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Outcomes, Other Considerations, Next Steps

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Outcomes

At its core, an autonomous shuttle is a new technology, one that will continue to grow in sophistication and adoption as the technology becomes more mature. This pilot is an opportunity for the City of Lincoln to establish itself as an early adopter, and an early leader in the deployment of this technology. The City and its partners can use this pilot as a way to gauge a number of useful insights related to the technology, including:

- Public acceptance of autonomous technology
- Test the viability of microtransit as a component of a transit system
- Test the viability of demand-responsive transportation as a way to reinforce transit
- Better trip data from users
- Understand how emerging autonomous technologies work and can be deployed in a real-life setting

This pilot is the first step in what could be a larger deployment of autonomous technology that serves the needs of the traveling public. Looking into the future, there may be additional phases that address last-mile issues with bus transit, or ways to deploy short-trip transit within the denser areas of Lincoln.

As mobility providers such as Uber, Waymo, Lyft, Ford, and GM are rapidly developing autonomous technology, the reduction in cost and increase in safety and reliability may be a challenge for transit. These services will likely be significantly less expensive than traditional car ownership, and may present real competition for transit. It's imperative that transit remain the backbone of Lincoln's transportation, providing access in an equitable manner to the City's population. It's likely that to stay competitive, transit will have to begin to utilize the same technologies and efficiencies that make the mobility providers an appealing option to the traveling public.

Other Considerations

Every new technology brings disruption in some form or another. One major point of contention with autonomous technology is the threat to jobs. It is not, and should not be the intent of this pilot to displace any jobs within the city. This pilot will add another layer of mobility within the downtown district, adding more options and perhaps appealing to a broader range of people. The deployment of the microtransit vehicles has the potential to employ several additional people to perform maintenance and supervision of the vehicles, in addition to acting as "ambassadors" to introduce the technology to the public.

Next Steps

This document is intended to guide the City of Lincoln in near-term planning as it moves towards implementing its multi-modal vision. The following steps should be taken in the immediate term to make the autonomous downtown shuttle a reality:

- Continue to engage the University of Nebraska, Downtown Lincoln Association, the Lincoln Chamber of Commerce, and internal stakeholders to encourage ongoing coordination in project implementation.

- Utilize ongoing dialogue with AV vendors to refine vehicle specifications and solicit proposals for vehicle leases.
- Perform analysis of existing intersections to finalize where new traffic control devices, if any, are needed.
- Identify where dedicated short range communications (DSRC) technology is needed at signalized intersections, and engage with AV microshuttle vendors to determine their requirements of DSRC infrastructure.
- Determine where vehicles can be stored and charged at night, and whether the chosen site meets electrical requirements for vehicle charging.
- Engage contractors for the installation/alterations of required DSRC, signage, pavement striping.
- Perform a preliminary hazard analysis (PHA), operations hazards analysis (OHA), and threat and vulnerability analysis (TVA) using the guidance set forth by the Federation Transit Administration in the Hazard Analysis Guidelines for Transit Projects.
- Develop and deliver training programs for City of Lincoln staff, first responders, and other participants in the day-to-day and emergency operations of the autonomous downtown shuttle.
- Develop and refine performance metrics with stakeholders and vendors to ensure the right data is captured to demonstrate project success.
- Identify opportunities for future route options and connection points to existing transit stops, parking, and points of interest.
- Verify pilot project is in conformance with applicable requirements of the FTA, NHTSA, ADA, and State and Local governing bodies.

Disclaimer: This document is not intended to dictate design or operations of an autonomous vehicle provider, supplier or vendor. HDR does not certify or warranty the pilot study design or operations. HDR is providing a planning level document that contains possible operational scenarios for decision makers to formulate final design and operational plans. All vendors, suppliers and/or operators shall review and determine the appropriate requirements of the pilot vehicles and systems to meet the operational requirements for the safe and proper operations of the vehicle.