



Chief Derek D. Barrs

Organizational Chart

Florida's Cabinet- Governor, Attorney General, Chief Financial Officer and
Commissioner of Agriculture

Department of Highway Safety and Motor Vehicles
(Executive Director Terry Rhodes)

Division of Florida Highway Patrol
(Colonel Gene S. Spaulding)

Office of Commercial Vehicle Enforcement
(Chief Derek D. Barrs)



FHP Mission / Values

- Mission- We will promote a safe and secure Florida through professional law enforcement and traffic awareness.
- Values
 - Courtesy: Treat others fairly and professionally.
 - Service: Render aid and assistance to members of the public.
 - Protection: Protect life and property.



Background

- FHP/OCVE is the Governor's designated lead MCSAP agency responsible for commercial vehicle enforcement.
- MCSAP (Motor Carrier Safety Assistance Program)
 - Federal grant program that provides financial assistance to States to reduce the number and severity of accidents and hazardous materials incidents involving commercial motor vehicles and increase public awareness and education, demonstrate new technologies and reduce the number and rate of CMV crashes.



Staffing

- 266 Sworn Members in OCVE and 34 Non-Sworn throughout the State. For a total of 300 members statewide.
 - 2 Troops (I and J)
- **Troop I**
 - Headquartered in Tallahassee and is comprised of 32 counties encompassing the northern and central areas of the state, which includes 6 district/sub-district offices, compliance investigation and hazardous material components. The Troop consists of 133 sworn members and 12 non-sworn support personnel.
- **Troop J**
 - Troop J is headquartered in Ft. Myers and is comprised of 35 counties encompassing the northeast and southern parts of the state, which includes 6 districts and our OCVE training component. There are 122 authorized sworn members and 10 non-sworn support personnel.



Commercial Vehicle Training

- FL Size and Weights 80 hours
- North American Standards Part A & B 80 hours
- General Hazardous Materials 40 hours
- Tank Vehicle 40 hours
- Other Bulk Packages 40 hours
- Non-Bulk Packages 40 hours
- Bus/Motor Coach 24 hours
- Post Crash 40 hours
- Compliance Review 80 hours
- Safety Audits 16 hours
- Field Training 320 hours

- **Total Additional Training 800 hours**



Duties and Responsibilities

- Size and Weight Enforcement
- Safety Enforcement
- Hazardous Materials
- Motor Coach
- Traffic Enforcement
- Post Crash
- Outreach
- Compliance Investigations
- New Entrant Program
- Drug Interdiction
- Cargo Theft
- Mutual Aid
- Homeland Security
- Dyed Diesel Fuel
- Radiological Nuclear Detection (RAD-NUC)



Size and Weight

- Axle Weight Roads- Creates the greatest damage to roadway design (rutting)
- Gross Weight Bridges- Creates the greatest damage to bridge designs (deterioration)
- Overweight (Vehicles)-
 - Diminishes capacity to stop / slow.
 - Increases maintenance requires for fifth wheel, frame, wheel ends, brake systems, etc.

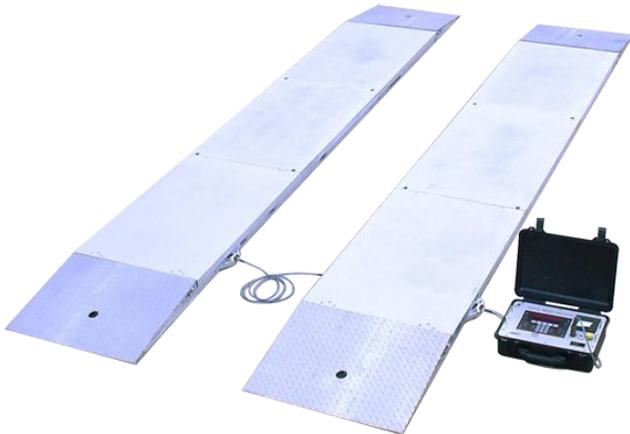




Portable Scales



WIM Facility



Semi-Portable Scales



Virtual WIM

Commercial Vehicle Inspections

- Nearly a 110,000 Roadside Commercial Vehicle Inspections in 2018.
 - To Include
 - Hazardous Material
 - Passenger Carrier





FLORIDA HIGHWAY PATROL





FLORIDA HIGHWAY PATROL



Highway Safety Is Vital

- Crashes 2018
 - 727,579 total reported crashes
 - 44,746 crashes investigated involving CMVs
 - 308 CMV related fatalities
- Nearly 3,200 individual killed in motor vehicle each year over the past several years.



The Future

- The development within the last decade of automated driving systems (ADS) or vehicle automation is both an enormous opportunity and a challenge to those tasked with creating policy and inspection processes to ensure the safety of both commercial motor vehicles (CMV) and the traveling public.
- As an area of growth and constant change, understanding the technology involved, the potential uses of that technology, and the best ways to ensure that the technology is applied safely is a direct concern for the Commercial Vehicle Safety Alliance (CVSA) and the Federal Motor Carrier Safety Administration and us at the Florida Highway Patrol.



Advanced Driving System (ADS)

- A CMV ADS Working Group was formed as part of the Commercial Vehicle Safety Alliance (CVSA) Enforcement and Industry Modernization (EIM) Committee in September 2018. This Working Group was charged with assessing the latest advances in CMV automation, and developing recommended approaches to inspecting these vehicles.



Levels of Automation



0

No Automation

Zero autonomy; the driver performs all driving tasks.

1

Driver Assistance

Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.

2

Partial Automation

Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.

3

Conditional Automation

Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.

4

High Automation

The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.

5

Full Automation

The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.

Society of Automotive Engineers Levels of Driving Autonomy—Updated Infographic



SAE J3016™ LEVELS OF DRIVING AUTOMATION

	SAE LEVEL 0	SAE LEVEL 1	SAE LEVEL 2	SAE LEVEL 3	SAE LEVEL 4	SAE LEVEL 5
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering			You are not driving when these automated driving features are engaged – even if you are seated in "the driver's seat"		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety			When the feature requests, you must drive	These automated driving features will not require you to take over driving	
What do these features do?	These are driver support features			These are automated driving features		
	These features are limited to providing warnings and momentary assistance	These features provide steering OR brake/acceleration support to the driver	These features provide steering AND brake/acceleration support to the driver	These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met	This feature can drive the vehicle under all conditions	
	<ul style="list-style-type: none"> • automatic emergency braking • blind spot warning • lane departure warning 	<ul style="list-style-type: none"> • lane centering OR • adaptive cruise control 	<ul style="list-style-type: none"> • lane centering AND • adaptive cruise control at the same time 	<ul style="list-style-type: none"> • traffic jam chauffeur 	<ul style="list-style-type: none"> • local driverless taxi • pedals/steering wheel may or may not be installed 	<ul style="list-style-type: none"> • same as level 4, but feature can drive everywhere in all conditions
Example Features						



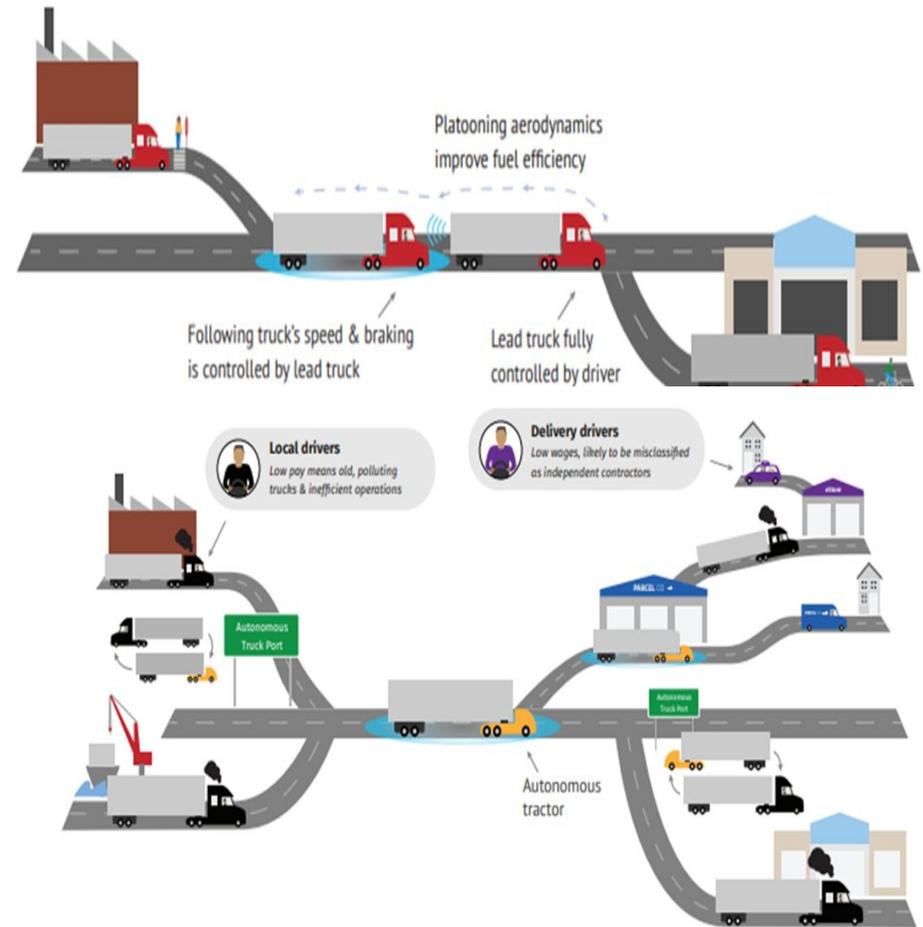
Stakeholder Information

- ADS-equipped CMV operators and manufacturers revealed that companies are developing SAE Level 1, Level 2, and Level 4 vehicles at this time, with Level 1 and Level 2 vehicles already operating in the United States. SAE Level 4 vehicles are still in development and testing phases, but some are carrying commercial loads with a safety driver onboard and ready to take control of the vehicle.
- Within these broadly defined SAE categories, there are different use-scenarios, including platooning, highway exit-to-exit automation, highway automation with remote (drone) access, and facility-to-facility automation (when facilities are located close to a highway interchange).



An Alternative View: Operational Use-Scenarios

- ***Human-human platoon**
- **Human-drone platoon** (humans drive trucks “last mile” off highway)
- ***Highway automation + drone** (remote operation of trucks by humans on local streets, automated on highway)
- **Autopilot** (human operates onto highway, then sleeps in vehicle)
- ***Highway exit-to-exit automation** (automated on highway, swap trailer with a human driver at exits)
- ***Facility-to-facility automation** (automated entire trip with “last mile” close to highway)



Stakeholder Interviews

•All industry interviewees were interested in continued collaboration with enforcement and regulatory officials to help develop safety standards, and ensure that their vehicles were as safe as possible. Industry generally recommended the following in terms of interaction with inspection needs:

- **Focus on Functionality.** Regulatory agencies and enforcement should focus on specifying desired functional requirements and let industry develop the specific approach and supporting systems. For example, enforcement could require that a vehicle display its ODD so that enforcement can verify the vehicle is operating in a location and under conditions that it should. Industry should be responsible for deciding the best way to meet this requirement (light, door placards, 24/7 contact information, etc.).
- **Strive for Uniformity.** Once the functionality for safety assurances are specified, apply them uniformly throughout the country



ADS-equipped CMV Deployments/Testing in US

- SAE Level 1
 - Peloton
- SAE Level 2
 - Daimler
 - Pronto AI
 - Embark (goal of Level 4)
 - Tesla (goal of Level 4)
- SAE Level 4
 - Ike Robotics
 - Kodiak
 - Paccar
 - Phantom Auto
 - Starsky Robotics
 - TuSimple
 - Uber ATG
 - Waymo

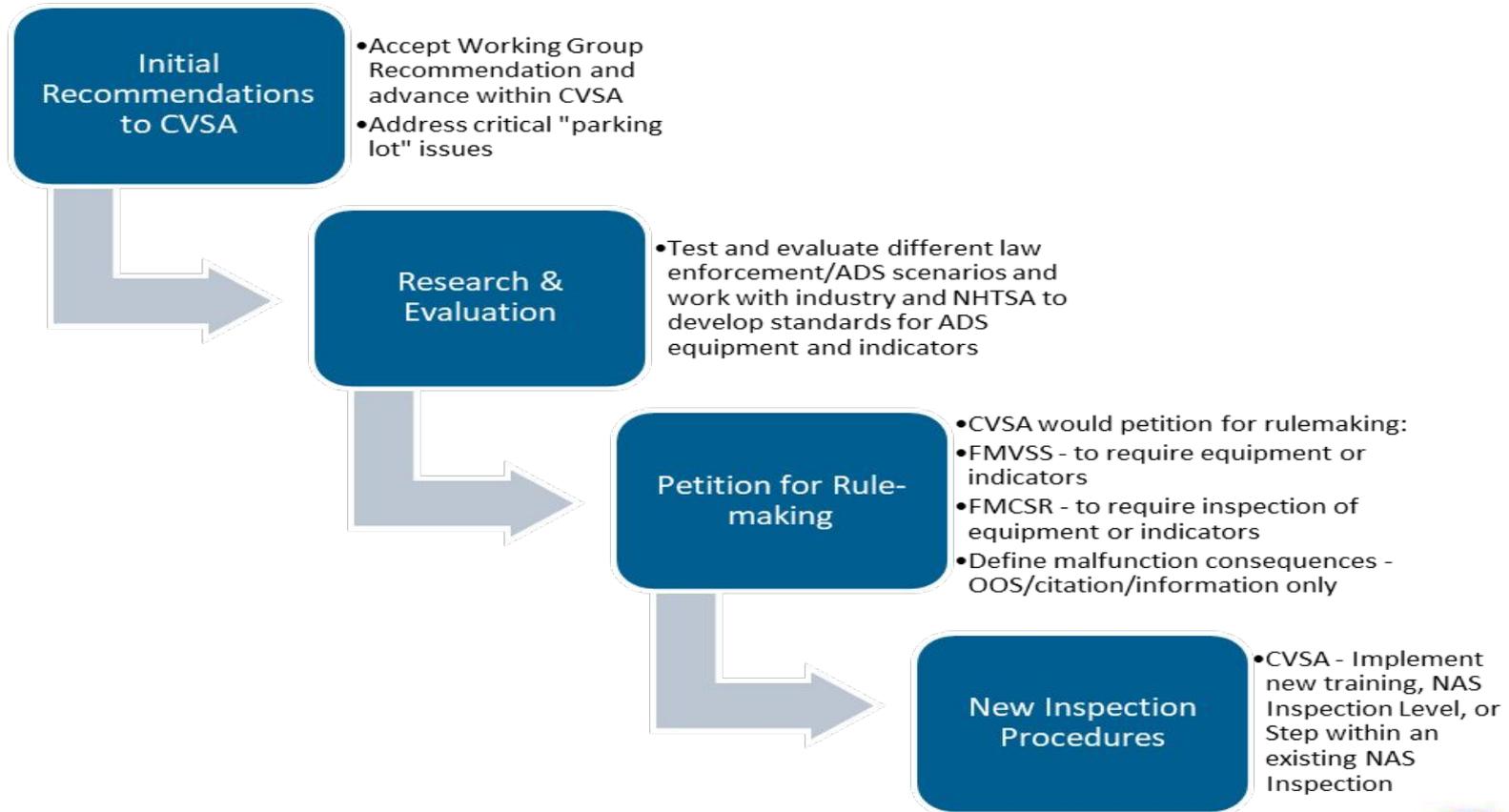


Recommendations and Next Steps

- Based on this information, the Working Group developed eight inspection options that could be applied to ADS-equipped CMVs during a North American Standard (NAS) Level I inspection, including: the two options approved were:
 - **Option 2**—Add a new Step to the commercial vehicle inspection process to inspect the overall ADS using a malfunction lamp, indicator, electronic readout, or some other method to be determined. This approach could work similarly to the antilock brake system (ABS) malfunction lamp check in the existing process. This option would apply to SAE Levels 1 to 3 CMV.
 - **Option 7**—This option would apply to SAE Levels 4 to 5 CMVs. It would limit roadside inspection of these vehicles to situations where an imminent hazard is observed or during a post-crash investigation, and instead focus on an origin/destination (terminal) inspection model. The vehicle would be required to communicate to enforcement while in-motion that it had passed the origin/destination inspection, that its ADS systems (as a whole) were functioning, and that it is operating within its ODD.



Next Steps For the Inspection Process



Consolidated Appropriations Act, 2018

- On March 23, 2018, President Trump signed into law the Consolidated Appropriations Act, 2018. This legislation, among other things, directs the U.S. DOT to conduct research on the development of automated vehicles and provides necessary funding. The Joint Explanatory Statement accompanying the act states that the legislation reallocates \$100 million in the Fixing America's Surface Transportation (FAST) Act for a Highly Automated Vehicle (HAV) research and development program to fund planning, direct research, and demonstration grants” for HAV technologies and Advanced Driver-Assistance Systems (ADAS).

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Policy and Legislation in the United States and Florida

- Legislation and policy addressing ADS in the United States is still in its infancy, especially at the national level. However, recent Federal spending legislation and a number of policy documents are beginning to provide more guidance.
- Florida does allow for the operation of Autonomous Vehicles in Florida State Statute 316.85

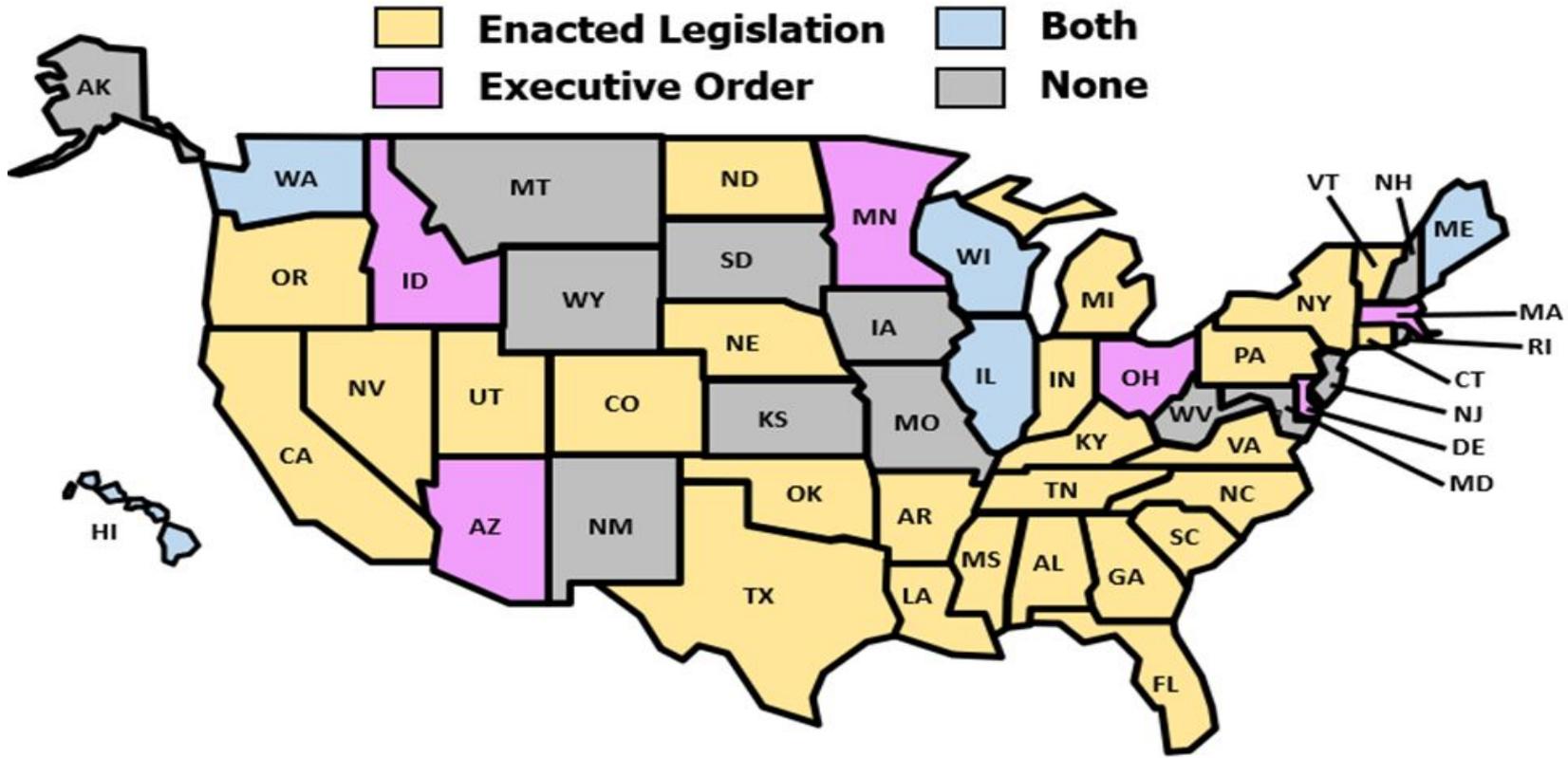


Complex Laws

- The laws that govern self-driving/autonomous vehicles (AV) can be complex. Like the entire industry, these regulations can change rapidly, and there are few Federal guidelines. States and localities control a large portion of the policy framework. Responsibilities cross jurisdictional agencies with authority for driver licensing, registration, permitting, road types (public), enforcement activity, and more.
- In the past decade, States have begun to more clearly define requirements and regulations, aimed at facilitating the safe testing of AVs on public roads through the use of both executive orders and legislative action



States With Automated Vehicle Executive Order or Legislation



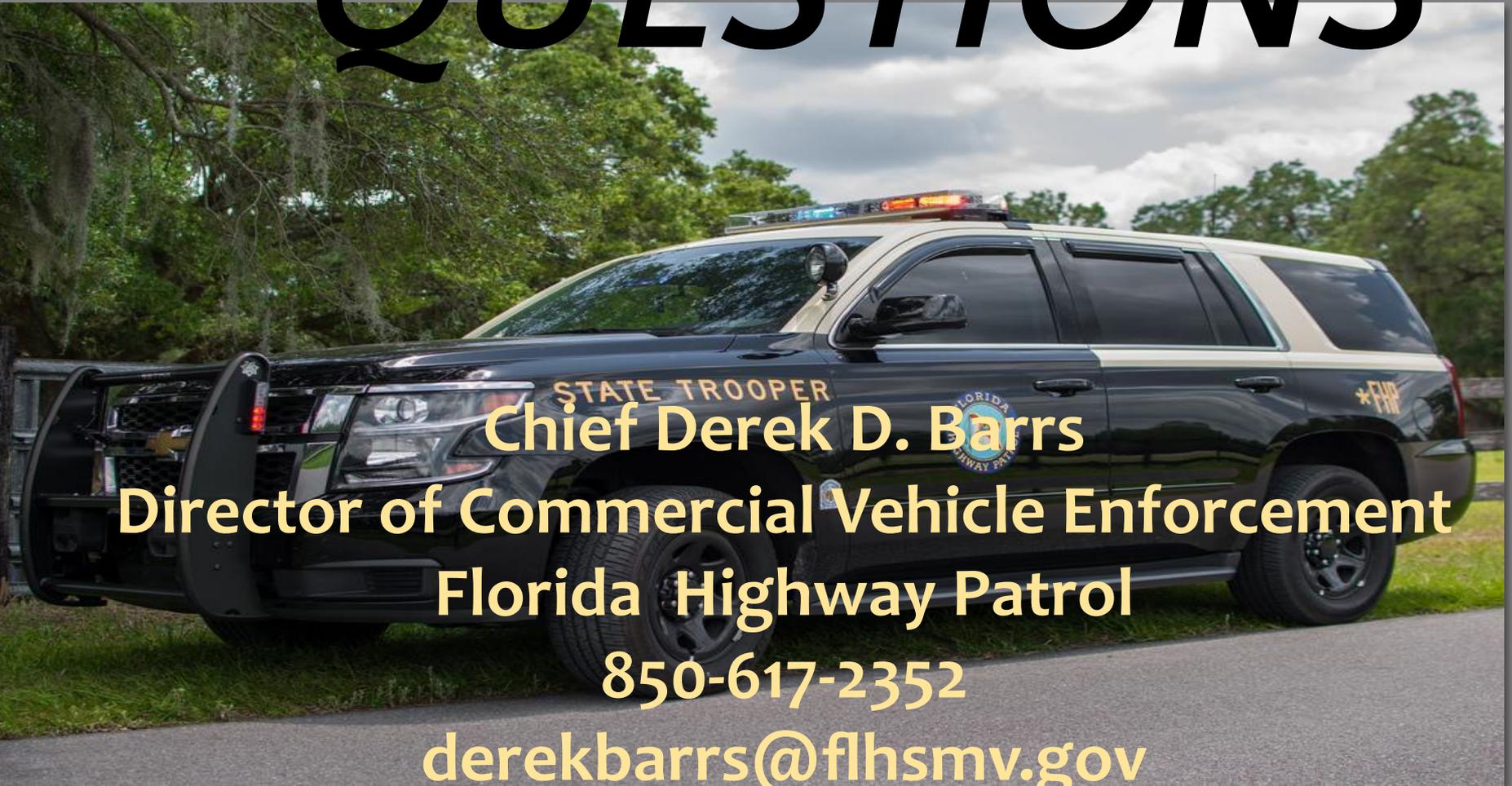
Much Work Left To Do

- Stakeholders are key
 - Working together for uniformity
- Federal Legislative work still needs work
- Crash Investigations and Other related issues still have to be a priority.





QUESTIONS



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