

JOINT RELEASE BY THE LAND TRANSPORT AUTHORITY (LTA) & MOT - SELF-DRIVING VEHICLES WILL TRANSFORM SINGAPORE'S TRANSPORT LANDSCAPE

News Releases

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MOT Unveils Roadmap for Self-Driving Vehicles, with Slate of Ongoing and Upcoming Trials in one-north, Gardens by the Bay, Sentosa and West Coast Highway

1. Singapore is taking another step towards its long-term vision of deploying self-driving vehicles and mobility concepts to enhance and complement our multi-modal land transport system.
2. Already, self-driving vehicle trials have commenced in one-north, and will take off soon in Gardens by the Bay this December. Today, we witnessed the signing of two memorandums of understanding (MoUs) – between the Ministry of Transport (MOT) and PSA to jointly develop autonomous truck platooning technology for transporting cargo between port terminals, and another between MOT, Sentosa Development Corporation and ST Engineering to trial self-driving shuttle services across Sentosa.
3. Unveiling the roadmap for self-driving vehicles and mobility concepts at a media conference, Permanent Secretary for Transport Mr Pang Kin Keong, who is Chairman of the Committee on Autonomous Road Transport in Singapore (CARTS), said, “Self-driving vehicles can radically transform land transportation in Singapore to address our two key constraints – land and manpower. The trials will help us shape the mobility concepts which can meet Singapore’s needs, and also gain valuable insights into how we can design our towns of the future to take advantage of this technology.”
4. Formed in August 2014 to chart the direction for self-driving vehicle-enabled mobility concepts in Singapore, CARTS is working to catalyse efforts along the following four tracks:
 - a) **Fixed and Scheduled Services:** Efficient mass transport for intra and inter-town travel on a fixed route and scheduled basis
 - b) **Point-to-Point, Mobility-on-Demand Services:** Shared services with dynamic routing, for point-to-point, first- and last-mile type of travel
 - c) **Freight:** Carriage of goods for long-distance delivery
 - d) **Utility:** Utility operations, for example, road sweepers
5. Through such, it is envisioned that we will make first- and last-mile journeys more comfortable and convenient for commuters, as well as see a decrease in road congestion during peak hours since self-driving freight and utility vehicles can be deployed during off-peak hours, reduced manpower requirements and lower reliance on individual, private cars.

Launch of AV trials at one-north

6. CARTS is also encouraging private sector-led trials. To facilitate these, the Land Transport Authority (LTA) announced in January this year the one-north district as Singapore’s first test site for

self-driving vehicle technologies and mobility concepts. Since then, the Institute for Infocomm Research (I²R) under the Agency for Science, Technology and Research (A*STAR) and the Singapore-MIT Alliance for Research and Technology (SMART) have applied for and been granted approval to carry out testing of their self-driving technology there.

7. To facilitate the safe conduct of trials, all self-driving vehicle prototypes being tested in one-north are required to be fitted with data loggers to record information such as the date and time of tests, vehicle speed, travel route and other pertinent information.

8. In collaboration with one-north master planner JTC Corporation, LTA will be implementing supporting infrastructure along the 6km-long test route in phases, in order to monitor the trials. In addition, while the self-driving vehicle technology being developed world-wide is largely infrastructure-independent, it is also opportune to evaluate vehicle-to-infrastructure cooperative systems to enhance the awareness of self-driving vehicles. These supporting infrastructure being installed include:

- Closed-Circuit Television (CCTV) Camera System: A network of CCTV cameras will be progressively installed in one-north. This will allow LTA to monitor and study the behavior of self-driving vehicles especially at locations such as traffic junctions and road bends. Video footage from the CCTVs can also serve as an independent source of evidence during an investigation should an incident occur.
- Dedicated Short Range Communications (DSRC) Beacons: DSRC beacons can be implemented at designated locations to enhance the vehicles' way-finding ability by broadcasting information such as traffic conditions in the vicinity for example the location of nearby road works and/or traffic incidents.
- Backend System: As part of ongoing efforts to develop vehicle-to-infrastructure (V2I) communication systems and to evaluate the performance of self-driving vehicles, a backend system will be implemented to analyse data generated by the test vehicles. It will also manage any flow of information between the test vehicles and the road infrastructure system.
- Signage and Decals: To create awareness amongst the one-north community and its visitors, and to facilitate easy recognition by road users, prominent signboards have been erected within one-north to display information on the testing of self-driving vehicles. All test vehicles will also sport a special decal and markings.

RFI for Land Transport Mobility Concepts enabled by Self-driving Vehicles

9. In June 2015, LTA issued a request for information (RFI) to seek proposals on using self-driving vehicle technology for land transport mobility concepts such as point-to-point mobility-on-demand services, and self-driving buses. The RFI closed on 25 September 2015 and LTA has received eight submissions from both local and international applicants. LTA is currently evaluating the proposals and expects to conclude the evaluation by the first quarter of 2016.