



Service Disabled Veteran Owned Small Business (SDVOSB)

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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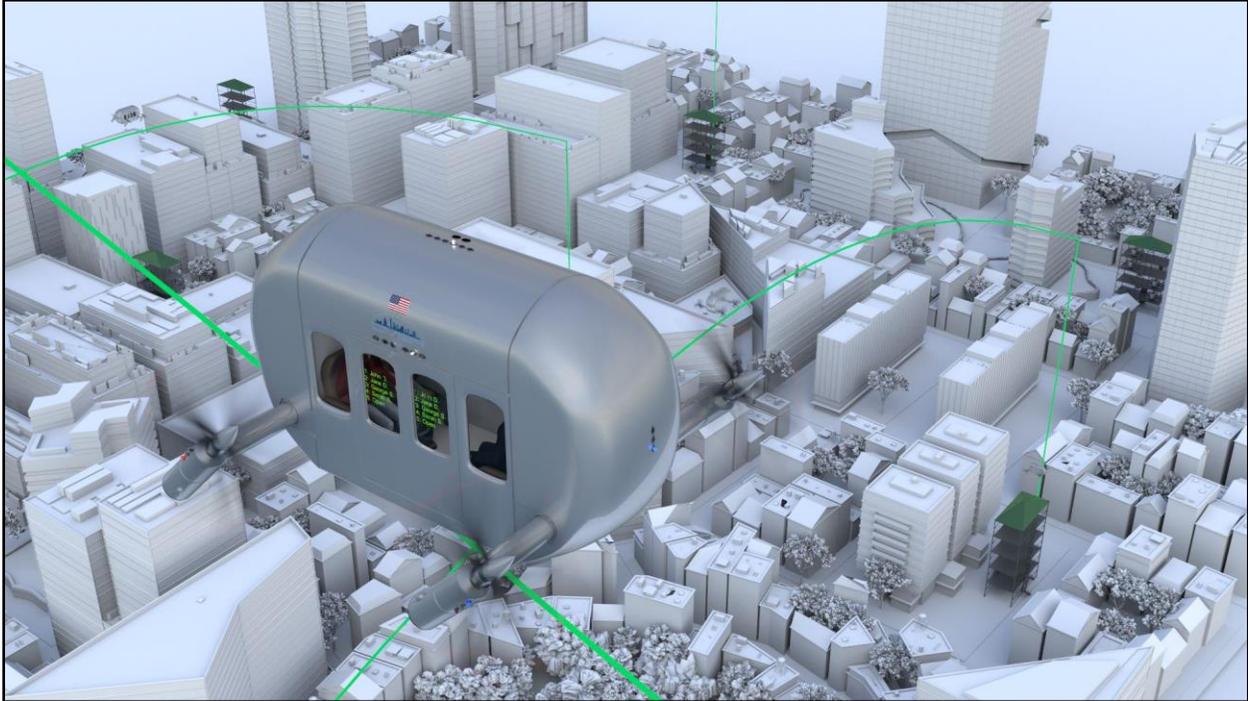
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1.0 Introduction



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>

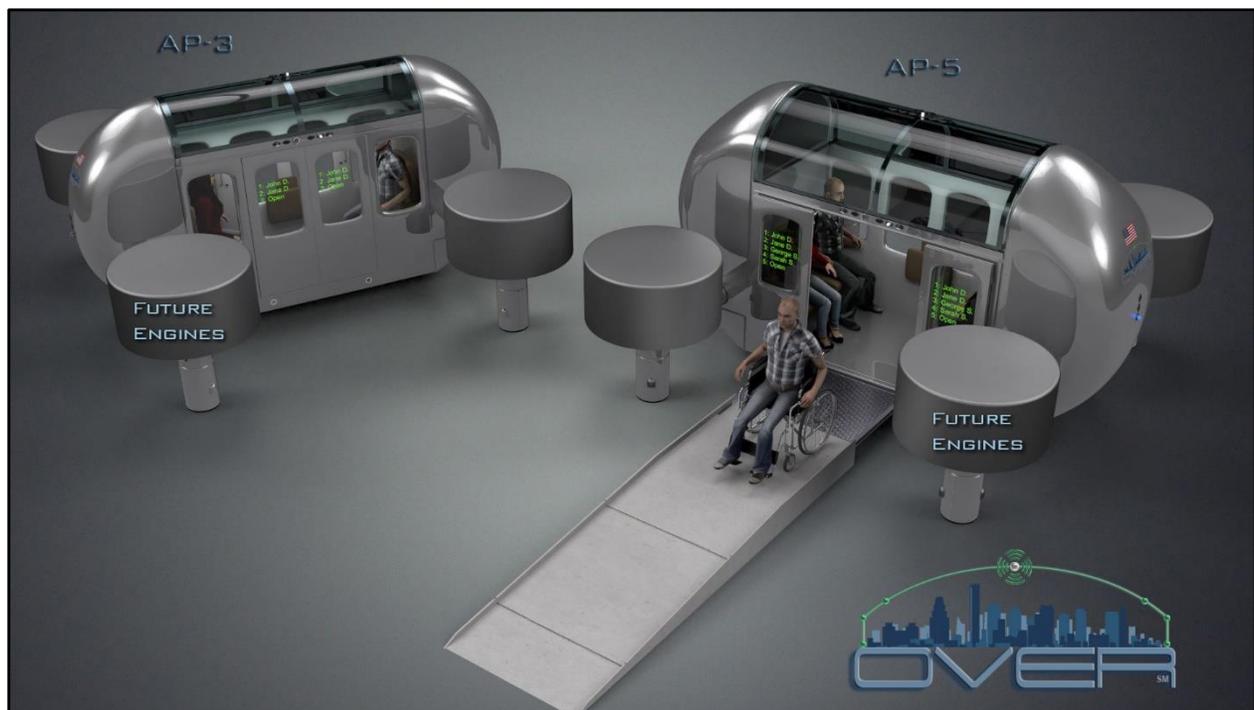
people of the world. The Age of Autonomy will eclipse the Industrial Age, and all other ages, for its positive impact on the environment and bettering the lives of all people everywhere.

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 GVVs 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 mobility and convenience to passengers (including those with disabilities) like no other transportation system in history.

A developed and operational ATS will also result in new, long-lasting jobs for employees, and provide significant, long-term profits to Investors and "Contributors" - perpetually. (*Contributors are corporations, large and small, sole proprietors, entrepreneurs, and other entities who would provide the JVLLC with [1] paid employees, and/or [2] license to manufacture and/or use their patented products and/or services, valued at cost, while maintaining unrestricted ownership. The total value of labor, product and services is the "contribution"*).

The entire ATS "system", all facilities, and all autonomous vehicles would 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). The proposed ATS will grow into operation while safely integrating into traditional non-autonomous ground vehicle, aircraft, and drone traffic, and, it will *always* have the ability to operate in or around traditional traffic. Hence, classic automobiles will still be able to drive down a street full of GVs, a hundred years from now.

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 produces no pollution at all. If realized, it is anticipated that the OVER concept vehicles (final variations) 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 passenger’s average fare price for rideshare services would be about \$10 per trip initially, and decrease exponentially to about \$2 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.



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

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

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 GVs should have the ability to park, connect to electric power, load/unload at common parking spots - with or without a Ramp and Platform System (RPS), 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 APP, 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 GVs 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, due to demand, while mass manufacturing millions of autonomous GVs and AVs with a much more profitable “build and rent” strategy (e.g., on-demand, taxi-type fare revenue based on trip distance) will increase over time, and eventually far exceed current automobile and aircraft production, and far exceed current profits as well.



The OVER Business Approach proposes that *all* autonomous vehicle manufactures be *required* to retain ownership of all of their manufactured GVs/AVs, and inspect, maintain and operate them for taxi-fare or lease 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, or property.

The 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. It proposes 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”.

It is proposed that the JVLLC initially build fully autonomous cargo GV and cargo AV models, and place these cargo models into operation *first*. Other manufacturers would also build their own fully autonomous cargo vehicles and put them into operation. This will provide a variety of ground and aerial cargo transportation options for customers. However, it is anticipated that the JVLLC will mass produce and operate the most available and most economical cargo GV and AV models, for both business and 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.

The JVLLC would then build fully autonomous passenger GV and passenger AV models. Other manufacturers would also build their own fully autonomous passenger vehicles, providing a variety of ground and aerial passenger transportation options for customers, including persons with disabilities. However, it is anticipated that the JVLLC will mass produce and operate the most available and most economical passenger GV and AV models, for business and public use.

As national demand grows for millions and millions of autonomous vehicles, it is proposed that multiple highly robotic, high-volume automobile-type manufacturing plants will be constructed across the country, to mass produce, operate, and maintain all JVLLC GV and AV models. A key goal of the JVLLC Business Approach is to encourage renovating and retooling previously closed automotive manufacturing plants, into modern and efficient autonomous vehicle manufacturing plants, owned by “Subsequent LLCs” (SLLC).

Using the JVLLC Business Approach, the JVLLC-developed manufacturing plant design would be duplicated, as “Subsequent LLC” (SLLC) type manufacturing plants, financed and 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 labor, systems, components, etc. selected for various GV and AV model production.

It is envisioned 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 transportation related fatalities/injuries, reduce commute/travel time, improve access and independent mobility for disabled persons, 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 create good high paying jobs, and create a proprietary product and service that the USA can export to other countries. It is envisioned that the system will eventually be exported around the world, and the USA (Investors 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, spearheaded by President Trump, 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.