USDOT Tier-1 University Transportation Center

CM²

Cooperative **M**obility for
Competitive **M**egaregions

## TEXAS
The University of Texas at Austin

THE RISE OF LONG DISTANCE TRIPS
AUTONOMOUS VEHICLES IN TEXAS

More automated vehicles means easier travel and thus more long distance driving (≥ 50 miles one-way). Thanks to automated vehicles, vehicle-miles traveled (VMT) is predicted to rise in the coming decades well beyond what trends in population and economic activity would predict (Lee & Kockelman 2018). The Texas Triangle Megaregion has 6% of U.S. population, 7% of U.S. GDP, and 7% of U.S. VMT. 43.2% of person-miles traveled in the U.S. consists of long distance travel, with 28% of it being leisure trips, 25% visiting friends and relatives, 18% business, 15% personal business and 12% of commute.

Connected & (fully) automated vehicles (CAVs) may change long-distance travel by shifting travel towards CAVs (therefore away from conventional vehicles and air travel), along with a large trend of longer and more frequent trip-making by travelers of all types (including those currently unable to drive). A key reason for preferring an AV comes from lower "driving" burden, so there is a lower perceived value of travel time en route (for those who used to drive). How much more VMT will the Texas Triangle experience, both by passenger vehicles and heavy trucks moving freight?

This project calibrated models of destination, mode and route choice for passengers & freight, and simulated those behaviors across Texas, with AV and ATruck options. Results were pulled out for the Texas Triangle specifically. This work is the first of its kind to assess what types of policies, strategies and models may be necessary to facilitate the efficient introduction of CAVs, shared automated vehicles (SAVs) and Automated Trucks (Atrucks) across the U.S. and its megaregions, without compromising congestion & mobility. Policy recommendations are now being developed to reduce any negative effects caused by AV implementation and to invest scarce resources into optimal locations & practices.
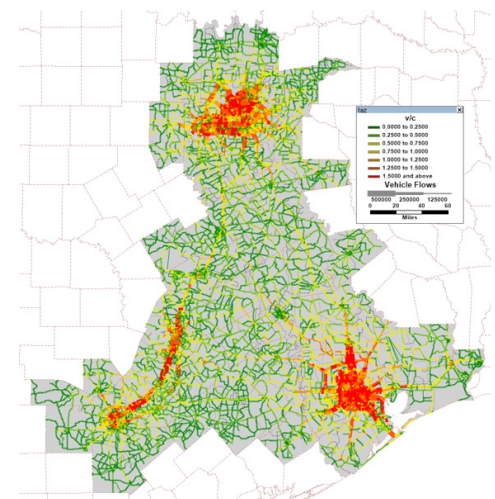
Congestion Levels after introduction of Autonomous Vehicles