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White Paper

Promoting the
Development and Implementation
of a
New, National, Standardized, Networked
**Autonomous Transportation System
(ATS)**

through a

"National ATS Initiative"

by

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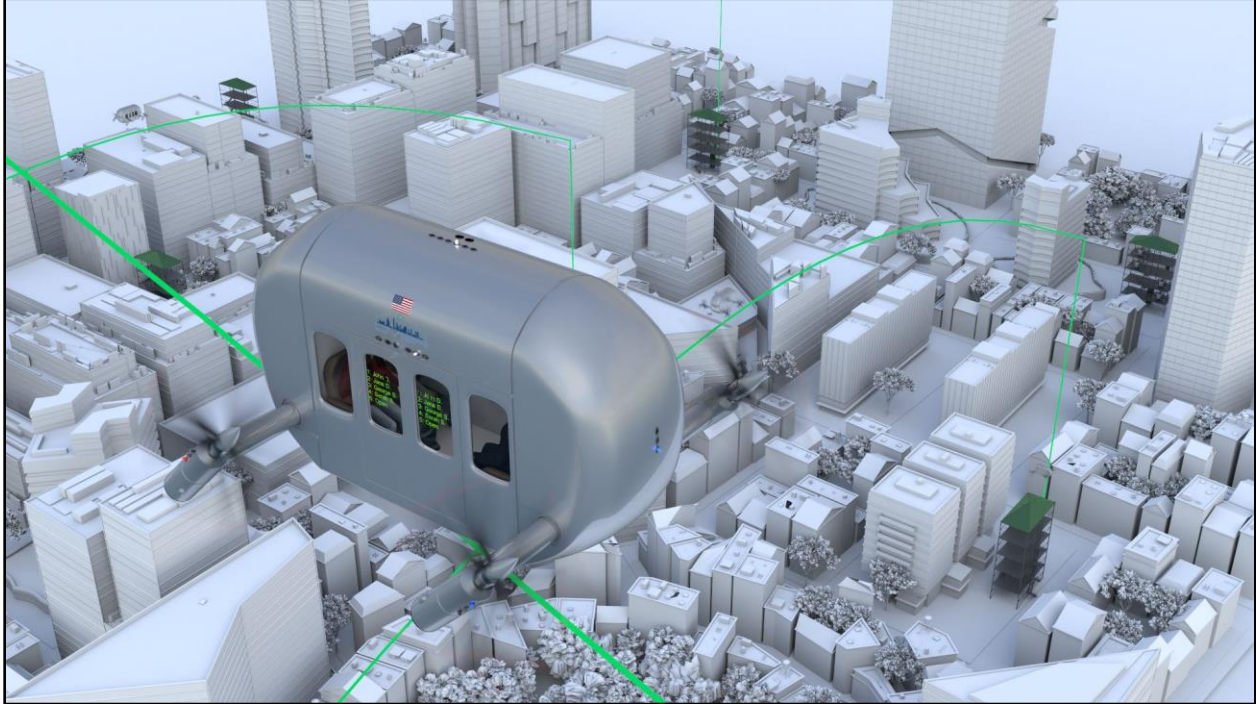
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1.0 Introduction



In the U.S. Department of Transportation’s publication “Preparing for the Future of Transportation, Automated Vehicles 3.0”¹, Secretary Elaine L. Chao wrote in her Letter from the Secretary that:

“America has always been a leader in transportation innovation. From the mass production of automobiles to global positioning system navigation, American ingenuity has transformed how we travel and connect with one another. With the development of automated vehicles, American creativity and innovation hold the potential to once again transform mobility.”

“Automation has the potential to improve our quality of life and enhance the mobility and independence of millions of Americans, especially older Americans and people with disabilities.”

“Moreover, the integration of automation across our transportation system has the potential to increase productivity and facilitate freight movement. But most importantly, automation has the potential to impact safety significantly— by reducing crashes caused by human error, including crashes involving impaired or distracted drivers, and saving lives”.

People everywhere are witnessing a revolution in transportation, unlike anything in the history of the world. The development and implementation of autonomous technologies and automated, electric vehicles, both aerial and terrestrial, are ushering in the Autonomous Age, or the Age of Autonomy. When our decedents look back in history, they will give credit to *our generation* for taking the bold, undeterred steps to bring safe autonomous transportation to the

¹ <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>

people of the world. The Age of Autonomy will eclipse the Industrial Age, and all other ages, for its positive impact on the environment and bettering the lives of all people everywhere.

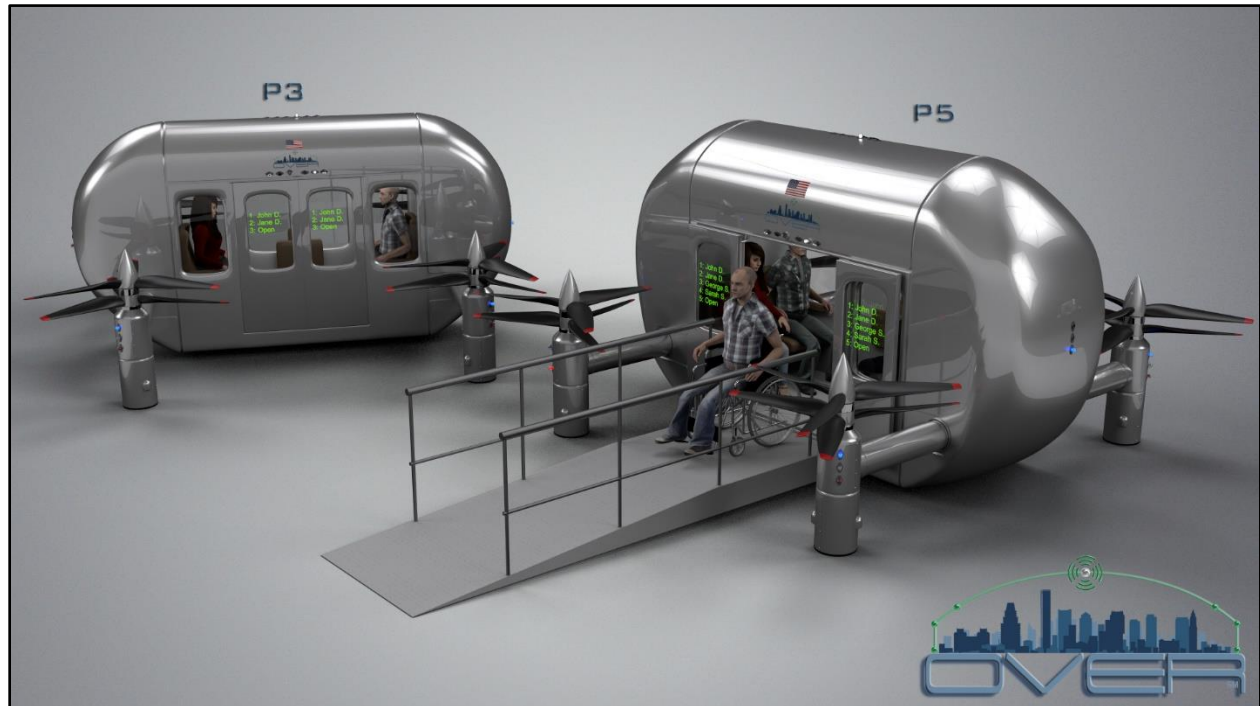
Similar to the completion of the first Transcontinental Railroad where the Central Pacific Railroad and the first Union Pacific Railroad met on May 10, 1869, OVER looks forward to the day when a fully operational Autonomous Transportation System (ATS) will be implemented here in the USA. Let us all work together towards that goal, and be a part of that triumphant day to come.



The primary objective of this document is to promote the development and implementation of a new, national, standardized, networked Autonomous Transportation System (ATS). This ATS would be designed to ensure safe, secure, reliable and swift autonomous (robotic) vehicle operations, both in the air and on the ground, and to provide seamless, convenient connections between the two. It is anticipated that within 30 years, the majority of *all transportation* will be provided by fully autonomous, electric-powered Aerial Vehicles (AVs) and Ground Vehicles (GVs) operating within a standardized, networked ATS. Hence, the country that is first to develop and implement such an ATS for the masses, using fully autonomous electric-powered AVs and GV's designed to transport cargo and human passengers at a reasonable price, will become *THE* dominate industrial superpower of the future. As such, OVER proposes that this new ATS should be developed and implemented by Americans, within the USA, guided by a collaborative **National ATS Initiative**, spearheaded by the President and his administration, and comprised of government and industry experts, to establish the USA's preeminence in the Age of Autonomy, and to position the USA to dominate the coming multi-trillion-dollar autonomous transportation industry. After being implemented and proven within the USA, *at little cost to the American taxpayer*, the ATS could be licensed for manufacture and operation in allied nations worldwide, which would produce a trade surplus for the American autonomous transportation industry, and tremendous wealth for the USA far into the future.

A developed and operational ATS will require multiple, standardized load/unload facilities that will accommodate various autonomous vehicles, regardless of manufacturer. A key goal in OVER's design of the facilities and vehicles was to provide level entry/exit for rolling stock (cargo)

and persons with disabilities (wheelchairs, etc.). Such a system will provide convenience and mobility to customers (including those with disabilities) like no other transportation system in history. It will reduce transportation related fatalities/injuries, speed commute/travel time, increase productivity, reduce pollution, reduce road congestion, and reduce the need to continually widen highways and build expensive ground-based infrastructure like tunnels and bridges - at taxpayer expense. It will also result in new, long-lasting jobs for employees, and provide significant profits to Investors and “Contributors” - perpetually. (*Contributors are corporations, individual entrepreneurs, and other entities who would provide the JVLLC with license to manufacture and/or use their patented products and/or services, while maintaining unrestricted ownership*). The entire ATS “system”, all facilities, and all autonomous vehicles could be manufactured, operated and maintained by commercial manufactures, at little cost to the American taxpayer. However, the ATS and all autonomous vehicle operations would be under daily oversight by the Department of Transportation (DOT) and Federal Aviation Administration (FAA). As added value, the proposed ATS will safely accommodate traditional non-autonomous automobiles, aircraft and drones, both initially and perpetually.



This document also describes OVER’s fully autonomous “concept” cargo and passenger Aerial Vehicles (AVs) and Ground Vehicles (GVs), as well as key standards for design, manufacture, and operation. The proposed ATS will accommodate various AV and GV designs, from various manufactures, but in accordance with the proposed standards, all autonomous vehicles will have to communicate and operate in an identical manner. OVER has designed fully autonomous (Level 5) concept AVs and GVs for general public and business use, that are expected to meet the proposed standards. The OVER concept AVs and GVs are powered with a clean/green non-explosive, non-flammable, non-hazardous fuel developed by nanoFlowcell² called bi-ION, which

² <https://nanoflowcell.com/what-we-do/innovation-research/bi-ion/>

produces no pollution at all. If realized, it is anticipated that the OVER concept vehicles (or final variations thereof) would become the vehicles of choice for mass manufacturing and public transportation, and be the primary and most economical choice for daily business and public rideshare use. Based on the “Joint Venture LLC (JVLLC) Business Approach” (Chapter 7) and supporting financial forecast spreadsheet, a customer’s average fare price for taxi-type rideshare services, would begin at about \$12.00 per trip, and eventually decrease to less than \$2.50 per trip in 20 years!

The proposed OVER concept vehicles will deliver safe, secure, reliable and swift transportation, free from accidents caused by human error – a major cause of transportation fatalities. According to the DOT³, there were 37,133 motor vehicle fatalities on U.S. roadways and 346 civil aircraft fatalities during 2017 alone. The proposed ATS will significantly reduce such fatalities, as well as the number maimed and injured. Over time, the ATS and fully autonomous vehicles in general, will prove to be the safest form of transportation in history.

For these and other reasons, the DOT and FAA need to establish minimum standards for large autonomous vehicle safety, performance and functionality, as well as rules to govern operations. Standards (many proposed herein) need to be established now, to enable and encourage development of the system and multiple types of vehicles. Delay is not an option. Resisting this inevitable transformation of how goods and people will be transported in the near future is not an option. The future prosperity of the USA and its people depend on the U.S. government taking proactive measures now, through a proposed National ATS Initiative, to bring this to fruition.



The proposed standards require that all autonomous AVs and GVs have common, identical hardware and software to operate within the ATS, *regardless of manufacturer*. For example, all

³ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812603>

GVs should have the ability to park, connect to electric power, load/unload at common parking spots (with or without a standard ramp/platform), refuel at common facilities, and traverse streets in a standard networked “swarm” manner. Similarly, standard AVs should be designed to park, anchor, connect to electric power, load/unload at common landing areas and parking pads (with or without a standard ramp/platform), as well as un-anchor, disconnect from electric power, lift-off, ascend, fly, descend and land in an identical manner. OVER’s proposed ARC-based “time-path” concept enables millions of AVs to fly simultaneously, at any cruise speed, even within congested urban areas. With common operational functionality, customers will be able to *order and pay for curb-to-curb travel* using an OVER concept GV, OVER concept AV, other manufacturer GV or AV, or any mix thereof, from Point A to Point B using the proposed ATS application (the ATS APP) via their mobile device, again, regardless of manufacturer. It’s anticipated that eventually *all* forms of transportation, including commercial jet, train, subway, bus, etc. will be incorporated into the ATS and the ATS application, enabling a single order and single payment system for the total cost of curb-to-curb travel, to any location, using any form of transportation, nationwide.

The ever-increasing demand for autonomous GV and AVs will result in a massive transformation within the automotive and aerospace industries. Manufacturing conventional automobiles and aircraft with a traditional “*build and sell*” business strategy will decline over time, while producing millions of autonomous GV and AVs with a much more profitable “*build and rent*” strategy (e.g., on-demand, taxi-type fare revenue based on trip distance) will take its place and far exceed current automobile and aircraft production, and far exceed current profits as well.



Our business approach proposes that *all* autonomous vehicle manufactures be *required* to retain ownership of all of their manufactured GV/AVs, and inspect, maintain and operate them for taxi-fare type revenue – *perpetually*. Such an approach (as opposed to consumers maintaining their

own vehicles/aircraft) ensures timely inspection, service and maintenance to safeguard operations, thereby reducing the risk of failure and harm to occupants, pedestrians and property.

The JVLLC Business Approach proposes that the initial manufacturer of mass-produced, fully autonomous GVs and AVs will be a collaborative, multi-corporation “joint venture”, of which OVER anticipates being a party. We propose that this joint venture be structured as a Limited Liability Company (LLC) to facilitate “pass through taxation”. For purposes of this paper, this future multi-corporation Joint Venture LLC will hereafter be called the “JVLLC”.

We propose that the JVLLC will initially build fully autonomous cargo GV and cargo AV models, and place these cargo models into operation first. Other manufacturers may also build their own fully autonomous cargo vehicles. This will provide a variety of ground and aerial cargo transportation options for customers. However, the JVLLC will mass produce and operate the most available and most economical cargo GV and AV models, for both business and general public use. Once the fully autonomous cargo vehicles prove themselves to be safe, secure, reliable and swift, passenger GV and AV models will be allowed.

As with the cargo vehicle approach, the JVLLC will build fully autonomous passenger GV and passenger AV models. Other manufacturers may also build their own fully autonomous passenger vehicles, providing a variety of ground and aerial passenger transportation options for customers. However, we anticipate that the JVLLC will mass produce and operate the most available and most economical passenger GV and AV models, for business and general public use.

As national demand grows for millions of autonomous vehicles, we propose that multiple highly robotic, high-volume automobile-type manufacturing plants will be constructed across the country, to include renovating and retooling previously closed automotive manufacturing plants. Using the JVLLC Business Approach, the JVLLC-developed manufacturing plant design would be duplicated, as “Subsequent LLC” (SLLC) type manufacturing plants will be constructed all over the USA. As with the JVLLC, each Subsequent LLC (SLLC) type manufacturing plant will produce, operate and maintain their own autonomous GVs and AVs, perpetually. This unique, highly profitable approach is addressed fully in the JVLLC Business Approach, Chapter 7 of this paper.

The autonomous vehicle boom will provide good, long-lasting jobs for tens of thousands of American workers. OVER proposes a hiring approach that will provide priority to any person who loses their job or business as a result of society’s adaptation to autonomous vehicle transportation, as well as priority to our great veterans. OVER developed an innovative employee salary and bonus plan for the JVLLC (and SLLCs), that provides good wages and a unique bonus program that doubles as an employee retirement plan. Further, the multi-trillion-dollar autonomous vehicle industry will provide great financial return to Investors in the JVLLC and SLLC type entities. It will also provide great financial return to Contributors of the systems/components selected for various GV and AV models.

We envision that a National ATS Initiative would bring multiple USA-based corporations together into a cooperative “Team”, under the umbrella of the new, future JVLLC. This Team will work with the DOT and FAA to develop a safe, secure, reliable and swift ATS, including facilities and

infrastructure to be used by all manufacturers. It's envisioned that the Team would cooperatively develop standard, fully autonomous GVs and AVs (similar to, or with features similar to the OVER concepts presented herein), which contain their patented systems and components. Teammates with patented systems and components used in the standard AV/GV models would profit greatly under the JVLLC Business Approach, year after year. Implementing the ATS as proposed in the JVLLC Business Approach will facilitate these changes, provide the public and business with cost-effective alternatives to private vehicle ownership, and generate millions of dollars in "cash dividend" income for Contributors and U.S. Investors – *perpetually*.

The developed ATS will reduce highway deaths and injuries, create good high paying jobs, reduce the need and cost of expanding the current highway infrastructure, reduce pollution, reduce travel/commute time, improve productivity, improve mobility for disabled persons, and create a proprietary product and service that the USA can export to other countries. It's envisioned that the system will eventually be exported around the world, and the USA (and Contributors) will reap subsequent cash dividends from *their* profits, which will contribute to establishing a long-term trade surplus for the USA.

A National ATS Initiative will put America First in the race to dominate the coming autonomous vehicle industry and contribute significantly to making America greater and wealthier than ever before - both now and into the distant future.