ITS Australia 2025 US *Connected and Automated Vehicle* - Study Tour

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Intelligent Transport Systems

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Study Tour Delegation

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Rose Guajardo	Strategic Management Analyst	Texas Department of Transportation
Erika Kemp	Strategic Initiatives and Innovation Director	Texas Department of Transportation
Russell McMurry	Commissioner	Georgia Department of Transportation
John Hibberd	Deputy Chief Engineer	Georgia Department of Transportation
Alan Davis	Director of Operations and Permits	Georgia Department of Transportation
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Don Lepard	Director Of Operations at Kodiak Robotics	Kodiak Robotics
Jeremiah Kuntz	Senior Manager Government Relations	Aurora
Susan Harris	CEO	ITS Australia
Silje Troseth	Vice President Q-Free	Q-Free Australia
Graham Lawrence	Principal Account Executive	Amazon Web Services
Ada Lin	Head of Cooperative and Automated Vehicles	Toyota Australia
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CEOs Report

Reflections from the ITS Australia CAV Study Tour – Texas and Georgia

As we began our week at the Atlanta ITS World Congress, the Australian delegation had already spent several fascinating days in Dallas and Atlanta exploring the realities behind the hype of automated freight. The picture that emerged was clear: what we often hear from afar about Texas reflects genuine progress on the ground. Companies like Kodiak, Aurora, and Gatik were generous in opening their doors and speaking plainly about both achievements and challenges.

One of the strongest impressions was the emphasis operators place on safety and social licence.

> **These companies know that their ability to operate at scale depends on building community trust, engaging openly with stakeholders, and proving that automation can be both safe and beneficial. To achieve this, they focus on specific operating domains, the middle mile, long-haul interstate routes, night operations, or even unsealed mining roads, where repeatability and efficiency can be demonstrated.**

Each domain serves as a testbed for scalable business cases, where investments in mapping and safety validation can be applied over and over again.

It was also striking to see how operators are working hand-in-hand with regulators and law enforcement to shape the frameworks that will ultimately govern their industry. This collaboration is pragmatic and solutions-oriented. Examples include lockboxes containing trip documentation that officers can access with a simple phone call, or pre-shared load details that give freight vehicles a “green lane” around weigh stations. Such measures reflect a co-design approach, where industry and government are jointly developing standards that will later solidify into regulation.

Technological strategies also differ. Some companies rely heavily on HD maps, while others, like Kodiak, are experimenting with “sparse mapping” combined with real-time environmental processing to cut costs and broaden their operating domains. Despite these differences, the vehicles themselves share a consistent quality: they are, in the words of our hosts, “polite” road users—strictly law-abiding, cautious, and predictable. Performance data suggests tangible benefits too, with operators reporting fuel and maintenance savings of 8–10% compared with human-driven fleets, even before factoring in safety improvements.

The broader governance environment in Texas has also been decisive. Support from senior levels of government, coupled with a deliberately innovation-friendly regulatory framework, has created fertile ground for early AV freight adoption. This is reinforced by a strong ecosystem with more than 200 stakeholders spanning government, industry, and research, who are actively engaged in governance and problem-solving.

Texas also happens to offer the right conditions for AV freight: flat terrain, major interstate corridors, and large freight hubs. Importantly, companies are investing significant effort into first responder training, with multi-day courses provided in every new area of operation, ensuring emergency services are ready and confident to interact with AVs.

The motivations behind this push are diverse yet aligned. Safety, driver shortages, economic development, and productivity gains are all driving forces that bring government, industry, and the public into a shared conversation about the future of freight.

By contrast, in Atlanta the focus shifted from freight automation to connected infrastructure at scale. Georgia is now delivering the largest connected vehicle deployment in North America, integrating transit, freight, and emergency vehicles into a system that is already delivering safety and productivity benefits. The scale and ambition of this effort reinforced how connectivity, just as much as automation, is reshaping the transport landscape.

> **Taken together, these visits underscored the value of partnership and pragmatism. Texas is demonstrating how pro-innovation governance and strong industry collaboration can accelerate automated freight, while Georgia shows how connected infrastructure can deliver real-world benefits today.**

Both examples provided the delegation with practical insights that will inform Australia's own pathway as we pursue safer, more efficient, and more sustainable transport systems.

Study tour participants

Acknowledgements

This study tour could not have happened, or been as successful, without the full support of our US hosts at both the Texas and Georgia Departments of Transportation. Over many months of planning and logistics and with generous introductions to leaders in automated vehicles in their jurisdictions we are in their debt and extremely grateful for the time and hospitality they have offered us. We will continue collaborating and sharing and building on the important relationships created during this study tour.

In particular we would like to thank:

Texas Department of Transportation

Zeke Reyna
Rose Guajardo

Georgia Department of Transportation

John Hibberd
Alan Davis

> Our US hosts have been extraordinarily generous in opening their doors and sharing both their successes and challenges. In Texas, we saw first-hand the real progress being made in automated freight, while in Georgia the scale of connected infrastructure deployment was equally inspiring. The openness, collaboration, and focus on safety and community trust left a lasting impression on the Australian delegation and provided invaluable lessons for our own journey.
>
> — **Susan Harris**
> CEO ITS Australia

> The future of transport will be shaped through collaboration that crosses borders.
> By sharing knowledge and experiences with our international counterparts, we not only accelerate innovation but also ensure that Australia remains aligned with global best practice. This spirit of partnership is essential to delivering safer, more sustainable, and more efficient transport systems for all.
>
> — **Silje Troseth**
> President ITS Australia

Image courtesy of Transport Accident Commission

> The study tour revealed just how far the U.S. has come—Texas freight operators are moving beyond R&D into real deployments, while Georgia is future-proofing its network with one of the world's largest C-V2X rollouts. The maturity of these approaches, and the spirit of collaboration between government, industry, and first responders, offers clear guidance for how Australia can shape its own connected and automated vehicle future.
>
> — **Paul Gray**
> CEO Cohda Wireless

Texas Department of Transportation

Government Roundtable

Hosted at the North Central Texas Council of Governments office the ITS Australia delegation was joined by representatives from the Texas Department of Transportation and transport leaders from the North Central Texas Council of Governments

Autonomous Vehicles in Texas: A Strategic Overview

Texas has emerged as a national leader in autonomous vehicle (AV) deployment, building on a decade of innovation, enabling legislation, and coordinated public-private partnerships. From long-haul freight to delivery robots and autonomous passenger services, Texas is leveraging automation to improve safety, enhance efficiency, and expand mobility options.

Evolution of AV Deployment in Texas

The state's journey began in 2015 with Google's first autonomous car in Austin. Milestones followed quickly: passenger shuttles in Dallas–Fort Worth (2018), long-haul freight deployments (2019), and delivery robots in Houston the same year. By 2022, short-haul freight was launched in Dallas, while autonomous passenger services expanded to Austin in 2023.

The CAV Task Force, under TxDOT, now serves as a centralised coordination hub, uniting government agencies, industry, researchers, and municipalities to address data, connectivity, cybersecurity, freight, safety, and workforce needs.

Industry Partnerships and Public Engagement

Collaboration has been at the heart of progress:

- **First Responder Partnerships: Joint programs with AV companies to develop interaction protocols and safety training, including real-time data sharing for emergency response.**
- **Public Education: Events like AV Days at the Texas Capitol and demonstrations at the State Fair of Texas have increased public awareness and transparency.**
- **Local Coordination: TxDOT engages directly with cities like Austin to align local task forces and operations with statewide strategy.**

Industry Deployment Across Modes

Kodiak – Pre-inspection pilots with TxDPS and FMCSA allow certified inspectors to approve vehicles before departure, enabling bypass of weigh stations.

Aurora – Border crossing automation with U.S. Customs and Border Protection, already moving 3–5 AV trucks across daily.

Delivery Robots

Texas supports sidewalk-based personal delivery devices (PDDs) and neighbourhood electric vehicles (NEVs) capable of higher-speed road use.

PDD deployers: Kiwibot, Refraction.AI, Starship, Serve Robotics.

NEV deployers: Clevon, Nuro.

Autonomous Shuttles

AV shuttles are being deployed in urban and campus environments, reducing congestion and expanding access to eco-friendly mobility.

Current deployers: Houston Metro, May Mobility (Arlington).

Future deployers: Beep.

Governance and Legislation

Texas has created one of the most comprehensive AV legal frameworks in the U.S.:

- **SB 2205 (2017):** Allowed automated vehicles on highways, with or without a driver.
- **HB 1791 (2017):** Authorised connected braking systems.
- **SB 969 (2019):** Established rules for delivery robots.
- **HB 3026 (2021):** Enabled fully driverless ADS designs (no mirrors or steering wheels).
- **SB 2807 (2025):** Introduced a unified AV registration process and first responder interaction plans.

Passenger Vehicles (Robotaxis)

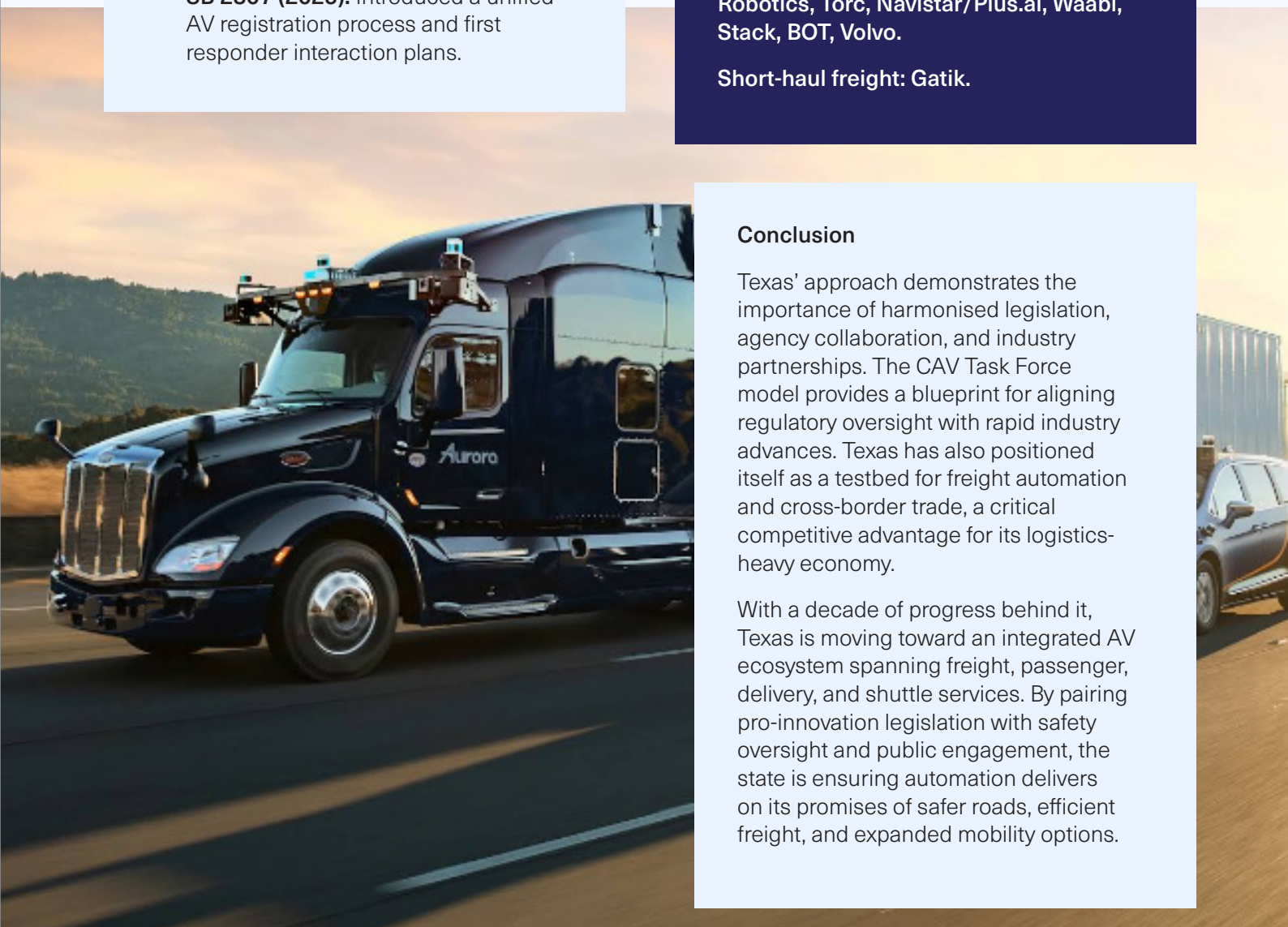
Autonomous ride services are being piloted in Austin, Dallas, and Houston, with companies like Waymo, Zoox, Volkswagen, Tesla, and AV Ride leading deployments. Most services remain in testing, with limited public operations starting in late 2024.

Freight Automation

Texas is a proving ground for long- and short-haul AV freight.

Long-haul operators: Aurora, Kodiak Robotics, Torc, Navistar/Plus.ai, Waabi, Stack, BOT, Volvo.

Short-haul freight: Gatik.



Conclusion

Texas' approach demonstrates the importance of harmonised legislation, agency collaboration, and industry partnerships. The CAV Task Force model provides a blueprint for aligning regulatory oversight with rapid industry advances. Texas has also positioned itself as a testbed for freight automation and cross-border trade, a critical competitive advantage for its logistics-heavy economy.

With a decade of progress behind it, Texas is moving toward an integrated AV ecosystem spanning freight, passenger, delivery, and shuttle services. By pairing pro-innovation legislation with safety oversight and public engagement, the state is ensuring automation delivers on its promises of safer roads, efficient freight, and expanded mobility options.

Aurora Innovation

Aurora offers the Aurora Driver, an autonomous driving system designed to integrate into existing fleets and operate heavy-duty trucks nearly around the clock. It supports both freight trucks and ride hailing vehicles as part of its “driver-as-a-service” model.

- Launched the first commercial self-driving trucking service on public roads, operating class 8 trucks on Interstate 45 between Houston and Dallas without safety drivers.
- Enabled nighttime operations using advanced LiDAR, capable of detecting obstacles from hundreds of meters away, and achieved more than 20,000 autonomous miles since May 2025.

Founded in 2017 by leading figures from Waymo, Tesla, and Uber’s autonomy teams (Chris Urmson, Sterling Anderson, Drew Bagnell), Aurora is committed to deploying self-driving technology safely, broadly, and quickly to transform freight logistics. Aurora stands out for its rapid transition from pilot projects to real-world, commercial operations on public highways, and its expansion into 24/7 autonomous trucking, signaling major strides toward mainstream adoption.

Gatik

Gatik focuses on autonomous middle-mile logistics, deploying Level 4 driverless trucks for frequent, short-haul, B2B delivery routes—typically between distribution centres and retail locations.

Key deployments:

- Became the first company globally to launch a daily, driverless commercial delivery service (for Walmart) in 2021
- Deployed across multiple regions, including Texas, Arkansas, Arizona, and Ontario, serving major retailers such as Walmart, Kroger, and Tyson Foods.
- In March 2025, partnered with NVIDIA to integrate DRIVE AGX compute systems into its class 6/7 autonomous vehicles—enhancing onboard AI processing capabilities for scale.

Founded in 2017 by Gautam Narang and co-founders, Gatik moved quickly from development to operational deployments, positioning itself as a leader in repeatable, scalable autonomous delivery for enterprise supply chains. Gatik is a standout in autonomous logistics because of its commercial, reliable deployments in the “middle mile” and its focus on practical fleet integration and partnerships with established retail and tech players.

Texas AV Industry: The meetings with Kodiak, Aurora, and Gatik showcased the maturity of freight AV operations, with companies moving beyond R&D to actual deployments. Seeing the different approaches across long-haul, mid-haul, and short-haul applications was particularly valuable.

Georgia's V2X Leadership: I was genuinely impressed by three aspects of GDOT's approach:

- **Their enthusiasm for new technologies and willingness to "try things and see how they work"**
- **The future-proofing of their infstructure through dual fibre deployment and systematic C-V2X rollout across 2300 RSUs**
- **Their collaboration with other state DOTs (particularly Utah) and work with AASHTO to drive national adoption**

The emphasis on worker safety and freight applications as initial use cases provides clear guidance for Australian deployment strategies. The tour highlighted opportunities for Australia to engage with GDOT's national initiatives and learn from the Texas regulatory framework for AV operations.

The mix of government agencies, technology companies, and operational deployments provided valuable real-world context ahead of ITS World Congress.

— **Paul Gray**
CEO Cohda Wireless

Kodiak Robotics

Kodiak develops the Kodiak Driver, a modular, AI-powered autonomy platform combining deep-learning software with hardware components (SensorPods housing LiDAR, radar, cameras). It is vehicle-agnostic and designed for heavy-duty, real-world trucking applications.

Recent milestones:

- In December 2024, Kodiak launched the first commercial driverless trucking operations in the U.S.—on private lease roads in West Texas—offering driver-as-a-service with customer-owned trucks.
- By mid 2025, they had delivered autonomous RoboTrucks to Atlas Energy Solutions to haul frac sand in the Permian Basin—a dual benefit in improving safety and mitigating driver shortages.
- Kodiak is notable for achieving first-in-class U.S. commercial driverless deployments, even if limited to private roads, and for tackling high-risk industrial missions like frac sand transport. Its planned public listing may provide a springboard for broader expansion.

Georgia Department of Transportation

ITS and Operations in Georgia: Enabling Connected and Automated Mobility

Georgia is positioning itself as a national logistics and transportation hub, leveraging its highways, ports, railways, and airports to drive economic growth. With a population of 11 million, including 6.3 million in metro Atlanta, the state is both the eighth most populous in the U.S. and a central freight gateway for the nation.

GDOT Operations and ITS

GDOT oversees 1,244 miles of interstate, 18,000 miles of state routes, 500 miles of rail, and manages a workforce of 4,011 employees across 159 counties. ITS operations span:

- Interstate and arterial management
- Traffic signals and ramp metering
- Incident response and permitting
- Connected and Automated Vehicle (CAV) integration

At the core is the Traffic Management Centre (TMC), a 24/7 hub that manages incidents, traveller information, service patrols, CCTV, DMS, sensors, weather stations, and automated incident detection.

Incident and Arterial Management

HERO (Highway Emergency Response Operators): Expanded since 1994 to 125 operator positions, 143 trucks, and 382 miles of patrol routes in metro Atlanta. Handles incidents, assists drivers, and supports express lanes.

CHAMP (Coordinated Highway Assistance and Maintenance Program): Operates statewide with 96 operators, 33 dispatchers, and 35 routes outside Atlanta. Dispatches occur in 93% of events, with strong reliability.

Signal operations: GDOT manages 9,500+ signals statewide, including 6,500 on state routes, providing active management of more than 8,000 signals across all districts.

Maintenance innovation: Performance-based contracts ensure 99.5% device uptime, improving reliability and cost-effectiveness.

V2X and Digital Infrastructure

Georgia has deployed over 2,300 roadside units (RSUs), prioritising public-sector fleets and intersection-based applications. Early V2X use cases include:

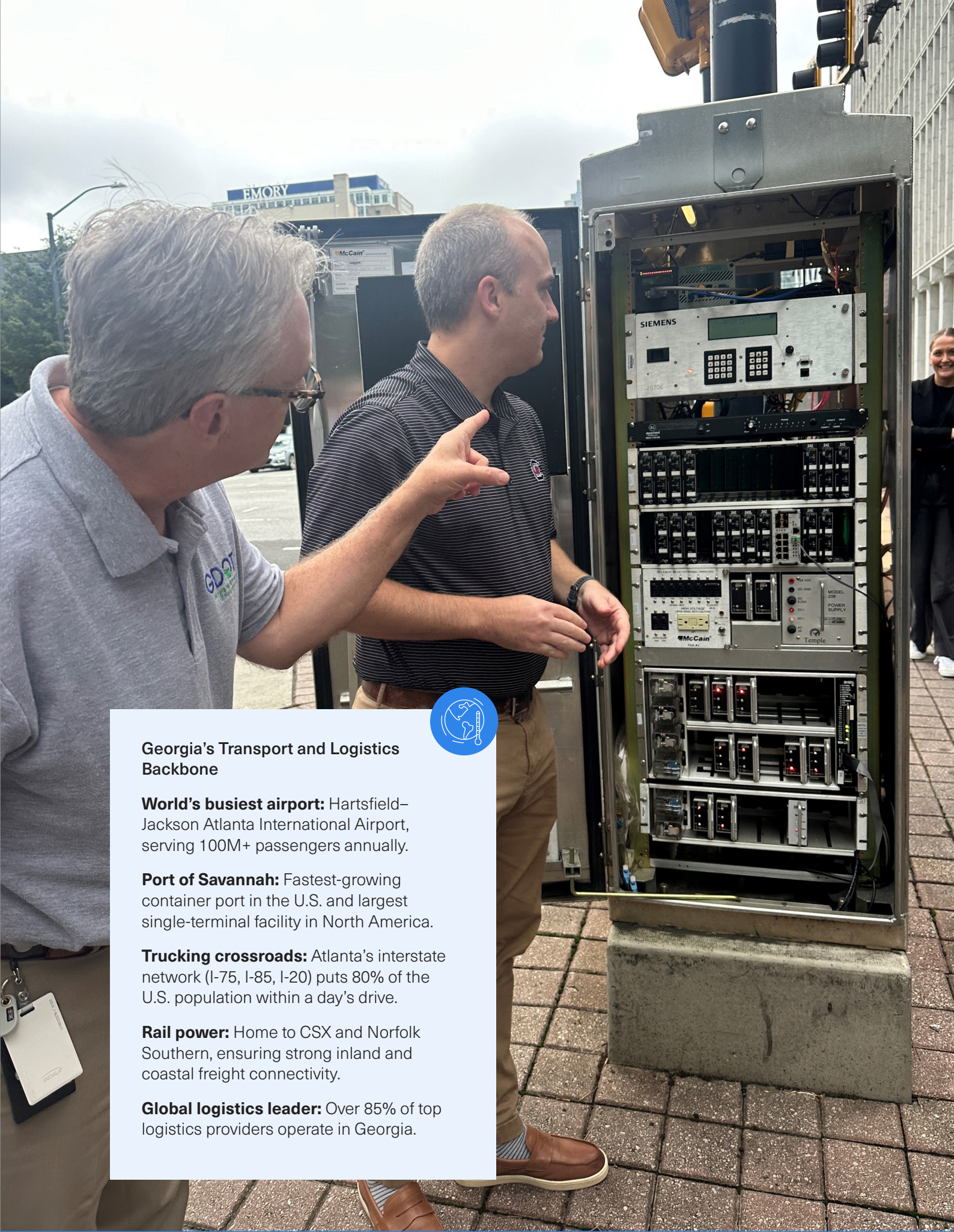
- Freight signal priority
- Transit signal priority
- Emergency vehicle preemption
- Real-time traveller information via SPaT, MAP, and TIM messages

GDOT is also building digital Interstates, a statewide broadband network along limited-access corridors, with dual conduits (one public, one commercial).

This infrastructure will support C-V2X, CCTV, sensors, and commercialisation opportunities, enabling both safer operations and digital economic growth.

Conclusion

Georgia is leveraging its role as the nation's logistics capital to become a leader in connected and automated vehicle deployment. Through legislative foresight, robust operational programs, large-scale RSU rollouts, and cutting-edge digital infrastructure projects, GDOT is building the foundation for a safer, smarter, and more efficient transport ecosystem.



Georgia's Transport and Logistics Backbone

World's busiest airport: Hartsfield–Jackson Atlanta International Airport, serving 100M+ passengers annually.

Port of Savannah: Fastest-growing container port in the U.S. and largest single-terminal facility in North America.

Trucking crossroads: Atlanta's interstate network (I-75, I-85, I-20) puts 80% of the U.S. population within a day's drive.

Rail power: Home to CSX and Norfolk Southern, ensuring strong inland and coastal freight connectivity.

Global logistics leader: Over 85% of top logistics providers operate in Georgia.

ITS World Congress Atlanta

August 24028 2025 at the Georgia World Congresss Centre, Atlanta Georgia

Theme

Framed around “Deploying Today, Empowering Tomorrow”, the program emphasised translating innovation into real-world impact with intelligent transportation technologies.

Scope & Scale

A record-breaking program featuring nearly 600 speakers, over 175 conference sessions, hundreds of exhibitors, and a global audience of ITS practitioners, policymakers, and industry leaders.

Australia was well represented from industry with a large number of presentations in the International Forums, Special Interest Sessions and primary program.

Australian winners on the international stage

- Mohammed Hikmet - Hall of Fame Lifetime Achievement Award
- Cassie Hames - Industry Award for See Me App
- Ada Lin - Best Technical Paper

AASHTO Bi-lateral US-Australia Roundtable

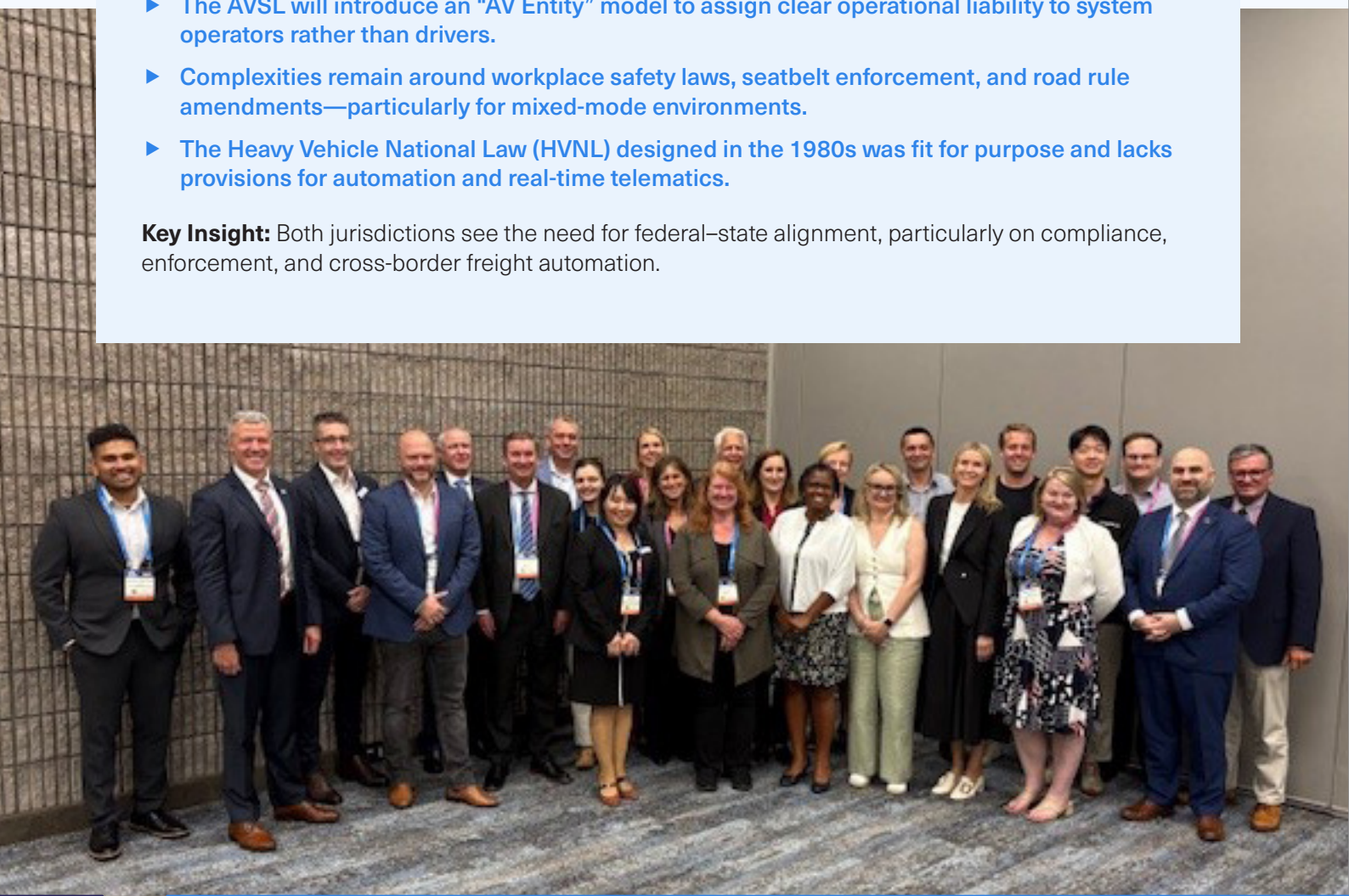
The roundtable brought together senior leaders from Australia and the U.S transport agencies to discuss the regulatory, technological, and operational shifts shaping the future of connected and automated vehicles (CAVs), freight automation, and digital mobility. The discussions highlighted legislative complexity, regulatory harmonisation, opportunities for cross-border trials, and industry-led innovation.

Regulatory Landscape and Policy Alignment

Australian participants shared the status of the Automated Vehicle Safety Law (AVSL), aiming for implementation by end-2026.

- Australia currently disallows AVs on public roads but operates one of the largest automated fleets globally in mining and agriculture.
- The AVSL will introduce an "AV Entity" model to assign clear operational liability to system operators rather than drivers.
- Complexities remain around workplace safety laws, seatbelt enforcement, and road rule amendments—particularly for mixed-mode environments.
- The Heavy Vehicle National Law (HVNL) designed in the 1980s was fit for purpose and lacks provisions for automation and real-time telematics.

Key Insight: Both jurisdictions see the need for federal–state alignment, particularly on compliance, enforcement, and cross-border freight automation.



Industry Perspectives and Market Dynamics

Toyota, AWS, Cohda Wireless, Compass IoT, and other industry partners discussed rapid advances in connected vehicle ecosystems:

- **Toyota has deployed 750,000 connected cars in Australia (~3% of the national fleet).**
- **Lack of consistent data-sharing standards limits value extraction. HAPI and C-ITS harmonisation projects aim to establish common protocols for integration between vehicles, operators, and infrastructure.**
- **Current regulatory frameworks are lighter-touch compared to the EU and U.S., leaving OEMs to drive technical standards via ANCAP influence.**
- **The U.S. is implementing connected vehicle incentives through insurer premium reductions, a model Australia could explore.**

U.S. Priorities and Michigan's Model

Michigan DoT presented its proactive approach to automation and CAV integration:

- **CAV Corridor Initiative: A dedicated autonomous freight lane being trialled in Detroit.**
- **Workzone Data Exchange: Enhanced data sharing to mitigate hazards for AVs and human drivers.**
- **Advanced Air Mobility and BVLOS (Beyond Visual Line of Sight) drone operations are advancing regulatory frameworks for freight and logistics.**
- **Michigan's pro-automation stance combines regulatory flexibility with industry partnerships, creating an environment conducive to rapid innovation.**

Next Steps

Develop an AU–U.S. Transport Innovation Working Group to identify collaboration and harmonisation opportunities.

Align regulatory approaches through knowledge-sharing workshops.

Map standardisation priorities across C-ITS, connected freight, and AV safety protocols.

The roundtable underscored the urgency for policy innovation, industry collaboration, and cross-border harmonisation to accelerate AV deployment and digital mobility integration. By leveraging shared learnings and coordinated pilots, Australia and the U.S. can jointly shape the global future of transport.

Key Opportunities for Collaboration

Joint AV and Freight Pilots

Establish cross-jurisdictional partnerships leveraging Australia's mining automation expertise and U.S. CAV corridor learnings.

Harmonised Standards and Data Protocols

Advance global data-sharing frameworks for real-time telematics, V2X connectivity, and incident detection.

Public Engagement and Behavioural Change

Build community trust through education, transparent safety reporting, and human-in-the-loop pilots to address public concerns.

Fair Mobility as a Service (Fair MaaS) to Sustainability and Beyond

The panel emphasised that transport systems must start with people, not technology. Success depends on meeting individuals where they are, including partnering with sectors such as health and education to design services that are inclusive and place-based.

Transport is most often the second-highest household expense. Pricing strategies in MaaS must therefore prioritise fairness and affordability. Transparent communication on how revenues are invested is essential for public acceptance, as seen in New York City's congestion pricing model where funds are reinvested into public transport.

MaaS systems cannot exist in isolation; infrastructure plays a crucial role in accessibility and equity. Designing for diverse needs, including people with disabilities, and ensuring multiple modal choices are critical for building an inclusive ecosystem.

The session underlined that future mobility is about balancing individual needs with collective goals. By focusing on affordability, accessibility, and choice, MaaS can deliver not only efficient transport but also broader social benefits – from improving job access and safety to fostering equity and sustainability.

International Forum Panel Discussion Thursday 28th August.

Moderated by Susan Harris with speakers:

Young-Jun MOON - Professor Invited, Korea Advanced Institute of Science and Technology (KAIST)

Tilly Chang - Executive Director, San Francisco County Transportation Authority

Mohammed Hikmet - Executive Chairman, Ohmio / HMI Technologies

Tamara Djukic - Head of Green & Urban Mobility, ERTICO-ITS Europe

Kome Ajise - Executive Director, SCAG

Silje Troseth - Vice President APAC & General Manager Australia, Q-Free

The final question of the session came from Carol Schweiger who challenged the panel to come up with some MaaS KPIs to close out the discussion with some potential next steps – this was the panels response:

Recreation Access (Susan Harris): Measure public transport use for leisure and social trips.

Safety Outcomes (Prof. Young-Jun Moon): Assess safety of both users and modes.

Job Accessibility (Tilly Chang): Proportion of residents with access to employment within 20–30 minutes by public transport.

Modal Diversity (Tamara Djukic): Multiple transport options available for different needs and trips.

Passenger Kilometres (Mohammed Hikmet): Volume of passenger travel on public transport.

Access to Opportunity (Kome Ajise): Ability to reach employment, education, and essential services within 30 minutes.

Choice and Equity (Silje Troseth): Ensuring real choices exist, enabling equitable outcomes.

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Intelligent Transport Systems

About ITS Australia

ITS Australia is the peak body for advanced transport technology in Australia supporting the delivery of safer, more efficient, sustainable transport solutions. Representing our industry for over 30 years we are locally and internationally recognised as a leader in our field.

We inspire, guide and support the application of ITS across smart transport infrastructure, connected and automated transport, and intelligent mobility. We connect a thriving Australian ITS ecosystem and inspire extraordinary achievements through cooperative collaboration.

We are the largest single gathering of industry, government and academia dedicated to the research, development and deployment of ITS technologies in Australia.

Our Vision

Transport is safe, sustainable, productive and accessible through the application of technology.

Our Mission

Shaping future transport by leading and inspiring our industry. We champion Australian expertise, foster global opportunities, and nurture a resilient and vibrant transport sector now and into the future.

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