

# TXLTAP MONTHLY NEWSLETTER

## Autopilot Malfunction or User Error?

It seems like more and more often we're seeing Tesla vehicles in the news and not for good reasons. Headlines reading:

- "Tesla in Autopilot mode crashes into parked police car", Catherine Thorbecke, ABC News
- "An investigation into 16 Tesla 'Autopilot' car crashes just got more serious", Tom Krisher/ Associated Press, Fortune Media
- "US investigates Autopilot after 11 Teslas crashed into emergency vehicles", Tim De Chant, Wired Media
- "17 fatalities, 736 crashes: The shocking toll of Tesla's Autopilot", Faiz Siddiqui and Jeremy Merrill, The Washington Post

Tesla touts its Autopilot vehicles are safer than the average driver. But what happens when a Tesla driver abuses the autopilot function or pushes the autopilot past its stated capabilities? You may have seen the video of the woman sleeping behind a Tesla wheel while it drives full speed on a public freeway. This is exactly the type of abuse I'm referring to.

Why is this important in Public Works you ask? Think about setting up that traffic control pattern with flashing lights or digital signs posted. Will that next Tesla on Autopilot recognize your work zone as a hazard? If it does, will it react fast enough to avoid a collision?



If conditions are foggy or dimly lit, will that affect the Autopilot sensors and cameras? These are all concerns that you absolutely need to be aware of while you're in a work zone of any kind.

Let's back it up and define exactly what Tesla Autopilot is and what it's intended to do.

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## Autopilot Malfunction or User Error? Continued...

Autopilot first became available in 2014, 6 years after the first Tesla Roadster was released. According to Tesla.com, all new Teslas come standard with Autopilot with an option to upgrade. Autopilot is intended to assist the driver by enhancing safety and reducing driver stress. It can assist in preventing accidents through the camera and radar systems. Teslas can maintain the travel lane, sense vehicles or hazards in the roadway, change lanes and autobrake to avoid collisions. Buyers can purchase one of three tiers of driving assistance:

- Autopilot: Traffic-aware cruise control and autosteer
- Enhanced Autopilot: Navigate on Autopilot, auto lane changes, autopark, summon, and smart summon
- Full Self-Driving: All above features plus autosteer on city streets and traffic and stop sign control

Even with all these features, Tesla vehicles are only a level 2 out of 5 on the scale of full vehicle autonomy. Teslas are not capable of true full self-driving. Let's take autopark for example, when the vehicle senses something nearby, it will stop. It requires driver input to return to parking. It cannot resolve the concern itself and continue parking on its own.

All Tesla vehicles with enabled driving assistance come with the caveat that they “require active driver supervision and do not make the vehicle autonomous...it is your responsibility to stay alert, keep your hands on the steering wheel at all times and maintain control of your car.” ([www.tesla.com /support/autopilot](http://www.tesla.com/support/autopilot)) When we look at the feature “Navigate on Autopilot”, the very first line states, “Autopilot is a suite of advanced driver assistance features that are intended to make driving safer and less stressful. None of these features make (this vehicle) fully autonomous or replace you as the driver.” Then again, not two paragraphs later with warning signs and in bold, is another safety statement reiterating the same concept. Autopilot is a hands-on program that requires the driver to be ready at all times to retake control of the vehicle. Ultimately, the driver of the vehicle is supposed to remain completely engaged in the driving of the Tesla.

Does all this technology make Tesla infallible? Absolutely not. One example from right here in Texas took place on February 27, 2021, at 1:15 am in Montgomery County. The Wall Street Journal video, (<https://youtu.be/V2u3dcH2VGM?si=-EPqKZ8sgYcy9JFv>), shows a 2019 Model X crash into several stationary law enforcement vehicles at 54 miles per hour. 5 officers and the subject of the original stop were injured. The video shows that the Tesla Model X did not recognize the stopped emergency vehicles with lights flashing in time to avoid the collision. Then again, neither did the suspected impaired driver that was reminded by the Tesla system at least 150 times to place their hands on the steering wheel. If the driver does not comply with the reminder, Autopilot will disengage. So why after say 10 or 20 reminders, does the system not disengage? How many reminders is too many for Autopilot to be deemed safe to continue? Does the fact that Autopilot continued to operate pose a threat to other people on the roadway? Did Autopilot make driving impaired easier or less likely to be detected?





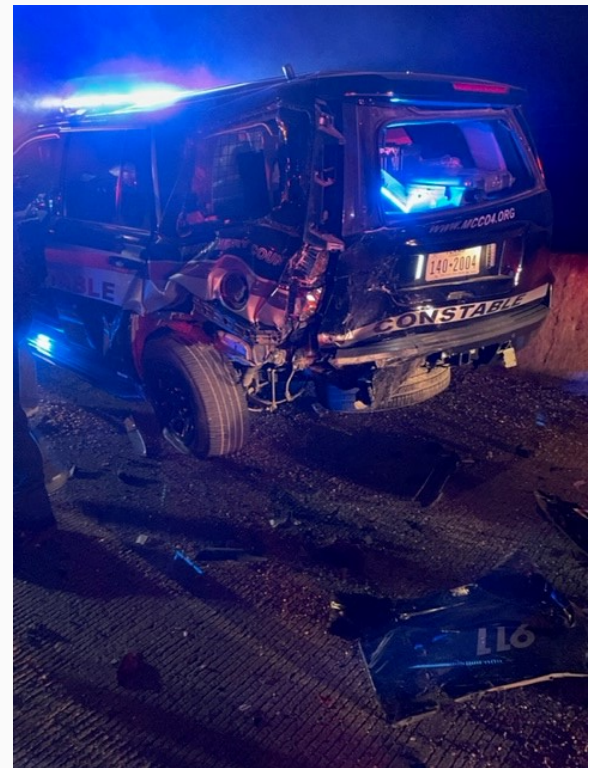
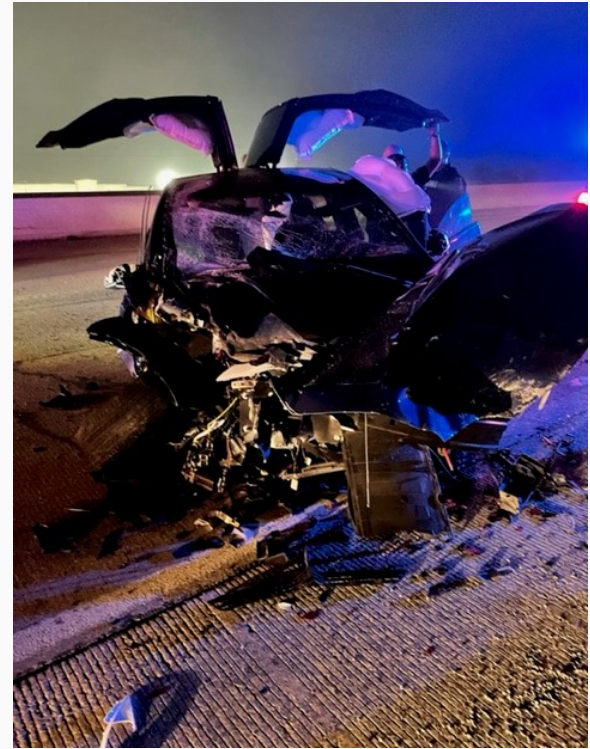
## Autopilot Malfunction or User Error? Continued...

The picture to the right was taken of the Tesla Model X at the accident site. It's completely unrecognizable. The picture below it is one of the several demolished Constable vehicles. The five injured officers have filed a lawsuit against Tesla citing design and manufacturing defects in the Autopilot system.

This incident is just one of at least 11 Teslas that have crashed into emergency vehicles nationwide, prompting the National Highway Traffic Safety Administration (NHTSA) to open an investigation into whether or not the Tesla Autopilot programs have played a role in the accidents. The very real concern is can Teslas detect stationary hazards or reliably keep drivers engaged. It will examine 11 crashes since 2018 that injured 17 people and killed one. As of August 2023, the investigation is said to be coming to a close soon. As of right now, there are no regulations controlling how driver assist programs are marketed. Is it possible that this issue will be addressed as well? What about concerns regarding low light, high fog, snow and rain issues?

Is Tesla the only company with self-driving/driver assist issues? Actually, it's not. The NHTSA released information recently that cited Waymo, Trandev and Cruise were also involved in accidents. Although not enough information has been made available to date to draw conclusions about the accidents, it's a step in the right direction to have this information reported and monitored now.

What has Tesla done? Hardware 4 has rolled out in early 2023 with its own FSD beta program. Radar is back in the HW4 vehicles adding an extra layer of protection above just vision alone. Benefits include the likelihood of HW4 vehicles being able to see better at night and in foggy, rainy, or snowy environments. (<https://www.autopilotreview.com/tesla-hardware-4-rolling-out-to-new-vehicles/>) Unfortunately, HW4 is not going to be available for retrofit on older models. Not great for the millions of Teslas already on the roadway. Hopefully, the NHTSA will come back with plausible solutions to make driving alongside an Autopiloted vehicle as safe as Tesla claims. We'll see soon enough it seems.



Photographs provided by Montgomery County Texas Constable Precinct 4 PIO Team



## EDC 7: Integrating Greenhouse Gas Assessment and Reduction Targets in Transportation Planning

Transportation is the largest producer of greenhouse gases (GHGs) in the United States and continues to rapidly grow. Studies suggest that transportation contributes at least 29% of the Nation's GHG emissions, with roadway vehicles account for 83% of that total. Integrating the consideration of this contribution into the planning and decision-making process can help agencies take steps to meet national reduction goals and decrease their climate impact.

State departments of transportations and metropolitan planning organizations are essential in implementing policies, programs, and projects that can reduce GHGs. Apart from transportation, considering life-cycle emissions from construction materials can help reduce harmful effects. The use of time-tested, state-of-practice analytical tools, methods, and frameworks supports the setting of target goals and reductions. By incorporating Environmental Product Declarations (EPDs) when planning projects, DOTs can help achieve long-term reduction goals for their state.

Support for programs similar to the National Electric Vehicle Infrastructure Program (NEVI) is critical to long-term reduction efforts. Established in 2021, NEVI provides nearly \$5 billion to states to create electric vehicle charging stations along alternative fuel corridors. Ultimately, this program will result in a nationwide stretch of nearly 500,000 electric vehicle charging stations by the year 2030.

Benefits of GHG Assessment Include:

- **Adaptable Strategies:** Integrating available tools and best practices into the decision-making process, will allow agencies, regardless of size, to take steps evaluate the reduction of GHGs in every decision they make.
- **Practical Mitigation:** Addressing GHG emissions from tailpipe to life-cycle emissions, provides reliable information that can be used to mitigate production during the project's lifespan.
- **Measurable Progress:** Considering GHG emissions during the planning and decision-making process can help DOTs meet reduction goals on a long-term basis.

In Practice:

- **Virginia DOT and Minnesota DOT:** use Infrastructure Carbon Estimators to evaluate construction-related GHG emissions from their respective projects.



FHWA, EDC 7, [https://www.fhwa.dot.gov/innovation/everydaycounts/edc\\_7/integrating\\_ghg.cfm](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_7/integrating_ghg.cfm).





## Focus on Training: Crane/Rigging

### Crane Basics (8hr), Crane Operator Training (32hr)

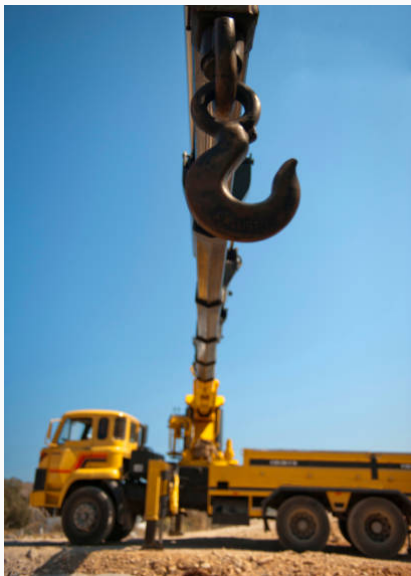
Crane Basics is an 8-hour classroom only course in which students will learn: safety, OSHA regulations, pre-operational inspections and preventive maintenance. They will also learn correct and safe equipment operations such as hand signaling, load charts, crane set up procedures, rigging basics, and safe hoisting practices.

Crane Operator training is 32-hours designed to provide entry level skills for the operators of hydraulic cranes. Students will learn: safety, OSHA regulations, pre-operational inspections, and preventive maintenance; driving and steering operations (if self-propelled); hand signaling; load charts; rigging; crane set up procedures; and hoisting practices. Students will demonstrate their ability to safely hoist and maneuver loads.



### Understanding Load Charts (8hr)

Understanding Load Charts is an 8-hour course designed to teach mobile crane and boom truck operators, riggers, and supervisors alike the importance and function of load charts. Throughout the course, you will learn the theory behind load charts and the information they contain as well as how to practically apply gross capacity, net capacity, and total load calculations to real-life lifts.



### Rigging Basics (8hr), Qualified Rigger/Signal Person (12hr)

Rigging Basics is an 8-hour classroom only course in which students will learn: safety, OSHA regulations, pre-operational inspections, and preventive maintenance. They will also learn correct and safe equipment operations such as hand signaling, load charts, rigging equipment, rigging inspections, rigging capacities, sling load angle calculations, understanding rigging charts, and performing rigging calculations.

Qualified Rigger/Signal Person is a 12-hour course that combines the Rigging Basics class with a field exercise in which students are required to demonstrate their knowledge of hand signaling by directing a crane operator to hoist and maneuver a load. Field setup with one crane and operator needed on second day.



## Upcoming Conferences and Events

Visit Our Exhibit and Meet Our Team:

October 2-4: County Judges and Commissioners Association of Texas (CJCAT)

October 23-25: Texas Association of County Engineers and Road Administrators (TACERA)

November 15: APWA-NCT

## Badging Now Available on Select Courses

TxLTAP is proud to offer course completion badges through Credly.com for the following courses:

- Qualified Flagger
- Work Zone Traffic Control/Qualified Flagger
- Traffic Control Supervisor
- Work Zone Construction Site Safety
- Managing Conflict in the Workplace
- Basic Supervision and Management Skills



Showcase your skills by sharing these badges on your social media accounts, your company's webpage or display them in your email signature and digital portfolio.

More at: <https://www.credly.com/organizations/university-of-texas-at-arlington/badges>

## Technical Assistance

HAVE A ROADWAY PROBLEM YOU JUST CAN'T SOLVE?

TxLTAP offers personalized consultation to address challenges you may encounter with roadways. If you call us with your issue, we will put you in touch with one of our technical specialists. We can provide both a phone consultation and an on-site visit.

Experts are available in many subject areas, including:

- Heavy Equipment
- Paving
- Traffic Control/Work Zone
- Electrical
- Engineering
- Management
- Crane/Rigging
- Pipeline/Utility Locating





# INSTRUCTORS WANTED

Are you looking for your next  
adventure in the great state  
of Texas?



## TxLTAP IS LOOKING FOR EXPERTS IN:

Email Your Resume and  
Letter of Interest to:  
**TxLTAP@uta.edu**



- ✓ Work Zone
- ✓ Infrastructure
- ✓ Safety
- ✓ Heavy Equipment
- ✓ Management
- ✓ Flagging
- ✓ Environmental
- ✓ Electrical



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