



U.S. Department of Transportation
Federal Transit Administration



Strategic Transit Automation Research Plan

Background

In 2016, the Federal Transit Administration (FTA) began developing a Strategic Transit Automation Research Plan to advance the research, development, and deployment of transit bus automation. Research outlined in the Plan will help the transit industry move forward in the automation of transit bus services and operations. To inform the development of the Plan, transit operators and stakeholders were engaged through a workshop, webinar, and interviews. This engagement provided information on the level of interest in automation and the opportunities and challenges of automating bus transit, which in turn helped to identify a productive path forward for exploring automation in bus transit.

Objective

The objective of the Strategic Transit Automation Research Plan is to develop a five-year research agenda, based on informed input, to advance industry readiness for transit bus automation.

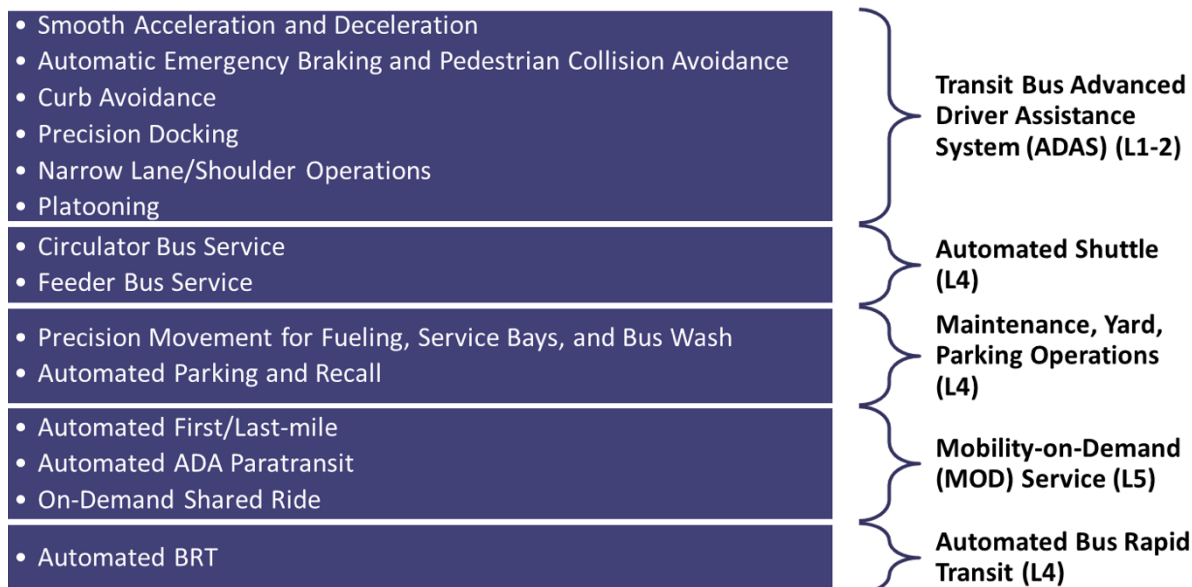
Plan Overview

The Strategic Transit Automation Research Plan focuses on enabling the transit industry to engage more broadly with automation technologies, spur technology development and growth through application in real-world settings, and leverage research projects and investments led by other agencies to improve the quality and usefulness of research.

The Strategic Transit Automation Research Plan is based on a series of research studies and coordination with internal and external stakeholders. The studies included an in-depth literature review, qualitative analysis, and benefit-cost analysis. Information from these studies was supported by interviews with subject matter experts and stakeholders, and the synthesized results were used to identify research needs in the areas of safety and security, operations and economics, passenger experience, and policy research.

The Plan focuses on non-technical challenges and is organized around three complementary work areas: Enabling Research, Integrated Demonstrations, and Strategic Partnerships. Enabling Research covers questions that must be addressed for the transit industry to engage more broadly with automation technologies. The research is expected to accelerate entry of manufacturers, suppliers, and transit providers into automation by building a common understanding of foundational issues (e.g., human factors, Federal policy, costs and benefits, etc.). Integrated Demonstrations will spur technology development and growth in the transit industry by applying automation technologies in real-world settings. The evaluation results and lessons learned from the demonstrations will be widely disseminated to transit stakeholders. Strategic Partnerships will leverage research projects and investments led by other agencies to improve the quality and usefulness of research by other actors and disseminate findings to a broad community, expanding participation of providers and suppliers.

The Plan includes a set of 5 technology packages that cover 14 use cases representing a range of near-term and long-term concepts and automation levels 1 (L1) through 5 (L5) as defined by the Society of Automotive Engineers (SAE). The technology packages respond to stakeholder needs and include transit bus advanced driver assistance systems (ADAS), automated shuttles, automated maintenance and yard operations, automated mobility-on-demand service, and automated bus rapid transit (BRT).



The five-year research agenda covers Federal fiscal years 2018–2022, with some of the initial enabling research already underway.

Benefits

By establishing a public research agenda, FTA is being transparent about what is known about transit bus automation, what information is still needed, and how the agency plans to move the industry toward implementation of automation technology. The five-year Plan provides stakeholders with a clear understanding of the expected actions and timing of FTA efforts so they can better engage with and participate in opportunities to provide input into the research, development, and testing of transit bus automation technologies. The ongoing stakeholder engagement and knowledge transfer activities will ensure that the research meets stakeholder needs, the research remains relevant and up-to-date, and that the transit industry can quickly build on results. Research and demonstration projects are designed to complement each other and collectively advance FTA and U.S. Department of Transportation goals.

Project Information

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