



# TECHSUMMARY *October 2016*

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## Investigation into Legislative Action Needed to Accommodate the Future Safe Operation of Autonomous Vehicles in the State of Louisiana

### INTRODUCTION

This report addresses the matter of autonomous vehicles and the regulation of their operation in the state of Louisiana. It was prepared in response to a request from the Louisiana State Legislature to study the subject of autonomous vehicles and provide recommendations on legislative and regulatory action to best accommodate this emerging technology in the state. The concept of autonomous vehicles and the possibility that they may become available for general use in the future has grasped the attention of the public. The purpose of this study is to identify what needs to be done now so that the introduction of autonomous vehicles can occur smoothly.

### OBJECTIVE

The objective of this study is to review the status quo in the development of autonomous vehicles and determine what regulatory action needs to be taken that will permit their safe introduction in Louisiana while not stifling innovation and development.

### SCOPE

The scope of this study is unlimited with regard to the information that is input to the study, but its application is limited to the state of Louisiana. Information from across the country as well as international information is used in establishing the status quo. On the other hand, since the focus of the study is identifying any regulatory activity that the state of Louisiana needs to take now, the recommendations are restricted to Louisiana.

### METHODOLOGY

The methodology applied included conducting a literature review, reviewing practice in other states, observing legislation prepared by them, identifying the role of different organizations in the development of autonomous vehicles, and observing how each state has handled the issue of preparing for the advent of autonomous vehicles on public roads. Individual issues that are the most important in the current stage of development of autonomous vehicles were identified and discussed.

### CONCLUSIONS

It appears that, while autonomous vehicles have been promised for at least the last 50 years, conditions now exist that make anticipation of autonomous vehicles in the vehicle fleet a reality in the foreseeable future. This is because

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the main components that make autonomous vehicle operation possible, such as the technical components (lidar, video cameras, GPS, and broadband communication); processing capabilities (computers, sensor fusion, and data interpretation); public interest; and commitment from both the private and public sector, are moving into place and the general belief is that autonomous vehicles will become a reality in the next few decades.

The main issues facing the development of autonomous vehicles at the moment are interpreting the data from sensors on the technical side, trust in the new technology on the human side, and the assignment of liability on the legal side. Other issues include access and ownership of data received, transmitted, or stored relating to the operation of autonomous vehicles; cyber security and the potential for malicious interference in the operation of autonomous vehicles; standardization of technology, regulation without inhibiting innovation and development; the interaction between autonomous and driven vehicles as their market shares change over time; and the rate of market penetration of autonomous vehicles in the future. Another issue that is likely to arise as autonomous vehicles enter the market and display the improved safety that is expected of them, is whether it is fair that improved road safety should be entirely at the expense of the autonomous vehicle owner by having to purchase a more expensive vehicle. All these issues are topics for investigation in the future.

If experience with automation in the airline and mining industry are an indication of how automation is going to occur in the private transport sector, then the greatest application of the autonomous capabilities of these vehicles is likely to first occur in limited areas such as special lanes on urban freeways or in parking lots in upscale office or residential buildings where the capability for autonomous parking and pick up has been established. They may also be employed on regular highways in undemanding traffic conditions, such as stop-and-go movement on congested highways or in conditions when human vision is impaired by poor visibility due to heavy rain or snowfall.

The review of bills and regulations related to autonomous vehicles developed by individual states show considerable similarity. The general format of the legislation is to define an autonomous vehicle, address who is responsible for issuing licenses to operate an autonomous vehicle, who is authorized to provide training to operate an autonomous vehicle, what facilities may be used to operate autonomous vehicles on and what weather conditions (if any) should prevail while autonomous vehicles are operated, and whether certified operators are restricted to testing vehicles or whether permission is granted to operate autonomous vehicles for general purposes. They also generally include the necessity to report any crashes or malfunctions, require that an event recording device be installed in the vehicle, require that an operator be present in the vehicle and be able to regain control of the vehicle at all times, and that liability insurance of \$5 million be provided for each vehicle tested on public roads.

The National Highway Traffic Safety Administration (NHTSA) provides guidance and assistance to states in developing legislation and regulations related to autonomous vehicles but is intent on not being prescriptive in its suggestions. NHTSA does not want to stifle innovation or influence development unduly. Original equipment manufacturers (OEMs) feel they have been given sufficient freedom to develop technology as they see fit and want the market to decide on the path development will take. If and when autonomous vehicles become the major form of passenger (and possibly freight) transportation, parking facilities and fleet sizes will be dramatically decreased from current levels. If vehicles are shared, there will be less need for parking and with greater utilization of individual vehicles, fleet sizes will be reduced. In addition, if vehicles can safely sustain short headways between vehicles, capacities of existing roadways would increase several fold. Thus, there will be an overall reduction in demand for infrastructure and, possibly, a greater penetration for autonomous vehicles in the market as their attractiveness eclipses other forms of passenger transportation.