Updated 2026

Official Frequently Asked Questions (FAQs): Transit Bus Automation Policy

In January 2018, FTA released the Strategic Transit Automation Research (STAR) Plan to support the transit industry as they explored the use of automated transit buses. In July 2019, to address stakeholder questions about the impact of new technologies on transit agencies, employees, riders, and the general public, FTA developed frequently asked questions (FAQs) for the following key areas of interest:

- Transit Bus Automation in Relation to United States Department of Transportation (DOT) Requirements
- Transit Bus Automation in Relation to Federal Transit Administration (FTA) Requirements
- Transit Bus Automation in Relation to Other Considerations

This document updates the July 2019 FAQs, particularly as FTA embarks on its second multiyear transit bus automation research framework, STAR Plan 2.0, and USDOT implements its Automated Vehicle Framework. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies. FTA encourages you to send your comments and questions to transitautomation@dot.gov.

Transit Bus Automation in Relation to United States Department of Transportation (U.S. DOT) Requirements

The FAQs under this section highlight transit bus automation in relation to DOT requirements, including DOT's Americans with Disabilities Act (ADA) and Title VI regulations. In addition, how transit bus automation must comply with the National Highway Traffic Safety Administration's (NHTSA) Federal Motor Vehicle Safety Standards (FMVSS) is highlighted.

Americans with Disabilities Act (ADA)

1. If an automated transit project does not use federal funding, does it still have to comply with the ADA requirements?
    a. Yes. The ADA applies regardless of whether there is federal funding involved. The applicable requirements will depend upon the type of vehicle used and the service that will result, such as fixed route, general public demand responsive, or ADA complementary paratransit.
        i. Under 49 CFR § 37.71, all vehicles acquired by a public entity for use on a fixed route system must be accessible to and usable by persons with disabilities, including wheelchair users. Most, if not all, automated vehicles (AVs) used in public transit will meet the definition of "bus" in 49 CFR § 37.3. To be considered accessible, buses used in fixed route service must comply with 49 CFR Part 38, Subpart B—Buses, Vans and Systems, available here.

ii. For automated vehicles acquired for use in a demand responsive system that do not follow a fixed route, inaccessible vehicles may be acquired and the equivalent service requirements under 49 CFR § 37.77(c) would apply.

a. The criteria for equivalent service are found in 49 CFR § 37.77(c) and § 37.105, and include such factors as response time, fares, service area, hours and days of service, availability of information and reservations capability, and any constraints on capacity or service ability.

2. If a public entity contracts with a private entity for an automated transit project, what ADA requirements would apply?
    a. Whenever a public entity enters into a contract or other arrangement or relationship with a private entity, the same requirements apply as they would if the public entity operated the service itself. This includes fixed route or demand responsive service and applies to vehicle acquisitions and service operations.
3. A transit agency wants to implement a fixed route service in a community using automated vans or low-speed automated shuttles. The vehicles will have no established stops but will be "hailed" by riders through a smartphone application. Do any of these automated vans have to be accessible?
    a. Under 49 CFR § 37.71, all vehicles used on a fixed route system operated by a public entity are required to be readily accessible to and usable by persons with disabilities, including wheelchair users.
    b. For ADA purposes, the interaction between the passenger and the service via the smartphone application does not make this a "demand responsive" service because it is still running on fixed routes. Regulations related to fixed route services (see above) apply.
4. Are fully automated buses (see Level 4 High Driving Automation and Level 5 Full Driving Automation in SAE J3016_202104) with no human operator or on-board attendant considered "accessible" under ADA?
    a. Transit bus operators currently assist customers with disabilities. The ADA regulations, for example, require all transit buses and vans to be equipped with securement devices and ramps or lifts for wheelchair users, and § 37.165(f) requires that personnel assist individuals with disabilities in using these devices, when necessary. Fully automated buses without on-board attendants are not yet publicly available, and although robotic and technological solutions have been developed with a goal of allowing individuals with disabilities to independently access and use transit vehicles (e.g., automated securement) without assistance, more research is needed to determine whether some meet ADA standards and requirements. FTA is leading research on this question while maintaining coordination with key stakeholders, such as the United States Access Board.
5. Do automated transit vehicles purchased or leased for temporary pilots and demonstrations need to be ADA-compliant?
    a. Yes. ADA regulations apply to all transit services that are open to the public; there is no blanket exemption for temporary pilots or demonstrations. The specific ADA requirements for vehicles may depend upon the type of transit service that is offered (fixed route or demand response).

Title VI

6. Do Title VI requirements apply to automated transit service?
    a. Yes. Under 49 CFR Part 21, Title VI requirements apply to recipients receiving Federal financial assistance. A program receiving federal financial assistance may not exclude from participation, deny benefits to, or subject to discrimination any person on the grounds of race, color, or national origin.

Federal Motor Vehicle Safety Standards (FMVSS)

7. Do automated transit buses need to comply with the Federal Motor Vehicle Safety Standards (FMVSS)? What about novel vehicle designs, also called purpose-built AVs, that may not contain conventional manual controls such as steering wheels, accelerators, brake pedals, and/or telltales?
    a. All new motor vehicles – including those with varying levels of automation – manufactured for sale, sold, introduced into interstate commerce or imported into the U.S. must meet applicable Federal Motor Vehicle Safety Standards (FMVSS), which are administered by the National Highway Traffic Safety Administration (NHTSA), not FTA. However, FTA coordinates with NHTSA on vehicle safety and automation, and will continue to do so as new technologies are introduced. Please see question 8 regarding information about exemptions and vehicles that are not required to meet FMVSS.
        i. Recipients of FTA funds generally must ensure that the vehicle complies with NHTSA's safety standards. As stated in FTA's Post-Delivery Review Requirements, the recipient must ensure that the manufacturer's FMVSS certification label is affixed to the vehicle, complete an FMVSS certification (see sample certification form in Exhibit A-10), and file the FMVSS certification for future FTA reviews.
    b. Automated Driving Systems 2.0: A Vision for Safety provides voluntary guidance on Automated Driving Systems (ADS) development. The purpose of this voluntary guidance is to help designers analyze, identify, and resolve safety considerations prior to deployment using their own industry, and other, best practices. The document encourages entities to have a documented process for assessment, testing, and validation of their crash avoidance capabilities and design choices to ensure safe operation. The voluntary guidance was reinforced and expanded with considerations for the public transit industry in the USDOT policy document on automation, Preparing for the Future of Transportation: Automated Vehicles 3.0, and in Ensuring American Leadership in Automated Vehicle Technologies: Automated Vehicles 4.0.
8. Is there an FMVSS exemption for automated transit buses used in tests, pilots, demonstrations, or deployments?
    a. NHTSA has two exemption processes – Special Exemptions and General Exemptions. Special Exemptions are granted for domestically produced or imported noncompliant vehicles for the purposes of research, investigations, demonstrations, training, competitive racing events, show, or display. General Exemptions, granted under Part 555, may permit manufacturers (not transit agencies) to produce, sell, or otherwise introduce into interstate commerce noncompliant motor vehicles that may be used for commercial purposes. More information on NHTSA's Special Exemption process for

domestically produced and imported vehicles can be found here and more information on NHTSA's General exemptions process for manufacturers can be found here.

b. In addition, manufacturers that were certifying motor vehicles before December 2015 may use noncompliant vehicles on public roads solely for the purposes of testing and evaluation without an exemption. [49 U.S.C. 30112(b)(10)]

Federal Motor Carrier Safety Regulations (FMCSR)

9. Are remote monitors or operators of automated vehicles considered "drivers" who require a Commercial Driver's License (CDL)? Do Federal Motor Carrier Safety Regulations (FMCSRs) apply to these employees?
    a. The FMCSRs, which are administered by the Federal Motor Carrier Safety Administration (FMCSA), do not currently differentiate between a driver, a monitor, or a remote operator for the purposes of CDL requirements. However, the Department has been actively looking at this issue and soliciting feedback from stakeholders on issues related to oversight of "remote assistants," as well as implications for regulations related to other driver duties such as vehicle inspection and maintenance. More details are available in a February 2023 Supplemental Advanced Notice of Proposed Rulemaking.

Transit Bus Automation in Relation to Federal Transit Administration (FTA) Requirements

The FAQs under this section highlight transit bus automation in relation to FTA requirements, including FTA's Buy America, Awards Management, and Bus Testing requirements, amongst others.

Buy America

1. Do Buy America requirements apply to automated transit vehicles, including pilot programs and testing?
    a. FTA's Buy America requirements (49 U.S.C. § 5323(j)) apply to all third-party procurements by FTA grant recipients, including rolling stock such as automated vehicles. A grantee must include in its bid or request for proposal (RFP) specification an appropriate notice of the Buy America provision and require, as a condition of responsiveness, that the bidder or offeror submit with the bid or offer a completed Buy America certificate in accordance with 49 CFR §§ 661.6 or 661.12. When using Federal funds to procure rolling stock, including rolling stock prototypes and vehicles to be used in pilot programs and demonstration projects, the cost of the components and subcomponents produced in the U.S. must be more than 70 percent for FY2020 and beyond. Final assembly for rolling stock also must occur in the U.S. Additionally, rolling stock procurements are subject to the pre-award and post-delivery Buy America audit provisions set forth in 49 U.S.C. § 5323(m) and 49 CFR Part 663. While non-revenue vehicles are not subject to the same requirements for pre-award and post-delivery audits, they still are covered by Buy America regulations. A separate set of regulations applies to manufactured products other than rolling stock. You may find additional information here.
2. Do Buy America requirements apply to retrofit kits?
    a. FTA's Buy America requirements (49 U.S.C § 5323(j)) apply to all third-party procurements of steel, iron or manufactured products by FTA grant recipients. Per 49

C.F.R. § 661.3, FTA defines manufactured "end product(s)" as "any vehicle, structure, product, article, material, supply, or system, which directly incorporates constituent components at the final assembly location, that is acquired for public use under a federally-funded third-party contract, and which is ready to provide its intended end function or use without any further manufacturing or assembly change(s)." In Appendix A of § 661.3, FTA lists some examples of manufactured end products, including computers, information systems, data processing systems and fare collection systems. Retrofit kits should be considered an "end product" when they are added to a transit vehicle post the initial procurement of the vehicle. As such, Buy America requirements do apply to retrofit kits. By statute, purchases of $150,000 or less are exempted from the FTA-specific Buy America requirement (49 U.S.C. 5323(j)(13); appendix A(c) to 49 CFR 661.7). Additionally, the Waiver of Buy America Requirements for De Minimis Costs and Small Grants states that Domestic preferences are waived for iron, steel, manufactured products, and construction materials for which:

i. The total value of the non-compliant products is no more than the lesser of $1,000,000 or 5% of total applicable costs for the project; or
ii. The total amount of Federal financial assistance applied to the project, through awards or subawards, is below $500,000.

If the cost of the retrofit kits falls into these exemption categories, then a Buy America waiver will apply. However, if these exemptions are not applicable, then FTA's Buy America requirements do apply as outlined above.

3. Many of the top-of-the-line components that would make up an automated transit vehicle are not available from manufacturers in the United States. Will FTA grant waivers to transit agencies for procuring automated vehicle technology components during the initial launch of these types of vehicles?
    a. Under very limited circumstances, FTA may waive Buy America requirements if the agency finds that:
        i. Application of Buy America is inconsistent with the public interest;
        ii. The steel, iron, or manufactured goods (including rolling stock) produced in the U.S. are not produced in a sufficient and reasonably available amount or are not of a satisfactory quality; or
        iii. Including domestic material will increase the cost of the overall project by more than 25 percent.

    The process for seeking a waiver is set forth in 49 CFR Part 661. Consistent with Executive Order 14005, it is the policy of the Federal government, including U.S. Department of Transportation, to maximize the use of goods, products, and materials produced in the United States. Therefore, the Department examines all Buy America waiver requests carefully and thoroughly and requires detailed information from the applicant regarding the need for a waiver. FTA's proposed determinations on waiver requests are published in the Federal Register for notice and comment. Requests for waivers also are scrutinized by the Made in America Office at the U.S. Office of Management and Budget. A project sponsor should not expect that a waiver will be granted.

b. FTA has also issued general waivers and partial waivers for certain vehicle types where domestic availability is limited. These waivers apply to certain vehicle categories and do not directly address any automation capabilities that may be present.

Useful Life and Disposition of Assets

4. How will useful life and disposition requirements be applied for automated vehicles?
    a. Under FTA's Award Management Requirements Circular (FTA C 5010.1F), minimum useful life requirements for rolling stock generally are determined by vehicle type (e.g., 12 years or 500,000 miles for large, heavy-duty transit buses; 4 years or 100,000 miles for light-duty vehicles). Useful life for automated vehicles will therefore depend on the vehicle type.
    b. FTA is aware that manufacturers are developing novel vehicle designs for which there is currently limited information on vehicle performance. Once that information is gathered, further assessment will be made. More information on overhaul and minimum useful life criteria can be found under FTA's Award Management Requirements Circular (FTA C 5010.1F).
    c. Useful life requirements are waived for automation pilot and demonstration programs funded by FTA's Public Transportation Innovation Program (49 U.S.C. § 5312). For other FTA-funded programs, consult the grant agreement.
    d. As with other non-automated vehicles and equipment, FTA retains an interest in assets acquired with Federal funding. The sale, transfer, or other disposition of an asset, including automated vehicles, is governed by the disposition provisions in 49 USC 5334(h) and 2 CFR 200.313-314, which are summarized in FTA's Award Management Requirements Circular (FTA C 5010.1F).

Spare Ratio

5. What are the spare ratio requirements for automated vehicles?
    a. Under FTA's Award Management Requirements Circular (FTA C 5010.1F), the basis for determining a reasonable spare bus ratio takes local circumstances into account. The number of spare buses in the active fleet for recipients operating 50 or more fixed route revenue vehicles should not exceed 20 percent of the number of vehicles operated in maximum fixed route service. FTA does not set a specific spare ratio for smaller operators but expects the number of spare buses to be reasonable, taking into account the number of vehicles and variety of vehicle types and sizes. Recipients of buses recently procured may seek approval of a short-term deviation, up to two years, from the FTA Regional Administrator, of the spare ratio requirements for small deviations.

Leasing

6. Can FTA provide flexibility for the capital lease of automated transit vehicles?
    a. Leasing of rolling stock is permitted under FTA grant programs as a capital expense. FTA provides information about leasing here.
    b. Leasing of rolling stock is also permitted under FTA's Capital Cost of Contracting. In some instances, FTA recipients turn to an outside source to obtain public transportation service, maintenance service, or vehicles that the recipient will use in public transportation service. When a recipient enters a contract for such service, FTA will

provide assistance for the capital consumed in the course of the contract. In the case of a contractor providing vehicles for public transportation service, the capital consumed is equivalent to the depreciation of the vehicles in use in the public transportation service during the contract period. For more information on capital cost of contracting see FTA's Urbanized Area Formula Program Circular (FTA C 9050.1A).

Workforce and Labor

7. Are there any Federal requirements that affect transit agencies' ability to change staffing levels as they adopt automated transit buses?
    a. Yes. The Federal requirements addressing labor standards are set forth in 49 U.S.C. § 5333. Specifically, 49 U.S.C. § 5333(b) requires the Department of Labor (DOL) to determine whether the interests of employees affected by assistance under most FTA grant programs are protected under arrangements DOL concludes are fair and reasonable. These arrangements include the preservation of rights and benefits of employees under existing collective bargaining agreements, the continuation of collective bargaining rights, the protection of employees against a worsening of their positions in relation to their employment, assurances of employment to employees of acquired transit systems, priority of reemployment, and paid training or retraining programs. DOL information on Mass Transit Employee Protections may be found here.
    b. Transit agencies also should consider the extent to which automated transit technologies will likely create new job functions, such as maintaining automation systems or remotely monitoring vehicles, which may require new training and/or recruiting and retention efforts.

Bus Testing

8. Will FTA's New Model Bus Testing Center apply to automated vehicles?
    a. Under 49 CFR § 665.3, FTA Bus Testing applies to recipients of FTA financial assistance. In general, automated vehicles that meet FTA's definition of a "bus" (a rubber-tired automotive vehicle used for the provision of public transportation service by or for a recipient of FTA financial assistance) and that are acquired with FTA grant funds must meet Bus Testing requirements.
    b. Automated buses that are based on a previously tested bus model generally will be eligible for Partial Testing procedures; only those tests in which FTA would expect to obtain significantly different data would need to be repeated. More information about Partial Testing is available here.
    c. If an automated vehicle as a whole represents a significant new technology or contains design features that have not previously been applied in the transit industry or in similar applications, AND which may be expected to require significant refinement, optimization, or operating experience before the manufacturer can reasonably commit the design feature or component to production, then up to five units of the vehicle might be eligible for a Prototype Waiver from Bus Testing. Prototype Waivers are NOT automatic, and must be requested by the manufacturer and granted by FTA on a case-by-case basis. More information about eligibility and applying for Prototype Waivers is available here. Note that prototype waivers are rare and may have significant restrictions.

9. Do FTA's Bus Testing requirements apply to automated vehicle demonstrations funded by FTA's Public Transportation Innovation Program (49 U.S.C. § 5312)? Are automated vehicles subject to bus testing prior to field demonstrations?
    a. Yes, the current Bus Testing requirements in 49 U.S.C. § 5318 and 49 CFR Part 665 apply to ANY bus acquired with FTA funding under Chapter 53 of Title 49, United States Code.
10. Is FTA considering additional bus testing requirements for automated buses?
    a. FTA is assessing whether additional or modified requirements would be appropriate for automated transit buses. More information, specifically related to Bus Testing, can be found here.
11. How would FTA bus testing requirements apply to remanufactured vehicles equipped with certain automation capabilities?
    a. The Bus Testing Regulation does not currently apply to remanufactured buses, except that the original vehicle must have met Bus Testing requirements at the time the original owner acquired it. FTA's Award Management Requirements Circular (FTA C 5010.1F) provides additional information on FTA's current policies regarding remanufactured vehicles.
    b. FTA's Bus Testing Program (49 U.S.C. § 5318) only requires testing of new bus models. Bus Testing is not required if a grantee rebuilds or modifies vehicles in its existing fleet.

Drug and Alcohol Testing

12. How will drug and alcohol requirements be applied for automated vehicles?
    a. FTA's Drug & Alcohol Testing Regulation (49 CFR Part 655) applies only to recipients of 49 U.S.C. § 5307, 49 U.S.C. § 5309, and 49 U.S.C. § 5311 (see Section 655.3, Applicability). Drug and alcohol requirements do not apply for automation pilot and demonstration projects funded by FTA's Public Transportation Innovation Program (49 U.S.C. § 5312).
13. If automated public transit operations are contracted out, does the on-board safety monitor or remote operator of the automated transit vehicle have to comply with FTA's drug and alcohol testing?
    a. Yes. Contractors performing a safety-sensitive function are required to have a drug and alcohol testing program. A contractor must have a substance abuse testing policy compliant with 49 CFR Parts 40 and 655 in place before its employees may be permitted to perform safety-sensitive functions. More information can be found here and here.
    b. All recipients of FTA grants and other USDOT financial assistance must also comply with the Department's Drug-Free Workplace (DWHA) regulations at 49 CFR Part 32. This requires the employer to make a good-faith effort to maintain a drug-free workplace, publish a statement to this effect, and notify FTA of any drug-related convictions among its employees, among other things. However, this provision does not require testing.

Transit Asset Management

14. Will Transit Asset Management (TAM) regulations incorporate automated transit bus terminology?
    a. TAM guidelines are written in a manner such that they apply to all forms of technology and are anticipated to change as needed.

b. TAM guidelines specify Useful Life Benchmarks (ULB) to track the performance of an asset, but these can be established on an agency-to-agency basis to suit their specific operating environment. The TAM ULB refers to the maximum age of the asset, or the point at which the asset enters the state of good repair backlog. The ULB is used solely for setting state of good repair performance targets for equipment and rolling stock asset categories; it does not affect funding eligibility.

National Transit Database

15. How should agencies report their automated bus transit service to the National Transit Database (NTD)? Will new definitions or categories be required?
    a. Ridership, costs, and other statistics for automated buses should be reported to NTD under the appropriate modal category, such as Motor Bus or Demand Response. FTA is aware that some innovative services may create definitional issues and may issue further clarification and guidance to assist with NTD reporting. FTA is not currently planning to expand reporting on automation technology. FTA believes that the current mode categories and type of service categories are adequate, and it is unlikely NTD will need to adopt entirely new modal definitions. Instead, information on automated elements of a vehicle can be captured within the existing categories. This could be re-evaluated in the future to the extent that future automation technologies usher in vehicle types that truly do not correspond to existing mode and type of service definitions.
    b. In 2020, through a Federal Register notice (85 FR 44571), FTA added a new, *optional* data element to the Revenue Vehicle Inventory Form (A-30) to identify automated vehicles. This information is collected via a checkbox available by fleet to indicate if the vehicle fleet is comprised of automated vehicles. Agencies operating an automated fleet of vehicles, either roadway or rail vehicles, check the box to indicate if their fleet meets this definition.[1] As stated in the Federal Register notice, the definition of *automated vehicle* is in alignment with the description of SAE Level 4 automation provided by the National Highway Traffic Safety Administration (NHTSA): *A vehicle that can itself perform all driving tasks and monitor the driving environment in certain circumstances.*[2]

Public Transportation Agency Safety Plans (PTASP)

16. How should automated transit buses be incorporated into Agency Safety Plans? Will revisions be required?
    a. Regulations at 49 CFR § 673 do not specifically address automated vehicles, but the broader principles of Safety Management Systems would still apply. Agency Safety Plans (ASPs) should address the specific challenges related to automation. If done correctly, the agency implementing ADS-equipped vehicles would identify those potential risks and identify appropriate mitigations in advance. Once automation is introduced, the

[1] Federal Register. "National Transit Database Reporting Changes and Clarifications," April 9, 2019. https://www.federalregister.gov/d/2019-06943/p-46.

[2] Federal Register. "National Transit Database Reporting Changes and Clarifications AGENCY: Federal Transit Administration (FTA), Transportation (DOT).," July 23, 2020. https://www.federalregister.gov/d/2020-15906/p-48.

transit agency should be able to use the safety assurance processes outlined in the ASP to assess the effectiveness of the new technology, and whether additional hazards are introduced as a result.

Funding Eligibility

17. Which FTA funding programs can be used to fund testing and deployment of automated vehicles?
    a. Automated transit buses are generally eligible for FTA funding on the same basis as non-automated vehicles. This includes major formula-based programs such as the Urbanized Area Formula Funding Program (49 U.S.C. § 5307), Enhanced Mobility of Seniors and Individuals with Disabilities (49 U.S.C. § 5310), Formula Grants for Rural Areas (49 U.S.C. § 5311), State of Good Repair (49 U.S.C. § 5337), and Grants for Buses and Bus Facilities Formula Program (49 U.S.C. § 5339(a)). Some FTA competitive grant programs may also include automated vehicle deployment as an eligible activity, such as Public Transportation Innovation (49 U.S.C. § 5312), Grants for Buses and Bus Facilities Competitive Program (49 U.S.C. § 5339(b)), and Low and No Emissions Grant Program (49 U.S.C. § 5339(c)).

Transit Bus Automation in Relation to Other Considerations

The FAQs under this section highlight transit bus automation in relation to other considerations, including Open Data, Cybersecurity, and Liability and Insurance, amongst others.

Data

1. Who owns the data generated by automated vehicles? How will it be stored?
    a. Regardless of the contractual relationship agencies have for automated vehicles and transit service provisioned through such vehicles, agencies should collect or have access to the data necessary to conduct oversight and management of service and operators, if applicable. The contractual relationship between agencies and suppliers can determine the data ownership issues that must be addressed. There is no “one size fits all” data ownership model, and agencies should work with their suppliers to develop mutually beneficial terms of data ownership, access, and storage.
    b. USDOT supports the “open data” concept and encourages agencies and suppliers to develop relationships that help the transit industry as a whole benefit from testing and demonstration of automated transit vehicles. When such testing and demonstration projects receive Federal research funding, the USDOT Public Access Plan applies to ensure access to Federally-funded scientific research results for both USDOT and the public, as appropriate.
    c. FTA is participating in the USDOT-wide Data for Automated Vehicle Integration (DAVI) initiative on AV data exchanges that has identified data, including standards and reporting, as an area of further research.

Cybersecurity

2. What can transit agencies do to ensure cybersecurity for automated vehicles?
    a. USDOT encourages transit agencies to develop a comprehensive cybersecurity strategy, including cyber incident response. In addition, FTA has prepared guidance in this area. Cybersecurity training should be developed and updated for all transit agency staff, including specific training for staff responsible for critical IT assets.
    b. FTA understands that automation will introduce new cybersecurity issues and potential vulnerabilities and is working with the transit industry on research in this area.
    c. It is recommended that information and intelligence about information security incidents be shared with the Public Transportation and Over-the Road Bus Information Sharing and Analysis Center (PT & OTRB ISAC), and the Cybersecurity and Infrastructure Security Agency (CISA). More information can be found here and here.
    d. The Surface Transportation Cybersecurity Toolkit provides cyber risk management information to surface transportation operators who have less than 1,000 employees. Information on the toolkit can be found here.

Standards

3. Are there any technical standards for automated transit buses?
    a. No. There are no technical standards or widespread industry standards for automated buses and shuttles. However, FTA is conducting research to support the development of safety, performance, and maintenance standards in this area as new automation technologies are developed, demonstrated, and deployed. In addition, a variety of Standards Development Organizations, including the International Organization for Standardization (ISO), SAE, and the American Public Transportation Association (APTA), are addressing automation in surface transportation that could be applicable to transit vehicles in the future.
    b. The Automated Vehicle Safety Consortium (AVSC) has developed a set of best practices documents to represent an agreement on topics which are relevant to the safe development and deployment of automated vehicles.

Liability and Insurance

4. What are the liability and insurance requirements related to automated vehicles?
    a. FTA does not directly regulate product liability and related insurance issues, for either conventional vehicles or automated vehicles. Automation is expected to bring changes to agency operations that may require changes to insurance coverage. Automation's impact on liability and insurance has been the subject of several research reports, including a 2021 overview produced by FTA (*Insurance and Liability for Automated Transit Buses: State of the Practice Review*). However, this area continues to evolve. Transit agencies, working with their insurers and state regulators, are in the best position to assess their liability exposure and insurance coverage.