

# Reliable Merging by Vehicles Operating in ADS Mode

# Background

- Merging into a crowded lane is often difficult for human drivers
- For merges in crowded lanes, human drivers negotiate with human drivers in the lane into which the driver must merge by hand gestures, glances, creeping over, etc.
- Currently, there is no planned way for an ADS to do negotiation

# ADS Need

- ADS products need a way to do negotiation with vehicles in the lane into which the vehicle with ADS wants to merge
- Without a way that the ADS can reliably negotiate with vehicles in the lane into which it needs to merge, the vehicle with ADS active may be stranded at the end of the lane/ramp if the lane into which is trying to merge is very crowded
- Vehicles stranded at the end of lanes/ramps will be a safety issue
- Merging is different from lane change
  - ▶ If a vehicle with ADS active fails to change lanes, the vehicle can continue safely in the lane that it is in
  - ▶ This means than a desired exit may be missed but there is no safety issue

# ADS Approach

- Until a 100% reliable way to merge exists, ADS products with lane change should have ODDs that exclude merges
- Intervehicle communications by radio is a possible way for negotiation between vehicles for space (maybe four meters) to be made available into which to merge for a vehicle with ADS active
- Exploring the feasibility and possible way to a communications approach for ADS merging is a significant effort
  - ▶ Feasibility and decision for a regulation are necessary
  - ▶ Many approach items need to be determined
  - ▶ If GRVA does not want to create a new informal group for vehicle communications, a possible alternative is to rename the Task Force for Cybersecurity and OTA Updates and assign such an effort to it