MEETING NOTES
Iowa Advisory Council on Automated Transportation (ATC)
Council Meeting
Tuesday, October 29, 2024
10:00 a.m. - 12:00 p.m. CT

https://iowadrivingav.org/

Action Items:

- Create AV Safety Task Force: Anyone interested in being a part of the group should email Matt Miller, Cheryl Roe, or one of the subcommittee chairs.

Attendance – 38 attendees

- Captain Bart Teeter – Texas Highway Patrol
- Rachel Castignoli – City of Austin AV Safety Working Group
- Colonel Nathan Fulk – Department of Public Safety, Iowa State Patrol (PS & E Chair)
- Dylan Mullenix – Des Moines Area MPO (Policy & Legislation Chair)
- Rick Peterson – Iowa Economic Development Authority (Economic Development Chair)
- Stephan Bayens – Department of Public Safety
- Josie Wagler – Department of Public Safety
- Catherine Lucas – Department of Public Safety
- Mike Current – Department of Public Safety, Iowa State Patrol
- Susan deCourcy – National Highway Traffic Safety Administration, Region 7
- Shirley McGuire – Federal Motor Carrier Safety Administration
- Timothy Marshall – Federal Highway Administration, Iowa Division
- Ashley Nylen – Highly Automated Safety Systems Center of Excellence, US DOT
- Kathy Anderson – Iowa Workforce Development
- Beth Townsend – Iowa Workforce Development
- Jared Kirby – Iowa Insurance Division
- Robert Denson – Des Moines Area Community College
- Matt Burkey – Iowa Bicycle Coalition
- Carl Lingen – Iowa Public Transit Association
- Mark Nahra – Woodbury County
- Mitch Dillavou – Associated General Contractors of Iowa
- Jamie Sorenson – Winnebago Industries
- Len Murray – City of Pleasant Hill City Council, Des Moines Area MPO
- Erin Mullenix – Iowa State University Extension and Outreach
- Brooke Lovelace – Iowa Developmental Disabilities Council
- Todd Coffelt – Iowa Department of Natural Resources
- Skylar Knickerbocker, Theresa Litteral – Iowa State University
- Dan McGehee, Omar Ahmad, Cherie Roe – University of Iowa, Driving Safety Research Institute (DSRI)
- Vanessa Goetz, Andrea Henry, Alex Jansen, Dave Lorenzen, Debbie McClung, Matt Miller, and Garrett Peterson – Iowa DOT

1. **Welcome and introductions** – *Scott Marler, Iowa DOT Director, Chair of the ATC (video)*
    A. Welcome from Dan McGehee – Driving Safety Research Institute (DSRI)
    B. Scott Marler welcome video
        i. Welcomed members
        ii. Highlighted DSRI
        iii. New Members
            - Len Murray is a member of the Pleasant Hill City Council, a board member of the Des Moines Area Metropolitan Planning Organization (MPO) and chair of the MPO Traffic Management Advisory Committee.
            - Debbie McClung is a team member in the Iowa DOT Outreach and Development Bureau.
            - Josey Wagler is a legislative liaison for the Iowa Department of Public Safety.

2. **Q&A Session: Insight from the Texas DOT –** *Zeke Reyna, Emerging Technology Team Lead, Texas Department of Transportation (TxDOT)*
    A. Matt Miller sat down for an interview with Zeke Reyna, the Emerging Technology Team Lead from the Texas Department of Transportation Strategic Initiatives and Innovations Division. The interview was recorded and edited for the Iowa Advisory Council on Autonomous Transportation Meeting. Unfortunately, due to technical difficulties, the video couldn't be shared during the meeting. The interview is summarized below. Zeke Reyna Interview.
    B. AV Experience
        i. Texas has allowed AV testing since 2017/2018, creating a framework that encourages companies to establish operations in the state. Early deployments focused on autonomous trucking, crucial for Texas due to its significant freight movement.
        ii. AV companies have been willing to share information and answer questions, fostering successful deployments. This collaboration has helped Texas understand infrastructure needs and allowed companies to adapt their technologies accordingly.
    C. Infrastructure
        i. Texas has learned that what works for humans generally works for AVs, so significant adjustments to infrastructure weren't necessary. Texas has adopted a consistent approach of deploying AVs, observing, and asking questions.
        ii. There has been collaboration between the AVs and Texas, which has helped improve both AV operations and public safety. For example, trucking companies have shared images and videos of issues like unclear or incorrect signage, allowing crews to make timely fixes, benefiting both AV companies and the public.
    D. Communication and reporting on construction impacts
        i. Texas has an API and a website, drivetexas.org, that provides near real-time information about construction projects. This API helps AV companies plan by offering detailed updates. Zeke emphasized strong communication with AV companies to communicate with DOT, and the importance of connecting them with districts and area engineers.

ii. Future improvements and planning focus on data sharing or streamlined communication methods. Perhaps there could be a blast email that goes to AV companies about upcoming projects in various corridors. A future goal is to adapt to a new level of operation as future deployments may remove drivers by the end of the year.

E. Driverless operations by vendors
   i. Currently, there aren't any driverless vendors on public roads.
   ii. Kodiak Robotics is the only vendor that has removed drivers, currently operating off the Texas system on private land in West Texas's oil and energy sector.
   iii. Kodiak plans to remove drivers from system roadways by the end of 2024 or early 2025. Gatik is another company looking to remove drivers soon. Efforts are ongoing to understand their safety cases as they progress.

F. Ensuring safety and performance standards
   i. In Texas, AVs are permitted on roadways if they adhere to the same safety and insurance standards as other vehicles. Companies like Aurora have actively showcased their safety measures through videos and community outreach. The community has been supportive, sharing information as these companies transition to driverless operations. Texas officials have engaged in detailed discussions with AV companies to understand their safety protocols and are eager to continue these conversations.

G. Public response to AV deployment
   i. The public has been curious. Zeke provided a couple of examples that highlight the need for education. Some individuals tested the technology by pulling in front of an AV and braking hard, though no crashes have occurred. In Austin, Cruise's AV passenger vehicles have sparked interest from individuals who would touch the vehicles, which led the vehicle to come to a stop and it would create long queues of vehicles backing up traffic.
   ii. Educational efforts like showcasing AVs at the Texas State Fair and events with law enforcement and schools, have been key.
   iii. The Texas DOT emphasizes treating AVs like any other vehicle to ensure safety and smooth integration.

H. Public resistance or misconceptions
   i. The public is cautious about AV safety due to the abundance of information available, but there is interest. Excitement varies by age, with significant interest from both younger and older generations, the latter seeing AVs as a way to maintain mobility.
   ii. AV companies are committed to deploying the technology slowly and safely to build trust. The state DOT views AV technology as a potential way to save lives and reduce crashes, an outlook shared by parts of the public.

I. Law enforcement & regulatory environment
   i. Zeke emphasized the strong partnership between state law enforcement and local cities, particularly Austin, where AVs operate, highlighting the importance of sharing and discussing developments. The Texas CAV Task Force, established in 2019, addresses law enforcement interaction, infrastructure, and safety needs, fostering dialogue and trust among stakeholders.

ii. AV law and technology in Texas began as a partnership, with the legislature passing initial AV-related laws in 2017. The CAV Task Force provides feedback to the legislature, suggesting improvements based on lessons learned, ensuring a robust AV ecosystem through continuous communication and a strong legal foundation. This ongoing dialogue helps legislators understand the evolving needs of AV operations and fosters a robust AV ecosystem.

J. Advice for cross-sector collaboration
   i. Building a strong public-private relationship hinges on communication and collaboration. This involves having a solid legal foundation and some form of a task force or advisory board that includes a wide range of stakeholders, from universities cities, MPOs, AV companies, technology providers, etc. It is important to have stakeholders from the automated and connected side. The Texas CAV Task Force has six subcommittees, each addressing specific topics like data cybersecurity, freight & delivery, safety, licensing, education, and future work. This comprehensive approach helps at local, state, and federal levels.
   ii. Continuous dialogue with AV companies about how both sides can work together to improve safety and efficiency, to reduce fatalities, and enhance the movement of goods.
   iii. Openness to future possibilities and adjustments is key to successful deployment and operation.

K. Unexpected challenges and successes
   i. AVs and connected infrastructure systems can help improve efficiency. For example, AV's may be able to provide real-time information about issues like bad signage, potholes, or a bad stretch of road. However, this requires a large enough workforce to respond quickly to incidents, which can strain resources.
   ii. Building relationships within the DOT and with AV companies is crucial. This includes having an AV team and fostering direct communication with engineers and local districts. This opens channels of communication for better efficiency.
   iii. Strong leadership that prioritizes innovation is crucial. Texas' Executive Director, Mark Williams, places a high priority on innovation. He actively fosters relationships and regularly engages with AV and other emerging tech groups.
   iv. Overall, constant communication, relationship building, and a robust workforce are key to successful AV operations. Combining AV technology with connected systems leads to safer and more efficient roadways.

L. Connectivity implementation in Texas
   i. Connectivity efforts are underway in Texas cities. The Houston district is focused on creating a connected infrastructure and improve roadway safety.
   ii. State DOT is looking at innovative corridors. The state has designated I-45 between Houston and Dallas as their first innovative corridor for AV freight companies. They want to create an infrastructure that will enhance connectivity for both AVs and the traveling public.

- One initiative involves a statewide data contract with INRIX and a company Drivewyze Smart Roadways, which provides real-time alerts to drivers who have these systems particularly 18-wheelers. This system was so successful at improving safety by prompting drivers to slow down when approaching incidents that the program was expanded to include all interstates in Texas.

iii. Zeke discussed the possibility of future endeavors with new traffic management centers, or maybe a statewide operation that provides real-time feedback on interstates. He emphasized the importance of connectivity, aiming to integrate with AV companies and their operating centers to improve response times to incidents.

M. Texas DOT Automated Vehicle Deployment Map showcases the various types of AVs operating across the state, including long-haul and short-haul freight, passenger robo-taxis, shuttles, and delivery devices. This map provides near real-time updates and detailed information about each AV operation. QR code provided in video.

i. It serves as a valuable resource for the public, elected officials, and agencies like USDOT to understand the AV landscape in Texas.

ii. He encouraged other states to create similar maps to track AV deployments and facilitate better communication and understanding.

3. Law Enforcement Experiences with AVs – *Captain Bart Teeter, Commercial Vehicle Enforcement, Texas State Patrol, Department of Public Safety*

A. Captain Bart Teeter joined the Texas Highway Patrol in October 1998 as a patrolman. In 2002, he transitioned to the Commercial Vehicle Enforcement Service, where he has served in various capacities. Captain Teeter currently serves as the Assistant Program Manager for Commercial Vehicle Enforcement within the Texas Highway Patrol. Additionally, he is a member of the Texas Connected and Automated Vehicle Task Force, where he chairs the Safety and Responsibility sub-committee. Captain Teeter also chairs the Enforcement and Industry Modernization Committee for the Commercial Vehicle Safety Alliance.

B. Captain Teeter, a member of the CAV Task Force in Austin, Texas, has been instrumental in integrating new AV developers by connecting them with the right contacts and fostering early relationships. He emphasizes the importance of open communication and firsthand experience with AV technology, having ridden in AV trucks and robo-taxis.

C. He discussed Texas's high commercial vehicle fatality rate and the potential of AV technology to address this issue, though it is not a complete solution. He highlighted the CVSA's enhanced pre-trip inspection process for driverless trucks, which requires zero-defect inspections before deployment and every 24 hours for longer trips, ensuring daily safety checks. Compliant vehicles receive a 100% bypass rate at inspection stations, although officers can still pull over vehicles if safety defects are observed.

D. AVs must respond to emergency vehicle lights and sirens by pulling over. Procedures have been developed with AV companies to ensure officers can contact someone for assistance, typically involving a phone number to access a box on the truck containing pertinent papers. If a citation or inspection is issued, it can be placed back in the box and re-locked.

E. Captain Teeter has worked extensively with developers, conducting private track and live road tests on I-45 and I-20 to observe how AVs react to emergency situations. The tests have shown positive results, but safety drivers remain as developers finalize details. Progress is being made, with one developer expecting to remove their drivers within the next 60 days for runs on I-45. While there is some nervousness about this development, he believes in the technology and trusts that developers will not deploy it until it is fully ready. The CAV Task Force will continue to monitor and provide updates on the progress.

F. Key points
    i. Teeter stressed the need for early and frequent engagement with AV companies, especially in freight. A serious incident could threaten public acceptance, so companies are highly cooperative.
    ii. He encouraged offering assistance to the AVs whenever possible, emphasizing teamwork and public-private partnerships. Teeter shared positive experiences working with AV companies and mentioned collaborating with Border Patrol to navigate checkpoints.

G. Questions
    i. Len Murray: Do you have a set of operating guidelines for emergency services response to events that occur that you'd be willing to share? Len also raised concerns about training the rural fire departments that may be impacted by an AV incident.
        - Each AV company creates its own plan, resulting in inconsistencies. Captain Teeter noted that while some companies have detailed plans, others are more basic. He emphasized the need for standardized first responder interaction plans for AVs to prevent confusion among first responders. Efforts are underway to develop a standard format through the Automated Vehicle Industry Association's First Responders Advisory Board.
        - Captain Teeter discussed the importance of training for first responders, using the example of one AV's operations in Texas. The AV spent two days meeting with first responders in the Sherman-Denison area, providing presentations and hands-on demonstrations of their technology. Teeter emphasized that first responders should interact with AVs during training, not for the first time during real incidents. He encouraged first responders or anyone in the group to reach out for training opportunities, highlighting the willingness of developers to provide these programs.
    ii. Commissioner Bayens: What are the future implications, personnel costs, and management of expanding pre-deployment inspections for AVs? He also asked about the failure rates of self-regulated inspections and any data indicating concerns when these inspections are uploaded.
        - Captain Teeter clarified that pre-deployment inspections for AVs are conducted by company-trained personnel. Developers like Aurora, Gatik, and Kodiak send personnel to a CVSA 40-hour course to perform these inspections, with results uploaded to a database accessible to enforcement personnel.

- He noted that while AV developers' vehicles are generally trouble-free, issues often arise with trailers from other companies. It is believed that AV deployments may have led to improved road safety by raising trailer quality.
- Most AV routes stay within Texas, but Kodiak runs a route from Dallas Fort Worth area to Atlanta. Mississippi Highway Patrol representatives are observing Texas's methods to adopt similar practices.
- Efforts are ongoing to establish effective checks and balances. Failure rates for AV inspections have not been accessed as the process is new. The AV companies monitor data and ensure issues are corrected before uploading, resulting in only clean inspections being recorded. He acknowledged this could be a blind spot and suggested documenting failures for better tracking.

iii. Andrea Henry: What is the extent of publicity for AV deployments and the public's reaction to them?

- Captain Teeter noted that AV companies are more proactive than the state in publicizing their deployments, primarily using social media platforms like Facebook and LinkedIn. Those not following these platforms might miss updates. Public reaction has been mixed, with initial skepticism. He believes many are unaware of all deployments, especially in middle-mile freight, while robo-taxis receive more attention.

4. **How to Prepare for AV Deployments –** *Rachel Castignoli, Senior Consultant, City of Austin Transportation and Public Works*

A. Rachel is a Senior Consultant with the Smart Mobility Office in Austin, Texas. Recognizing the potential challenges and opportunities of Autonomous Vehicles, Rachel spearheaded the creation of the Citywide Connected and Autonomous Vehicle (CAV) Working Group. This group organizes training with AV companies, tracks AV incidents and interactions, and facilitates communication between the city, stakeholders, and AV companies. The data and learnings gathered through this program is used to enhance the safety of AV deployments in Austin. The Austin CAV Working Group is a nationwide best practice for local government-AV relationships.

B. Rachel explained that Texas cities lack regulatory power over AVs, relying instead on collaboration, which has led to positive outcomes. She spoke about two main areas: the CAV Safety Working Group and data utilization. The CAV Safety Working Group addresses AV complaints and collaborates with fire and police departments to enhance safety. The city uses data to focus on local streets and allocate resources effectively.

C. Rachel described the typical phases of AV deployment in Austin. The process begins with a mapping phase, where vehicles are driven manually to collect data and create 3D maps. This is followed by a testing phase, where vehicles operate in autonomous mode with a safety driver present. Finally, in the deployment phase, fully autonomous vehicles provide commercial ride-sharing services, similar to those in cities like San Francisco and Phoenix.

D. The city initiated monthly meetings with first responders, including fire and police departments, to develop procedures and improve safety. They recently included the airport in

these discussions due to the interest of AV companies in using the facility. The focus of these meetings is on understanding the needs of first responders and ensuring the safety of Austin's streets.

E. Training
    i. Rachel stressed the importance of preparedness and training, noting that AV companies provide training for fire, police, and EMS personnel. This training is crucial, especially for smaller, rural fire departments that may not have the same resources as Austin's well-equipped fire department.
    ii. Key training topics include switching AVs to manual mode, handling electric vehicle fires, and understanding the unique cut points for AVs.
    iii. Overall, the goal is to ensure that no first responder encounters an AV for the first time during an emergency. Regular training sessions, including those at the airport, help familiarize police and fire personnel with AVs, focusing on traffic control and rescue operations.
    iv. Challenges arise with trying to schedule training for every first responder. Since there isn't any standardization with the AVs or the training, each first responders must learn each different system which is inefficient and problematic. She emphasized the need for standardized procedures and better communication methods with AVs.
F. Rachel highlighted the importance of having a fail-safe method to take control of AVs and the need for AVs to recognize emergency lights and sirens. She also mentioned the issues with AVs blocking public safety sites and emphasized the necessity for clear communication with AV companies about safety expectations.
G. Communication
    i. The CAV Safety Working Group communicates with a larger group of stakeholders across Austin, including representatives from Texas DOT, school districts, community colleges, the University of Texas, advocacy groups (pedestrians, disability), AV companies, and many more. These interactions allow people to share their needs and desires, which are then communicated to the AV companies.
    ii. The CAV Safety Working Group shares an "expectations" document with the AV companies that presents the city's needs and wants.
        - They advocate for data sharing.
        - They request that an AV be present for training.
        - They request that an AV contact be present in Austin to address issues more quickly.
        - They provide AV companies with access to a geofencing app that shares details about schools, school zones, public safety sites, and road closures. The app has a sliding scale allowing AVs to choose a month and date to check for road closure information. If there is work zone data exchange, the AV companies will want access.
        - They prefer that AVs to avoid special events (University of Texas events, festivals, etc.) because AVs can have difficulty with traffic control changes.

- Austin has an Active 911 service which is an automated system that communicates big emergencies to the AV companies so they can avoid them. The expectation is that within two hours, they set up an exclusion zone of 1000 feet for one hour.

iii. Austin communicates with the public via a webpage that provides information about AVs operating in the city, an incident dashboard, and a FAQ section, including how to report an incident. Their goal is to be transparent with residents and visitors about Austin's authority, or lack thereof, regarding AVs

H. Data collection process
   i. CAV Safety Working Group tracks feedback and incidents to identify and address issues by pinpointing locations with repeated problems. The dashboard, maintained weekly, includes data from citizen reports and official channels (fire, police, EMS). PII from the incidents is redacted. The data is not validated as it would be too much. The information is shared with the DOT and AV companies.
   ii. The dashboard includes a map with incident locations and a chart with incident types. It can be filtered by AV company. Rachel reiterated that the incidents on the dashboard represent what has been reported through Austin data collection channels. NHTSA has additional crashes reported on the SGO site, but since the locations are redacted, Austin doesn't include them on their dashboard.
   iii. The city uses this data to identify high-risk areas and collaborates with AV companies to address these issues. Site visits with AV partners are conducted to determine necessary changes, such as improved striping or signage, to enhance safety and reduce risks.
   iv. Additional data can be collected from signal cameras if there are locations that show a high propensity for issues. Data from body-worn and dashcam videos are also useful when gathering information on incidents.
   v. All data is shared and reviewed with AV companies to improve safety procedures. Data is also shared with NHTSA.
   vi. One specific improvement was the implementation of "keep clear" striping in front of a busy firehouse, which has successfully reduced AV-related issues in that area.

I. Rachel emphasized the importance of uniform infrastructure, such as wider and more reflective striping, to help both autonomous and human-driven vehicles. While the city can't implement these improvements everywhere, they focus on high-need areas identified through incident mapping. She recommended referring to the MUTCD Chapter 5 for guidelines on these improvements, noting that they are not mandatory but beneficial.

J. Questions
   i. Commissioner Bayens: expressed concern about the significant resources the City of Austin is dedicating to public safety, particularly law enforcement and city works. He questioned the scope and cost of these investments.
      - Rachel discussed the high costs and challenges are with training personnel, particularly in the fire and police departments. Both departments track their time spent on these activities for budgeting purposes.

- She emphasized that while they provide maps to AV companies, they refuse to do resource-intensive work like calling before every special event or having first responders call when they are trying to manage a scene. She insisted that AVs should understand human traffic control and react to lights and sirens.

ii. Ashley Nylen highlighted two key events:
- Jason John Michael, who previously worked with the City of Austin and is now at the USDOT, held a convening featuring first responders from across the country. He is working on a chapter for the ARTS proceedings, which will be shared when available.
- The Transforming Technology Advisory Committee (TTAC) has been discussing first responder interactions extensively. In their October 17th meeting, the ADS subcommittee presented potential draft recommendations. Ashley provided a link to the recording and mentioned that future meetings, streamed for public access, would be of interest to those focused on first responder and ADS topics.
- Rachel mentioned that their organization testified at a TTAC subcommittee on first responders and participated in Jason John Michael's ARTS event. They frequently consult with San Francisco and Phoenix to adopt effective practices, especially regarding motorcade issues. They aim for autonomous vehicles to give a wide berth to motorcades and have communicated this need to their AV teams.

iii. Dylan Mullenix asked if the deployment and experience with public safety measures have influenced the planning, design, and engineering of streets or sites, particularly regarding requirements placed on developers.
- The large EV fleets in ride-share deployments consume more electricity than typical EVs, leading to supply issues and reliance on generators. The city is collaborating with the municipally owned electric company to resolve these problems and plans to enhance infrastructure with connected systems and edge processing to improve overall safety and efficiency.
- To combat AVs that sometimes attempt to navigate through areas marked off with cones, the city has adjusted their procedures by placing cones more densely to physically block AVs from entering restricted areas.
- Austin is also considering long-term changes to street design and markings to ensure AVs can better interpret and respond to traffic control measures.
- The city is considering the implementation of V2X (Vehicle-to-Everything) technology and SPaT (Signal Phase and Timing) data as part of their long-term infrastructure plans. She believes that incorporating these technologies will significantly enhance the safety of AVs by improving their interaction with traffic signals and overall traffic management.

iv. Dan McGehee was interested in whether there was a legislative connection that might provide feedback to the legislature about information impacting public safety.
- Texas is considering enhanced legislation for AVs in their upcoming legislative session. This includes mandatory registration of AVs and better data collection

to understand and mitigate risks. Currently, no authority in Texas can halt AV deployments, which became an issue after an incident in San Francisco. The new law is expected to address this gap. Additionally, there is a need for more oversight, especially with foreign AV deployments. The City of Austin is working with local legislators on these bills.

v. Skylar Knickerbocker asked about the map Rachel mentioned earlier, specifically whether it is shared as a static map or through data feeds. He also inquired about the approach to digitally delivering this information and the future direction of these efforts.
    - Rachel explained that they frequently communicate with various stakeholders, especially before major events. They use a live GIS map, which is public and layered for multiple uses, including evacuations and emergency management. This map is regularly updated and shared with relevant parties. She offered to send the map and provide additional information if needed.

vi. Matt Miller asked how cities obtain NHTSA (National Highway Traffic Safety Administration) information, specifically whether they have direct access or need to file a FOIA (Freedom of Information Act) request.
    - NHTSA information is made public 30 to 60 days after a collision, including the narrative and date, but not the location due to privacy reasons. NHTSA Standing General Order
    - In California, collision reports are required by the DMV, which helps cities like San Francisco and Los Angeles obtain this information. Texas is moving towards a similar requirement for location data to help with safety improvements.

5. **AV Discussion –** *Matt Miller*

A. Matt initiated the AV discussion by asking Rachel about an exercise she had mentioned in previous conversations.
    i. Rachel described a tabletop exercise conducted by the Texas DOT and Captain Teeter's group to plan for an ice storm scenario involving an AV accident. The exercise highlighted the challenges public safety officials face when approaching running, driverless vehicles. Texas DPS and local fire departments would handle rescues. The exercise, called "Operation Frostbound," emphasized the need for improved communication and noted that AVs can provide valuable feedback on road conditions during icy weather.
    ii. Rachel emphasized the importance of obtaining data from AV companies to better understand their operations. She mentioned a successful tabletop exercise in Austin that simulated an autonomous vehicle entering a crowd, highlighting the importance of such preparations.
    iii. Rachel also highlighted a full day of tabletop exercises at ARTS, which explored various scenarios and emphasized the potential of AVs as mobile sensors. These vehicles could provide valuable data during emergencies, evacuations, and ice storms. Rachel advocates for collaboration with AV companies to access this data.

B. Tim Marshall from the Federal Highway Administration reflected on Rachel's point about the potential for a mutually beneficial relationship between asset owners and AV companies. He emphasized the importance of robust asset management plans to ensure streets, signs, and traffic control devices are in good condition. Tim suggested that AV companies could continuously download GIS map data and provide feedback to fill in any gaps, ultimately enhancing the overall asset management process.
    i. Skylar added that the goal is to provide a digital feed to AV companies, either through APIs or Connected Vehicle (CV) technology. One key area that Iowa is currently sharing is work zone data exchange, which is being standardized to communicate work zones effectively. The FHWA's Managing Disruptions to the Operations Environment (MDOE) aims to expand this to other areas. On the other side, infrastructure owners can purchase connected vehicle data, providing insights into system operations, such as axle slippage for friction data. This area is expected to grow, offering more data and opportunities for leveraging it.
C. Commissioner Bayens inquired about the amount of live video data recorded by autonomous vehicles. He wondered if this data could be accessed for investigative purposes, such as identifying a bank robber. He was unsure about what data is being recorded and reported.
    i. Dan expressed skepticism about the amount of data AV companies are willing to share, comparing it to the reluctance of smartphone companies like Apple to provide data for criminal investigations. The National Transportation Safety Board (NTSB) has faced challenges in obtaining necessary data for crash investigations, as companies typically provide only limited information to law enforcement despite having extensive data and video channels.
    ii. Skylar added that vehicle data doesn't have to come from AVs. Companies with commercial vehicles, like UPS or FedEx, have front-facing cameras that can provide images from specific areas by drawing a circle around them. He mentioned they are planning a meeting with the Iowa DOT to discuss how they could leverage that data. For example, in rural areas where there are reports of crashes but lack detailed information, the data could be used to view the latest images from passing vehicles. This method could also be used for monitoring detour routes on county and local roads.
D. Mitch Dillavou raised a concern about the spacing between cones, highlighting it as a safety issue for DOT employees and anyone working in those areas. He asked if this issue will be addressed soon, either by the Iowa DOT or through MUTCD standards.
E. Matt mentioned that the DOT is working on documents like Texas's for AV companies wanting to come to Iowa.

6. Subcommittee Updates

A. Matt informed the council that Erin Mullenix, the Infrastructure Readiness Chair, had to step down from her position as she is no longer with the Iowa League of Cities. Her new role is with the Iowa State University ISU Extension and Outreach - Community & Economic Development. Matt recommended merging the Infrastructure Readiness and Economic Development

Subcommittees into one subcommittee. This change will require modifications to the ATC website and documents.

B. Policy and Legislation – Dylan Mullenix
    i. Last meeting: October 2, 2024 (P&L meeting summary)
    ii. New Member: Len Murray
    iii. Dylan summarized the content that was shared during the recent subcommittee meetings.
    iv. Director Marler tasked Matt with forming an AV Task Force focused on future deployments, policy, and information gathering and sharing. This group would meet and report back to the ATC group and potentially the governor's office. Anyone interested in joining should inform Matt, Cherie, or one of the subcommittee chairs.
    v. Matt provided a brief update about recent changes made to the Iowa DOT automated transportation webpage, particularly the Policies and Procedures page.
    vi. Matt summarized recent meetings that the Iowa DOT had with representatives from the Texas DOT, City of Austin, and Ministry of Ontario. They shared their experiences with AV deployments. For further details about these meetings, see the subcommittee meeting materials on the ATC website or contact Cherie.
    vii. Each subcommittee also heard about some potential AV-related projects at DSRI. During the P&L subcommittee, we heard form Omar Ahmad.
        a. Omar informed the group about an upcoming project with the Colorado DOT and Colorado State University that will explore Advanced Driver Assistance Systems (ADAS) on three different sizes of public transit operating on two different revenue service routes. DSRI's role focuses on training the transit drivers and evaluating the training for Bustang Intercity and Regional Bus Transit. ADAS for Bustang Intercity and Regional Bus Transit
        b. DSRI, along with several other universities, submitted a proposal for the Rural Autonomous Vehicle Research Program. DSRI's part of the proposal would utilize the ADS transit, which you can ride today. The team was notified that the proposal made it through the initial review process and recently presented to the reviewers. Omar shared a four-minute pitch video created for that meeting presentation.
        c. DSRI, along with the UI CAMBUS, submitted a SMART grant proposal. The project aims to expand CAMBUS' on-demand service to a new healthcare facility. The plan includes using the DSRI ADS transit and retrofitting several CAMBUS ADA-compliant paratransit vehicles with automation capabilities to serve the UI healthcare facilities.

C. Public Safety & Enforcement – Colonel Nathan Fulk
    i. Last meeting: September 25, 2024 (PS&E meeting summary)
    ii. No new subcommittee members.
    iii. In addition to Matt's updates, the PS&E subcommittee heard a presentation from Cherie Roe of the Driving Safety Research Institute. She presented findings from the "Advanced Driver Assistance Systems (ADAS) in Near-Crashes, Crashes, and Crash

Investigations" project, which aimed to understand ADAS impacts in real-world crashes and near-crashes.

a. Surveys and interviews with motorists and officers in Iowa and Colorado revealed varying levels of understanding of ADAS, with more familiarity with systems like Blind Spot Warning and Adaptive Cruise Control. Concerns identified included over-reliance on systems, nuisance alarms, and lack of knowledge about sensor locations.
b. Officers identified barriers such as unfamiliarity with ADAS, lack of equipment, and training needs.
c. Officers noted that systems like Automatic Emergency Braking could both mitigate and contribute to crashes.
d. Over 80% of officers expressed interest in ADAS training, recommending in-person sessions with in-vehicle demonstrations or 30-minute virtual sessions if necessary. This training should include general ADAS education, relevant questions to ask, and which systems might be associated with which types of crashes.
e. Any changes to crash reports should be thought out, implemented slowly, and include consultation with the officers who use them. The changes should be simple.
f. Other recommendations included clear lane markings and the possibility of integrating ADAS information into vehicle registration systems to aid in crash investigations and education.

iv. Comma.AI

a. During the meeting, Comma.ai, an aftermarket device that enables certain vehicles to drive similarly to Tesla's "autopilot," was discussed. Safety concerns about this device were raised at an American Association of Motor Vehicle Administrators AV subcommittee meeting attended by Iowa State Patrol Lt. Mike Current. DSRI will investigate the possibility of acquiring the device for some testing.
b. Mike Current shared a YouTube video during the current council meeting of a user demonstrating how to install and use the system. This is one user's opinion.

D. Economic Development and Infrastructure Readiness – Rick Peterson

i. Last meeting: September 27, 2024 (EcDev and IR meeting summary)
ii. No new subcommittee members.
iii. This joint subcommittee meeting heard from Skylar Knickerbocker from Iowa State Institute of Transportation (InTrans). He provided an overview of two InTrans projects associated to infrastructure and connected and autonomous vehicles.
iv. Skylar updated the group on the Work Zone Data Exchange (WZDx) and Smart Arrow Boards project, which standardizes work zone information for vehicle and mapping companies, ensuring precise and verified locations.

a. The Iowa DOT is integrating smart arrow boards into their ATMS, allowing for real-time updates on work zone status. Currently, assigning arrow boards is manual, but plans for automation are underway.
b. The 511 website shows verified work zones with green checkmarks, reflecting real-time changes.
c. The project is expanding to include connected portable traffic signals, with testing to be completed this year and full implementation by 2025. These connected signals will provide location and status information, like the smart arrow boards, thus enhancing connectivity in work zones.

v. Skylar provided an update on a project aimed at improving snowplow navigation in low visibility conditions, such as whiteouts. The system uses connected and automated technologies to guide drivers and notify them of obstacles without controlling the snowplows. It employs high-precision GPS receivers for lane positioning and front radar for object detection. Testing is being conducted at the Tama garage, with data collection ongoing to support the project.

7. Lunch, ADS for Rural America Demonstration rides and DSRI tours

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

Council Meeting

October 29, 2024

HOUSEKEEPING ITEMS

- Please mute your audio!
- If available, encourage the use of video when speaking
- Please use the chat box and raise hand features to ask questions or make a comment

- Recorded Meeting
- Disable Virtual Private Network (VPN) connections

WELCOME

Scott Marler, Director-
Iowa DOT


IOWA | D
MAKING LIVES BETTER
THROUGH TRANSPORTATIO

WELCOME

Council Members

- Iowa Department of Transportation
- Iowa Department of Public Safety
- Iowa Economic Development Authority
- Iowa League of Cities
- Des Moines Area MPO
- Des Moines International Airport
- Iowa Department of Public Safety
- Iowa Motor Truck Association
- Des Moines Area Community College
- Technology Association of Iowa
- Iowa Association of Business and Industry
- Associated General Contractors of Iowa
- Iowa Communications Network
- Iowa Department of Revenue
- Iowa Public Transit Association
- Iowa Bicycle Coalition
- Freight Advisory Council
- Iowa Insurance Division
- Iowa State Association of Counties
- Iowa Department of Agriculture & Land Stewardship
- Iowa Department of Natural Resources
- Driving Safety Research Institute, University of Iowa
- Institute for Transportation, Iowa State University
- American Association of Motor Vehicle Administrators
- Federal Highway Administration, Iowa Division
- Federal Motor Carrier Safety Administration
- National Highway Traffic Safety Administration
- Iowa Senate
- Iowa House of Representatives
- Highly Automated Systems Safety Center of Excellence, USDOT
- Iowa Workforce Development

MEETING AGENDA

1. **Welcome** – Scott Marler, Director, Iowa DOT
    a. Len Murray, City of Pleasant Hill Council Member
    b. Deb McClung, Iowa DOT Outreach and Development Bureau
    c. Josie Wagler, Legislative Liaison for the Iowa Department of Public Safety
2. **Q&A Session: Insights from the Texas DOT** – Ezekial Reyna, Emerging Technology Team Lead, Texas Department of Transportation
3. **Law Enforcement Experiences with AVs** – Captain Bart Teeter, Commercial Vehicle Enforcement, Texas Highway Patrol, Texas Department of Public Safety
4. **How to prepare for AV Deployments** – Rachel Castignoli, Senior Consultant, City of Austin Transportation and Public Works
5. **AV Discussion**
6. **2024 Subcommittee Meeting Updates** – Subcommittee Chairs
    a. Policy & Legislation – Dylan Mullenix
    b. Public Safety & Enforcement – Colonel Nathan Fulk
    c. Economic Development & Infrastructure Readiness – Rick Peterson
7. **Discussion & Wrap-up** – Matthew Miller


Zeke Reyna Texas DOT
Emerging Technology
Team Lead
zeke.reyna@txdot.gov
(512) 517-1749

LAW ENFORCEMENT EXPERIENCES WITH AVS

Captain Bart Teeter – Commercial Vehicle Enforcement, Texas Highway Patrol, Texas Department of Public Safety

HOW TO PREPARE FOR AV DEPLOYMENTS

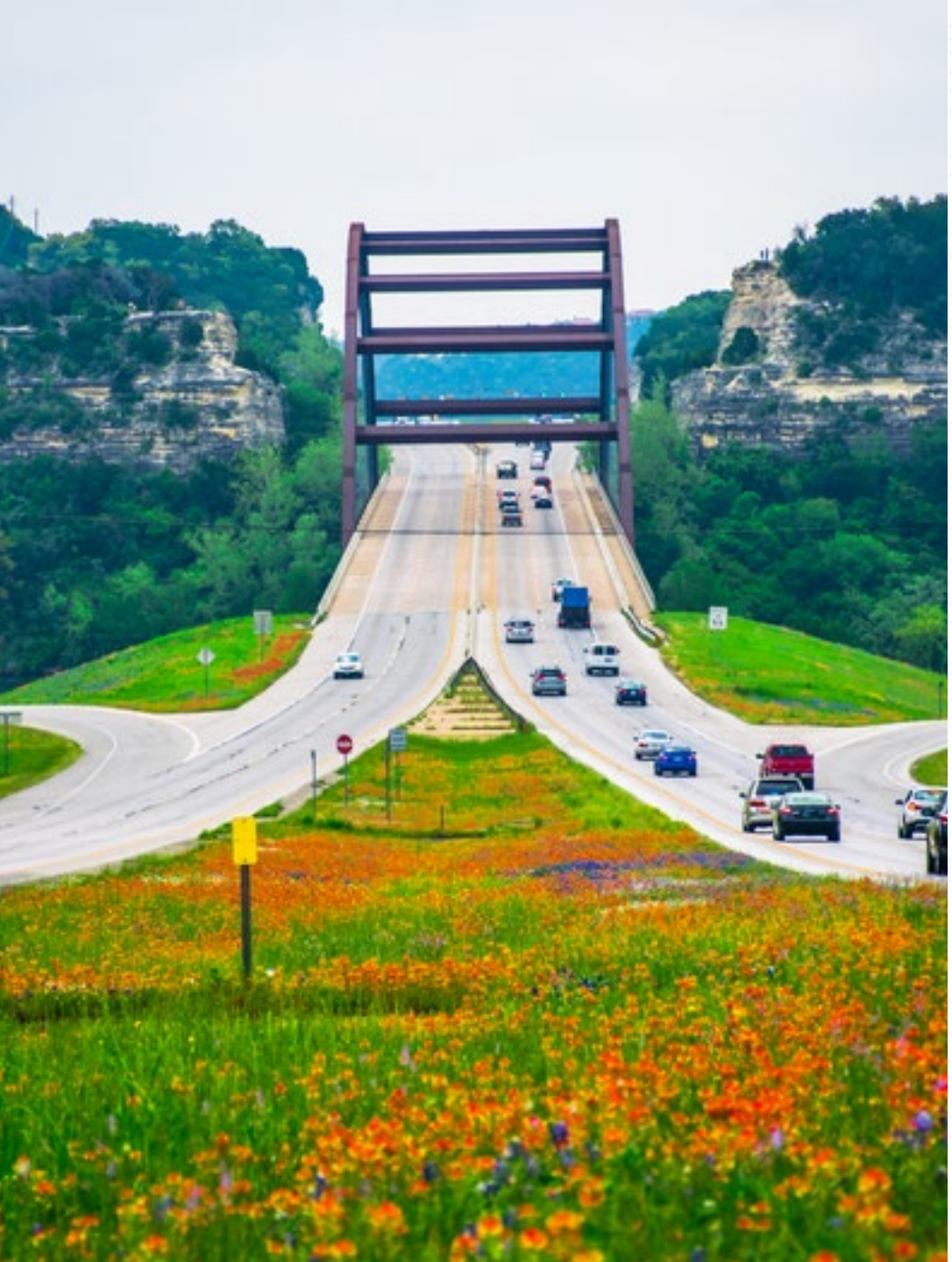
Rachel Castignoli – Senior Consultant, City of Austin Transportation and Public Works

TRANSPORTATION
PUBLIC WORKS

Autonomous Vehicle Deployment in Austin

Rachel Castignoli

TRANSPORTATION
PUBLIC WORKS



TOPICS

- Austin's AV safety working group
- How we use data to improve safety

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Autonomous Vehicle Operation Phases

Mapping

- The vehicle is driven by a person across the intended area of operations, collecting data.
- Compiled into a detailed map.

Testing

- The vehicle drives itself in AV mode.
- A safety driver may be present in tests as a precaution.

Deployment

- Vehicle accepts commercial passengers and operates on the roadway, fully autonomous.

AV Safety Working Group

Even though the City cannot regulate AVs, the City has been proactive by establishing the AV Safety Working Group to:

- Prepare and train for incidents
- Facilitate communication
- Collect data and standardize documentation

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Austin-Bergstrom International Airport

TRANSPORTATION PUBLIC WORKS

Preparedness & Training

Companies offer trainings for Fire, EMS, and Police first responders, including:

- Engaging with the vehicle such as switching it to ‘manual mode’.
- Electric and battery system safety concerns. Cut points.
- Towing, moving, and use of life-saving equipment (e.g., jaws of life).
- Contacting remote assistance.

Public Safety Needs

A method to communicate quickly with AV companies at incidents

A fail-safe way to take control of the vehicle

Vehicles *recognize and respond* to: **Human Traffic Control, Emergency lights and sirens**

Do **NOT** block public safety vehicles or sites

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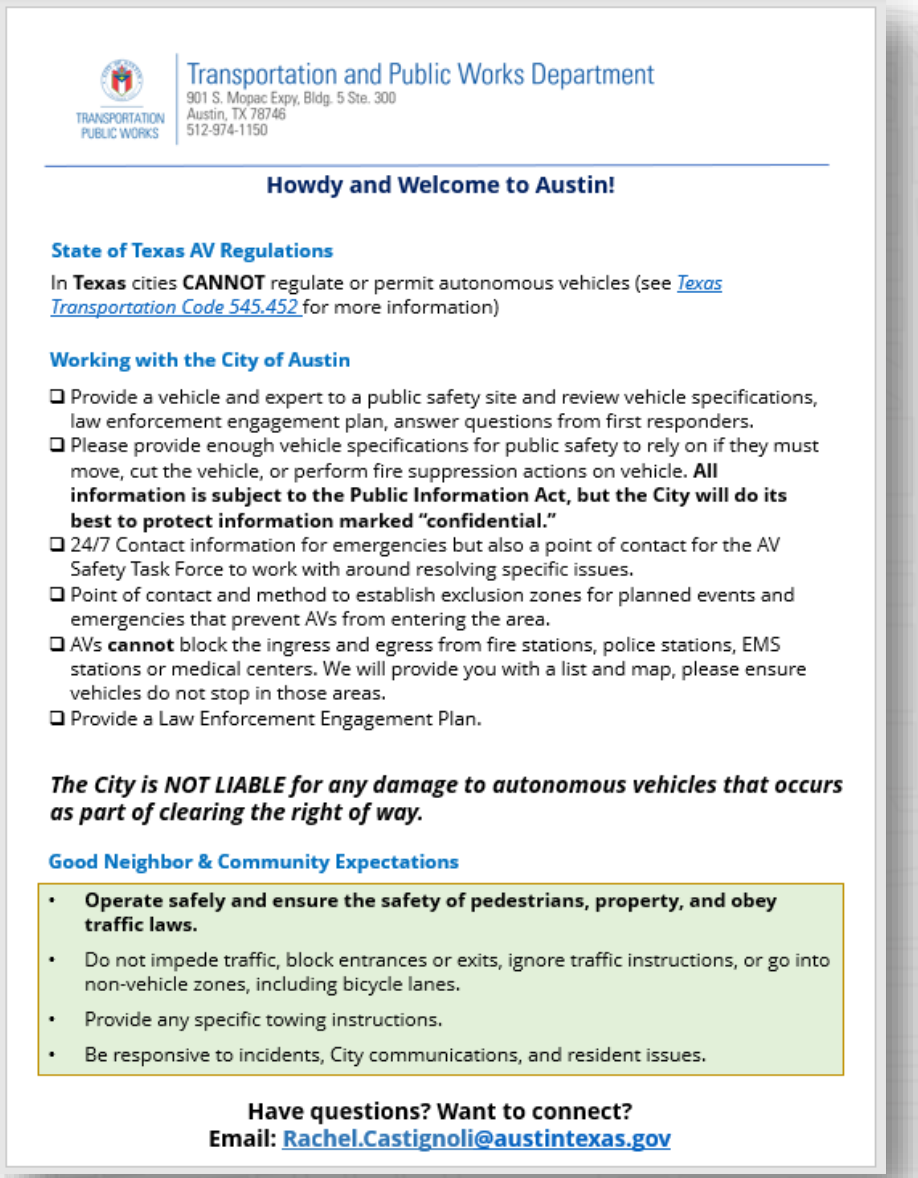
AV Safety Working Group: Communication



Transportation and Public Works Department
901 S. Mopac Expy, Bldg. 5 Ste. 300
Austin, TX 78746
512-974-1150

Howdy and Welcome to Austin!

State of Texas AV Regulations

In **Texas** cities **CANNOT** regulate or permit autonomous vehicles (see *Texas Transportation Code 545.452* for more information)

Working with the City of Austin

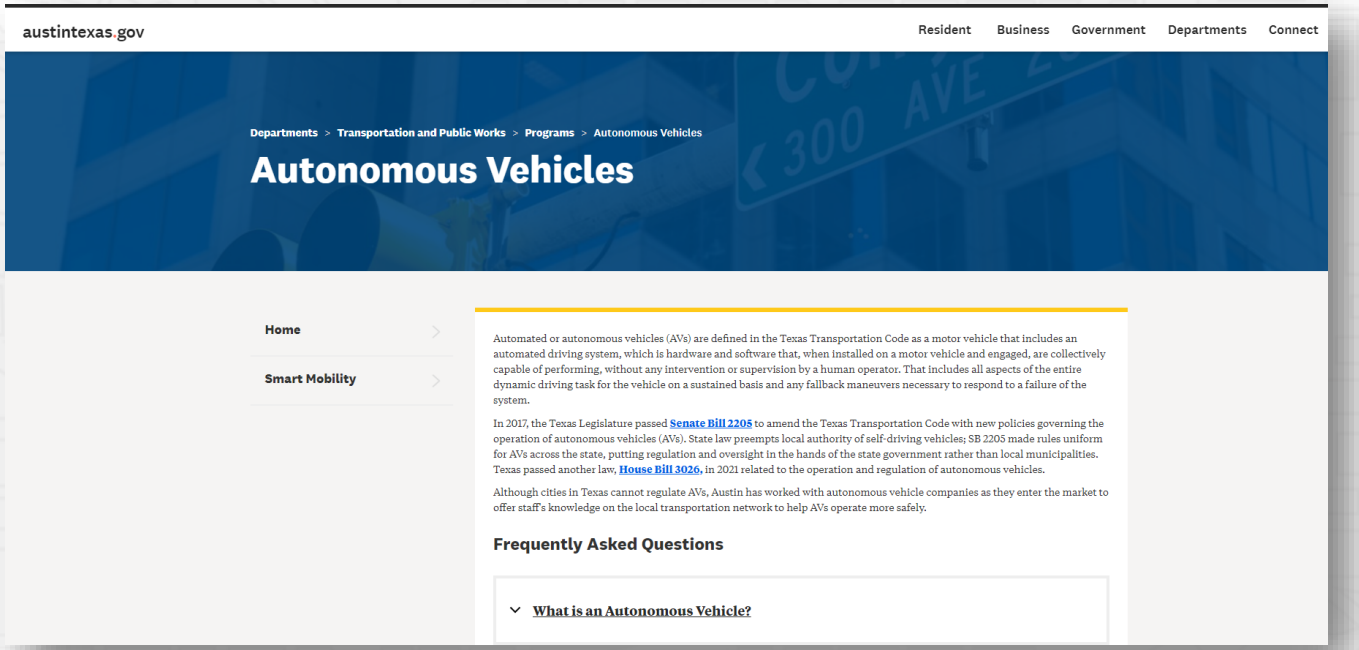
- ❑ Provide a vehicle and expert to a public safety site and review vehicle specifications, law enforcement engagement plan, answer questions from first responders.
- ❑ Please provide enough vehicle specifications for public safety to rely on if they must move, cut the vehicle, or perform fire suppression actions on vehicle. **All information is subject to the Public Information Act, but the City will do its best to protect information marked "confidential."**
- ❑ 24/7 Contact information for emergencies but also a point of contact for the AV Safety Task Force to work with around resolving specific issues.
- ❑ Point of contact and method to establish exclusion zones for planned events and emergencies that prevent AVs from entering the area.
- ❑ AVs **cannot** block the ingress and egress from fire stations, police stations, EMS stations or medical centers. We will provide you with a list and map, please ensure vehicles do not stop in those areas.
- ❑ Provide a Law Enforcement Engagement Plan.

The City is NOT LIABLE for any damage to autonomous vehicles that occurs as part of clearing the right of way.

Good Neighbor & Community Expectations

- **Operate safely and ensure the safety of pedestrians, property, and obey traffic laws.**
- Do not impede traffic, block entrances or exits, ignore traffic instructions, or go into non-vehicle zones, including bicycle lanes.
- Provide any specific towing instructions.
- Be responsive to incidents, City communications, and resident issues.

Have questions? Want to connect?
Email: Rachel.Castignoli@austintexas.gov



Created an expectations document for AV Companies (left) and an FAQ for the public on our website (above).

TRANSPORTATION PUBLIC WORKS

Stakeholder Engagement

We brought all these folks in for a presentation and a mapping exercise.

Texas School for the Blind Visually Impaired
Texas School for the Deaf
TxDOT
Texas Department of Public Safety
University of Texas Police
University of Texas Facilities
Texas Facilities Commission
Austin Independent School District
Austin Community College
CapMetro (transit organization)
AUS Airport
COA Innovation Office
Mothers Against Drunk Driving
Austin Firefighters
Austin Police Dept.
Austin Travis County EMS
Public Safety Commission
Economic Development
AV Companies
Austin Community College
Federal DOT
Travis County
Safe Streets Austin
Vision Zero
Special Events
Austin Energy

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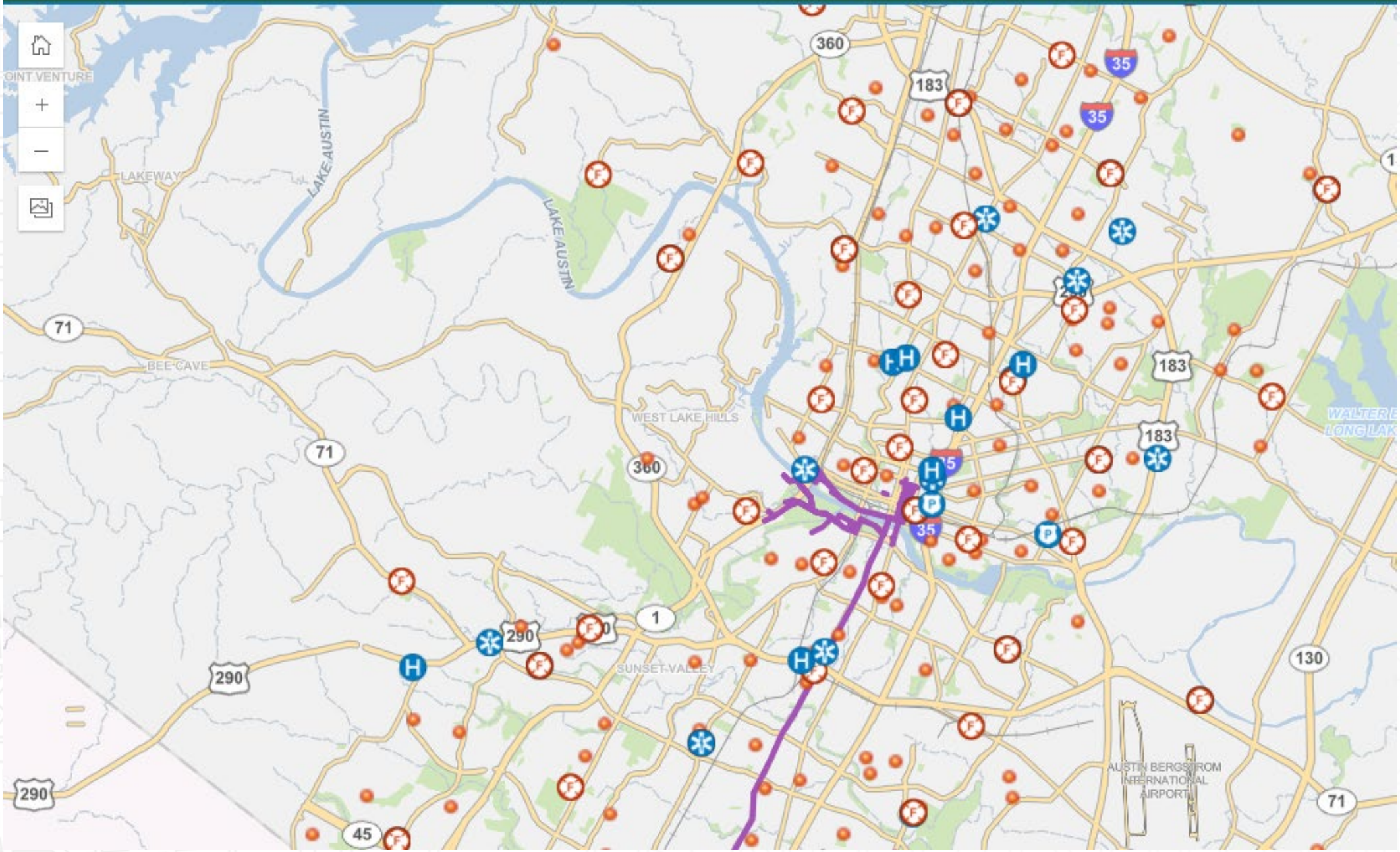
Autonomous vehicles geofencing app



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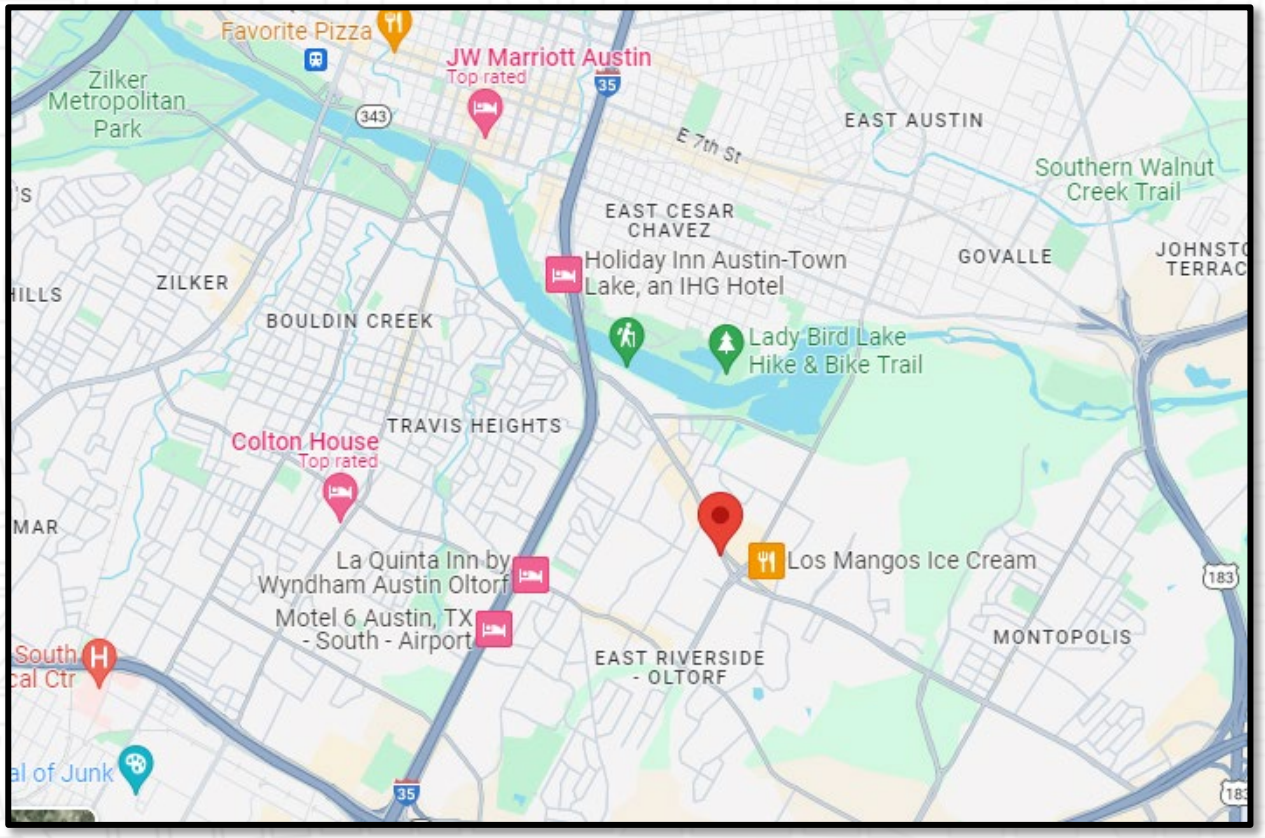
Expectations – Active 911

From -AFD -1Alarm /BOXL- Structure Fire | RAP -00-2202 @2425 E Riverside Dr , AUSTIN | XStreets:WILLOW CREEK DR TO RIVERSIDE TRN/E RIVERSIDE | On -AT FCOM S| Time:20:08:38| Inc#23163009 | For - FTAC201,BAT04,ENG06,ENG22,ENG07,LAD22 Lat: 30235340 Lon: 97724702



An email is ***automatically*** sent from our Computer-Aided Dispatch system.

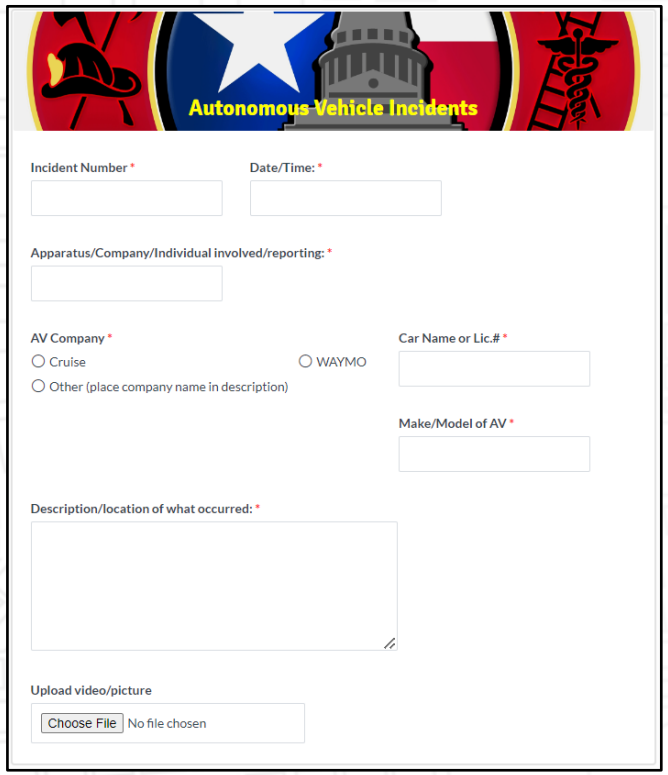
Our expectation is an exclusion zone of 1,000 feet for one hour.

TRANSPORTATION PUBLIC WORKS

Data Collection Process

311 Form
Public Safety Email

→ Incident information received → Entered into incident spreadsheet → PII redacted and shared with AV companies → Populates data dashboard → Shared on Smart Mobility's website



Autonomous Vehicle Incidents

Incident Number *

Date/Time: *

Apparatus/Company/Individual involved/reporting: *

AV Company *

○ Cruise ○ WAYMO

○ Other (place company name in description)

Car Name or Lic.# *

Make/Model of AV *

Description/location of what occurred: *

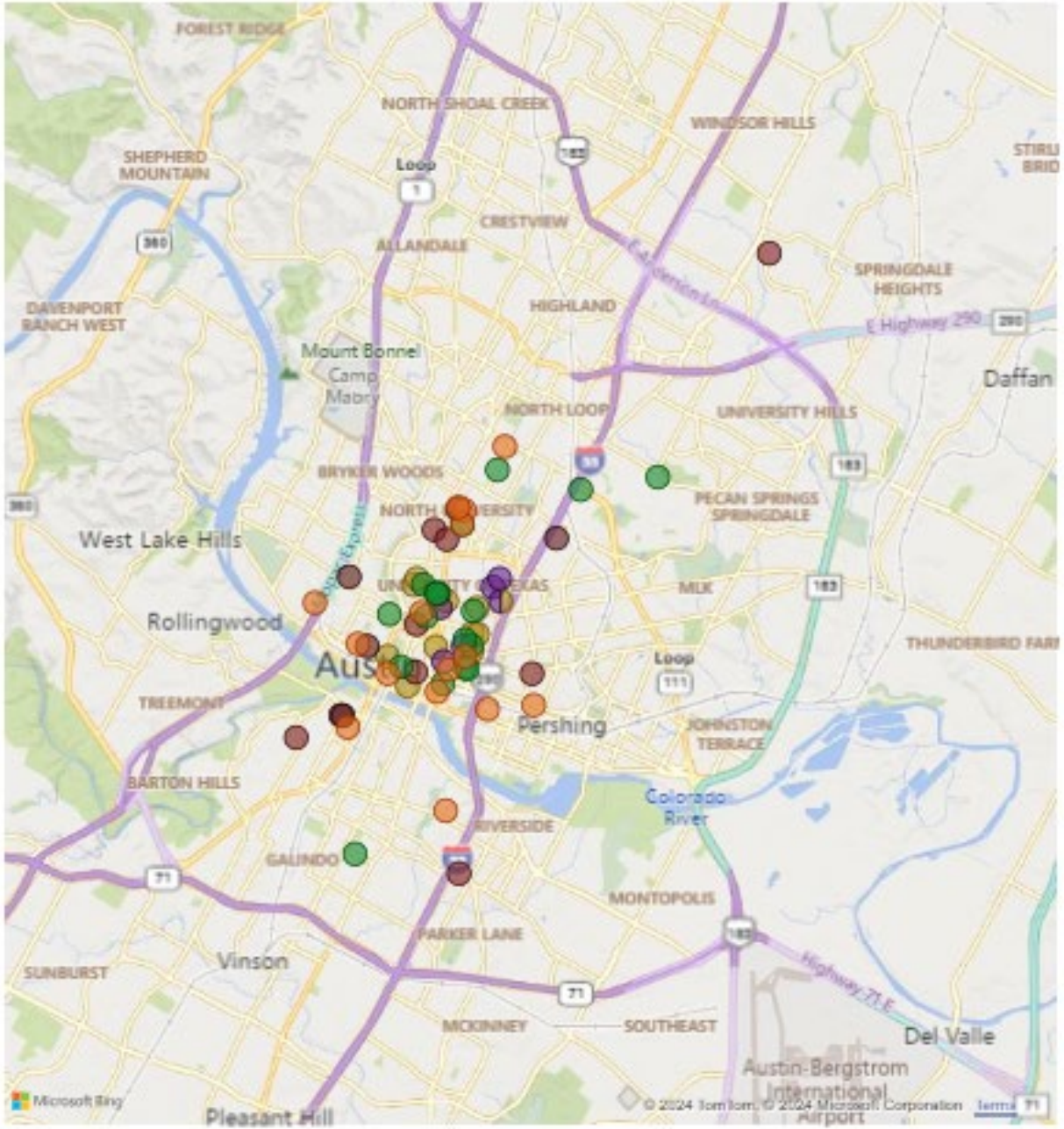
Upload video/picture

Choose File No file chosen

Type	Location	Date	Feedback Metho	Feedback	Issue
APD	2001 Robert Dedman Dr. Austin, TX	8/7/2023	City Email	Biggest and probably the most dangerous issues I've seen with them is when we are directing traffic. I had one the other day drive through an intersection I was directing traffic in, against what I was directing. They don't know how to follow our signals/commands, just the traffic lights/stop signs. If we are flowing traffic against a light/opposite a light pattern, they will blow through or just stop. This happens almost nightly around campus when we are directing traffic for Moody Center events.	Ignore APD Direction
APD	1125 San Jacinto Blvd. Austin, TX	8/8/2023	Incident Report	We stopped all traffic westbound on 12th Street at San Jacinto and the Cruise vehicle was first in line. We then allowed southbound San Jacinto to free flow through the flashing red and the Cruise vehicle kept advancing into the intersection because it thought it was its turn to go. I had to stand within 2 feet of the vehicle to get it to stay stopped. Once I allowed it to go through the intersection, it turned left (SB San Jacinto), and then stopped in the right lane, putting its 4 way emergency flashers on, and completely blocking a lane of traffic for about 5 minutes before finally continuing southbound on San Jacinto.	Ignore APD Direction
APD	2001 Robert Dedman Dr. Austin, TX	7/18/2023	City Email	COA reporting some issues with autonomous vehicles driving into the closures during events at the Moody Center. (vehicle type: Cruise)	Blocking Traffic
Fire	506 West Ave Austin, TX	7/8/2023	Incident Report	During our time on 6th street at 0200 when the bars let out, several of these Cruise AV's were in the area making several questionable moves. The worst vehicle movement was witnessed by ENG04 Specialist where an EMS unit responding code 3 towards 6th street moving north on West in the opposing lane almost got cut off by the AV and came very close to colliding with the ambulance twice.	Near Miss
Resident Feedback	500 W. Martin Luther King Blvd	8/5/2023	311	Austin 311 received feedback 23-00374035; Issue: A resident called to report that on Saturday, August 5, on either W 15th Street or W	Blocking Traffic

Location and Issue

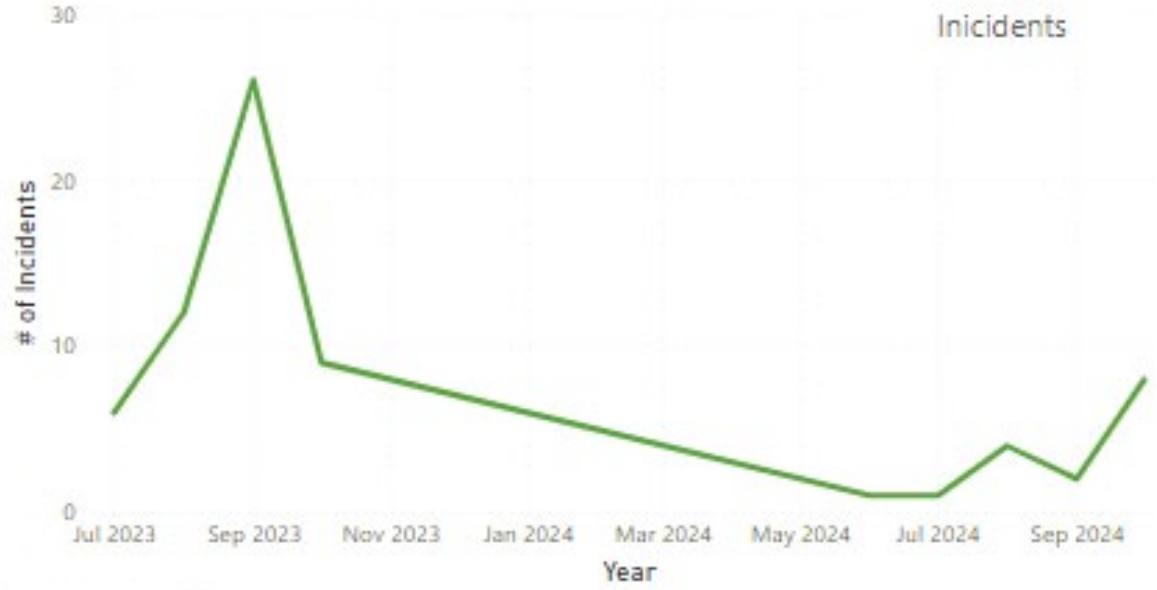
Issue ● Blocking Traffic ● Collision ● Ignore APD Direction ● Near Miss ● Nuisance ● Safety Concern



AV Company

All

Incidents over Time



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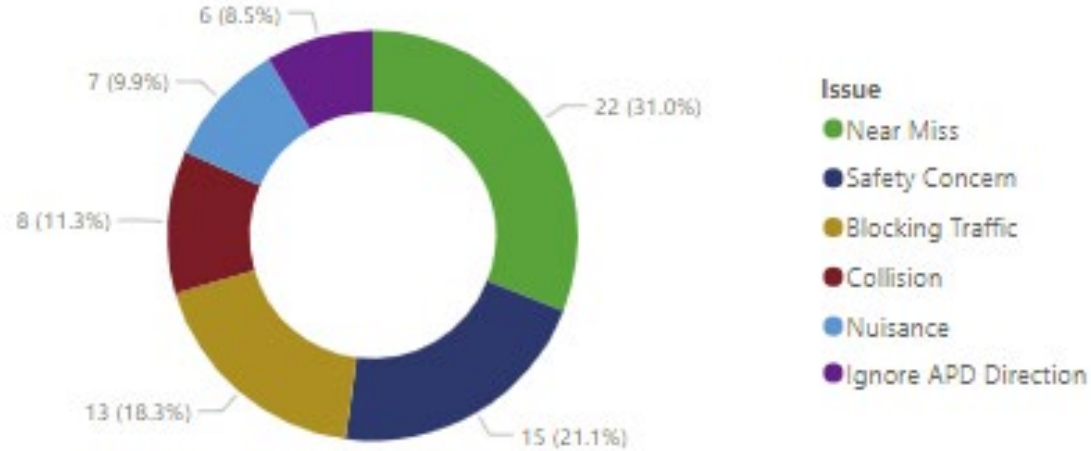
Inicidents

Incidents by Type



Filters

How we define incidents

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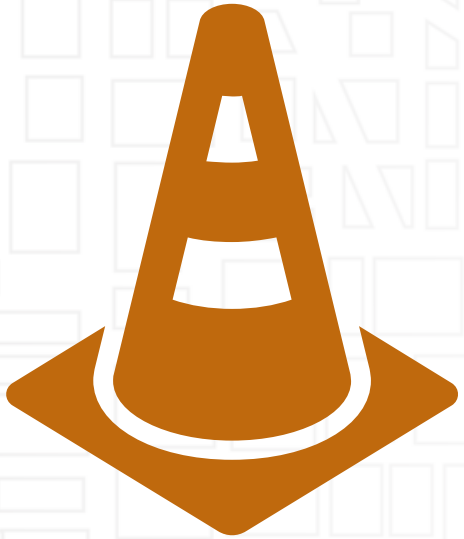
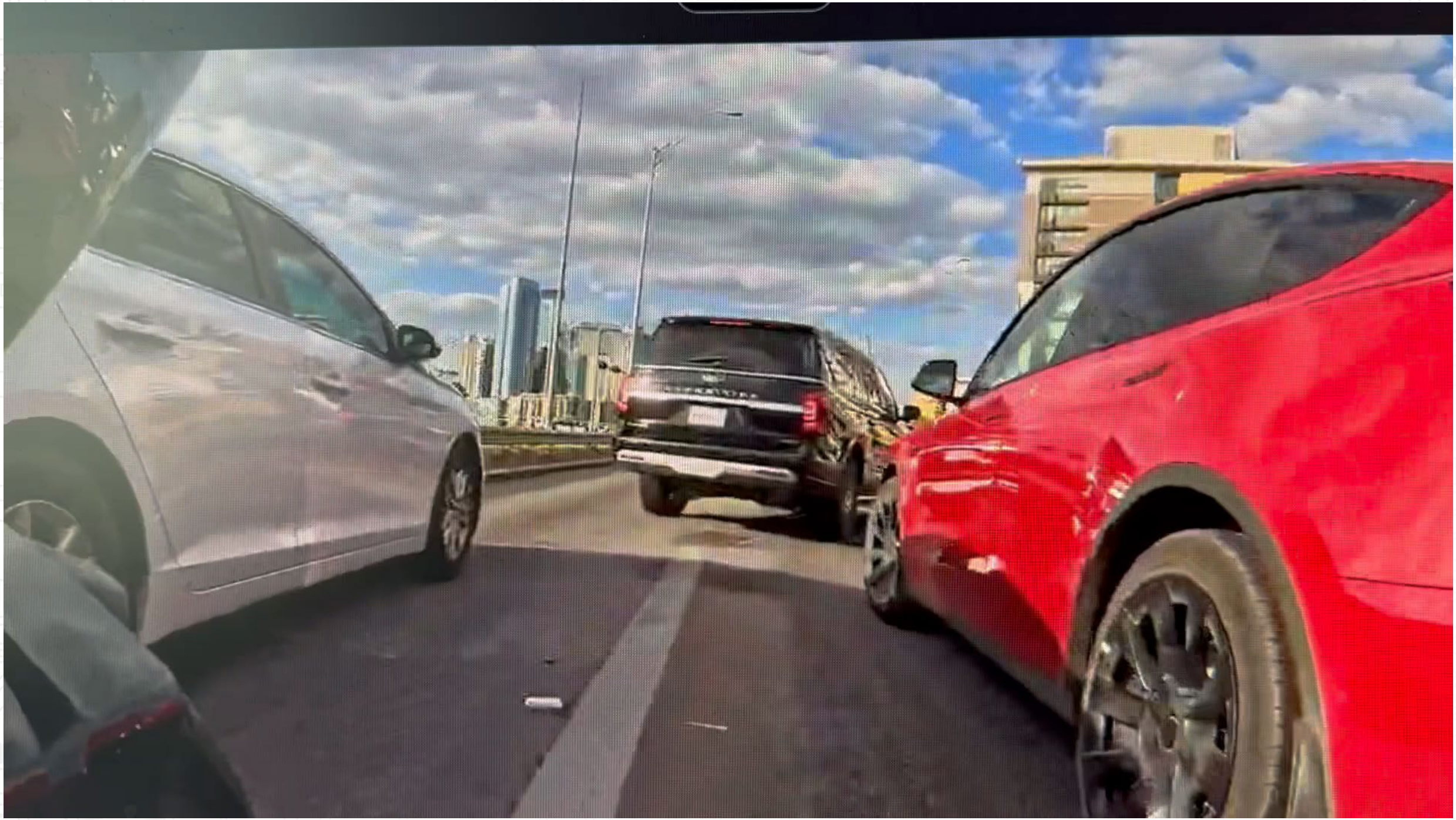
How We Use this Data



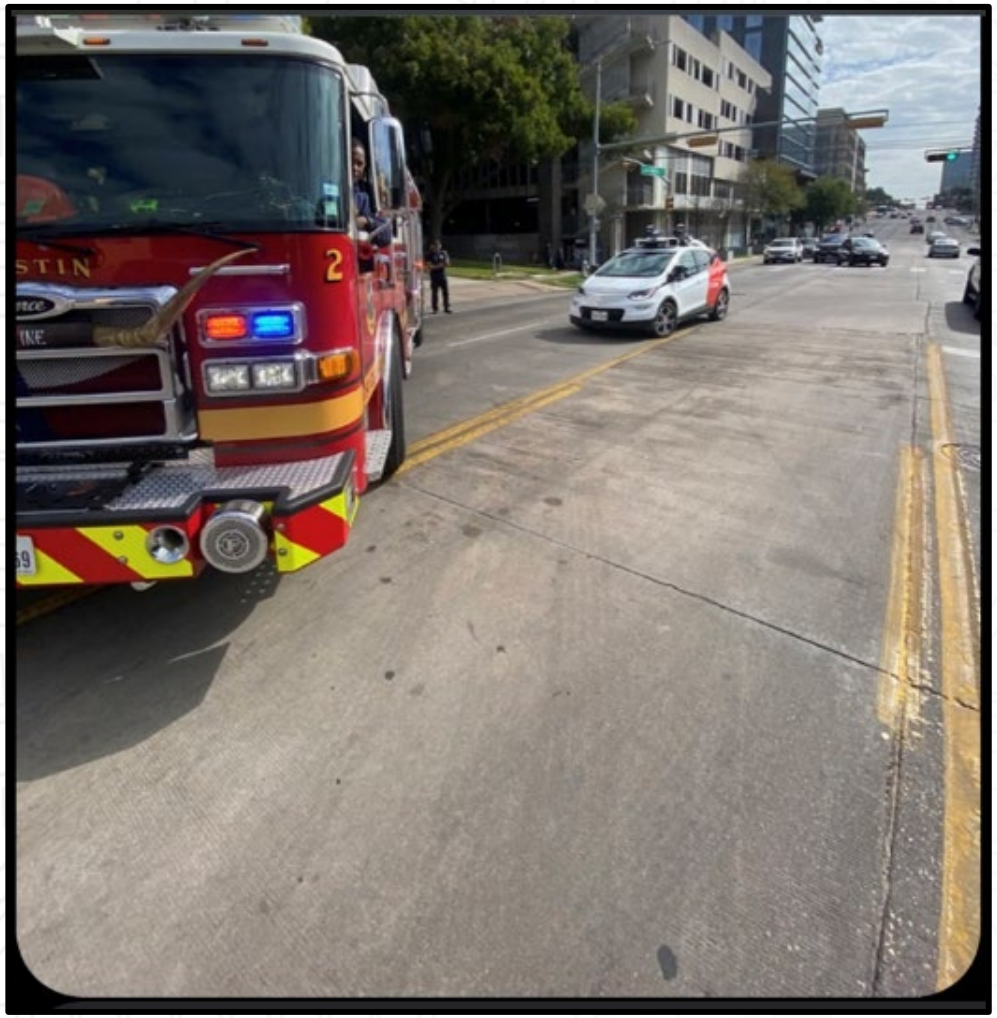
Collecting data is our method for risk reduction.

At locations with multiple incidents, we visit the site with AV representatives and public safety.

Determine what treatment would best fit the site.



Improvements

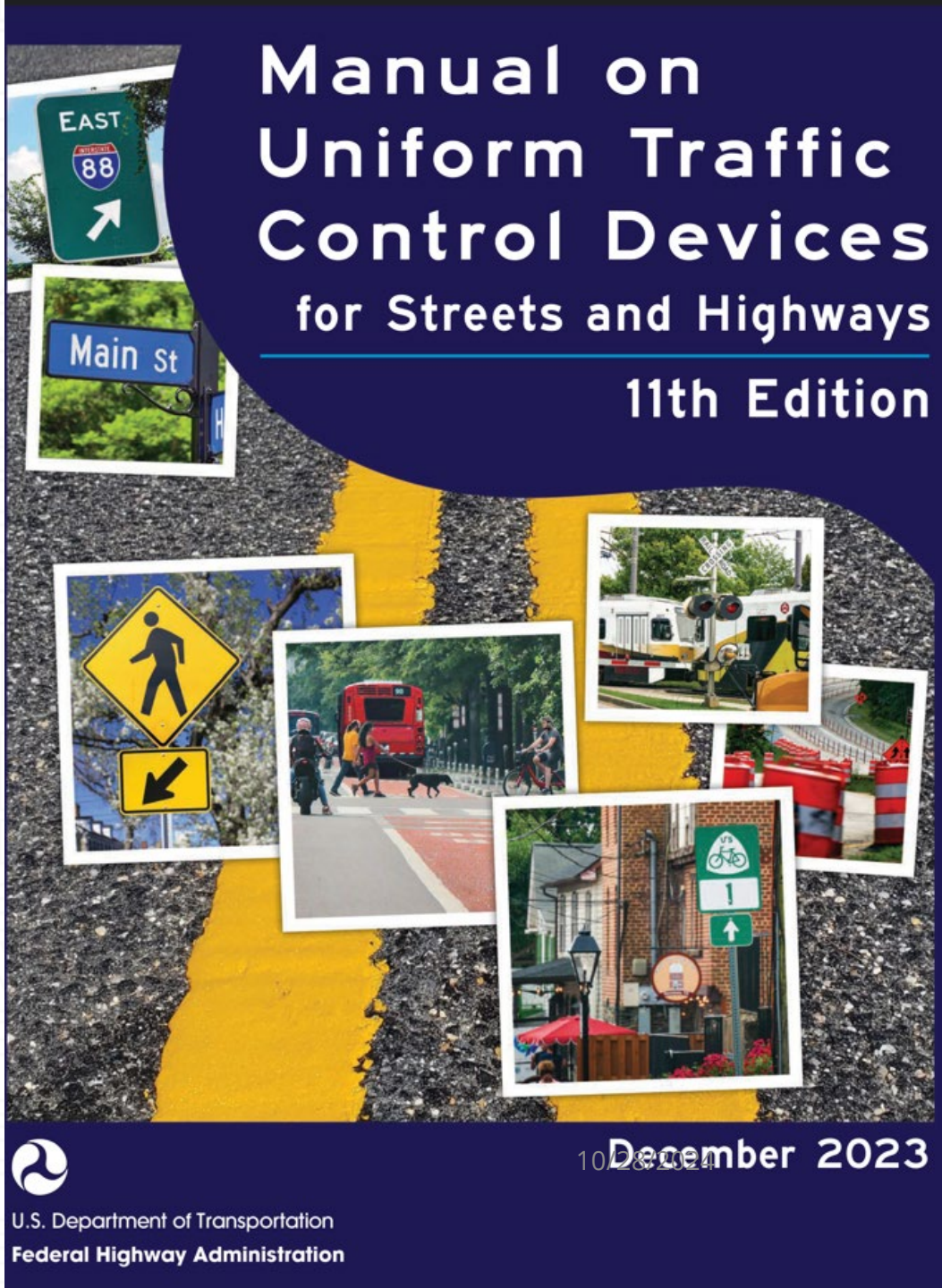


MUTCD Chapter 5

This is guidelines – **not a requirement.**

5A.04:

The interaction of traffic control devices with driving automation systems can create many challenges for agencies in determining traffic control device selection and application. The lack of tolerance of driving automation systems for non-uniformity in traffic control device design and application is a limiting factor of current driving automation system sophistication. This is because driving automation systems have a limited ability to interpolate across gaps in traffic control device cues to the vehicle.



Rachel Castignoli
rachel.castignoli@austintexas.gov

Check out our website and dashboard!

TRANSPORTATION PUBLIC WORKS

AV DISCUSSION

2024 SUBCOMMITTEE MEETING UPDATES

Subcommittee Chairs

- Infrastructure Readiness - vacant
- Dylan Mullenix, Policy & Legislation
- Col. Nathan Fulk, Public Safety & Enforcement
- Rick Petersen, Economic Development

POLICY & LEGISLATION

Dylan Mullenix, P&L Chair

- Last meeting: October 2, 2024
- New Members: Len Murray, City of Pleasant Hill Council Member
- Iowa DOT website update
- Gatik update
- Texas DOT, City of Austin, Ministry of Ontario
- DSRI future projects

PUBLIC SAFETY & ENFORCEMENT

Col. Nathan Fulk, PS&E Chair

- Last meeting: September 25, 2024
- DSRI project update from Cherie Roe
  - Barriers: Unfamiliarity with ADAS, equipment resources, training needs
  - 80% officers have interest in training
  - Training recommendation: in-person with in-vehicle demos
- Comma.ai

ECONOMIC DEVELOPMENT & INFRASTRUCTURE JOINT SUBCOMMITTEE

Rick Peterson, EcDev Chair

- Last meeting: September 27, 2024
- Future of EcDev and IR subcommittees
- InTrans project updates from Skylar Knickerbocker
  - Work Zone Data Exchange
  - Navigation Systems for Snowplows in Low Visibility Situations

WRAP-UP

- **Announcements & Updates**
- **Next Meetings**
  - Anticipate upcoming ATC subcommittee meetings late winter/early spring
  - Anticipate upcoming ATC council meeting for late April in Des Moines area
- **Press Clippings**
  - Bi-weekly update via email
  - Sign-up here: https://iowadrivingav.org/clippings.aspx
- **Adjourn**
- **Lunch and ADS for Rural American demonstration drives**

THANK YOU