

Anticipating Automated Drivers: Liability Issues

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The phrases “self-driving vehicles” and “automated driving” are making headlines as manufacturers continue to implement automation in vehicles. As APC holds its second annual Innovation Conference, it is an appropriate time to consider a few impacts of automated driving on the highway construction industry.

This article will focus primarily on insurance-related issues. As this technology evolves, future columns will address other aspects of highway construction impacted by driverless technology.

Automation involves the use of computers to control certain components involved in operating a vehicle, particularly the extent human drivers must monitor the surrounding driving environments. Many manufacturers

currently use some automation in their vehicles for safety and efficiency, ranging from cruise control to blind-spot monitoring, and automated parallel parking. For instance, certain vehicles are able to retrieve information about approaching collisions, allowing the vehicle to apply a certain percentage of the brakes to alert the driver. This technology marks the beginning of a likely gradual evolution to the widespread availability of fully autonomous vehicles. As we move toward possibly removing human drivers from the road, questions arise regarding liability for accidents and insurance coverage. Given the number of pickup trucks, etc. a typical contractor owns, the liability and insurance coverage questions may be of particular importance to them.

The State of Autonomous Vehicles

Changes to liability for accidents and insurance coverage depend in part on the level of a car’s automation. The evolution begins with “semi-autonomous” vehicles, which can drive on their own in certain respects, such as acceleration, deceleration, and steering, but have a human driver available to take control at any moment. In 2016, the U.S. Department of Transportation adopted a framework in which the Society of Automotive Engineers (SAE) identified six levels of driving automation.

No Automation (Level 0) requires the full-time performance of a human driver even when the vehicle includes some automation elements like a warning system.

The need for human drivers begins to decline at Levels 1 and 2, with the vehicle taking over steering, acceleration or deceleration in some circumstances at Level 1 and all circumstances at Level 2. For both of these levels, however,

the human driver is expected to perform all remaining driving responsibilities.

Level 3 shifts most tasks to the vehicle with the human driver only expected to intervene to avoid accidents.

A “fully autonomous” vehicle is one that does not require any human interaction to reach its destination. These vehicles fall under Levels 4 and 5 of SAE’s framework, meaning the vehicles will respond to other vehicles, pedestrians, and cyclists even if the human driver does not intervene. Google’s original autonomous prototype, called “Firefly,” had no steering wheels, pedals, or airbags, but was limited to 25 mph. Google retired this model for a more road-practical Chrysler minivan to continue developing its fully autonomous technology. There are estimates that fully autonomous vehicles may debut as early as the end of the decade, and may dominate roadways by 2050.

As technology evolves, so too will the legal landscape governing autonomous vehicles. New legislation governing various issues is being considered by both Congress and state legislatures on a regular basis. Laws will no doubt be considered regarding not only the legality of allowing automated vehicles on public highways, but also on issues such as traffic laws, insurance requirements, inspection and registration requirements, etc. As autonomous cars become closer to reality, manufacturers and consumers may face a patchwork of state and federal regulations.

Manufacturers Making the Move – Waymo, Tesla & Uber

Google began developing its autonomous vehicle technology in 2009, and established a separate entity, Waymo, in 2016 to continue

the innovation. Waymo uses a combination of lasers, radar, and cameras to gather and predict information about nearby objects, including other vehicles, pedestrians, and construction markers. This information is combined with GPS data and a digital map to navigate the drive without needing a human driver. The first non-employee to take a trip in one of these vehicles occurred in 2015, and the company now offers an Early Rider Program in Phoenix to publicly test the vehicles. Car manufacturers, such as Tesla and Ford, are expected to lead the way in self-driving vehicle production, with Tesla executives predicting its company will be the first in the country to release a fully-autonomous vehicle.

Ride-sharing services deploy developing technologies, too. Uber, for example, currently has semi-autonomous vehicles in Tempe, San Francisco, and Pittsburgh. Uber's self-driving technology requires a "safety engineer" behind the wheel who can take control at any time. The company measures the success of the technology by analyzing how many miles are driven before a human driver must take control for any reason, critical reasons, or "bad experiences" such as jerky motions. On-average, Uber's vehicles travel approximately eight-tenths of a mile before the driver needs to take over. Obviously indicating that the system is still "learning." As test vehicles and prototypes hit the roads, many people wonder who will bear responsibility when accidents happen.

Who's to Blame? The Changing Landscape of Accident Liability

Traffic fatalities in 2016 reached the highest point in almost a decade, and 94 percent of crashes involved human error. Because contributing factors often include speeding, intoxication, distraction, or drowsiness, proponents of autonomous vehicles predict a decrease in both the number and severity of accidents. Accidents involving autonomous vehicles, however, have also made the news. Two fatal crashes involving Tesla's semi-autonomous vehicles occurred in 2016; one of the accidents occurred in Florida when the vehicle failed to recognize a truck. An Uber vehicle was also involved in an accident in March 2017, when a driver in another vehicle failed to yield. Other

critiques of Uber's semi-autonomous technology include the vehicles running red lights and cutting off cyclists.

While proponents tout the potential safety benefits of autonomous vehicles, many people want to know who will be liable when accidents occur. Without a human driver to blame, the focus of accidents will shift to manufacturers of vehicles and the computer software they employ.

If the human driver is out of the equation, a products liability claim against the manufacturer may be the most viable legal cause of action for an accident involving an autonomous vehicle. Strict products liability claims are based on consumer expectations that products should not be unreasonably dangerous, and for autonomous vehicles these expectations may include manufacturing and design defects. Manufacturing defects could include having a

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prototype-like system in the vehicle rather than a market-ready version. Design defects could complicate legal matters, especially with semi-autonomous vehicles. A Level 2 autonomous vehicle, for example, may provide some services but still require the driver's ability to take control at any time and on short notice. An injured driver may bring suit, arguing that the autonomous vehicle did not give him enough reaction time to prevent an accident. A court would have to decide how to apportion liability between the manufacturer and the driver.

Another potential claim could be negligence for failure of a manufacturer to anticipate foreseeable road or driving conditions that negatively affect how a vehicle navigates on its own. A company could also face misrepresentation or false advertising claims if it provides false or misleading information about its vehicles' capabilities, and consumers reasonably rely on that information, leading to harm. Finally, an accident victim may have a claim if a manufacturer fails to warn about certain risks and responsibilities of the human driver in autonomous mode. For self-driving vehicles, a manufacturer's duty to warn a consumer may extend beyond the sale, especially in terms of recalls and software updates.

The End of Auto Insurance as We Know It?

If autonomous vehicles are safer and able to prevent accidents, what does that mean for automobile insurance? A 2015 study by global consulting firm McKinsey & Co. predicted that autonomous vehicles could eliminate up to 90 percent of accidents, which may produce a ripple effect on the automobile insurance industry. The industry currently uses data on claims histories and driving records to predict future risks. Looking forward, the focus will likely shift to manufacturing defects rather than historical data related to drivers. Automobile insurance is unlikely to vanish, however, because car owners will continue to insure against losses caused by wind, vandalism, and theft.

Some in the insurance industry believe that, if a manufacturer's autonomous vehicle technology makes a vehicle safer, liability premiums may decrease. Manufacturers that accept liability for accidents will likely take out additional policies to cover any damages; thus, consumers may pay lower insurance premiums while facing higher prices for autonomous cars. In Asia, Tesla has begun selling automobile insurance along with its vehicles as part of a goal to eventually include insurance with the purchase of all vehicles. The idea may be successful for autonomous vehicles ranked at Levels 4 and 5, when the human driver is not doing anything behind the wheel. For Levels 3 and below, however, the insurance implications will initially depend on each specific incident. If the accident includes both vehicle malfunction and human error, the manufacturer's and driver's insurances may be involved, showing that autonomous vehicles, at least for the time being, will not eliminate the need for automobile insurance.

Highway Industry Issues

While the focus of this article has been on the impact of fully-automated vehicles on both general theories of liability (i.e. negligence versus product liability, etc.) and insurance coverage issues, as driverless technology evolves there are far more questions than answers for those involved in the highway construction industry. For public owners, such as PennDOT and the Pennsylvania Turnpike Commission, dozens of issues must be considered. These include such broad questions as how will the sovereign

immunity laws be rewritten to take automated vehicles into consideration, to construction project questions such as how the force account methodology may change if a vehicle truly has no "operator." Obviously, if fully automated vehicles, including heavy-construction equipment, become a reality, there will be widespread changes needed to the Form 408 Specifications and many other industry publications.

Design professionals will also be impacted if the use of automated vehicles becomes fully implemented. For instance, some have theorized that the design of highways themselves could change, as current highways are designed to a certain width to take into account driver error, and if the possibility for those driver errors is gone, could highways be designed much narrower? Similarly with fully-driverless vehicles, will there be a need to design highways with as many signs and pavement markings which are currently part of every major highway project?

Contractors and subcontractors similarly face many unanswered questions as to how driverless technology could impact their businesses. Assuming the technology is perfected, driverless technology could significantly improve work zone safety – as presumably vehicles would be required to operate at a safe speed through a work zone. Obviously, the insurance issues addressed above will have to be considered by every contractor as well. Finally, one of the biggest unknowns for contractors and subcontractors is what their workforce will look like in a driverless society. Some smaller companies, such as maintenance and protection of traffic contractors, could have their very existence threatened depending on whether there is still a significant need for MPT devices. Prime contractors could find themselves being required to replace or retrofit millions of dollars of heavy equipment with driverless technology.

In summary, there are certainly more questions and answers as to how the possibility of fully-automated vehicles will impact the highway construction industry. Business owners should closely monitor ongoing advancements in technology to understand how both their business models may be required to change, and how changing legal issues will impact their potential liability.

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