

INTRODUCTION

Few things fundamentally affect the nature, feel, and operation of a city like its transportation system. Decisions about it affect nearly every facet of the community, and so, it is crucial to Louisville's future that as major changes emerge, Metro will stand ready to make the most informed decisions possible. Based on the level of testing underway and a raft of announcements from car makers and mobility providers, the commercial availability of autonomous vehicles (AVs) seems imminent. While projections of how, and how quickly, the technology will be adopted are still being debated, the potential for AVs to have a dramatic impact on how people and goods move to, from, and around makes for a compelling case to begin research and work toward the adoption of a policy framework that prepares for this technological shift while ensuring that mobility is enhanced in an equitable manner for all of Louisville's residents.

As AVs become widespread, it is likely that new ownership models and different types of vehicles will become common. While it is not clear what the ultimate impact of these changes will be, it is certain that AVs have the potential to transform the way people move around. As AVs raise questions about the future, Louisville needs to be ready to respond with answers that reflect our city's values and in ways that move Louisvillians closer to achieving the vision of a more balanced transportation network, which they have expressed in previous and current planning efforts for the future. Change can be concerning and upsetting if it's unexpected and unprepared for, but by discussing and re-committing to the community's values at the onset of this era of rapid technological innovation, Louisville will be ready to meet the future with its best foot forward. Fortunately, Metro has already started rising to this challenge through, among others, the development of the Move Louisville Plan and the 2040 Comprehensive Plan update process.

Securing Louisville's vision for itself in the era of AVs will require conscious, informed policy decisions. Congestion is just one example of the challenges and opportunities posed by AVs. Inter-vehicle communication may allow more AVs to share less road space, but only once a large percentage of vehicles on the road are autonomous, which is not expected for many years. Other offsets may come from the introduction of autonomous transit services and the increased usage of shared ownership or shared riding models. Studies suggest that when used in conjunction with a strong public transportation system, autonomous vehicles will likely be able to move everyone to where they would like to go while simultaneously decreasing the number of vehicles on the road. If implemented prudently, and with enough forethought, autonomous vehicles can allow for more efficient space allocation along Louisville's streets and roads enabling the City to provide and expand safe, convenient connections for all road users (pedestrians, cyclists, transit users, and motorists). AVs will provide new tools and opportunities to realign the transportation system in ways that are consistent with the community's goals and tackle long-standing problems, but only if we as a community are well prepared.

Years from the full adoption of AVs, this plan does not hope to answer every question about them, but it does begin the conversation and provides an initial framework by which Louisville can better understand the promises and potential pitfalls of the technology. While cities cannot shape their destinies alone on this issue, by starting early Louisville can maximize the benefits of the technology and leverage AVs to continue making our City a better place to live.

VALUES

Given the uncertainty as to the details of AV implementation, it is not possible to begin making specific policies regarding the technology or its rollout. However, it would be imprudent to ignore the signs of change. So in recognition of the fact that much about AVs is unknown, it is this section of the report's intent to instead establish and reaffirm those things that are known: our city's goals and values. While the 2040 Comprehensive Plan is still in the process of being finalized, the process included a substantial amount of public engagement that sought to gather and synthesize public opinion on what values define Louisville and how those values should best be implemented. The plan provides a set of policies that will guide Louisville Metro's growth and development for the next twenty years. Given the intrinsic bond between land use and transportation, it is those principles concerning the shape and development of the community that were identified and developed through an extensive public outreach process that shall form the basis for this framework. The five key principles from the Comprehensive Plan are known as the "CHASE Principles;" they are: Connected, Healthy, Authentic, Sustainable, and Equitable. Each is referred to in the document's vision statement, which sees Louisville Metro as a vibrant and diverse community that is connected, healthy, authentic, sustainable and equitable, with compassionate citizens and memorable places among its greatest assets and where all people are able to achieve their full potential.

The ways in which these principles apply to AVs are varied and will be more fully addressed through the development of our plans and strategies. The principles will inform Louisville's AV policy as follows:

- Connected - Better connecting its citizens to jobs, housing, and other life opportunities by providing for a true range of multi-modal options that will increase safety and convenience for all road users.
- Healthy - AVs should aid Louisville Metro in developing a safe and healthy, built environment that supports active lifestyles by ensuring that all neighborhoods promote a state of complete physical, mental, and social well-being.
- Authentic - Louisville's approach to the development and deployment of AVs should be authentic by engaging all citizens and businesses and by reflecting Louisville's unique character.
- Sustainable - AVs should aid Louisville Metro by promoting sustainable, high-quality transport and development practices that reduce vehicle miles traveled (VMT) per capita and improve air quality.
- Equitable: AVs should aid Louisville Metro in the equitable distribution of benefits derived from improved mobility, safety and public and private investments throughout the community.

By viewing AVs as an opportunity to improve mobility and the city's livability rather than just a technological advance, the rollout and deployment of AVs can help Louisville achieve many of its residents' stated goals by redefining the transportation system and their relationship to it. By shaping technology and infrastructure plans to meet Louisvillians' stated and closely-held goals—instead of the other way around—the future, and whatever it brings, will be both welcome and positive.

PLAYBOOK

Play 1:

Ensure that major infrastructure decisions focus on moving people and consider the effects of AVs

Summary:

Infrastructure investments have long-lasting impacts on the community. Moving people safely and maintaining the existing transportation network should remain top priorities for Louisville Metro. New investments should be informed by community needs, trends and best practices. By taking these steps, Louisville Metro's transportation network investments can provide and catalyze benefits for everyone. While Autonomous Vehicles (AVs) are not here today, it is likely they will be a part of the transportation system in the next 5-10 years. Therefore, the community needs to start making infrastructure decisions that take into account the expected impacts of AVs in order to ensure that investments made today continue to provide value in the decades to come. Thus, Louisville's infrastructure systems must be made resilient and flexible. Infrastructure decisions should take into account other large paradigm shifts in the transportation industry such as increased ridesharing and electrification.

Action Steps:

1. Create a framework as part of a complete streets process to evaluate the potential of AVs to impact infrastructure projects, land use decisions, Vehicle Miles Traveled (VMT), and government operations with respect to different levels of adoption and varying ownership models.
2. Assess Electric Vehicle (EV) charging infrastructure needs and create a plan to grow the EV charging network to support AV adoption and general trends in EV car ownership
3. Improve the city's complete streets process by creating a streetscape design manual with examples with right-of-way sections that are designed to move people instead of vehicles by providing citizens with a range of transportation options by leveraging the space and volumetric efficiencies afforded by AVs, ridesharing, and transit.
4. Assess existing laws, state statutes, and municipal codes that will impact the deployment of AV technologies so that unnecessary hurdles can be removed and needed protections put in place

Play 2:

Forge public and private partnerships to prepare for new regulatory and technological challenges, anticipate emerging technologies, and establish best practices.

Summary:

Because cities are not empowered to chart their own destinies regarding AVs, Louisville must build strong local and national relationships. Our partners must include local businesses, not for profit organizations, governmental organizations, local and state transportation authorities, and those bringing emerging technologies to the city. By being proactive, Louisville will get a say in how this technology will be integrated into the community. By building partnerships and trust, we will make sure that Louisville benefits as much as possible from AV technology.

Action Steps:

1. Designate specific areas in Louisville for potential AV testing sites and AV fleet storage.
2. Work with State and local partners to develop a legal framework for Autonomous Vehicle testing in Kentucky including updating the legal definition of the term “driver” in light of new technology.
3. Develop relationships with leaders in the AV industry including local auto manufacturers: Ford and Toyota
4. Create a process to update this playbook as AV technologies and community priorities change and new partnerships are created.

Play 3:

Prepare for fundamental shifts in parking demand

Summary:

The parking industry faces a particularly uncertain future given the potential for wide-scale adoption of AVs. Estimates of how much parking demand will decrease vary, but studies indicate that demand will ultimately decline. Given this likely outcome, Louisville Metro needs to plan for a future where our current parking stock exceeds demand. This change will bring challenges and opportunities as substantial sections of our neighborhoods and commercial districts could be completely redefined.

Action Steps:

1. All new parking facilities should be constructed so that they may be repurposed, unless architecturally unfeasible.
2. Prepare for a potential reduction in parking, based on different levels of AV adoption, and how that will affect revenues and operations over the next 20 years.
3. Update zoning and other development regulations to reflect the changing demand for parking

Play 4:

Ensure AV technology supports TARC operations to strengthen our transit system

Summary:

AVs have the potential to completely transform how the public transit system operates. By redefining the size, frequency, and routes of busses, better integrating with Transportation Network Companies (TNC), and receiving priority road space thanks to the space efficiency benefits of AVs, transit has an important role to play in the new transportation paradigm. Investing in public transit will be critical to reducing VMT once AV technology is widely adopted as the ultimate impact of AVs on VMT is not certain. Planning for changes to the built environment, realignments of the public right-of-way and, the integration of AV technologies into transit will give us a head start on achieving the community's goals. Most of today's thriving cities feature strong transit systems and there are no indications that the thriving cities of the future will be any different.

Action Steps:

1. Develop a Request For Information to learn how TARC could work with Transportation Network Companies (TNC) and AV technology manufacturers to provide first & last mile connections during TARC's Comprehensive Operations Analysis and Long Range Planning Process
2. Evaluate how AV technology could affect TARC operations, including adoption of autonomous transit vehicles, over the next 20 years as part of the upcoming TARC Long-Range Plan and Comprehensive Operations Analysis

Play 5:

Develop and maintain transportation technology and data infrastructure to encourage innovation and promote accountability

Providing transportation infrastructure is one of the most important jobs of a local government. Today, Louisville Metro's transportation network has an estimated value of over \$5 billion. Maintaining a safe, efficient network is critical to the city's future. Continuing to do so will require new investments in new systems, technologies, and data management structures as well as continued reinvestment in our current assets. AVs will require the technology and data components of our system to be more substantially built out and maintained due to the data heavy nature of the autonomous future. With the ability of AVs and Connected Vehicles (CVs) to communicate with the infrastructure, cars, and travelers around them, Louisville needs to make investments in technology and data infrastructure to help facilitate that communication and data exchange, which will be a new core competency required of any publicly-maintained transportation system.

Action Steps:

1. Make investments in Intelligent Transportation System (ITS) that better position Louisville to support and integrate AV/CV technology
2. Create a data-platform that will be able to host, manage, and share data necessary for AV/CV operations and the related technologies
3. When legally allowable, post all relevant data and information about AV/CV initiatives on our Open Data portal to promote transparency, and data-sharing

ACTION PLAN

Current Work

- Create a framework as part of a complete streets process to evaluate the potential of AVs to impact infrastructure projects, land use decisions, Vehicle Miles Traveled (VMT), and government operations with respect to different levels of adoption and varying ownership models
- Assess Electric Vehicle (EV) charging infrastructure needs and create a plan to grow the EV charging network to support AV adoption and general trends in EV car ownership
- All new parking facilities will be constructed so that they may be repurposed, unless architecturally unfeasible.
- Create a data-platform that will be able to host, manage, and share data necessary for AV/CV operations and the related technologies

Next 12 to 18 Months

- Designate specific areas in Louisville for potential AV testing sites and AV fleet storage
- Make investments in Intelligent Transportation System (ITS) that better position Louisville to support and integrate AV/CV technology
- Work with State and local partners to develop a legal framework for Autonomous Vehicle testing in Kentucky including updating the legal definition of the term “driver” in light of new technology
- Develop an Request For Information to learn how TARC could work with Transportation Network Companies (TNC) and AV technology manufacturers to provide first & last mile connections