



The U.S. Department of Transportation earlier this month announced a decision to move forward on connected vehicles and generate research on costs and safety effects. Concerns about whether technological advancements will permit connected and autonomous driving anytime soon are quickly diminishing, but plenty of safety and compatibility questions remain open.

John Capp, Director of Electrical and Controls Systems Research at General Motors, says GM has been working for more than a decade along a research track that includes winning a U.S.-government-funded competition for self-driving vehicles in 2007. Many of the vehicles the automaker sells today use technologies derived from that competition, including full-speed adaptive cruise control and automated emergency braking. A Cadillac SRX demonstrated last year by GM was equipped with "Super Cruise", which allows hands-free driving under specified conditions. Capp says that technology will come to market this decade.

Connected vehicles that communicate directly with each other, with wireless devices such as smartphones, and with infrastructure elements such as traffic signals and pedestrian crossings are a crucial stepping stone on the path toward fully self-driving cars. Eventually, the goal is to boost traffic flow (with attendant reductions in congestion, pollution, and fuel consumption), improve transportation safety, and facilitate mobility in challenged populations such as the elderly.

Capp acknowledges that to get there, sensing technology must improve to create a vehicle that perceives its surroundings more accurately, and GPS maps will need to be more accurate and precise than the five-to-ten metres' tolerance they have today. All vehicles on the road will need to communicate with each other, as well, and it will take time to build an infrastructure capable of talking to them.