

# "Expanding Public Transit by Changing Its Definition"

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Good afternoon, I'm John Niles and I live in Seattle. Today I'm speaking in my role as research director for CATES, the non-profit, non-partisan Center for Advanced Transportation and Energy Solutions.

Thanks for letting me share some thinking on the future of public transit. As you recall, the T-2040 metropolitan transportation plan you approved in May 2010 allocates about half of government transportation resources to public transit, more than doubling public transit trips in the four-county region by 2040, hoping to reach a regional travel market share of 17% of commuting trips and 2% of all-other trips.

How could that reach higher? Well, as a result of work that Steve Marshall and I are doing now funded by the Graham Environmental Sustainability Institute at the University of Michigan, we're learning that the definition of public transit and its market reach will likely change within the 30 year time frame of the T-2040 plan, so here is a heads up for some optimism.

The reason is road vehicle automation, brought about by the growing number of computer chips and obstacle sensors built into new cars. Spurred partially by the Defense Department wanting to lower the number of soldiers killed in roadside bomb attacks, automated driving is now being actively pursued by every single one of the world's major car companies.

Their feverish activity has been accelerated by the fame of Google's fleet of self-driving cars, now up to a half million miles of pre-programmed driving on ordinary streets and highways mixed with all levels of traffic using detailed Google Maps along with radar and laser sensors watching all around. The person behind the wheel in the testing does not touch the controls. Google self-driving cars move through traffic safer and smoother than most drivers, and have so far avoided hitting any cars, bikes, and pedestrians, except for being rear-ended once.

You can see Google cars in motion on YouTube videos, including the now viral clip of a blind guy driving to get a Taco which he then eats while in motion behind the wheel.

America's second Driverless Car Summit is happening in Detroit this June where the future of automated driving will be discussed by professionals

from car companies, government, and academia. I hope PSRC sends a representative.

The Summit brochure reminds us that car crashes kill 35,000 people a year in USA, and the two million people injured consume the single greatest share of our health care costs. As automation in cars evolves, those bad numbers could go way down.

Turning to transit, CATES is forecasting that personal mobility as a service may evolve to new forms from automated driving and car rental by the minute. What if car use moved more to being a service you buy by the trip, like a bus or train ride. Like a taxicab but without a driver needing to be compensated? Like a rental car, a ZipCar, and even better.

You may have seen car2go already serving City of Seattle with a deployed fleet of 369 two-passenger Smart Cars. Members of this personal mobility service rent them when and where needed for 38 cents a minute or \$14 an hour if minutes add up. Daimler, producer of the Mercedes-Benz as well as the little Smart, launched the profitable car2go service in 2008 and has grown it so far to over 6,000 Smart Cars in a dozen cities around the world, including Seattle, Portland, and Vancouver, BC. In San Diego the car2go Smart cars are all plug-in electrics, which is what they likely will be in the Pacific NW within a few years.

Car2go members needing a ride find where a Smart is parked by using a search app on a smart phone, activate entry with the app, use the ignition key already in it, drive it for the trip needed, then check out electronically, and leave it in any legal street parking space. Daimler -- like ZipCar -- has also cut deals with some paid lots.

Think about what car2go service would be like if the cars could move from place to place without somebody actually having to drive it. The car2go customer wouldn't have to find a vehicle and go to it; she would just summon the car to drive to her by itself. More intriguing is that perhaps you wouldn't need to be a licensed driver to take a trip in a future robotic car2go. This becomes a new option beyond buses and trains for the car-less if costs come down.

At CATES, we are working on a future Transportation 2040 world of automated driving where buses and trains would still be useful and kept full on high-demand spine routes with transit oriented development, but also serving people not living near the stations and stops. People could summon driverless shuttles (cars or vans) to their homes in less dense parts of the region to reach the nearest access to more traditional bus and rail transit for

going to a downtown, college campus, or ball park. Note that driverless shuttles for work-day commuters would NOT need to be parked all-day at transit stations because they would be in motion throughout the day.

Future public transit service providers may want to expand their mission to provide service to and from every location on the road network via a driverless shuttle service substituting for solo driving. In the same innovative way that King County Metro has already deployed right-sized Nissan Leaf electric cars for some of its van pool customers, a future Metro, for example, could integrate wider access to its bus transit via driverless shuttle cars of all sizes operating on ordinary roads.

We at CATES are now learning and documenting the future contribution of electric, automated vehicles to sustainability across the three E's of sustainability -- environment, economics, and equity -- and we'll tell you more about what we've found in our second conference event next February. Thank you.

Wording revised slightly for clarity, May 4, 2013

Questions or other reaction?

Further information at <http://www.aboutcates.org>

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