



Kansas Connected and Autonomous Vehicle Vision Plan

APPENDIX A: Kansas State Agency Blueprints

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Kansas Connected and Autonomous Vehicle Vision

DEPARTMENT OF AGRICULTURE BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Department of Agriculture can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Department of Agriculture to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Kansas Department of Agriculture Mission

The Kansas Department of Agriculture is committed to a balanced approach of:

- Serving Kansas farmers, ranchers, agribusinesses and the consumers/customers they serve;
- Providing an environment that enhances and encourages economic growth of the agriculture industry and the Kansas economy; and
- Advocating for and promoting the agriculture industry, the state's largest industry, employer and economic contributor; while
- Helping to ensure a safe food supply, protecting natural resources, promoting public health and safety, protecting animal health, and providing consumer protection to the best of our ability.

CAV Challenges

- Limited access to infrastructure necessary for broadband, particularly in rural areas.
- Inconsistency of highway infrastructure conditions, infrastructure needs, and funding among jurisdictions (state, city, county, region).
- Knowledge level regarding big data use, ownership, and liability.

CAV Opportunities

- Rail and truck automation solutions can reduce transportation costs and achieve greater efficiencies.
- Increased opportunities to develop an agricultural hub for Kansas.
- Agriculture is an early adopter of CAV technology and knowledge of the technology is relatively high.
- Use of CAV technology in agriculture may have applicability to the transportation industry (for example, mowing operations).
- CAV may help address agricultural worker shortage.
- The Department of Agriculture may have access to federal grants to pilot advanced CAV technology.

System Needs

- Data - address broadband challenges, privacy, compliance, truck tracking, transportation flow statistics, partnerships with surrounding states
- Network - reliability and expansion
- Infrastructure - agribusiness group partnering with CAV, roadway markings, volunteering to pilot agriculture subsectors
- Agency Organization Structure - education and outreach training
- Funding - university partnerships, activate agriculture stakeholder group
- Policy/Legislation/Regulation - agriculture stakeholder group input for data and equipment
- Workforce, Public - CAV impacts related to agriculture workforce shortage
- Public Education and Outreach - agriculture industry testimonials with general public

Strategies

To address identified challenges and maximize opportunities, several strategies were identified:

- Leverage CAV industry to help reduce stress on workforce during peak agriculture seasons.
- Explore with the Kansas Department of Transportation and other state agencies how agricultural CAV solutions may have applicability in a transportation environment.
- Focus on freight mobility solutions to support the safe and efficient movement of agricultural products within Kansas and across the nation.

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is low for the Department of Agriculture during this transition as they are not a regulatory agency or funder of infrastructure. The agriculture industry is already more advanced than most related to CAV.

Relative Cost



DEPARTMENT OF AGRICULTURE BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Utilize partnerships with existing users of technology to promote CAV to the general public.

Immediate Key Actions

- Promote use of CAV technology in agriculture industry to demonstrate value and potential for expanded use in the transportation industry.
- Include a session at the 2019 Kansas Agriculture Growth Summit on CAV opportunities.
- Continue to work with the Kansas Department of Transportation and other state agencies as part of the CAV Task Force to share lessons learned regarding CAV advances for agriculture that might be applied in transportation.
- Work with the Kansas Department of Transportation to explore truck automation solutions to support the agricultural industry.

Time Frame

Expected time frame when CAV will impact the agriculture industry:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|---------------------|----------------------------------|
| Improved efficiency | Customer surveys or focus groups |
| Mobility | Travel time |
| Reliability | Planning time index |

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Kansas Connected and Autonomous Vehicle Vision

DEPARTMENT OF COMMERCE BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Department of Commerce can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Department of Commerce to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Kansas Department of Commerce Purpose

As the state's lead economic development agency, the Kansas Department of Commerce strives to empower individuals, businesses, and communities to achieve prosperity in Kansas.

CAV Challenges

- Some businesses are cautious with new technology and are not eager to be early adopters; others are overzealous.
- Safety and liability concerns from businesses.
- Customer acceptance and adoption rate is unknown.
- Customer data security and privacy concerns.
- Creation of viable business models and frameworks for support of the CAV business community.
- Development of innovative financing, procurement, and public-private partnership processes to support CAV initiatives.
- Understanding the impacts of CAV on land development, real estate, and economic growth.
- System compatibility with neighboring states.

CAV Opportunities

- Engage the business community to understand their interests and needs in order to increase private sector investment in CAV.
- Engage businesses with incentives or other mechanisms to entice pilot projects and/or partnerships.
- Demonstrate efficiencies and improvements to the business environment in Kansas through universal access to high-speed communications services, improved commercial vehicle operations, asset management, more efficient manufacturing processes, workforce development and job growth.
- Utilize partnerships with original equipment manufacturers (OEMs) and their local presence (GM Fairfax plant and Ford plant in the Kansas City metropolitan area).
- Leverage state exports, logistics centers and parts supply.
- Evaluate decommissioned plants and facilities (Sunflower

and Parsons) for pilot projects due to large infrastructure, surrounding network and controlled environments.

- Leverage Kansas legacy regarding aviation to support Unmanned Aircraft Systems (UAS) research and development.
- Utilize CAV and related technologies to improve the efficiency, effectiveness, and coordination of state government business processes across all departments.

System Needs

- Data - standards, security and management
- Network - security, segmentation, improved rural broadband
- Infrastructure - consistency, logistics, transportation
- Agency Organization Structure - internal staff training, outreach to businesses, capitalize on CAV business opportunities, build relationships with OEMs and suppliers
- Funding - develop CAV sector business incentives, educational institution partnerships, OEM partnerships
- Policy/Legislation/Regulation - standards, OEM input, CAV manufacturer certificate and fast-track permitting
- Workforce, Agency - continued staff training
- Workforce, Public - technical school CAV training and OEM-developed curriculum; collaboration with universities for advanced degrees
- Public Education and Outreach - statewide promotion, case studies; start with public transit

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Better understand facility requirements for from site developers.
- Evaluate and develop incentive programs to support CAV initiatives and growth in the CAV industry.
- Seek international partnerships to support CAV business interest in Kansas.
- Leverage local OEM partnerships to develop pilots and build on existing relationships.
- Consider partnering with OEMs or suppliers on business education programs.

DEPARTMENT OF COMMERCE BLUEPRINT

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is moderate. Incentives to attract businesses could be very expensive, but staff training costs and costs to engagement and develop strategy internally is low.

Relative Cost



Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Existing businesses that work with the Department of Commerce through existing commissions and partnerships.
- New businesses to attract to Kansas based on the state's CAV vision and strategy.
- International businesses with an interest in locating CAV facilities in the United States.
- Local and regional Chambers of Commerce to support education, outreach, and partnering opportunities.

Immediate Key Actions

- Understand technology and applications.
- Identify strategic businesses and partnership for potential future pilots.
- Begin developing strategies for logistics, goods movements, and processes to motivate companies to come to Kansas.
- Develop potential incentive packages.
- Start discussions with Universities and Vocational Schools.

Time Frame

Expected time frame when CAV would impact Department of Commerce:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|---------------------|--|
| Job growth | Net new job and wage growth |
| Efficiency | Incentive dollars per job created or program costs per million dollars of announced capital investment |

Contact



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Kansas Connected and Autonomous Vehicle Vision

DIVISION OF EMERGENCY MANAGEMENT BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Division of Emergency Management can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Division of Emergency Management to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Division of Emergency Management Vision

Building sustainable capabilities across all phases of Emergency Management in Kansas through selfless service.

CAV Challenges

- Technical challenges such as training to use equipment and maintain efficiency.
- Safety, liability, and privacy concerns (internal and external).
- Unknown capabilities to CAV technology and human interaction, roadway impediments, construction, weather, and debris.
- Connectivity - Limited access to infrastructure necessary for broadband, particularly in rural areas.

CAV Opportunities

- CAV technology could aid in disaster response and streamline evacuations and provide access to transportation for vulnerable populations.
- Reduce number of emergency first responders in harm's way.
- Reduce personnel exposure in completing on-ground and aerial damage assessments.
- Strategic and better-informed response for first responders.
- Provide new data points during emergency response and incidents.
- Better data and simultaneous awareness to track incidents and response techniques and outcomes over time.

System Needs

- Data - security, privacy, data storage, data management
- Network - privacy and security
- Infrastructure - consistency, investment in CAV technology to support emergency preparedness and response capabilities

- Agency Organization Structure - new response strategies based on CAV capabilities and the state's access to CAV technology
- Funding - funding for new CAV technology
- Policy/Legislation/Regulation - agency interaction, clarify jurisdictional responsibilities
- Workforce, Agency - training on response to CAV incidents, specialized licensure/training for the use of CAV technologies to support emergency preparedness and response capabilities (automated support capabilities, unmanned aerial vehicles (UAV), robots, etc.)
- Workforce, Public - training in operations and management of CAV systems
- Public Education and Outreach - education and training about technologies in use and how the state uses them

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Learn from experience with UAV for fire investigation and emergency response.
- Use the division's work with UAV as the foundation for building the case for future CAV technology in emergency response.

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is low to moderate for the Division of Emergency Management. The majority of the costs are anticipated to be capital investment in new technologies to assist with existing procedures in the short term.

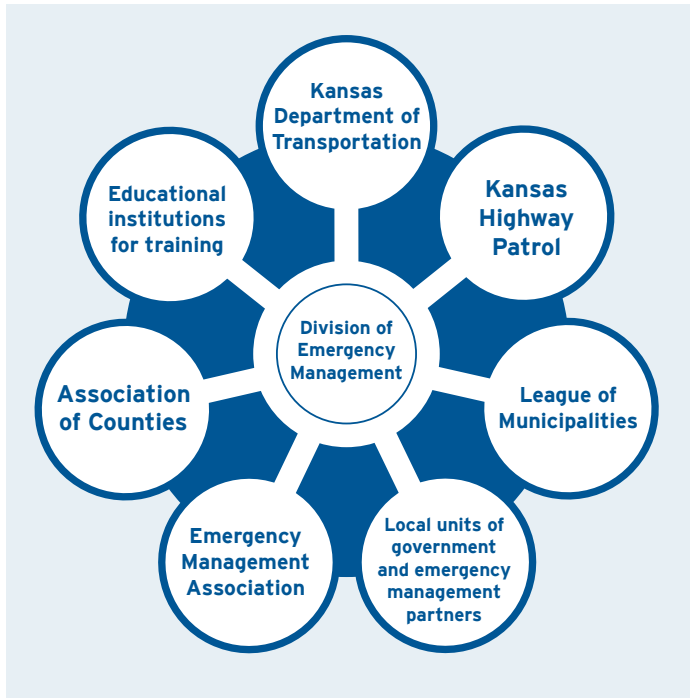
Relative Cost



DIVISION OF EMERGENCY MANAGEMENT BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Education for stakeholders is not likely and would be dependent upon the need for stakeholder training. If needed, training and outreach would be focused on awareness, uses, potential implementation, and other considerations such as safety or privacy concerns.
- Education should also focus on safety measures, including the fail-safes in place for CAV stops and overrides.

Immediate Key Actions

- Develop CAV emergency response guide.
- Develop procedures for informing the public after incidents involving CAV.
- Initiate UAV training for emergency responders.

Time Frame

Expected time frame when CAV will impact the Division of Emergency Management:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|------------------------|-------------------------------------|
| Safety | Reduced number of driving incidents |
| Incident response time | Response time |

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Kansas Connected and Autonomous Vehicle Vision

DEPARTMENT OF REVENUE BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Department of Revenue can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Department of Revenue to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Department of Revenue Purpose

The Kansas Department of Revenue collects taxes and fees, administers Kansas tax laws, issues a variety of licenses, and provides assistance to Kansas citizens and units of government.

CAV Challenges

- Key policy, legislative, and legal solutions needed to support CAV.
- Liability insurance and determining responsibility.
- Electronic recorder data and privacy concerns.
- Balancing data accessibility with privacy/protection concerns.

CAV Opportunities

- Receptive government(s) and conservative juries.
- Strict monetary limits on tort liability by manufacturer or operator.
- Provides mobility solutions for persons with medical conditions, elderly.
- Reduces risk of persons operating vehicles while under the influence.
- Improved system for used car technology verification.

System Needs

- Data - security, accessibility, privacy transparency, accuracy, privacy act, law enforcement access, state-to-state interoperability, management
- Network - privacy, security, maintenance
- Infrastructure - software updates and data storage
- Agency Organization Structure - committee for CAV registration, staff for data analysis, determine potential revenue loss/gain, third-party titling and registration for private clients, and uniform process for CAV operators
- Funding - educational initiatives, taxing structures to address Transportation as a Service (TaaS), employee training, CAV operator licensing, network needs

- Policy/Legislation/Regulation - CAV operator requirements, consistency with federal standards, data ownership, interactive certificates of safety, clarified federal and state responsibility, clarified International Registration Plan, modified insurance model, access to black boxes for driver's license privileges, equipment issue reporting
- Workforce, Agency - initial startup, real-time data analysis staff, new requirements for training, software capability
- Workforce, Public - technology training for older individuals
- Public Education and Outreach - begin with public acceptance of TaaS, Uber, Tesla, Lyft, etc.

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Adopt a framework for testing CAV technology and fostering an environment that will encourage CAV industry and education in the state.
- Promote alternative transportation strategies to Kansas citizens that cannot lawfully obtain Kansas driving authority.
- Evaluate adjusting existing laws to anticipate owner/driver liability for events occurring while CAV operates on roadways and highways.
- Modify the Department of Revenue's strategic goals, insurance models, ownership models, and driver's licensing and record-keeping processes.

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is moderate to high as there is the potential for revenue decreases from electric and autonomous vehicles. Furthermore, changes will likely be required to upgrade technology, hardware, and software to maintain information systems.

Relative Cost



DEPARTMENT OF REVENUE BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Existing customers through education about new processes and changes in licensing.

Immediate Key Actions

- Evaluate peer models of alternative revenue sources including a mileage-based user fee.
- Identify potential new transportation funding sources.
- Develop financial scenarios to evaluate potential impacts of electric and autonomous vehicles on state revenues.
- Evaluate impacts and potential options to adjust to new vehicle ownership and registration processes, moving from vehicle ownership to TaaS.

Time Frame

The Department of Revenue anticipates implementation and deployment and agency impact of CAV within the 0 to 3-year timeframe.



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|-----------------------|-----------------------------------|
| Customer satisfaction | Customer surveys or focus groups |
| Increase collections | Voluntary or automatic compliance |

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Kansas Connected and Autonomous Vehicle Vision

DEPARTMENT OF TRANSPORTATION BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Kansas Department of Transportation (KDOT) can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for KDOT to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

KDOT Mission

To provide a statewide transportation system to meet the needs of Kansas.

CAV Challenges

- Demonstrating and proving CAV technology safety and reliability.
- Keeping pace with industry and national CAV developments.
- Transition phase with some CAVs and other vehicles.
- Upgrading infrastructure to appropriate base-line.
- Impacts to revenues from transition to electrification.
- Assist in providing broadband coverage to all areas of the state.
- Impacts of uninformed, conservative or resistant population on deployment opportunities.

CAV Opportunities

- Improved safety for all users; reduced crashes and fatalities.
- Increased mobility for aging or disabled population.
- Leverage CAV technologies to advance VMT mileage-based funding.
- Continual feedback on condition of infrastructure for asset management and maintenance decision support.
- Robust real-time data on traffic conditions and patterns.
- Robust real-time data on weather conditions and events that impact travel and highway maintenance.
- Partnering with neighboring states for CAV initiatives.

System Needs

- Data - permissible uses, exchange records, access determination, consistency, exchange mode, security and monitoring, management, standardization, conform with local and federal regulations
- Network - security, vehicles, charging stations
- Infrastructure - additional resources, private pilots, retrofit signage, urban and rural infrastructure needs and communications networks, electrical infrastructure, grid modernization

- Agency Organization Structure - education and public outreach positions, support for data retention staff, determine departmental CAV requirements, senior leadership engagement and support, internal policies, partnerships with other Kansas departments
- Funding - private partnerships, statutes to allow revenue generation, communicate CAV benefits to legislature, federal grants, pooled fund initiatives with other states, CAV research, CAV benefits for disadvantaged populations
- Policy/Legislation/Regulation - define inattentive/impaired driving, revise liability issues, data ownership, compliance with federal laws/legislation to ensure federal funding eligibility, harmonization of state and federal statutes, permit requirements for CAV oversize/overweight loads, legislation for black box access
- Workforce, Agency - data analytics staff, new expertise, training
- Workforce, Public - educate/update driver's education teachers, partnerships universities and community colleges to grow the workforce of the future
- Public Education and Outreach - statewide promotion, case studies from peers, commercial and individual motorist education, Kansas CAV brand development and optimization

Strategies

- To address these challenges and maximize opportunities, several strategies were identified:
- Model pilots to be nimble (fail fast, if needed).
- Develop a CAV strategic plan focused on improving motorist experience related to safety, reliability, and KDOT's infrastructure costs to improve operational efficiencies.
- Identify system needs and timelines and how they correspond with CAV Vision.
- Focus on mobility and safety enhancements of personal and freight trips.
- Take advantage of roadside connections and the statewide fiber optic network.
- Leverage the KDOT vehicle fleet for early CAV pilots and tests.
- Investigate public-private partnerships for pilot project implementation, seek federal grant funding to support pilot implementation.
- Evaluate how CAV can support asset management and maintenance decision support capabilities.

DEPARTMENT OF TRANSPORTATION BLUEPRINT

Cost and Funding

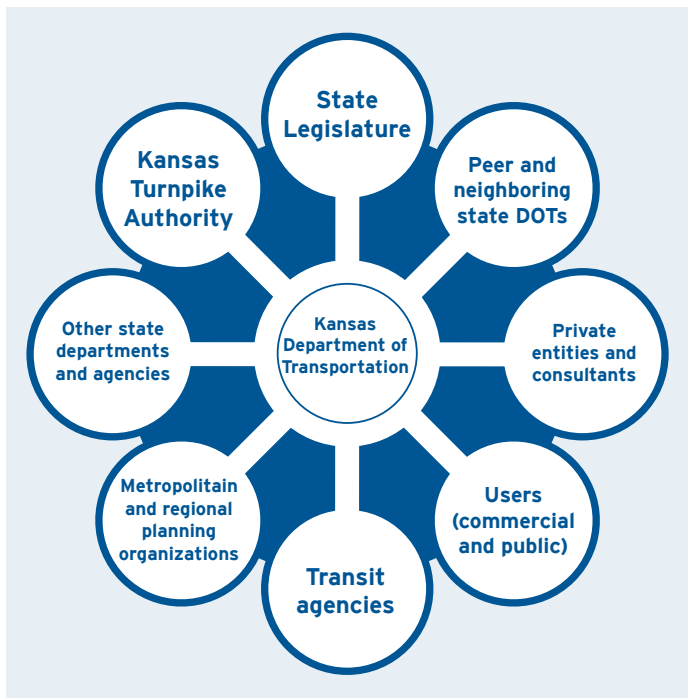
The relative cost and ease to implement CAV within the KDOT system is moderate based on KDOT's existing financial environment to test and implement technology and other state needs. While there are vast statewide needs, CAV technology benefit-cost ratio will continue to outperform large infrastructure benefit-cost ratios and prove to be a smart investment. Investigate P3 opportunities and federal grants as seed funding.

Relative Cost



Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Disseminate information to other state departments.
- Solicit commercial transportation providers to gain freight perspective on CAV technology and implementation.
- Develop comprehensive outreach plan (multifaceted to cover public, policy makers, and industry).
- Establish brand and marketing program for CAV.

- Establish internal webinar series and training to educate KDOT and other Kansas state staff.
- Present and communicate with legislators on a regular basis.

Immediate Key Actions

- Develop a detailed KDOT CAV strategic plan and framework for deployment.
- Continue to engage the Task Force and legislators.
- Peer review of how other DOT's are approaching CAV's.
- Collaborate with standards development organizations to review and update KDOT standards for highway design, signage, striping, signals, and other traffic control devices.
- Identify, prioritize, and implement CAV initiatives and pilot project(s).
- Develop standards for V21 and V2X.

Time Frame

Expected time frame when CAVs will impact the KDOT system:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|------------------------|--|
| Driver satisfaction | Surveys or focus groups |
| Safety | Crash records |
| Mobility | Travel time |
| Reliability | Planning time index |
| Readiness and maturity | Percent of state highway network ready for CAV |
| Success | Pilot test success rates |

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Kansas Connected and Autonomous Vehicle Vision

INFORMATION SECURITY OFFICE BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Information Security Office can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Information Security Office to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Information Security Office Purpose

Over the years technology has been woven into the very fabric of everyday life and while this has made us more efficient and more responsive, it has also introduced dependencies that are inherently vulnerable. Whether criminal or just an “oops”, the resources we rely upon every day to serve the public are constantly tested.

As stewards of these resources, it is our collective responsibility to ensure they are secure, and to that end it is the hope that this site provides essential tools and information that enables everyone to participate in securing the resources with which we are entrusted.

CAV Challenges

- Fast pace of technology changes.
- Complexity is still unknown.
- The current Security Credential Management System solution for connected vehicles may not be scalable..
- Network firewalls and partitions are both necessary and may pose challenges.
- Key policy, legislative, and legal determinations must be made regarding responsible parties for securing connected vehicle networks.
- Staff needs further information about CAV technologies and the scope of change to better prepare for and address CAV technology.

CAV Opportunities

- New information security management solutions are being developed to support the evolving CAV environment statewide.
- New technologies, like Blockchain, offer more secure data transactions and can be applied in a CAV environment.

System Needs

- Data - security, standards, storage, management and privacy
- Network - privacy and security
- Infrastructure - consistency, software updates and data storage
- Agency Organization Structure - potential transition to state-managed network for CAV
- Funding - upgrading servers and data network, additional employee and staff training, additional staff needs
- Policy/Legislation/Regulation - clarify responsible parties for securing connected vehicle networks and data ownership
- Workforce, Agency - recruitment, new requirements for training, software capability
- Workforce, Public - IT curricula focused on cybersecurity and information management
- Public Education and Outreach - public education about network and data security is critical to CAV adoption

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Identify weaknesses and risks in the data network and IT processes.
- Develop partnerships with peer agencies to facilitate sharing of best practices, lessons learned, and strategies.
- Develop communications plan about Information Security within Kansas state government to gain consumer trust.

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is moderate due to increased staff needs as well as capital and operating cost increases assumed from expansion of the network to accommodate CAVs. Staff will need to be distributed throughout the state and not only within the central office.

Relative Cost



INFORMATION SECURITY OFFICE BLUEPRINT BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Education and training with other state agencies and departments.
- Educate other agencies to address data network and privacy concerns from consumers.

Immediate Key Actions

- Determine the needed cybersecurity of the technology associated with CAVs.
- Evaluate network risks and data management needs.
- Continue to assess cybersecurity needs of technology associated with CAVs.
- Forge partnerships with other state agencies to define common challenges and strategies to support data and network security in a CAV environment.

Time Frame

Expected time frame when CAV will impact the Kansas Information Security Office:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|---------------------|--|
| Security | Number of threats detected, threats neutralized |
| Readiness | Industry security standards met, reliability of information, quality of service measures |
| Costs | IT equipment costs, personnel costs |

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Kansas Connected and Autonomous Vehicle Vision

INSURANCE DEPARTMENT BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Insurance Department can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Insurance Department to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Insurance Department Mission

We believe our primary responsibility is to the people whose personal lives or business endeavors are protected by an insurance product in the state of Kansas. We recognize that we are here to serve them and consider this responsibility to be an honor.

CAV Challenges

- Forecasting technology impacts on the insurance industry.
- Determining impacts of road testing and pilot projects on insurance.
- Legal unknowns and liability policies.
- Privacy and security concerns.
- Weather-related concerns.
- Consumer acceptance.
- CAV/vehicle certification (e.g. resale of vehicle with technology).

CAV Opportunities

- Reduction and elimination of driver error and increased safety.
- Potential drop in exposure to accidents; which may lower the amount of liability coverage needed.
- Involvement in the National Association of Insurance Commissioners (NAIC) Committees initiative that focuses on CAV.
- Reduced law enforcement needs on the road.

System Needs

- Data - security, standards, data storage, management and privacy
- Network - privacy and security
- Infrastructure - consistency, software updates, data storage
- Agency Organization Structure - familiarize government affairs division with CAV needs and issues, training preparations, interagency communication

- Funding - increased campus visibility to recruit for skilled positions
- Policy/Legislation/Regulation - definition by department of motor vehicles, clear “driver” and “responsible party” definitions
- Workforce, Agency - staff training, recruitment, increase in policy review, projections and forecasting, statute and policy training, investment in educational opportunities, increased discussion
- Workforce, Public - revamp current insurance training to take CAVs into consideration, legal training for future lawyers related to insurance regulations
- Public Education and Outreach - communications to bring public awareness, legislation support for insurance industry

Strategies

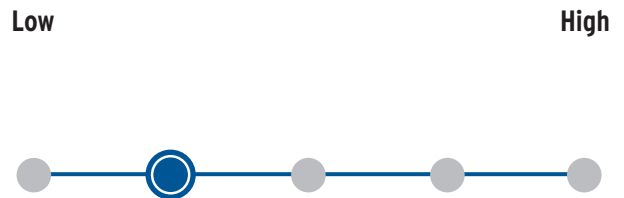
To address these challenges and maximize opportunities, several strategies were identified:

- Develop CAV road and insurance laws.
- Consider impacts and implications of roads, testing and insurance laws.
- Closely follow plans to address impacts of CAVs with the NAIC and develop plans/goals through existing task force.

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is low to moderate for the Kansas Insurance Department. Most of the impact will be on staff time and training regarding new areas of compliance and liability.

Relative Cost



INSURANCE DEPARTMENT BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Staff to attend industry conferences to gain insight on ways to address issues and potential future changes.
- Collaborate with industry representatives.

Immediate Key Actions

- Review potential CAV insurance products within existing insurance frameworks.
- Engage in on-going discussions with NAIC on CAV impacts to the insurance industry.
- Collaborate with other state agencies to address data management, security, and privacy concerns.

Time Frame

Expected time frame when CAV will impact the Kansas Insurance Department:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|---------------------|--|
| Safety | Number of claims, value of claims |
| Economic Impact | Number of claims, value of claims, cost of crashes (fatal, personal injury, property damage), underwriting costs, insurance job numbers, premium costs |

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Kansas Insurance Department

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Kansas Connected and Autonomous Vehicle Vision

LEGISLATOR BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how Kansas Legislators can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for Kansas Legislators to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Legislator Mission

The Kansas legislature is made up of elected representatives, who consider matters brought forth by the Governor or introduced by its members to create legislation that becomes law. The legislature also approves the state's budget and initiates tax legislation and articles of impeachment. The latter is part of a system of checks and balances among the three branches of government that mirrors the federal system and prevents any branch from abusing its power.

CAV Challenges

- Coordination and consistency with other state policies and legislation.
- Creating a policy environment that supports public-private partnerships.
- Conservative, pragmatic nature of constituents and general public acceptance and constituent support.
- Uncertainty in industry shift away from personal vehicle ownership.
- User privacy and security concerns.
- Ability of legislation to keep up with quickly evolving technology.
- Legislator turnover and need for continuous education.

CAV Opportunities

- Improved safety for all roadway users; reduction in crashes and fatalities.
- Increased mobility for aging or disabled population.
- Timely and automated emergency response and resource assistance during incidents and natural disasters.
- The state is a center for trade and can greatly benefit from increased efficiencies in transportation.

System Needs

- Data - standards, privacy policy consensus, address Kansas Open Records Act concerns
- Network - ITEC Review, security, privacy, reliability
- Infrastructure - pilot project bill
- Agency Organization Structure - continued community involvement, required interagency meetings
- Funding - appropriate budget funds, public-private partnerships, statutory change to allow testing
- Policy/Legislation/Regulation - review of statutes and amendments, consistency, harmonization of state and federal statutes, conformity with Freedom of Information Act, Kansas Open Records Act, Federal Driver Privacy Protection Act, and records preservation laws
- Workforce, Agency - educate legislative staff on the primary issues related to CAV
- Workforce, Public - legislative initiatives related to STEM workforce development, assess impact on motor vehicle companies and the mobility industry
- Public Education and Outreach - hearings and presentations

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Enable legislation to support new technology and testing.
- Foster environment to test test new technologies and allow flexibility as technologies change.
- Consensus building by participating in working groups like the Kansas CAV Task Force.
- Engage the CAV Task Force and the Kansas Department of Transportation through annual presentations to legislators.
- Encourage efforts to inform the public and keep constituents updated as technology matures.
- Include CAV initiatives in appropriations language to support mainstreaming of innovation in statewide transportation services.

LEGISLATOR BLUEPRINT

Cost and Funding

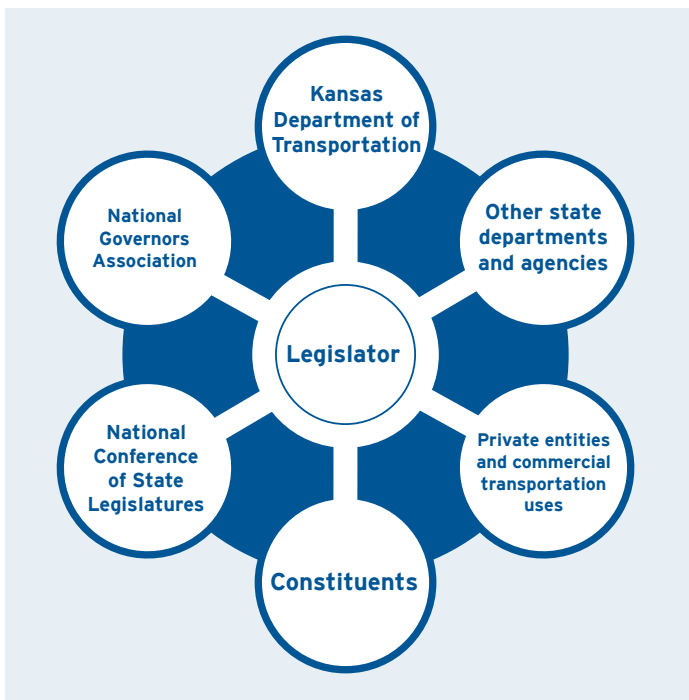
The relative cost and ease to implement CAV in the state of Kansas is low to moderate based on the state's existing financial environment to test and implement technology balanced with other state needs. Several state agencies will require additional resources for the CAV transition.

Relative Cost



Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Internal education of legislators and legislative staff.
- Collaborate with the commercial vehicle industry to gain freight perspective on CAV technology and implementation.
- Collaborate with the agricultural industry to gain perspective on their specific needs in the CAV space.
- Work with the Kansas Department of Transportation and the Kansas Turnpike Authority to support outreach and public education related to CAV benefits, costs, and impacts.

Immediate Key Actions

- Understand what state and federal laws allow and what they do not.
- Conduct a peer review of state laws concerning CAV.
- Assign legislative representative(s) to the Kansas CAV Task Force.
- Work with the Kansas Department of Transportation to develop a one-page briefing paper on CAV for Kansas.
- Identify legislative champions to spearhead policy initiatives related to CAV.

Time Frame

Expected time frame when CAV would impact Kansas Legislators:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|----------------------|--|
| Public perception | Surveys and focus groups |
| Sufficient resources | Track funds allocated to projects and pilots |

Contact



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Kansas Connected and Autonomous Vehicle Vision

STATE HIGHWAY PATROL BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Kansas Highway Patrol (KHP) can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the KHP to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Kansas Highway Patrol Mission

The Kansas Highway Patrol is devoted to improving quality of life through spirited and dedicated service. We pledge to be responsive to concerns of citizens and public safety partners. We will do this by providing professional law enforcement services and share resources in the most effective and efficient manner possible.

We believe in treating all persons with courtesy and respect. The preservation of individual dignity and constitutional rights is paramount in performing our duties. Protecting the rights of coworkers and providing a safe, secure working environment are of equal importance.

We are committed to providing protection of life and property through active enforcement of traffic, criminal, and other laws of the State of Kansas, and by supporting homeland security initiatives. We recognize our responsibility to uphold and enforce this authority in a competent, fair, and honest manner.

CAV Challenges

- Address use of CAV technologies in KHP fleet vehicles.
- Policy updates and training of personnel.
- Laws regulating the use and operation of CAVs in Kansas.
- Policies that reflect new statutes and procedures.
- Enforcement of accident investigative technology.
- Determining how much control the driver has/had over the vehicle.
- Ability to monitor contrabands.
- Ability to quickly identify what level of CAV technologies are onboard vehicles.
- Access to data from onboard systems for crash investigations and other enforcement activities.

CAV Opportunities

- Reduce KHP's responsibilities and or staff time monitoring commercial operators' hours on the road.
- Fewer traffic violations.

- Improved safety through crash avoidance technologies and removing human error.
- Reduces risk of persons driving while under the influence.
- More easily and accurately determine cause of crashes.

System Needs

- Data - standards, policy, security, onboard vehicle data for crash investigations and enforcement
- Network - reliability
- Infrastructure - reporting mechanisms, backup infrastructure, appropriate signage and technology in case of emergencies
- Agency Organization Structure - agency override, method for reporting equipment issues, informed staff, continued work with the Kansas Department of Transportation, maintain strong relationships with federal, state and legal partners
- Funding - equipment and technology needs, officer training and education
- Policy/Legislation/Regulation - guidelines on how to interact with vehicles and potential contraband suspicions, information sharing with the Kansas Department of Transportation
- Workforce, Agency - new expertise, training on levels of autonomy
- Public Education and Outreach - public acceptance of technologies, new traffic rules regarding enforcement for CAVs

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Engage in national forums to learn from other highway patrol agencies.
- Work with state legislators and the Kansas Department of Transportation to collaborate with manufacturers. Ensure that law enforcement needs are considered in the development and regulation of CAVs (e.g. override and intervention when necessary).
- Collaborate with other state agencies to identify available data and future vehicle data needs. Coordinate internally with team to determine what KHP requires to complete their responsibilities in a CAV future.

STATE HIGHWAY PATROL BLUEPRINT

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is moderate for the KHP. The cost is relatively low to educate and train staff, however, the potential revenue loss from reduced traffic violations may be significant.

Relative Cost



Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

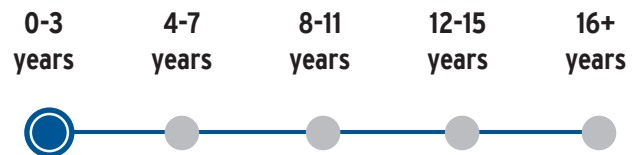
- Existing motorists that may be unaware of CAV capabilities.
- Crash investigation teams.
- Other state agencies on KHP's needs.

Immediate Key Actions

- Identify law enforcement and crash investigation needs that must be met.
- Coordinate with chart team to determine what they will require to complete their job in a CAV future.
- Forecast potential budgetary scenarios for KHP if traffic violations and fees are reduced.

Time Frame

Expected time frame when CAV will impact the KHP:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|---------------------|--|
| Improved safety | Reduce number of crashes, motor vehicle fatalities, and injuries |
| Education/Outreach | Number of public outreach events or persons reached |

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Kansas Connected and Autonomous Vehicle Vision

TRAFFIC SAFETY RESOURCE OFFICE BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Traffic Safety Resource Office can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the Traffic Safety Resource Office to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

Traffic Safety Resource Office Mission

To provide public information and education to protect Kansans from avoidable injury or death on Kansas roadways.

CAV Challenges

- Unknown reliability of CAV technologies.
- Potential intra-agency coordination.
- Challenges for testing include funding and buy-in from legislators.
- Privacy concerns with passenger/user information.
- Performance specifications and non-traditional methods to validate performance of CAV technologies.
- Cybersecurity and systems which allow a "hacking" of operations.

CAV Opportunities

- Mobility and safety benefits for transportation-limited populations.
- Improved safety through crash avoidance technologies and removing human error.

System Needs

- Data - inventory, security, use data, standards on data access, accuracy, reliability, data for safety regulations
- Network - security and reliability
- Infrastructure - local ownership of network maintenance
- Agency Organization Structure - innovative staff ideas, leadership, continued partnerships, emphasize unified message
- Funding - cross-sector support, transition incentives, new vehicle fleets and equipment, educational grant money, law-enforcement opportunities, financial support for communities, partner with schools to demonstrate CAV

- Policy/Legislation/Regulation - standards and methods of operation that accommodate various levels of automation, tracking when driver has control, determine when certification is necessary, safe driving incentives, crash investigation
- Workforce, Agency - awareness and training of emerging technology, education in CAV capabilities and public engagement opportunities
- Workforce, Public - school training, CAV technology career paths
- Public Education and Outreach - acceptance and trust of technology, about increased safety and mobility, eliminate CAV fears

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Test procedures with pilot projects with Kansas Traffic Safety Resource Office before CAVs are pushed to implementation.
- Widespread strong public education efforts to inform drivers of mobility opportunities and safety benefits and to keep drivers up-to-date on future CAV advancements.

Cost and Funding

The relative cost and ease to accommodate CAV and related impacts is moderate due the relatively low cost of staff training and effort to produce education information and outreach costs.

Relative Cost



TRAFFIC SAFETY RESOURCE OFFICE BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Existing motorists that may be unaware of CAV capabilities.
- Young populations who can be captured in educational settings.
- Elderly populations who could benefit from CAV opportunities.

Immediate Key Actions

- Train staff on benefits of CAVs.
- Ensure that staff engaging with the public understand CAV capabilities and terminology.
- Develop informational materials to be used for community outreach and education.
- Engage with pilot projects to assess potential impacts and new procedures.

Time Frame

Expected time frame when CAV will impact the Traffic Safety Resource Office:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|---------------------|--|
| Improved safety | Reduce number of motor vehicle crashes, fatalities, and injuries |
| Education/Outreach | Number of public outreach events or persons reached |

Contact



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Kansas Connected and Autonomous Vehicle Vision

TURNPIKE AUTHORITY BLUEPRINT



The safety, economic and personal mobility opportunities for Kansas residents, businesses, and visitors will expand tremendously with the evolution and deployment of connected and autonomous vehicles. This blueprint provides a high-level plan for how the Kansas Turnpike Authority (KTA) can incorporate connected and autonomous vehicles (CAV) into their business planning. The blueprint is a starting point for the KTA to advance CAV planning and should be adapted, revised, and updated as the state advances with CAVs.

Kansas Vision Statement

To support an evolving and partnering environment of innovative and practical CAV solutions for a safe, reliable, and integrated transportation network.

KTA Mission

KTA moves Kansas forward by operating a safe, reliable and customer-valued turnpike system in a fiscally responsible, businesslike manner.

The KTA provides 236 miles of high-quality, user fee supported roadway infrastructure in Kansas. To accomplish their mission, the KTA is focused on safety and mobility while supporting the growth of the Kansas economy. This aligns with the overarching Kansas Vision. The KTA will be one of the lead state organizations with the rollout of CAV in state.

CAV Challenges

- Uncertainty of the CAV implementation timeline.
- Legislative or legal statutory changes or guidance are needed.
- Ambiguity in national CAV policy; Unknown technology and operational changes resulting from CAV.
- New and unknown requirements for striping, signing, and roadside technology.
- Mixed fleet of CAV and non-CAV.

CAV Opportunities

- Improve safety and traffic management of the turnpike system.
- Leverage KTA's existing communication fiber network to support CAV usage.
- Expand electronic payment options.
- Streamline CAV implementation by leveraging KTA's existing institutional and statutory flexibility.
- Build off of CAV lessons learned from other turnpike agencies.
- Identify a CAV pilot project.
- Closed system for the testing of CAV.

System Needs

- Data - network, security, standards, data storage and management

- Network - security, segmentation
- Infrastructure - roadway markings, pilot projects, start planning for RSU's to acquire and share data within the KTA fiber network
- Agency Organization Structure - enhanced internal structure, build on current relationships
- Funding - partner with universities, leverage public/private partnerships
- Policy/Legislation/Regulation - regulations of who owns the data, liability and allowing for testing, access to data, reporting equipment issues
- Workforce, Agency - additional staff with new expertise, training
- Public Education and Outreach - educate leadership and public

Strategies

To address these challenges and maximize opportunities, several strategies were identified:

- Develop a CAV strategic plan focused on improving customer experience related to safety, reliability and KTA's infrastructure costs to improve operational efficiencies and maximizing revenue potential for KTA.
- Coordinate with the Kansas Department of Transportation on a statewide CAV strategic plan that addresses the vision for Kansas.
- Identify system needs and how they correspond with CAV Vision.
- Focus on mobility and safety enhancements of personal and freight trips.
- Take advantage of roadside connections and statewide fiber network.
- Identify location for CAV pilot project.

Cost and Funding

The relative cost and ease to implement CAV within the KTA system is low to moderate based on KTA's existing financial and statutory flexibility to test and implement technology and coordinate with the KTA Board to obtain approval.

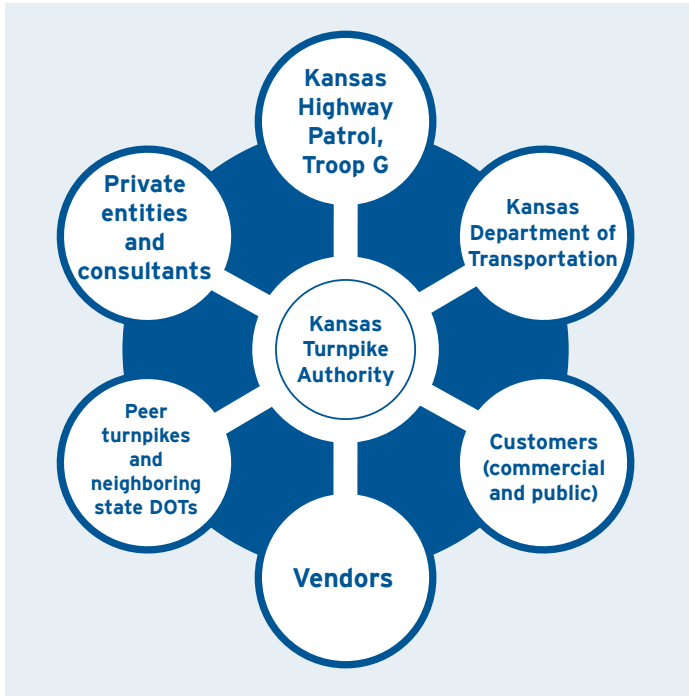
Relative Cost



TURNPIKE AUTHORITY BLUEPRINT

Partnership Opportunities

Partnerships are a strategic way to maximize CAV opportunities in Kansas. The following identifies potential CAV partnerships and stakeholders.



Educational Audiences

- Existing K-TAG account holders and interoperable partners to provide input on CAV technology and implementation.
- Commercial vehicle customers through fleet accounts or BestPass/PrePass interoperability to provide freight perspective on CAV technology and implementation.
- Video customers license plate capture as larger audience to share information.

Immediate Key Actions

- Peer review of how other toll businesses are approaching CAVs
- Presentation of Kansas CAV Vision to KTA Board
- Identification and implementation of CAV pilot project(s)

Time Frame

Expected time frame when CAV would impact the KTA system:



Performance Measures

The current transportation program under the United States Department of Transportation emphasizes performance based planning. Therefore, developing clear, measurable, and aligned CAV performance measures is critical.

| PERFORMANCE MEASURE | MEASUREMENT |
|-----------------------|---|
| Customer satisfaction | Customer surveys or focus groups |
| Safety | Crash records |
| Mobility | Travel time |
| Reliability | Planning time index |
| Revenue | Monthly transactions and expansion of payment options |

Contact



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