

2019 HOUSE TRANSPORTATION

HB 1199

2019 HOUSE STANDING COMMITTEE MINUTES

Transportation Committee Fort Totten Room, State Capitol

HB 1199
1/25/2019
#31501

- ☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Jeanette Cook

Explanation or reason for introduction of bill/resolution:

A BILL relating to following a motor vehicle too closely.

Minutes:

Attachments 1-4

Vice Chairman Rick C. Becker opened the hearing on HB 1199.

Representative Dan Ruby, District 38, introduced HB 1198. This is a process in which two trucks with the same company will have a feature that will let them link up and “speak” to each other. They travel at the same speed, follow closely, and when they link up, the lead driver controls the pace. The driver in the rear truck still needs to steer his vehicle, but the speed will basically be controlled by the front truck. This is called platooning. If the lead truck applies his brakes, it will also apply the brakes on the rear truck. They do this for fuel efficiency. The lead vehicle will reduce its fuel consumption to some extent, but the rear truck will be more fuel efficient. It will also help with driver fatigue. The lead truck has a camera that is facing the front to show the rear driver what is coming up; this is a safety feature. The problem with our law is that it doesn’t allow the vehicles to follow this closely. The bill states, “This section does not apply to the operation of a non-lead vehicle in a platoon.” It also includes the definition of **platoon**.

Representative Paur: Would it be wise for platoons to stay in the right lane?

Chairman Ruby: It may be difficult to come up with all the reasons that a truck may need to be in the left lane. I don’t know if we want to restrict that.

Representative Jones: How many vehicles will be in these platoons?

Chairman Ruby: Right now the technology will only allow for two trucks. There are no trucks that can legally operate without a driver at this time.

Mike Gerhart, Executive Vice President of the North Dakota Motor Carrier’s Association, spoke to support HB 1199. He provided written testimony, including a map, and a general article describing platooning. See attachments 1-3. (14:02)

Representative Grueneich: Would both of these drivers be on the E-log?

Mike Gerhart: Both of the drivers are still in control of the vehicles, so, on their E-log it would still be considered driving status.

Vice Chairman Rick C. Becker: I don't understand how the lead vehicle will save fuel. With the following vehicle saving 10%, why not have 3 or 4 vehicles?

Mike Gerhart: The fuel savings on the lead truck is because of the coefficient of air. The friction will be reduced because they are running in a unified manner. I know Global will allow up to three vehicles, Peloton Technology allows two. I think it is just probably technology. I don't know.

Vice Chairman Rick C. Becker: Is the bumper of air pushing the front vehicle?

Representative Owens: The second vehicle because of the drafting saves fuel. The front vehicle saves because of the proximity of the vehicles; it reduces the drag on the back of the vehicle. It is a small amount.

Discussion of the picture and following distance.

Representative Jones: I like the technology that you are using.

Chairman Ruby: You show the states that have legislation pending. If we pass this, where would we stand?

Mike Gerhart: This would be eliminating the major hurdle to platooning happening in North Dakota. There may still be some administrative things that would need to be worked through with state authorities before it could be tested.

Chairman Ruby: So, we would be under "testing allowed?"

Mike Gerhart: I believe after this bill, that industry and stake holders will be working with the state to determine whether it would be testing or full implementation. Before this, one of the major concerns was the fact that Century Code prohibits following too close.

Representative Nelson: Do some of the states limit the size of platoons? Is it okay in the winter?

Mike Gerhart: The idea from an industry perspective is we want it to be safe. There are states, MI and WI, that allow platooning. Industry doesn't want accidents. I think that the main limiting factor now is technology. It could be enhanced in the future. Ultimately the goal is safety.

Representative Nelson: Do any of the states limit multiple hook-ups?

Mike Gerhart: They are limited to one trailer at this time by technology.

Russ Buchholz, Strategy and Innovation Director at the North Dakota Department of Transportation, spoke to support HB 1199 and provided written testimony. See attachment #4.

Representative Paur: Can you give me examples of how this will improve traffic safety?

Russ Buchholz: Since the trucks are linked, both vehicles will be doing the same. As far as safety, there won't be following too close, or rear-ending of the vehicle by the one behind it.

Representative Paur: They currently shouldn't be following too close.

There was no further support for HB 1199.
There was no testimony in opposition to HB 1199.
There was no neutral testimony.

The hearing was closed on HB 1199.

Representative Grueneich moved a DO PASS on HB 1199.
Representative Kading seconded the motion.

Representative Nelson: I am going to resist the motion. If this was limited by two trucks in law, instead of by the vendors, I would support it.

Chairman Ruby: I think they do have to work with the Department of Transportation. Rules can be written, or we could come back in and have future legislation.

Representative Hager: I am curious if we need to stipulate that this is a commercial vehicle, not private citizens or cars that can use this definition? Could a line of vehicles in communication by cell phones be considered under this?

Representative Owens: The communication it talks about here is between vehicles not people.

A roll call vote was taken: Aye 11 Nay 1 Absent 2
The motion carried. Representative Grueneich will carry HB 1199.

Date: 1-25-19
Roll Call Vote #: 1

2019 HOUSE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. HB 1199

House Transportation Committee

☐ Subcommittee

Amendment LC# or Description: _____

Recommendation: ☐ Adopt Amendment
☒ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☐ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar
Other Actions: ☐ Reconsider ☐ _____

Motion Made By Grueneich Seconded By Kading

Representatives	Yes	No	Representatives	Yes	No
CHAIRMAN RUBY	X		REP LAURIEBETH HAGER	X	
VICE CHAIR BECKER	X		REP KARLA ROSE HANSON	X	
REP JIM GRUENEICH	X		REP MARVIN NELSON		X
REP TERRY JONES	X				
REP TOM KADING	X				
REP EMILY O'BRIEN	A				
REP MARK OWENS	X				
REP BOB PAULSON	X				
REP GARY PAUR	X				
REP ROBIN WEISZ	A				
REP GREG WESTLIND	X				

Total (Yes) 11 No 1

Absent 2

Floor Assignment Grueneich

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1199: Transportation Committee (Rep. D. Ruby, Chairman) recommends **DO PASS**
(11 YEAS, 1 NAYS, 2 ABSENT AND NOT VOTING). HB 1199 was placed on the
Eleventh order on the calendar.

2019 SENATE TRANSPORTATION

HB 1199

2019 SENATE STANDING COMMITTEE MINUTES

Transportation Committee Lewis and Clark Room, State Capitol

HB 1199
3/14/2019
33698

- ☐ Subcommittee
☐ Conference Committee

Committee Clerk: Liz Stenehjem

Explanation or reason for introduction of bill/resolution:

A bill relating to following a motor vehicle too closely.

Minutes:

3 Attachments

Representative Ruby, District 38, Minot: I'm introducing HB 1199 as somewhat of a companion, but not necessarily, to that autonomous bill you heard last week. I guess initially I stated in that hearing, when I introduced the bill last time for the Department of Transportation to allow for them to promulgate rules as needed one of the things we were considering is that one of the things they could possibly do is have rules that in certain circumstances would allow a vehicle to follow closer than our current statute requires. But, as I stated in that it got turned into that study which developed that and there was some discussion about having that bill would have also included this issue with platooning. But I introduced this separately because it's really not autonomous technology in that type of framework. It basically is very similar to existing technology that you have in many of your vehicles. If you have cruise control that as you approach a vehicle it backs you off and slows you down, that's very similar to what platooning technology does. Only what it does is the communication between the trucks keeps the two trucks within the same; usually 40-60 feet from each other. Basically the advantages of that as another presenter will give you information on is the efficiency that gives. Obviously if you're a fan of Nascar you'll see that when they get drafting and they get a couple of cars that are following real close, basically the wind resistance is broke by the first car and instead of having the drag at the back of it, it goes across to the back car so that drag and the whole wind resistance is spread between more than one vehicle which give them better fuel mileage and fast speed for them. Obviously they won't be going any faster than they would be doing on their own on the highway so it's not really for speed, it's for efficiency. So the first vehicle realizes some efficiency, the back vehicle realizes even more efficiency. So for a company who's sending to semi loads of product across several state, they could have their drivers platoon wherever it worked for them and wherever the highways were conducive for it and they could actually save on fuel. The other thing it saves on is some driver fatigue. The driver in the back still has to steer, that's why it's not autonomous technology, he's still steering. Often times the lead truck has a camera so the guy in the back is looking at a camera to see what's up ahead so he's aware of that and he can pretty much take his foot off the pedals because his truck will maintain speed and brake whenever the lead truck brakes. So

in many cases, even if he was following a little bit further back and operating on his own, his response time would be greater than if he was platooned and setup with this technology. So basically what the bill does, “the section does not apply to the operation of a non-lead vehicle in a platoon” and that of course is the section that deals with following too closely, and then as used in the section “platoon means a group of motor vehicles using vehicle to vehicle communications to travel in a unified manner at close following distances on a multi-lane, limited-access, divided highway.” So that limits it to interstates only. One of the questions we had in the previous testimony on this was, vehicle communication, could that just be CBs? And no it cannot. This has to be where the trucks are communicating with each other not the drivers. The drivers are too as well, they basically hook up and it’s kind of like just being on like a walkie-talkie almost or basically a phone line, although it’s not necessarily using a cell phone. So they are talking, but the communication that’s referred to here is the truck to truck communication. Now DOT will be offering an amendment and they’ve worked on that with the Motor Carriers and we’re ok with it, it’s actually language that’s included in the administrative rules already and so I’m comfortable with what they are going to offer, so if you adopt that I would concur with that over on our side.

Linda Sitz, Strategic Innovation Manager, North Dakota Department of Transportation: Please see **Attachment #1** for testimony and proposed amendment. We worked with the North Dakota Highway Patrol and the Motor Carriers Association to come up with the amendment on the back side of this page. We agree that this amendment is going to be really close to what the committee came up with, we just made a few tweaks on the original document. Went through amendment on back of page. First of all, DOT is not against platooning in the state of North Dakota, we’re really for it. The concern of the whole committee was that from a safety stand point we just want to know who is platooning in the state of North Dakota. That way it’s on our website and the Highway Patrol knows, the DOT knows and the Motor Carriers Association knows. Because when you do platooning it has to be on newer vehicles. It can be on like a 1997 truck it doesn’t have the technology of the ability to have that technology. So we want to make sure that when industry is coming through that they use the platooning provider’s technology that’s out there and they go through the process of filling out the plan with the technology provider. The DOT has a plan established and we will put it out on our website so that way everybody has access to that plan. So they would need to fill out that plan, we would have to go through it, to make sure it’s the right type of vehicle that they want to do the platooning with. Because if it’s an older vehicle we’re not going to approve their plan. This way the communications will be out there and this way Highway Patrol knows if they get complaints from citizens that you have these semis following too closely, what’s going on? We have an idea what’s going on, the Highway Patrol has an idea what’s going on. So we just have some transparency. When we were working with Highway Patrol and the committee they said that if there wasn’t a fee involved then everybody is going to do it. We’re just going to be having people platooning out on the any roads in the state of North Dakota and industry was concerned about platooning on roads that were not controlled access types of roads. So like 83, 52, 2, those types of roads, eventually we could see that, but industry really wanted to make sure that it worked before we expanded to the other roads. So Highway Patrol explained that they needed some type of a hammer in this section so that way they can issue a fine if somebody is platooning illegally in the state.

Senator Clemens: Is there any platooning being done now in North Dakota?

Ms Sitz: No there is not

Senator Clemens: If a vehicle was to get in between two platooning vehicles would that create a problem for the communications?

Ms Sitz: Actually the technology communicates to each other. The trucks communicate, so if they find somebody that's coming up and trying to break into that platoon, it automatically stops and the trucks give that vehicle enough space to get in between them. Peloton actually has a video on it that's really interesting, they show how the whole process works.

Senator Dwyer: Could you provide some examples of companies that would be doing this?

Ms Sitz: Currently I don't know of any companies in North Dakota. We talked to Midwest Motors and Magnum that were part of; Director Sorel had a committee that we pulled in all of industries also, just trying to see if there was any interest. Right now nobody in North Dakota is doing it, I think that those two companies have the potential of doing it, UPS has an interest in doing it, FedEx has an interest in doing it; but nobody has implemented it yet in the state of North Dakota.

Senator Dwyer: So it just seems like since it's companies that would be doing this, it just seems like a fine of \$100 per doing it without going through the steps is not really much of a hammer. It seems like it would have to be like \$500 or \$1000 because you're dealing with companies, you're not dealing with individuals. So it just seems like that's inadequate if you're going to have it be clear to folks that might consider this, hey you have to follow these rules.

Senator Fors: I have a map here and I don't think it was yours, but everything around North Dakota is yellow. So here I am, I'm driving down I-94 and I'm platooning and all of a sudden I run into Minnesota, what happens?

Ms Sitz: That platoon would have to disengage.

Mike Gerhart, Executive Vice President, North Dakota Motor Carriers Association:
Please see **Attachment #2** for testimony and additional information.

(22:00) Senator Dwyer: Could you just comment on the amendments? Do you support them?

Mr. Gerhart: I do support the amendments. As far as the specifically the \$100 fee with the concerns, I think that it's a valid point. I have no concern that the companies that have been mentioned are going to violate this. Because they are; it's about being safe, it's about being successful, if they get themselves jammed up they're not making money and they're not moving commerce. I think the concern is for somebody to go to Radio Shack and spend \$99.99 and put something in their vehicle, and I think that's the concern shared both by DOT and industry. So that is where the fee piece comes in. I support the amendments as they are written.

Senator Bakke: You talked about the lead vehicle. Does that one vehicle always have to be in the lead or can the switch who the lead is?

Mr. Gerhart: Yes, they can. Today the technology is limited to two vehicles. Peloton's technology only allows two vehicles to platoon so it's not a series of four or five, now Volvo goes up to three. But of those two vehicles they can switch out the lead vehicle, if the person in the lead wants to switch up that's absolutely fine. It is with the same company though.

Senator Bakke: What's the safety record?

Mr. Gerhart: I'm not aware of any crashes, but I will follow up with the vendor. Please see **Attachment #3** for information regarding Peloton safety.

2019 SENATE STANDING COMMITTEE MINUTES

Transportation Committee
Lewis and Clark Room, State Capitol

HB 1199
3/21/2019
34099

☐ Subcommittee
☐ Conference Committee

Committee Clerk: Liz Stenehjem

Explanation or reason for introduction of bill/resolution:

A bill relating to following a motor vehicle too closely.

Minutes:

1 Attachment

Brief summary of previous hearing, testimony and proposed amendment.

Senator Dwyer: Please see **Attachment #1** for amendment.

Chairman Rust: As I understand it; again just to make sure, the amendment is all about an operational plan. That's basically what they want. The Department of Transportation says hey wait a second folks, you need some kind of a plan, you've got to have a plan and it needs to be approved. Right? Well, actually it's the department shall develop an operational plan, right? So it's all about having a plan on both ends, right?

Senator Dwyer: Yep. It's fairly self-explanatory, DOT kind of explained it.
I move a **Do Pass** on **Amendment 19.0802.01001**

Senator Fors: I **Second** the motion

Roll Call Vote Taken:
6-0-0 Do Pass

Senator Dwyer: I move a **Do Pass as Amended**

Senator Bakke: I **Second** the motion

Roll Call Vote Taken:
6-0-0 Do Pass as Amended
Carrier: Senator Dwyer

SK
3/21
131

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1199

Page 1, line 1, after "to" insert "create and enact a new section to chapter 39-10 of the North Dakota Century Code, relating to platoons; to"

Page 1, line 2, after "closely" insert "; and to provide a penalty"

Page 1, line 22, after "section" with "and section 2 of this Act"

Page 1, after line 24, insert:

"**SECTION 2.** A new section to chapter 39-10 of the North Dakota Century Code is created and enacted as follows:

Motor vehicle platoons.

1. The department, in coordination with the state highway patrol superintendent, shall develop an operational plan that provides guidelines for operating a platoon. The plan must include operational information that must be provided by a platoon technology provider or commercial motor vehicle operator. The department may restrict platooning operations in accordance with the guidelines or the operational information provided in the plan.
2. A platoon may not operate unless the platoon technology provider or the commercial motor vehicle operator files an operational plan with the department and the plan is approved for general platoon operations. If the department does not approve the plan, the department shall inform the platoon technology provider or commercial motor vehicle operator of the reason for the disapproval and provide guidance on how to resubmit the plan to obtain approval.
3. A person operating a motor vehicle in a platoon without an approved plan must be assessed a fee of one hundred dollars.
4. A person operating a motor vehicle in violation of the guidelines in an operational plan must be assessed a fee of one hundred dollars."

Renumber accordingly

**2019 SENATE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. HB 1199**

Senate Transportation Committee

☐ Subcommittee

Amendment LC# or Description: 19.0802.01001

Recommendation: ☒ Adopt Amendment
☐ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☐ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar
Other Actions: ☐ Reconsider ☐ _____

Motion Made By Senator Dwyer Seconded By Senator Fors

Senators	Yes	No	Senators	Yes	No
Senator Rust - Chairman	X		Senator Bakke	X	
Senator Clemens - Vice Chairman	X				
Senator Dwyer	X				
Senator Fors	X				
Senator Patten	X				

Total (Yes) 6 No 0

Absent 0

Floor Assignment

If the vote is on an amendment, briefly indicate intent:

**2019 SENATE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. HB 1199**

Senate Transportation Committee

☐ Subcommittee

Amendment LC# or Description: _____

Recommendation: ☐ Adopt Amendment
☒ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☒ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar
Other Actions: ☐ Reconsider ☐ _____

Motion Made By Senator Dwyer Seconded By Senator Bakke

Senators	Yes	No	Senators	Yes	No
Senator Rust - Chairman	X		Senator Bakke	X	
Senator Clemens - Vice Chairman	X				
Senator Dwyer	X				
Senator Fors	X				
Senator Patten	X				

Total (Yes) 6 No 0

Absent 0

Floor Assignment Senator Dwyer

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

HB 1199: Transportation Committee (Sen. Rust, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (6 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). HB 1199 was placed on the Sixth order on the calendar.

Page 1, line 1, after "to" insert "create and enact a new section to chapter 39-10 of the North Dakota Century Code, relating to platoons; to"

Page 1, line 2, after "closely" insert "; and to provide a penalty"

Page 1, line 22, after "section" with "and section 2 of this Act"

Page 1, after line 24, insert:

"SECTION 2. A new section to chapter 39-10 of the North Dakota Century Code is created and enacted as follows:

Motor vehicle platoons.

1. The department, in coordination with the state highway patrol superintendent, shall develop an operational plan that provides guidelines for operating a platoon. The plan must include operational information that must be provided by a platoon technology provider or commercial motor vehicle operator. The department may restrict platooning operations in accordance with the guidelines or the operational information provided in the plan.
2. A platoon may not operate unless the platoon technology provider or the commercial motor vehicle operator files an operational plan with the department and the plan is approved for general platoon operations. If the department does not approve the plan, the department shall inform the platoon technology provider or commercial motor vehicle operator of the reason for the disapproval and provide guidance on how to resubmit the plan to obtain approval.
3. A person operating a motor vehicle in a platoon without an approved plan must be assessed a fee of one hundred dollars.
4. A person operating a motor vehicle in violation of the guidelines in an operational plan must be assessed a fee of one hundred dollars."

Renumber accordingly

2019 TESTIMONY

HB 1199

TESTIMONY
HOUSE BILL 1199
TRANSPORTATION COMMITTEE
JANUARY 25, 2019

HB 1199
1-25-19
#1
P. 1

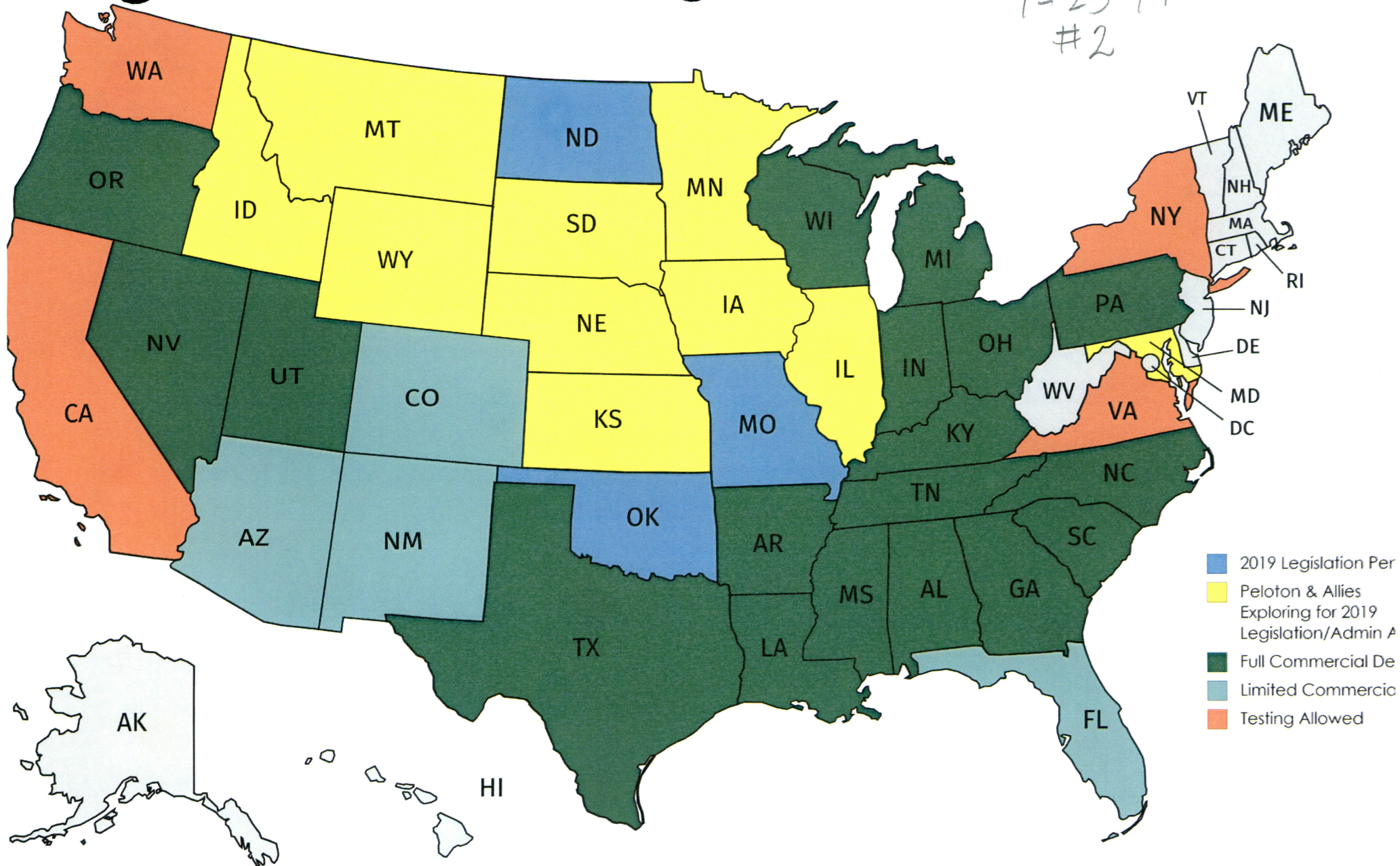
Mr. Chairman and members of the House Transportation committee my name is Mike Gerhart, Executive Vice President of the North Dakota Motor Carriers Association. I am here this morning to testify in support of House Bill 1199.

House Bill 1199 modifies North Dakota Century Code to provide an exemption for commercial motor vehicles which platoon on divided highways. Platooning allows commercial motor vehicles to follow each other in a unified manner at close following distances by connecting their onboard systems with a wireless vehicle to vehicle link. Platooning technology is currently available through Volva and Peleton. It is installed on new trucks with state-of-the-art safety systems.

- Connects the brakes, throttle, and active safety systems of two or more commercial motor vehicles.
- Enhances safety by eliminating perception and reaction time of the following vehicle maximizing stopping capacity.
 - The lead truck driver operates his or her truck similarly to a conventional truck.
 - The following truck driver operates his or her truck similarly to a conventional truck accept the brake and throttle control is connected to the lead truck while platooning.
- Platooning systems like Peleton, use a network cloud to geofence appropriate platooning areas to ensure locations that are not suitable are not authorized. This is accomplished by working with state authorities.
- Platooning systems enhance fuel efficiency with a combined average fuel savings of 7.5 %. for both trucks.
- There are currently 22 states which allow for platooning which include Michigan and Wisconsin.

I ask you give HB 1199 favorable consideration and a DO PASS recommendation. Mr. Chairman, this concludes my testimony. I would be happy to answer any questions.

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1-25-19
#2





HB1199
1-25-19
#3
P.1

Overview of the Driver-Assistive Truck Platooning System PlatoonPro

Peloton Technology's Driver-Assistive Truck Platooning (DATP) system, PlatoonPro, links the safety systems between pairs of trucks through wireless vehicle-to-vehicle communication, enabling the trucks to form aerodynamic "platoons." The Peloton DATP system connects the brakes, throttle and active safety systems of two trucks at a time. The lead truck driver operates his/her vehicle similarly to a conventional truck. The follow truck driver operates his/her vehicle similarly to a conventional truck, except that brake and throttle control are linked to the lead truck while platooning. The experience of the follow truck driver is similar to adaptive cruise control (ACC). The system also provides the follow driver a real-time video view of the road ahead of the lead driver. Driver awareness and teamwork are bolstered as the two drivers are connected by a dedicated, hands-free push-to-talk radio. The Peloton DATP system authorizes platooning under appropriate roadway, weather, and traffic conditions.

DATP systems can enhance fuel efficiency and safety. A series of independently validated fuel economy tests have shown that the Peloton platooning systems can save an average of 7.25 percent in fuel across a pair of trucks -- 4.5 percent on the lead truck and 10 percent on the follow truck (reports by the North American Council on Freight Efficiency, USDOT/FHWA and USDOE/NREL). They can improve safety by requiring that all trucks be equipped with state-of-the-art collision avoidance systems, lane departure warning, and air disc brakes; and by limiting platooning to certain conditions.

Multiple truck OEMs and Tier 1 suppliers are engaged in platooning technology in various ways in the US. These companies include Kenworth, Mack, Navistar, Peterbilt, Volvo, Bendix, Meritor WABCO, Cummins, and Peloton Technology. In Europe, the six major truck manufacturers – DAF, Daimler, Iveco, MAN, Scania, and Volvo – have demonstrated driver-assistive truck platooning technology and have run platooning activity across multiple countries. Platooning has been in active use by Scania in Sweden, and other OEMs have been conducting ongoing activity in Germany, the Netherlands, and other countries. A number of the Asian truck OEMs have also demonstrated truck platooning systems including activity in Japan and Singapore.

Multiple US states have now allowed for commercial deployment of driver-assistive truck platooning through legislative or administrative means. As of January 2019, twenty-two US states allow for commercial truck platooning activity. Commercial deployment allowance or arrangements for initial commercial platooning trials have also been established in Australia, Germany, Sweden, Finland, the UK, and other countries.

To learn more about Peloton, please visit www.peloton-tech.com.

Videos. To see more details on driver-assistive truck platooning, watch the following videos:

[Platooning Explained](https://vimeo.com/146972113) (<https://vimeo.com/146972113>)

[Platoon Braking](https://vimeo.com/234760532) (<https://vimeo.com/234760532>)

[Ask a Driver](https://vimeo.com/235093103) (<https://vimeo.com/235093103>)

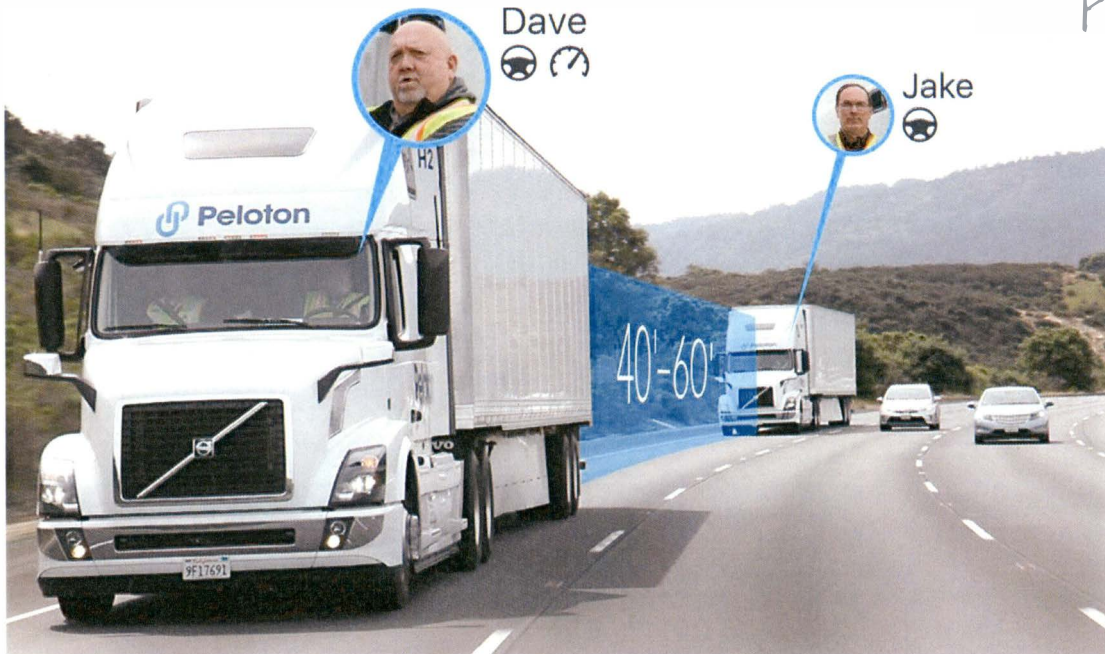
[Peloton Platooning](https://vimeo.com/155164547) (<https://vimeo.com/155164547>)

[Demo 360 View](https://www.youtube.com/watch?v=uNlz9vKwg44&feature=youtu.be) – Perspective from the view of the follow driver

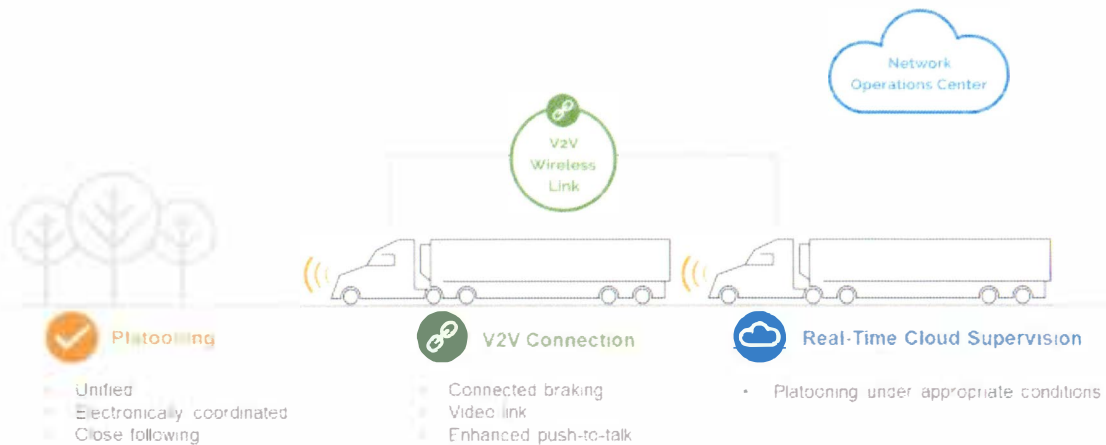
(<https://www.youtube.com/watch?v=uNlz9vKwg44&feature=youtu.be>)

**Peloton Technology
Driver-Assistive Truck Platooning:
Two Trucks & Two Drivers**

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1-25-19
#3
P-2



**Peloton Technology
Driver-Assistive Truck Platooning:
System Functionality and Connectivity**





PlatoonPro - FAQs

HB1199
1-25-19
#3
p.3

Can Any Truck Be Equipped with a PlatoonPro Platooning System?

No. The Peloton system requires the following features on every equipped truck. Our PlatoonPro system is integrated with and requires these active safety systems:

- Radar-based best-in-class Collision Avoidance System with full Automatic Emergency Braking features
- Lane Departure Warning -- also comes standard with these Collision Avoidance Systems
- Electronic Stability Control/Roll Stability Control
- Tractor Air Disc Brakes
- Properly-functioning Trailer ABS brakes

The Peloton System is designed for interoperability across different truck makes and models. The system is provided to fleets as a pre-delivery installation on to new trucks. For very new model year trucks that have all the necessary safety specifications, some upfits may be possible in the future. However, initial commercial deployments are only occurring on new trucks.

Can Any Driver Platoon?

Drivers complete Peloton-approved training by fleets before they can platoon. Platooning does not change Hours-of-Service requirements.

Where Can Drivers Platoon?

Drivers can platoon on multi-lane, divided, limited-access highways that have been approved by Peloton in states that have allowed for platooning. Peloton pre-maps a network of suitable highways for platooning. A truck's platooning capability is disabled automatically outside of the approved highway areas.

How Does the System Deal with Bridge Crossings and Construction Zones?

The Peloton Network Operations Cloud uses advanced maps to geofence appropriate platooning areas versus areas that are not suitable. Therefore, it can ensure that platooning is not authorized at any bridges with special weight limitations, toll plazas, construction zones, and any other area that is not suitable.

Peloton uses a range of commercial and public sources to update its maps. We welcome discussion with state officials on the best ways to most rapidly update maps using state-provided information.

Our system also automatically dissolves platooning when the trucks drop to below 35 mph. Platoons also dissolve when other vehicles cut between them and drivers can't reconnect a platoon until such traffic has cleared.

When Can Drivers Platoon?

On system-approved multi-lane, divided, limited access highways under appropriate conditions, drivers can decide when they want to platoon. Since PlatoonPro is a driver-assistive technology, drivers opt-in to platooning and can end a platoon at any time.

Can Trucks from Different Fleets Platoon with Each Other?

The Peloton System will be used at first by drivers within the same fleet. This is also the expected approach by other platooning system providers. In the future, Peloton plans to enable drivers in different fleets as well as owner-operators to drive in “cross-fleet” platoons. This will start with specific fleets agreeing to cooperate with each other on platooning. All drivers in a platoon must have completed Peloton-approved fleet-provided instruction.

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While we cannot publicly state the names of our early customers, they are among the largest and most reputable fleets in the nation. We expect to make announcements in the coming months.

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Most of the time, an alert driver will anticipate a cut-in and react by ending the platoon – either by pressing the Peloton System's start/stop button or by the follow driver applying the brakes. In the event that the driver doesn't see the cut-in until it happens, radar will detect the cut-in and automatically separate the trucks. When the platoon ends, the trucks automatically separate in a controlled manner (“fallback”) increasing the gap out to a longer distance suitable for fully manual operation.

What About Cybersecurity?

The Peloton System has redundant, continuously active features in place to detect cybersecurity faults. Any fault detected during platooning will result in the platoon ending automatically – returning the trucks to “failsafe” mode under manual-only control by the drivers. Peloton encrypts and mutually authenticates all vehicle communications including truck-to-truck (“V2V”) and truck-to-cloud (“V2C”) communications.

Are Markings Needed to Identify Platooning Trucks?

Peloton will notify state DOT and law enforcement of the short list of fleets that have platooning-equipped trucks and the routes on which to expect platooning trucks. With various state officials, we have discussed including a marking, such as a decal, on both sides of tractors. We will be holding further dialogue with state officials and the initial fleets whose trucks will be equipped with platooning systems and whose tractors would require the marking.

Are There Any Other Truck Platooning System Providers?

Platooning systems have been demonstrated by Daimler Trucks North America (Freightliner), PACCAR, Navistar, and Volvo Trucks North America. Peloton is working with a number of these North American truck OEMs to bring integrated platooning systems to market. The six major European truck OEMs and several of the Asian truck OEMs all have platooning systems in varying stages of development as they approach commercialization.

HB1199
1-25-19
#3 p.4

What Are the Benefits of the PlatoonPro system?

Enhanced Situational Awareness and Responsiveness

The Peloton System enables drivers in platoon to communicate directly through audio and video, and to protect against knock-on traffic hazards by extending active safety systems across pairs of trucks. The System features an in-cab video display which shows the follow driver the view from the front of the lead truck, providing the follow driver a clear picture of the road ahead. In addition, the System provides a dedicated audio channel between drivers in a platoon. The audio channel can be used to share information about cut-ins and traffic ahead, provide a heads-up when a driver wants to end the platoon, and more. Finally, by linking forward collision avoidance systems across pairs of trucks through V2V communications, the Peloton System extends the effective range of radar and active braking of the follow truck in a platoon. When the lead truck applies its brakes, the follow truck responds automatically in approximately a tenth of a second. These forward collision avoidance systems provide best-in-class safety features that are always active, supporting drivers both in and out of platoon.

Enhanced Teamwork and Comradery Between Trusted Drivers

When a driver chooses to platoon, he or she can be confident that their platooning partner has also received Peloton-approved training. As noted above, the driver-centric features of the PlatoonPro system empower teamwork by the drivers as they traverse the highway together.

Fuel Savings and Emissions Reductions

The Peloton System reduces the safe following distance between trucks that are drafting to save fuel. At 65 mph, fuel savings across a two-truck platoon are 7.25%, based on testing by the North American Council for Freight Efficiency – 4.5% for the lead truck and 10% for the follow truck. Along with “connected braking” – which bypasses delays in human perception and reaction time – a safe following distance of trucks in platoon is maintained by ordering the truck with the longer estimated stopping distance as the lead truck. Many fleets offer fuel-economy incentives for drivers. In general, fuel savings will enhance the competitiveness of fleets and drivers using PlatoonPro.

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3 p. 5

HB 1199
1-25-19
#4

HOUSE TRANSPORTATION COMMITTEE
January 25, 2019 – 9 a.m. – Fort Totten Room

North Dakota Department of Transportation
Russ Buchholz

HB 1199

Good morning Mr. Chairman and members of the committee. I'm Russ Buchholz, Strategy and Innovation Director at the North Dakota Department of Transportation (DOT) and am here in support of House Bill 1199.

Platoons, sometimes known as platooning, is a method of increasing the capacity of vehicles on roads by using automated technology on a highway system. Platooning of a group of vehicles decreases the distance between vehicles and would allow many vehicles to accelerate or brake simultaneously. Platooning can improve traffic safety and lower costs related to fuel/energy consumption. This past year, the DOT along with the Highway Patrol and other committee members have been working on establishing a plan that would allow such truck platooning operations on controlled access roads. This proposed change to Section 39-10-18, would not hinder these types of future operations.

Thank you for your time, Mr. Chairman and members of the committee, this concludes my testimony and I am open to answer any questions you might have.

SENATE TRANSPORTATION COMMITTEE

Date: March 14, 2019 at 9:00 a.m.

North Dakota Department of Transportation

Linda Sitz, Strategic Innovation Manager

House Bill 1199

Good morning, Mr. Chairman and members of the committee. I'm Linda Sitz, the Strategic Innovation Manager at the North Dakota Department of Transportation (NDDOT). Thank you for giving me the opportunity to discuss this proposed bill and answer any questions.

House Bill 1199 was a result of a legislative study from the previous session (HB1202). The NDDOT was to collaborate with autonomous vehicle technology industry and submit a report to the legislative assembly.

The current bill as it stands doesn't include the committee suggestion which was submitted to the legislative assembly. NDDOT would like to submit an amendment for consideration.

Thank you, Mr. Chairman, I would be happy to answer any questions.

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1199

Page 2, after line 24, insert

"1. Platoons shall be subject to the following restrictions:

- a. The North Dakota Department of Transportation, in coordination with the superintendent of North Dakota Highway Patrol, shall develop an operational plan which will define platooning operational restrictions and contain operational information which must be provided by a platoon technology provider or commercial motor vehicle operator. The department may restrict platooning operations in accordance with the restrictions or the operational information provided in the plan.
- b. Platoons shall not operate unless a platoon technology provider or the commercial motor vehicle operator files an operational plan with the department and the plan is approved for general platoon operations. If the department does not approve the plan, it shall inform the platoon technology provider or commercial motor vehicle operator of the reason for the disapproval and provide guidance on how to resubmit the plan in order to obtain approval.
- c. A person operating a vehicle in a platoon without an approved plan shall be assessed a fee of one hundred dollars.
- d. A person operating a vehicle in violation of the restrictions in an operational plan shall be assessed a fee of one hundred dollars."

Renumber accordingly.

TESTIMONY
HOUSE BILL 1199
SENATE TRANSPORTATION COMMITTEE
MARCH 14, 2019

Mr. Chairman and members of the Senate Transportation committee my name is Mike Gerhart, Executive Vice President of the North Dakota Motor Carriers Association. I am here this morning to testify in support of House Bill 1199.

House Bill 1199 modifies North Dakota Century Code by providing an exemption for commercial motor vehicles which platoon on divided highways. Platooning allows commercial motor vehicles to follow each other in a unified manner at close following distances by connecting their onboard systems with a wireless vehicle to vehicle link. Platooning technology is currently available through Volva and Peleton. It is installed on new trucks with state-of-the-art safety systems.

- Connects the brakes, throttle, and active safety systems of two or more commercial motor vehicles.
- Enhances safety by eliminating perception and reaction time of the following vehicle maximizing stopping capacity.
 - The lead truck driver operates his or her truck similarly to a conventional truck.
 - The following truck driver operates his or her truck similarly to a conventional truck except the brake and throttle control is connected to the lead truck while platooning.
- Platooning systems like Peleton, use a network cloud to geofence appropriate platooning areas to ensure locations that are not suitable are not authorized. This is accomplished by working with state authorities.
- Platooning systems enhance fuel efficiency with a combined average fuel savings of 7.5 % for both trucks.
- There are currently 22 states which allow for platooning which include Michigan and Wisconsin.

I ask that you give HB 1199 favorable consideration and a DO PASS recommendation. Mr. Chairman, this concludes my testimony. I would be happy to answer any questions.



HB 1199 #2
3/14/19 pg 2

Overview of the Driver-Assistive Truck Platooning System PlatoonPro

Peloton Technology's Driver-Assistive Truck Platooning (DATP) system, PlatoonPro, links the safety systems between pairs of trucks through wireless vehicle-to-vehicle communication, enabling the trucks to form aerodynamic "platoons." The Peloton DATP system connects the brakes, throttle and active safety systems of two trucks at a time. The lead truck driver operates his/her vehicle similarly to a conventional truck. The follow truck driver operates his/her vehicle similarly to a conventional truck, except that brake and throttle control are linked to the lead truck while platooning. The experience of the follow truck driver is similar to adaptive cruise control (ACC). The system also provides the follow driver a real-time video view of the road ahead of the lead driver. Driver awareness and teamwork are bolstered as the two drivers are connected by a dedicated, hands-free push-to-talk radio. The Peloton DATP system authorizes platooning under appropriate roadway, weather, and traffic conditions.

DATP systems can enhance fuel efficiency and safety. A series of independently validated fuel economy tests have shown that the Peloton platooning systems can save an average of 7.25 percent in fuel across a pair of trucks -- 4.5 percent on the lead truck and 10 percent on the follow truck (reports by the North American Council on Freight Efficiency, USDOT/FHWA and USDOE/NREL). They can improve safety by requiring that all trucks be equipped with state-of-the-art collision avoidance systems, lane departure warning, and air disc brakes; and by limiting platooning to certain conditions.

Multiple truck OEMs and Tier 1 suppliers are engaged in platooning technology in various ways in the US. These companies include Kenworth, Mack, Navistar, Peterbilt, Volvo, Bendix, Meritor WABCO, Cummins, and Peloton Technology. In Europe, the six major truck manufacturers – DAF, Daimler, Iveco, MAN, Scania, and Volvo – have demonstrated driver-assistive truck platooning technology and have run platooning activity across multiple countries. Platooning has been in active use by Scania in Sweden, and other OEMs have been conducting ongoing activity in Germany, the Netherlands, and other countries. A number of the Asian truck OEMs have also demonstrated truck platooning systems including activity in Japan and Singapore.

Multiple US states have now allowed for commercial deployment of driver-assistive truck platooning through legislative or administrative means. As of January 2019, twenty-two US states allow for commercial truck platooning activity. Commercial deployment allowance or arrangements for initial commercial platooning trials have also been established in Australia, Germany, Sweden, Finland, the UK, and other countries.

To learn more about Peloton, please visit www.peloton-tech.com.

Videos. To see more details on driver-assistive truck platooning, watch the following videos:

[Platooning Explained](https://vimeo.com/146972113) (<https://vimeo.com/146972113>)

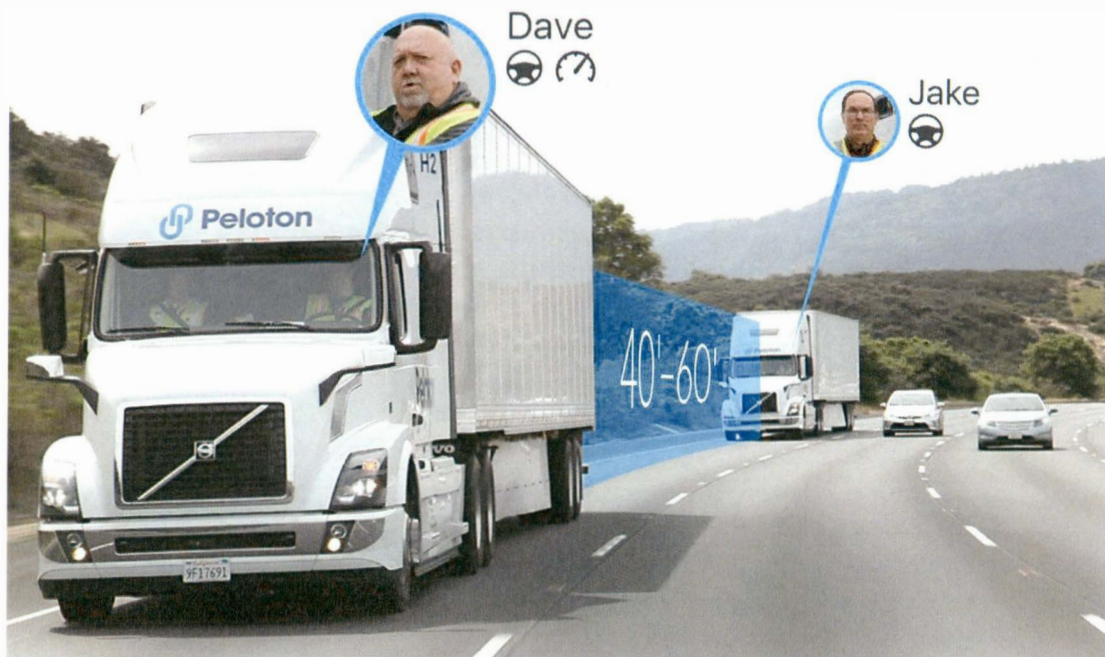
[Platoon Braking](https://vimeo.com/234760532) (<https://vimeo.com/234760532>)

[Ask a Driver](https://vimeo.com/235093103) (<https://vimeo.com/235093103>)

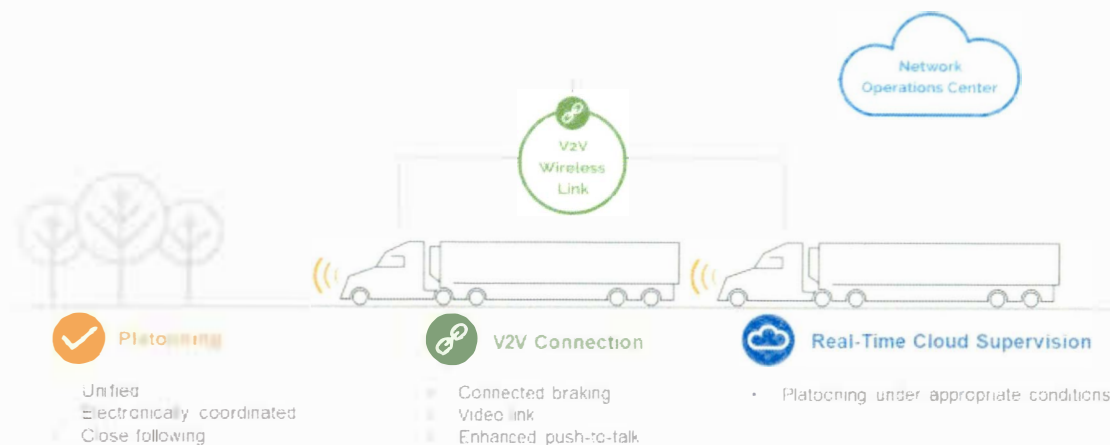
[Peloton Platooning](https://vimeo.com/155164547) (<https://vimeo.com/155164547>)

[Demo 360 View](https://www.youtube.com/watch?v=uNIz9vKwg44&feature=youtu.be) – Perspective from the view of the follow driver
(<https://www.youtube.com/watch?v=uNIz9vKwg44&feature=youtu.be>)

Peloton Technology Driver-Assistive Truck Platooning: Two Trucks & Two Drivers



Peloton Technology Driver-Assistive Truck Platooning: System Functionality and Connectivity





PlatoonPro - FAQs

Can Any Truck Be Equipped with a PlatoonPro Platooning System?

No. The Peloton system requires the following features on every equipped truck. Our PlatoonPro system is integrated with and requires these active safety systems:

- Radar-based best-in-class Collision Avoidance System with full Automatic Emergency Braking features
- Lane Departure Warning -- also comes standard with these Collision Avoidance Systems
- Electronic Stability Control/Roll Stability Control
- Tractor Air Disc Brakes
- Properly-functioning Trailer ABS brakes

The Peloton System is designed for interoperability across different truck makes and models. The system is provided to fleets as a pre-delivery installation on to new trucks. For very new model year trucks that have all the necessary safety specifications, some upfits may be possible in the future. However, initial commercial deployments are only occurring on new trucks.

Can Any Driver Platoon?

Drivers complete Peloton-approved training by fleets before they can platoon. Platooning does not change Hours-of-Service requirements.

Where Can Drivers Platoon?

Drivers can platoon on multi-lane, divided, limited-access highways that have been approved by Peloton in states that have allowed for platooning. Peloton pre-maps a network of suitable highways for platooning. A truck's platooning capability is disabled automatically outside of the approved highway areas.

How Does the System Deal with Bridge Crossings and Construction Zones?

The Peloton Network Operations Cloud uses advanced maps to geofence appropriate platooning areas versus areas that are not suitable. Therefore, it can ensure that platooning is not authorized at any bridges with special weight limitations, toll plazas, construction zones, and any other area that is not suitable.

Peloton uses a range of commercial and public sources to update its maps. We welcome discussion with state officials on the best ways to most rapidly update maps using state-provided information.

Our system also automatically dissolves platooning when the trucks drop to below 35 mph. Platoons also dissolve when other vehicles cut between them and drivers can't reconnect a platoon until such traffic has cleared.

When Can Drivers Platoon?

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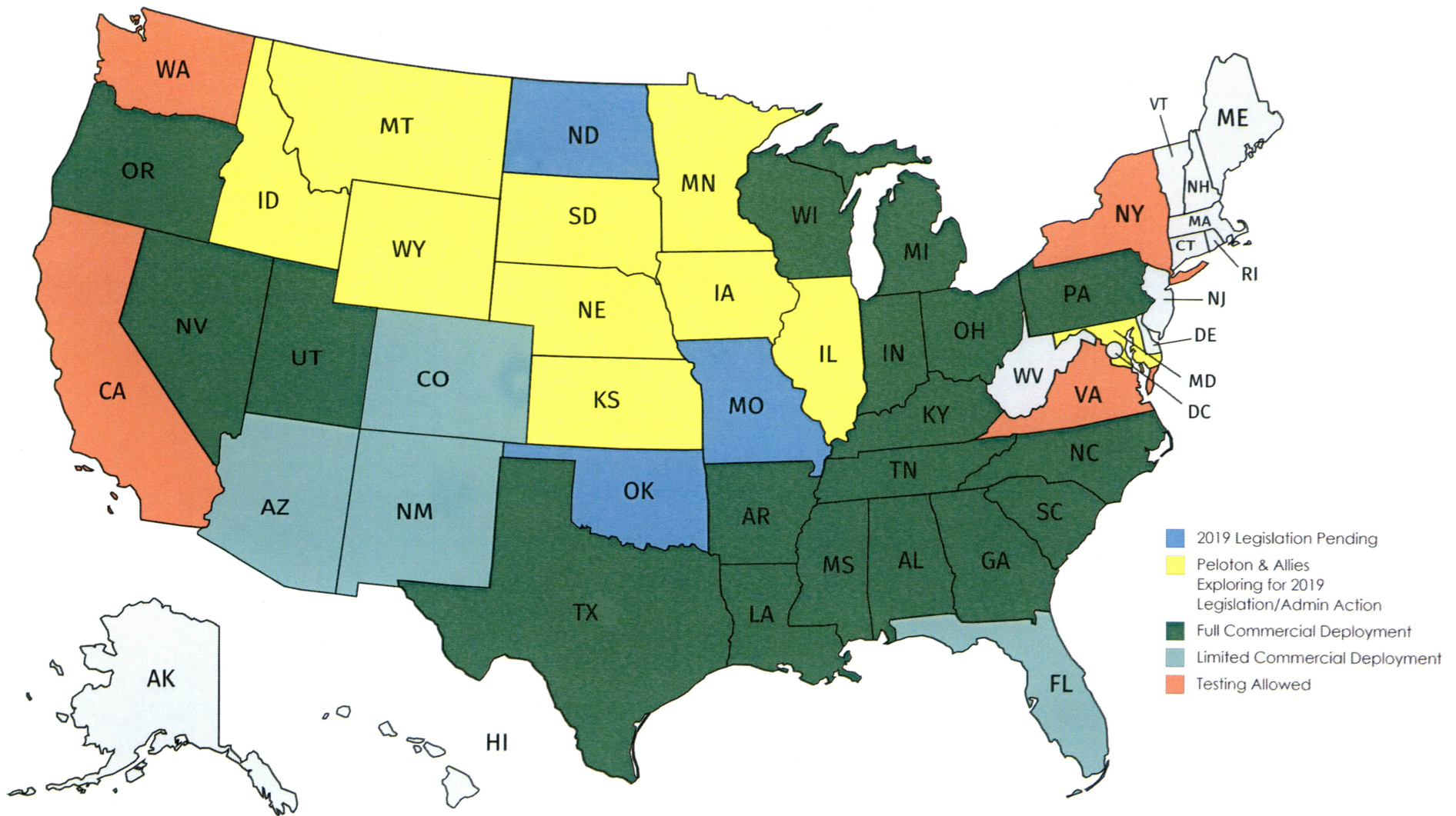
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HB 1199
3/14/19

#3
pg 1

NDLA, S TRN - Stenehjem, Elizabeth

From: Rust, David S.
Sent: Sunday, March 17, 2019 7:31 PM
To: -Grp-NDLA Senate Transportation; NDLA, S TRN - Stenehjem, Elizabeth; NDLA, Intern 06
- Munson, Josey
Subject: Platooning

FYI. Per the request from Sen. Bakke.

David S. Rust
Senator, District 2
PO Box 1198
Tioga, ND 58852
701-664-3508 (H)
701-216-0270 (C)

Begin forwarded message:

From: Mike Gerhart <mike@ndmca.org>
Date: March 14, 2019 at 11:07:34 AM CDT
To: "jbakke@nd.gov" <jbakke@nd.gov>
Cc: "Rust, David S." <drust@nd.gov>, 'Linda Sitz' <ldsitz@nd.gov>
Subject: Platooning

CAUTION: This email originated from an outside source. Do not click links or open attachments unless you know they are safe.

Good morning Senator Bakke. Regarding your inquiry during my testimony, I received the following information from Peloton. There have been no crashes with Peloton or other system providers in North America, Asia, or Europe. They have been tested for over five years throughout the country with zero issues.

Please let me know if you have any other inquiries.

Best Regards,

Mike

March 15, 2019

HB 1199 #1
3/21/19 pg 1

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1199

Page 1, line 1, after "to" insert "create and enact a new section to chapter 39-10 of the North Dakota Century Code, relating to platoons; to"

Page 1, line 2, after "closely" insert "; and to provide a penalty"

Page 1, line 22, after "section" with "and section 2 of this Act"

Page 1, after line 24, insert:

"**SECTION 2.** A new section to chapter 39-10 of the North Dakota Century Code is created and enacted as follows:

Motor vehicle platoons.

1. The department, in coordination with the state highway patrol superintendent, shall develop an operational plan that provides guidelines for operating a platoon. The plan must include operational information that must be provided by a platoon technology provider or commercial motor vehicle operator. The department may restrict platooning operations in accordance with the guidelines or the operational information provided in the plan.
2. A platoon may not operate unless the platoon technology provider or the commercial motor vehicle operator files an operational plan with the department and the plan is approved for general platoon operations. If the department does not approve the plan, the department shall inform the platoon technology provider or commercial motor vehicle operator of the reason for the disapproval and provide guidance on how to resubmit the plan to obtain approval.
3. A person operating a motor vehicle in a platoon without an approved plan must be assessed a fee of one hundred dollars.
4. A person operating a motor vehicle in violation of the guidelines in an operational plan must be assessed a fee of one hundred dollars."

Renumber accordingly

Sixty-sixth
Legislative Assembly
of North Dakota

HOUSE BILL NO. 1199

Introduced by

Representatives D. Ruby, Becker, Jones, Kasper, Keiser, Lefor, Louser

Senators Burckhard, Kreun, Oban

- 1 A BILL for an Act to create and enact a new section to chapter 39-10 of the North Dakota
2 Century Code, relating to platoons; to amend and reenact section 39-10-18 of the North Dakota
3 Century Code, relating to following a motor vehicle too closely; and to provide a penalty.

4 **BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:**

5 **SECTION 1. AMENDMENT.** Section 39-10-18 of the North Dakota Century Code is
6 amended and reenacted as follows:

7 **39-10-18. Following too closely.**

- 8 1. The driver of a motor vehicle may not follow another vehicle more closely than is
9 reasonable and prudent, having due regard for the speed of such vehicles and the
10 traffic upon and the condition of the highway.
- 11 2. The driver of any truck or motor vehicle drawing another vehicle when traveling upon a
12 roadway outside of a business or residence district and which is following another
13 truck or motor vehicle drawing another vehicle shall, whenever conditions permit,
14 leave sufficient space so that an overtaking vehicle may enter and occupy such space
15 without danger, except that this does not prevent a truck or motor vehicle drawing
16 another vehicle from overtaking and passing any vehicle or combination of vehicles.
- 17 3. Motor vehicles being driven upon any roadway outside of a business or residence
18 district in a caravan or motorcade whether or not towing other vehicles must be so
19 operated as to allow sufficient space between each such vehicle or combination of
20 vehicles so as to enable any other vehicle to enter and occupy such space without
21 danger. This provision does not apply to funeral processions.
- 22 4. This section does not apply to the operation of a non-lead vehicle in a platoon.

- 1 5. As used in this section and section 2 of this Act, "platoon" means a group of motor
2 vehicles using vehicle-to-vehicle communications to travel in a unified manner at close
3 following distances on a multilane, limited-access, divided highway.

4 **SECTION 2.** A new section to chapter 39-10 of the North Dakota Century Code is created
5 and enacted as follows:

6 **Motor vehicle platoons.**

- 7 1. The department, in coordination with the state highway patrol superintendent, shall
8 develop an operational plan that provides guidelines for operating a platoon. The plan
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10 provider or commercial motor vehicle operator. The department may restrict platooning
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18 resubmit the plan to obtain approval.
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20 assessed a fee of one hundred dollars.
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