

Bus Safety Roadmap for new build buses

| | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | onwards |
|------------------------|--|------------------------------------|----------|-----------|------------------|-----------|-----------|----------|----------|----------------|----------|---------|
| Driver Assist | Intelligent Speed Assistance (ISA) | Standalone mandatory | Required | | 1 | | | 1 | | | 1 | |
| | Advanced Emergency Braking (AEB) | Car, Pedestrian & Cyclist partners | | | Preferred | | | | Required | | | |
| | Runaway Bus Prevention | Interlock system | | Preferred | | Required | | | | | | |
| | Pedal Application Error – Foot placement | Brake toggling | | Preferred | | Required | | | | | | |
| | | Pedal standardisation | | | Preferred | Required | | <u> </u> | | | | |
| | Pedal Application Error – Recovery | Pedal indicator lights | | Required | | | | | | | | |
| | | Pedal acoustic feedback | | Preferred | | Required | | | | | | |
| | Pedal Application Error – Intervention | AEB logic | | | Preferred | | | | Required | | | |
| | Vision – Direct & indirect vision standard | Direct vision | | Preferred | | Required | | | | | | |
| | | Enhanced indirect vision | J | | Preferred | | | | Required | | | |
| | | Class II CMS | | | Preferred | Required | | | | | | |
| | | Blind spot Mirrors | | Required | | | 1 | | | ! ! ! | | |
| | | Blind spot CMS | | | Preferred | Required | 1 | 1 | | 1 | | |
| | | Reversing CMS | | Required | | | | | | | | |
| | | Front & Nearside | | | Preferred | | | | Required | | | |
| | Vision – Internal obscuration | Driver assault screens | | Required | | | ! | | | | | |
| Partner Assist | Acoustic Conspicuity | Acoustic Vehicle Alerting System | | Required | | | | | | | | |
| Partner Protection | VRU Frontal Crashworthiness – Bus front end design | Minimum geometry | | Preferred | | Required | | | | | | |
| | | Optimised geometry | | | 1 1 1 1 | | Preferred | | Required | 1 | 1 | |
| | VRU Frontal Crashworthiness – VRU impact protection | Energy absorption | | | ! ! | Preferred | | | Required | | | |
| | | Wiper protection | | Preferred | | Required | | <u> </u> | | -i -i -i | <u>.</u> | |
| | VRU Frontal Crashworthiness – Mirror strike protection | Class II CMS | | | Preferred | Required | ! | ! | | | | |
| Occupant Protection | Occupant Friendly Interiors – Visual inspection & design | Level 1 requirements | | Preferred | | Required | | | | | | |
| | | Level 2 requirements | | | Preferred | | | | Required | | | |
| | Occupant Friendly Interiors – Slip protection | Surface friction requirements | | Required | ! ! | | 1 | 1 | | 1 | | |



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Preferred – refers to a best practice approach and the first to market.

Requirement – refers to a minimum or mandatory requirement. This would represent a wider adoption throughout the London bus market, potentially 3+ models.

Years – indicate the year in which the preferred/required safety measure will be on the road. For manufacturers and operators it is important to note that this is not the tender, which may come 6-9 months prior to the buses becoming operational.



The coloured lines refer to TfL's roadmap according to their section:



What is the Bus Safety Roadmap?

A roadmap has been developed by TRL to provide a guide for future developments of the BSS. This is needed because not all the safety features and systems are available immediately on buses. Some features will take time to develop and implement on buses because they are new and innovative. The bus industry has been consulted through the research process so that the timescales are realistic but challenging. The bus manufacturers will have to work with their supply chains to meet this demand.

This roadmap is the key tool for bus manufacturers and operators in understanding TfL's requirements and will enable them to plan for the future. It will be an evolving document with regular updates so as to remain relevant. The Euro NCAP (European New Car Assessment Program) roadmap for passenger car safety has been used as the model approach. Historically, TfL's bus procurement has been based on the specification of buses, and its requirements, which is essentially setting a minimum standard. The roadmap is now presenting a 'Preferred' date earlier than any 'Required' date. This 'preferred' date reflects when the vehicle or system might first enter the market in production by the market leader, to encourage the earlier adoption of safety systems. The 'required' date represents when multiple bus models would be expected to be available to the market and will typically follow a few years later.