NACTO POLICY STATEMENT ON AUTOMATED VEHICLES

VISION

NACTO supports a future transportation system that provides a sustainable, accessible, and affordable backbone to the strong cities at the center of our 21st century economy. New technology has the capacity to reduce the footprint of vehicular travel, moving more people in new forms of medium and low density transit, while creating space for safe and inviting walking and cycling infrastructure. Positioning new mobility services to provide access and mobility to all, and to buttress rather than undermine the successful transit lines at the heart of our cities, is vital to realizing the value of fully automated vehicles for mobility. At the same time, policy at every level of government should address head-on the destructive potential for increased traffic, emissions from additional driving, and on-street congestion that could easily result from automated vehicle technology.

SHAPING AUTOMATED VEHICLE POLICY

Fully automated vehicles (often referred to as level 4 automation by NHTSA) are a disruptive technology that will have widespread impacts on safety, mobility, land use, labor, and the built environment. Considering the complexity of urban environments and the many demands placed on city streets, as well as existing city policy goals of reduced greenhouse gas emissions and vehicle miles travelled, NACTO supports automated vehicle policies and regulations designed to:

- **promote safety** for pedestrians, bicyclists, transit riders, automated vehicle passengers, and all street users within the multi-modal urban context;
- **incentivize shared, automated, electric vehicles** to reduce the environmental impacts of vehicular travel and refocus planning on the principle of mobility as a service;
- **support the future vision of communities** as great places to live, work, and play by using technology as a tool to change land use as well as how streets are built;
- **rebalance the use of the right-of-way** with less space for cars and more space for people walking, cycling, using transit and recreating;
- **support public transit** by providing first and last mile connections to major transit lines via shared, automated vehicles, and by providing cost-effective, on-demand transit in lieu of low-performing fixed routes; and
- **improve mobility for all,** contributing to a more equitable transportation system, where benefits reach all demographics and any negative effects are not unjustly concentrated.

To this end, NACTO supports the following principles as the transportation profession explores the future of automated vehicles.

1. ***Safety.*** **Plan for fully automated operation (NHTSA Level 4) to support Vision Zero:** In general, protection of humans of all ages and abilities—whether they are walking or cycling in parallel, or stepping off a bus in perpendicular to the path of travel—should be the primary goal of modeling and software development for vehicular movement on city streets.

   Regulators and product designers should bar the use of partially automated vehicles (NHTSA Level 3) on any roadway without controlled access, like city streets. Such vehicles have been shown to encourage unsafe driving behavior, with drivers reading more, texting more, and generally being inattentive, while still operating under the expectation that the driver will take over if the vehicle encounters a dangerous situation.

   Maximum operating speed in a city street environment should not exceed 25 miles per hour in order to support Vision Zero policies, lessening the likelihood of death upon impact for the human body. Reducing speeds to allow for sufficient stopping distance to avoid or mitigate crashes is critical for safety in a mixed traffic environment, particularly as vehicles approach crosswalks, intersections, driveways, or on-street parking.

2. ***Rethink expressways.*** **Modernize plans for expressways, pivoting from expansion to modernization and management** to account for the needs and impacts of automated vehicles. Existing lanes on expressways will be able to accommodate significantly more vehicles if they are able to platoon through connected technology, making new physical capacity unnecessary in the near future.

   Transportation planning at all levels should refocus on modernizing existing expressways with instrumentation for new technology. This includes flow management of exiting traffic so that increased volumes on expressways do not overwhelm surface streets with traffic, simply pushing system failure to a new place on the network. Increased throughput on expressways and other limited-access roads will eventually need to be absorbed by local streets. Exiting flows managed by a connected vehicle network should be controlled so that they do not exceed local street capacity. Built-in vehicle routing software should avoid busy local streets for through traffic.

3. ***Modernize traffic data.*** **Develop and implement robust data-sharing requirements for new vehicle technology** to improve the quantity and quality of data collected, and to reduce the millions of dollars spent annually on technologically primitive data collection, both from regular traffic operation and from traffic crashes. Traffic management will remain a function managed or regulated by the public sector even in a future dominated by private mobility providers. Public policies should foster open data platforms that enable robust private innovation to better serve transportation customer needs, while reducing aggregate social and environmental costs and inequities through a regulated utility model framework.

4. ***Plan with cities.*** **Include transportation professionals from cities** in all planning processes at the national and state levels. To date, many discussions of regulatory action have taken place in state legislatures or at departments of motor vehicles (DMVs), which have limited experience with street operations. Regulators will benefit from discussions with city transportation agencies, which are charged with managing the majority of current traffic technology.

5. ***Focus research on technology that works for cities.*** **Federally and state supported research on automated vehicles should focus on city street operations of shared, automated, electric vehicles.** City streets are the locus of the most complex problems for automated vehicles, with mixed traffic environments, many variable-speed activities within the right-of-way, and many possible destinations. By contrast, expressways have few entries and exits, little variation in speed, and little or no other activities in the right-of-way.

   Increased Federal and State funding for city operation of automated vehicles that are electrically powered and shared will enable technology developers to work toward a set of clear technical principles that maximize safety, economic development along city streets, and human health through promotion of active transportation. This increase in funding should be based in an understanding of positive and negative externalities in the transportation marketplace.

   Research should address any needs for on-street infrastructure in the city environment and how to cover those costs. Research and policy must address standardization of vehicle "behavior" so that everyone—from human drivers to small children—understands how to interact with automated vehicles.

   The future of transit vehicles and their unique needs in terms of automation should be investigated to ensure transit can benefit from advances in technology.

6. ***Systematize lower travel costs.*** **Adjust and standardize lower travel time costs beginning with model year 2020** based on projections of Level 4 (fully automated vehicles) for regional 4-step travel models, environmental impact statements and other cost-benefit analysis modeling. Researchers in automated vehicle technology widely agree that people will perceive significantly lower travel costs while using automated vehicles, yet modeling continues to use outmoded travel costs as the standard for models that extend into the 2050s in some cases.

   Beginning as soon as model year 2020, per-minute travel time costs could be an estimated 80 percent lower.* This revised standard for evaluating the effects of projects will allow planners to more accurately predict future travel demand, weigh the costs and benefits of infrastructure projects, and understand how shared, automated vehicles can complement transit and other modes.

   To support this change in modeling, a metropolitan modelling exercise for North America similar to the Lisbon model released by the International Transport Forum in 2015 would be beneficial in understanding how this shift in transportation costs may affect overall travel patterns.

7. ***Set the stage for modernized freight and delivery.*** **Support safer, more efficient, environmentally sustainable freight systems** by fostering consolidation of shipments to boost average load factors, non-peak hour deliveries in congested areas, automated truck route enforcement, and use of best available clean truck technologies. Automated freight movement and delivery has the potential to improve energy efficiency and reduce crashes with large trucks.

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* Zia Wadud, Don MacKenzie, Paul Leiby, Help or hindrance? The travel, energy and carbon impacts of highly automated vehicles, Transportation Research Part A: Policy and Practice, Volume 86, April 2016, Pages 1-18, ISSN 0965-8564, http://dx.doi.org/10.1016/j.tra.2015.12.001.

8. ***Rethink the funding base for transportation.*** **Policies at the Federal and State levels for infrastructure funding must be revised to reflect the restructuring of the transportation system** under automation. Current models of funding, such as fuel and vehicle fees, will see radical changes in revenue streams under potential new automation scenarios. Future funding models should assess investment needs for infrastructure and mitigate the negative externalities in the transportation sector, such as congestion and air pollution. Regulations, technologies, and user interfaces should provide incentives for users of automated vehicles to schedule trips in advance, to fill empty seats in passenger vehicles and empty space in trucks.

9. ***Plan for the future of cities.*** **Future visioning for automated vehicles should begin from the inside out, from the centers of our economy, looking at land use as well as transportation.** Theories of automation that focus simply on fitting more vehicles into an expressway lane every hour are beginning from the product of the economy rather than the motor of the economy. Great cities generate traffic; traffic does not generate great cities. Technology has the power to help communities achieve their visions both for transportation and for land use, taking public space back from congestion, traffic and parking. Parking requirements and general curb space usage are particular areas where a decrease in vehicle storage needs could bring about a new era for city streets. Planning should begin with a vision for the future city and put resources into solving for the best methods for providing mobility in low, medium, and high density corridors and environments, from a public investment and a total investment perspective.

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