglet:
First of all, I would find it very hard to believe that any state's DMV would allow

a Ford Pinto to be registered with autonomous vehicle technology. If it happened, Ford would still be responsible for the exploding gas tank because it had nothing to do with the autonomous software.

Assemblywoman Spiegel:
Thank you. I wanted to clarify that even though we are changing what some might think of as the definition of manufacturer, the original manufacturer would still be the official manufacturer for defects that had nothing to do with autonomous technology.

Robert Eglet:
This does not change the other statutes in common law on that.

Assemblyman Fumo:
We have seen videos in which an autonomous vehicle ran a light in San Francisco, T-boning another car. The autonomous vehicle had no driver, but the driver of the car it hit was injured. He broke his leg; his damages were around $30,000. What is the difference in procedure for a regular case you would pursue against someone driving a car versus a case with an autonomous vehicle? You mentioned product liability; please discuss that.

Robert Eglet:
Under current law, the driver of a vehicle running a red light or failing to yield right-of-way that caused the accident would be sued under negligence law, which is the common law throughout every state in the country. If there was a failure in the vehicle that caused the driver to run the red light, then there could be a product liability suit. In that case—because we are talking about only $30,000 in medical expenses and a month or two in lost wages—the cost of experts required in order to bring a product liability case would not be warranted. In the case of autonomous vehicles—I do not even know how we would find an expert, as everyone who is an expert in this technology is developing the technology now. It is unlikely they would be willing to testify against another manufacturer. That is one of the reasons we think it would be appropriate that the manufacturer be classified as the driver of the vehicle under Nevada law so that a negligence action could be brought.

Assemblyman Sprinkle:
For the record, would you agree with the statements made earlier that if a serious accident occurs with a fully autonomous vehicle, the liability would rest with the manufacturer?

Robert Eglet:
The liability may be with the manufacturer; whether the injured parties could find a lawyer who would bring the case as a product defect case would depend on how serious the injuries were—if there were enough damages involved, they might be able to find a lawyer willing to pursue the case. A lawyer is not going to bring a case if it costs more to pay experts than can be recovered by the suit.

Assemblyman Sprinkle:
I understand that. Where does the liability lie if a fully autonomous vehicle was to cause a serious accident?

Robert Eglet:
The liability lies with the manufacturer, whether the original manufacturer of the vehicle who installed the autonomous software, or a subsequent manufacturer who bought a fleet of vehicles from General Motors and installed the software. In that case, that would be considered the manufacturer who would be responsible.

Chairman Carrillo:
Are there questions from any other members of the Committee? [There were none.]

Graham Galloway, Board Member, Nevada Justice Association:
Expanding ever so briefly and, hopefully, quickly on this topic that has just been discussed—if you are going to have comprehensive legislation on autonomous vehicles, you have to address the issue of liability responsibility. You cannot leave that blank. Right now, if you are in a car crash, it is a simple negligence case. If the playing field is changed—which is what I heard in previous testimony—and my clients are forced to litigate or present their claims under the laws of defective products—products liability—a lot of people are going to drop by the wayside. This is an access to justice issue. If you force people who have been injured in an accident involving an autonomous vehicle to present their claims under product liability law, those people who have small, modest, or moderate cases are not going to be able to pursue them; they will not receive redress for the injuries that have been caused by the autonomous vehicle. It is important that you address that issue. That is the point I wanted to make. You have to address that issue; you cannot ignore it.

Chairman Carrillo:
Are there any other questions from Committee members? [There were none.] Is there any opposition in Las Vegas? [There was none.] Is there any neutral testimony? [There was none.] Does the bill's sponsor have any closing remarks?

Steve Hill:
Thank you for the time you have taken to work through this. We look forward to working with you on this bill.

Chairman Carrillo:
I will now close the hearing on Assembly Bill 69. Is there anyone here for public comment in Las Vegas or Carson City? [There was no one.]

This meeting is adjourned [at 6:33 p.m.].

RESPECTFULLY SUBMITTED:

_____
Joan Waldock
Committee Secretary

APPROVED BY:

_____
Assemblyman Richard Carrillo, Chairman

DATE: _____

EXHIBITS

Exhibit A is the Agenda.

Exhibit B is the Attendance Roster.

Exhibit C is a copy of a conceptual amendment to Assembly Bill 261 presented by Assemblyman Richard Carrillo, Assembly District No. 18.

Exhibit D is a copy of a PowerPoint presentation titled "Autonomous Vehicles, Driver-Assistive Platooning & Autonomous Vehicle Network Companies," dated March 23, 2017, presented by Steven D. Hill, Executive Director, Office of Economic Development, Office of the Governor.

Exhibit E is a conceptual amendment to Assembly Bill 69, dated March 22, 2017, presented by Cory Hunt, Northern Regional Director, Office of Economic Development, Office of the Governor.

Exhibit F is a letter dated March 14, 2017, to Governor Brian E. Sandoval, authored by David Strickland, Counsel, Self-Driving Coalition for Safer Streets, in support of Assembly Bill 69, presented by Alisa Nave-Worth, representing Waymo, Mountain View, California.

Exhibit G is a prepared statement of General Motors, Washington, D.C., dated March 23, 2017, presented by Lorne Malkiewich, representing General Motors, regarding Assembly Bill 69.

Exhibit H is a copy document titled "2021 Southern Nevada Target Industry Validation Study," dated March 2017, prepared by Emergent Method and presented by Anthony J. Ruiz, Senior Director of Communications and Government Affairs, Las Vegas Global Economic Alliance.

Exhibit I is a proposed amendment to NRS Chapter 482A and a proposal of a new NRS Chapter 706B regarding autonomous vehicle network companies, authored by the Nevada Justice Association and presented by Robert T. Eglet, representing the Nevada Justice Association.