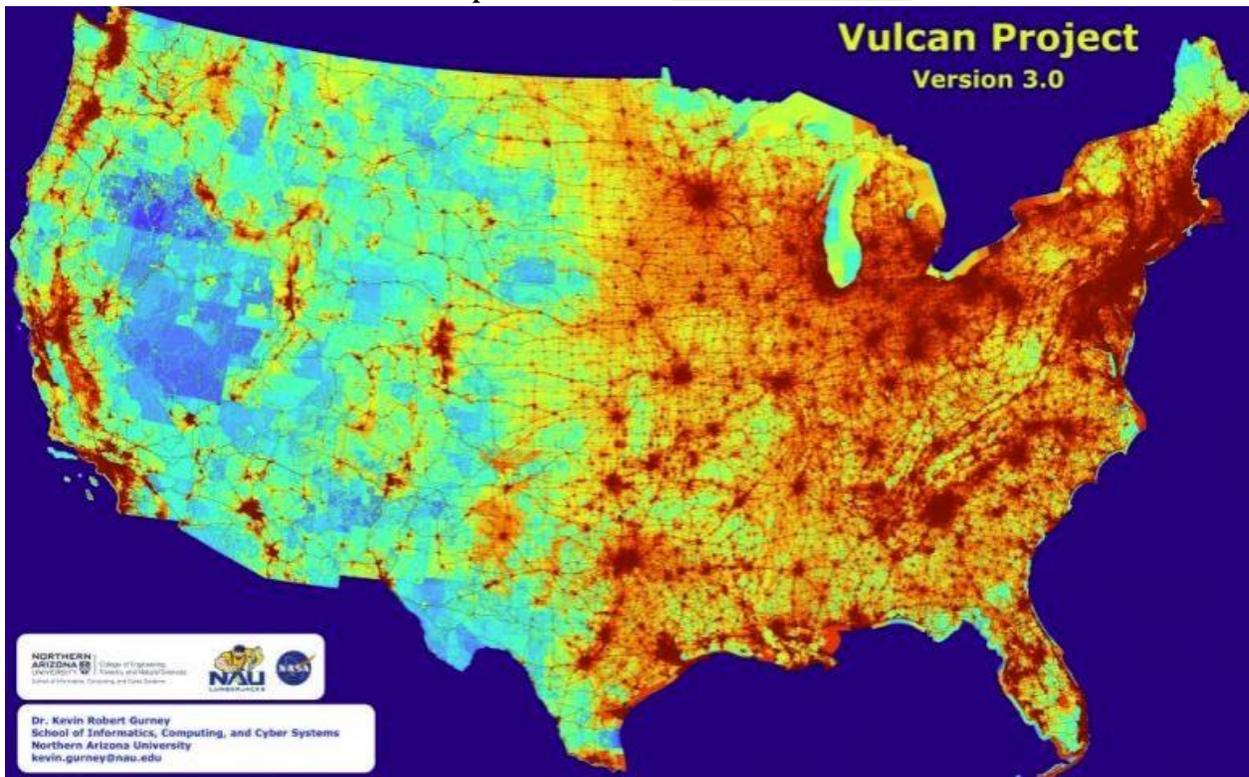


A New \$ 3 Trillion Greentech Economic Model to combat Climate Change

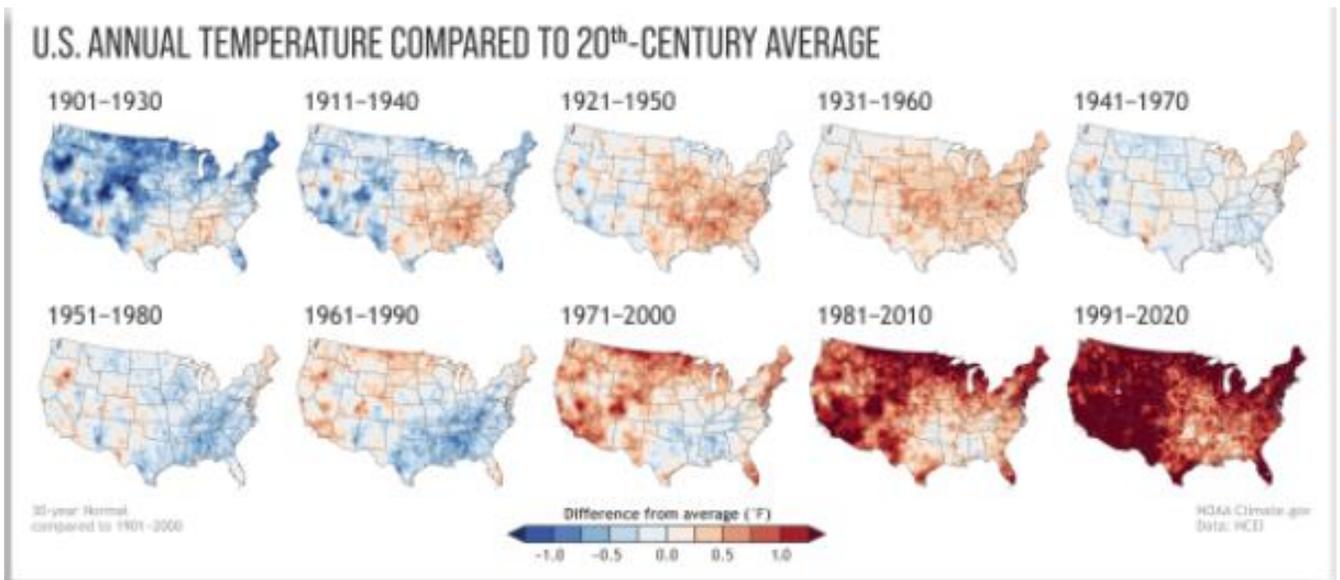
In this \$3 trillion Model below the combination of revenues shown will support an air capture industry that can grow the removal of CO2 up to 5 to 10 billion tonnes of per year and put it into profitable uses. According to Wikipedia the cumulative CO2 in the air in America is [400 billion](#) Tonnes. This essay illustrates an economic model of \$3 Trillion invested by the private sector over 20 years to build six layers of infrastructure all sharing the same easement to combat Climate Change. \$1 Trillion will build driverless transportation beside the 50,000 miles of Interstate Highways and \$1 Trillion for connecting circulators in 275 cities. Over 20 years this could remove 60 to 100 million cars to fight Climate Change from emissions and replace them with all electric vehicles on controlled, elevated, all weather guideways. In addition, the same structure can provide shipping, solar smartgrid, water from vapor, easements for future landscaping and machines developed to suck up carbon.

This map shows our [road emissions](#)



It appears feasible to generate usable water from water vapor in the air and use it to grow thousands of farms in small communities around the country stations. The common denominator of all these carriers is they all share the same easements and work together. And their combined revenues make them financeable. This will stimulate a ripple effect of economic development for 5 to 8 times the trillions invested. With these engineered solutions, Americas can turn the challenge of Climate Change problems, into seeding the infrastructure for new carbon approach to cities, towns and communities.

We need to act now on our climate. Climate Change is goanna be a mess. There is much evidence that Climate Change is an “Adapt or Suffer challenge” with a Ghastly Future. The civilization mankind built over the past 100 years was based on automotive freedom, streets, cheap energy, stable climate, centralized finance, lifetime employment, understandable insurance and timely food distribution is all starting to change. Technology is a big driver, but the biggest driver is climate change, and it’s is going to change everything. What is Climate Change? It is a phenomenon of climate characterized by a general increase in average temperatures of the Earth, which modifies the weather balances and ecosystems for a long time. It is causally linked to the increase of greenhouse gases in our atmosphere, worsening the greenhouse effect and it causes so many problems. Just five countries — including the United States — create more than 50% of the global CO2 emissions.



But now we are seeing evidence like the illustrations above. The world is heating up much faster than we anticipated.

The way we're living we can't last. The federal government is only spending \$15 Billion on research for a problem that could cost \$50 Trillion by 2100 if not properly addressed. The coming decade may be our last chance to contain the chaos driven by humankind's craziest experiment: "the idea that carbon can be stored in the thin filigree of air around the planet without consequences". Experts say the heating produced by carbon dioxide would result in a period of super-tropical conditions, hurricanes and wildfires. Without reductions of carbon emissions, sea levels are estimated rise 2.6 feet in 2050 and 6.6 feet in 2100. Wild fires are growing out of control and storms are becoming more intense. Below is a short summary of these problems.

Into the hothouse with Unbearable Heat: Millions of years ago, earth saw temperatures up to 29 degrees Fahrenheit (16 degrees Celsius) above modern levels, so it can happen. Back then, the volcanic eruptions put carbon into the atmosphere. Today humans are the cause. In 50 years 3 billion people may not be able to stand the heat, bringing in chaotic high-energy stormy conditions that would prevail over much of the Earth. Now 18 of the warmest 19 years ever, have occurred since 2001. Canada sees 122 degrees this summer.



Famine: The Bible predicts a period of plagues followed by famine. Could Climate Change be the cause of the famine? Already 1 in 7 people in the USA go hungry every day. Continued use of fossil fuels could lead heat levels causing a 30% to 50% loss of crop production at a time when our population growth is expected to add over 50 million people. Causes are heavier rains, floods, storms, heat waves, plant pests, drought, and diseases.



More Powerful Storms: According to the National Oceanic Atmospheric Administration, in 2015 there were 10 weather and climate disaster events in the United States—including severe storms, floods, drought, and wildfires—that caused at least \$1 billion in losses. For context, each year from 1980 to 2015 averaged \$5.2 billion in disasters (adjusted for inflation). If you zero in on the years between 2011 and 2015, you see an annual average cost of \$10.8 billion as storms are intensifying.



Drought: A lack of rain in two-thirds of the California is causing “extreme drought,” and 2013 was the driest year ever recorded in the state. The historic drought has been devastation for California crops. Across the USA 27.4% of the land area is in extreme drought mostly in the west. This is affecting food production and the daily lives of [129 million people](#). A [quarter](#) of the Global harvest is at risk.



More and Bigger Fires: Climate change causes [forest fuels](#) (the organic matter that burns and spreads wildfire) to be more dry, and has caused more than 87 fires in the western United States in 2020. Each year fires get larger. Homeowners are now struggling to find insurance in fire-prone markets. The latest west coast fires are called unprecedented in size and fury.



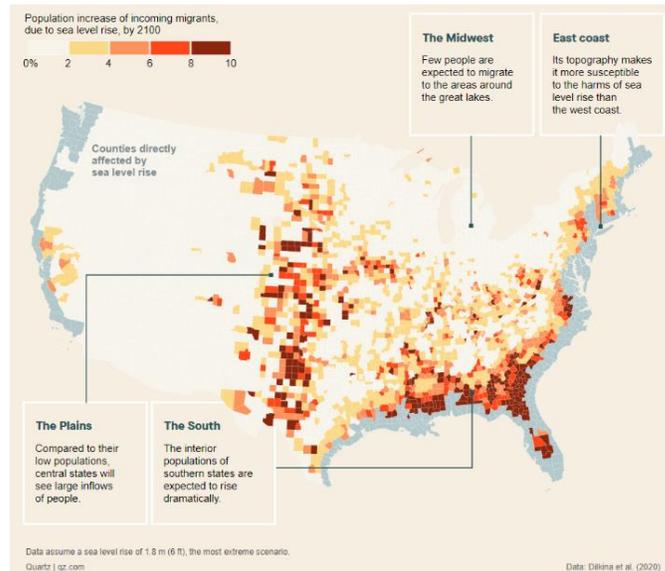
Homelessness: Trauma, confusion homelessness, losses, fear: [life after California's deadliest fires show the future of climate crisis](#). In California [900 blazes](#) incinerated six times as much land as all the state's 2019 wildfires combined, forcing 100,000 people from their homes. By 2100 the experts are saying, America could have 100 million Climate refugees from all the storms, heat, dam failures and wildfires.



Rising Sea Levels: The two major causes of global [sea level rise](#) are thermal expansion caused by water expands as it warms and melting of land-based ice, such as glaciers and ice sheets. Plus breaking up of permafrost would release plumes of methane, 30 times more lethal at trapping heat than carbon. Since 1993, [sea is 2.6 inches higher](#). A glacier the size of Florida is breaking up at South Pole and would [raise sea level by 4'](#). Every [1 centimeter of ocean rise](#) will cause One million people to evacuate. (1foot'= 30 million). [Miami's \\$4 billion plan](#) to combat sea level rise



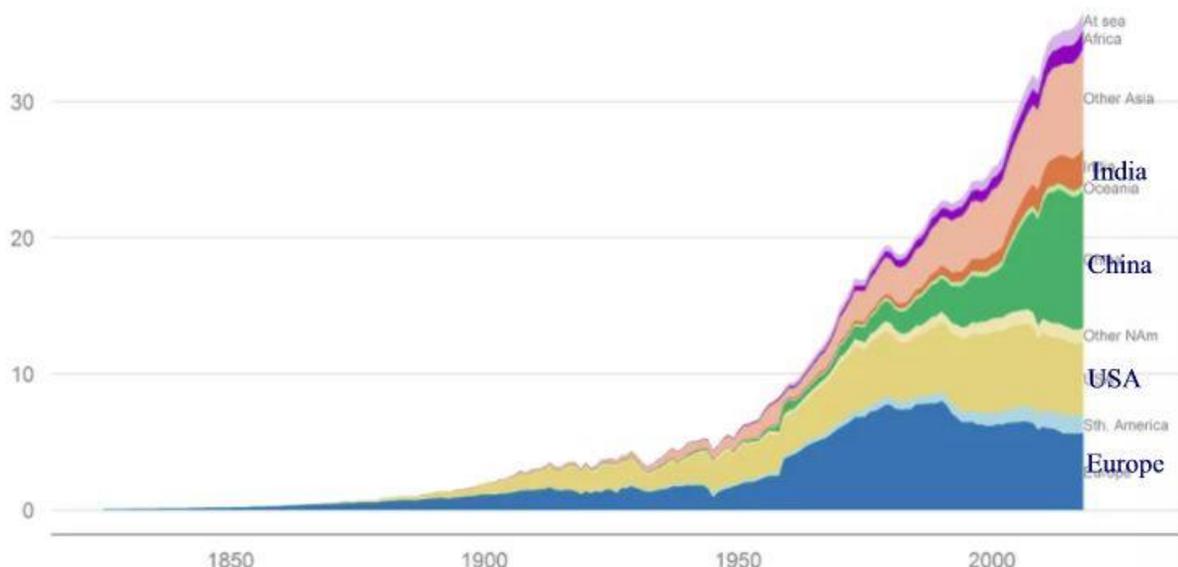
Migrating Populations caused by [Climate Displacement](#) from hurricanes, sea levels rising, wildfires, excessive rain or snow, heatwaves and drought; In the US alone, 13 million people could be [forced away](#) from the coasts by 2100. The question is where will these people go? And how will [cities prepare](#)? Housing and infrastructure aren't yet equipped for that kind of crisis. Many will be homeless and have little money. There are over 275 cities in America with 100,000 population and 40% of them are on the coasts.



Financial Cost of Combating Climate Change: Climate Change [Disasters](#). could cost \$10 to \$20 trillion over the coming decades for wildfires, hurricane flood damage, oppressive heat, food shortages, homelessness, insurance losses, job losses and rising sea levels. That does not include the cleanup of [40 Billion tonnes](#) of carbon added every year to the atmosphere. The

Annual carbon emissions, by region

In billions of tonnes of CO₂, 1825-2018



total mass of the atmosphere is estimated at 5 quadrillion tonnes. This extra CO₂ is only .0008 percent of the atmosphere yet look at the damage it is going to do. Climate change will ultimately cost humanity \$1,000's per tonne of carbon, scientists estimate. That cost is so much money humanity could not possibly afford it, even over 100 years. The best we can probably afford is to stop adding more carbon and live with the consequences of the past. Building sea walls for our coast could cost \$40 to \$50 Trillion, if this number is even calculatable. With all the rivers in our coast, this may not even be feasible. With all the wildfires, moving people out of the forest will probably happen sooner, as insurance is becoming unattainable, and lenders will dry up without insurance.

Sources of Carbon Emissions. There are many sources besides the usual vehicle emissions which are 16%, Concrete is 8%, electric generation is up to 40%, then the remainder is from industry 32%, cows 4% and deforestation. Annually America alone produces over 4 Billion tonnes of carbon dioxide.

Organizations Combating Climate Change

These are a small sample of the types of organizations below that are all promoting various mitigation procedures. They are listed below. So far it is mostly study and talk with little action.

<http://www.ipcc.ch/> Inter Governmental Panel on Climate Change

[WMO](#) World Meteorological Organization

[UNenvironment.org/](#) United Nations Environmental Programs

[Green Climate Fund](#) 194 sovereign governments making decisions together

[350.org](#) A clean energy movement

[C40](#) is city-level NGO action on climate action

[Climate Investment Funds \(CIF\)](#) is one of the world's leading climate finance

[Oil Companies admit to contributing](#) to Climate Change in court

[NASA](#) is mapping tree coverage

What solutions mitigate these costs?

[Reduce emissions](#), [electric cars dirty secret](#) , clean power, smart grid, education, seawalls (preventative)

[Carbon Capture](#), [New technology Sequestration](#), plant trees, (clean the air),

[carbon tax](#), [corporate activism](#), See 10 pages of [other relevant links](#).

“We have a choice. We can continue our current path of ignoring the economic cost of climate risk and find ourselves facing potentially catastrophic economic and ecological losses. Or we can make the global transition to a net-zero emissions economy through adaptation, construction of sustainable infrastructure and the rapid reduction of carbon dioxide in the atmosphere the important investing goals of the next several decades. Effectiveness and costs of these solutions above will not be discussed in this essay.” Instead:

A New Idea: America is a marketplace of ideas. Here is a way to combat Climate Change as an Engineered Solution. What is unusual about this approach is that it makes money: A 50,000-mile national, elevated, all-weather, all electric driverless transport system will operate better in future conditions than our existing roads for cars. A Driverless infrastructure could reduce gas pollution by taking 100 million cars off the roads and replacing them with shared electric vehicles up in the sky. This reduces the need for fossil fuels. Heating and transportation must be electrified to get rid of oil and natural gas that pollute the atmosphere. It introduces the equivalent of 200 mpg fuel economy on a national scale. Estimates are \$1 Trillion at \$20 million per mile to build along the 50,000 miles of our Interstate Hwy System and another \$1 Trillion to build connecting circulators in 275 cities over 100,000 population. Is a new 50,000-mile, \$1 trillion national driverless backbone funded by the private sector, really feasible? The new driverless transport industry is projected to grow into an estimated \$2 trillion in size just for ground based mobility: [mobile industry](#) These elevated structures can be combined with ground driverless and also share their easements with other infrastructure such as: cargo, fiber media and energy.



Is America Ready for a A NEW ECONOMIC MODEL?

Privately funded AGT (automated guideway transport) could stimulate a multi-trillion dollar urban development boom around stations that could generate millions of jobs in dozens of industries.



[Click for Animation](#)

Attainable Economics: Elevated Guideways will be cheaper at \$20 million per mile to build, and cheaper to use. A national urban network could serve from 50 to 100 million users per day at \$100 p/month. Combining urban and Cross country would someday gross about \$2 billion per day. It will be faster, as it operates at 40/60 mph urban and 150 mph cross country and it is more profitable with 70% operating labor saved from being driverless. It will have more services with five revenue streams combined into *Stacked Pay Zones* above the \$20 million estimated cost. These are travel, shipping, fiber optics, smart grid and perhaps water from vapor. These are goals for annual profits within 5 years: They present the idea of Stacked Pay Zones but not profit

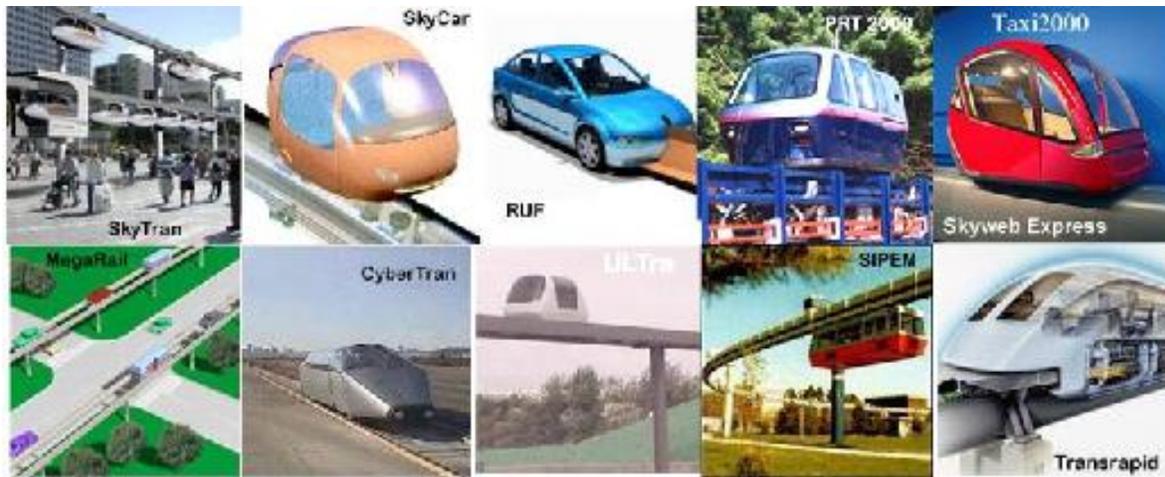
- * personal mobility 10% ROI p/y
- * Automated cargo 4% ROI p/y
- * FiberNet Media 8% ROI p/y
- * Smart grid 2% ROI p/y
- * Water from vapor 1% ROI p/y

Growth: America has grown by over 33 million people since 1990. In the next 25 years, it will grow [54 million more](#). Where are they going to live? They will add huge congestion to our roads and more pollution to the air. There were [273 million](#) vehicles in 2018. Can we accommodate another 50 million vehicles in 25 years. With all the problems of Climate Change our coastal cities may not be

able to accommodate their share of this growth. Most of this growth may have to go inland, perhaps into many new communities created for this purpose. Climate Change is going to force cities to adapt and quickly. As for the existing cities, it is a lot easier to put down transport columns every 70 feet in the urban environment than to add another lane of freeway. The transportation systems around which the modern world has been built are on the verge of a significant transformation. Intelligent transportation systems are making driving and transport cheaper, more options and safer for everyone and this typifies the future transport framework. Infrastructure is evolving to accommodate the demand for global investment in the new driverless transport. We are at a tipping point for change in this industry. Some think that autonomous electric vehicles will replace today's gas fueled cars. They probably will for the rich, but most people won't be able to afford them and we can't afford the congestion more cars will bring to our roads from growth.

In the next 25 years population growth is expected to create the need for expanding highways and airports. *"There are 161,000 miles in the National Highway System of which 47,000 are Interstate freeways. We should be replacing 25% or approximately 40,000 miles (averaging 3 lanes) of freeways and highways every 10 years. This is about 750,000 lane miles and at \$2 million per mile per lane equals \$1.5 Trillion over 10 years. Unfortunately, the United States Budget only provides \$115 Billion per year and half of this goes to other uses such as light rail, buses, etc. Experts are warning this deficiency is already several Trillion dollars".*

All Weather and All Electric With the guideways twenty feet up in the air, traffic would not be impacted by floods, winds, storms, or snow as much as the current roadway technology is. The guideways can carry cars, cargo trucks, emergency modes, security modes, cleaners, and buses. In snowy areas the traction element can be heated when necessary. Solar power is envisioned to provide all electric operations. Over time other forms of power generation can be added and the excess sold off to adjacent users. Connections for backup power can be provided when necessary. Linear Induction up to 150 mph is envisioned for long haul and simple electric motor for local systems.



See over 70 startup companies in driverless systems by clicking on this image

Merging the Driverless Car with Elevated Guideways

Every major car manufacturer has their own prototype driverless car as shown below. Driverless cars are expected to increase the volume of traffic at a time when every city has congestion already. By merging both systems into a coordinated mix of ground and elevated traffic there are huge benefits. The first is that elevated systems can move people around town faster than congested roads. The second is that ground based driverless cars can be the missing link to the destination for riders leaving elevated systems. Eventually the guideways could carry ground-based cars above the traffic and perhaps charge their batteries along their route. Each manufacturer below has produced a driverless prototype to enter the market. Elon Musk has an idea for [networking](#) cars:



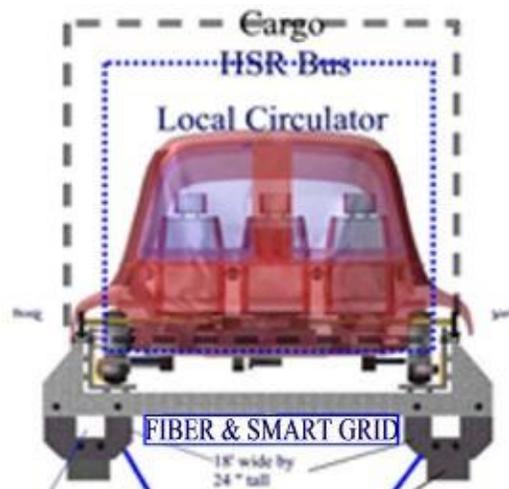
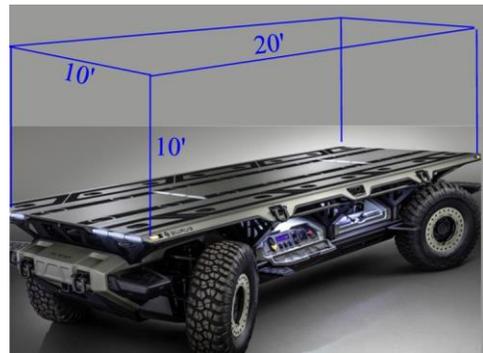
Districts-Driverless vehicles like the above can connect the elevated system stations to ground based destinations within a mile or so from the stations. This solves the last mile problem transit has always had. These can be trolleys,

carts, trams, and cars. Preferably dedicated pathways will be best and contain the sensors, stop lights and traffic computers offer greater efficiency. These facilities can be paid for using today's modern Improvement Districts. Here is an example: A district of ½ mile around the station contains over 5.5 million s.f. of land. In a suburban setting this is likely to have 2 million s.f. of commercial and residential structures. Charging 5 cents per s.f. per month is a common way of funding shared services. This would raise \$100,000 per month allowing for road sensors, traffic computers, dedicated pathways and a paid for monthly pass for District locals. Visitors can buy a daily pass.

Multiple Technologies that can combine into Stacked “Pay Zones” with the movement of people as other carriers operating within in the same easement:

1. Shipping /Delivery
2. Fiber Optics
3. Smart Grid
4. Oasis machines
5. Carbon Farming

1. Shipping/Delivery- on driverless trucks that can go off the guideway to programmed addresses. The picture shows the General Motors experimental version. Up to 2,000 cubic feet (blue lines) would be 10' x 10' x 20'. After the Corona virus, delivery services are expected to grow especially for foods. This market combines with



the traveler market will give the individual routes more traffic and even traffic through the night. The combination will mean significantly more revenues.

2. Fiber Media- Underneath the guideway there is room to hang 5 to 6 pipes about 3" in diameter. These pipes can carry up to five fiber optic cables with 72 strands each. The carrying capacity of each strand is equivalent to a single fiber optic. Thus, the combined number of channels could grow into the thousands.



Fiber optic cables solve a massive problem by removing congestion over the wireless networks. Research shows that 90% of all the digital information in use today has been created in the past 10 years. This means that the cables will fill up no matter what is put on them. But this idea is to introduce the newer media.

This [growing](#) capacity will allow for all the existing forms of media plus new ones like Virtual Reality, Augmented Reality, [Apple fi](#) and 5G which is 60 times faster than 4G, thus creating huge new economic growth.

In urban areas the fiber will go into a vault for connections, testing and access. These vaults will be about 8' by 10' and located at columns nearest to stations. A simpler system will be to handoff the final mile to existing telecoms in the area and let them use their networks or add wireless to the final destination. In this scenario the local Telcos will be the customer and they will provide the electronics such as coders and decoders that change the photons used in the fiber into digital signals for transmission on their networks.

Another scenario is to build out the full technology and go for retail users. Along the guideways wireless transmitters can distribute and collect the signals to an audience of user's livings within miles of each side. The end user will also have control of this media through his cell phone. The cell phone can navigate this use of his traveling schedules, reservations, and deliveries. The fiber media construction cost for the 50,000 cross country backbone + another 50,000 miles in the cities could include \$500 Billion of the \$3 Trillion costs. In this scenario the fiber will support 50,000 to 100,000 publishers in video, virtual reality and even holograms paying a higher fee to an audience of millions using their cell phones for access. New VR applications in sports, education, engineering, medical, entertainment, architecture and travel will create huge new revenues. They have not been calculated yet but are thought to add greatly to the amounts of profit.

3. Smart Grid- The main source of electricity is expected to come from solar although other types are envisioned. There is room to lay 7 or so panels over the 75 foot length of each guideway. Solar generation should cover the 1000 watts per 75' of each guideway section that is needed to operate the entire system. This allows for an excess of electricity to be collected and distributed to users within a few miles of the route. Intelligence (software) can be added to these power sources making them more efficient and even amplifying them. Collectively this could become a very large power generator in the nation with 100,000 miles both urban and interstate. This [new battery](#) could provide power in the night time when solar isn't available. [Concrete](#) could be a battery. The latest research shows a new potential of [1000 times](#) more power per cell.

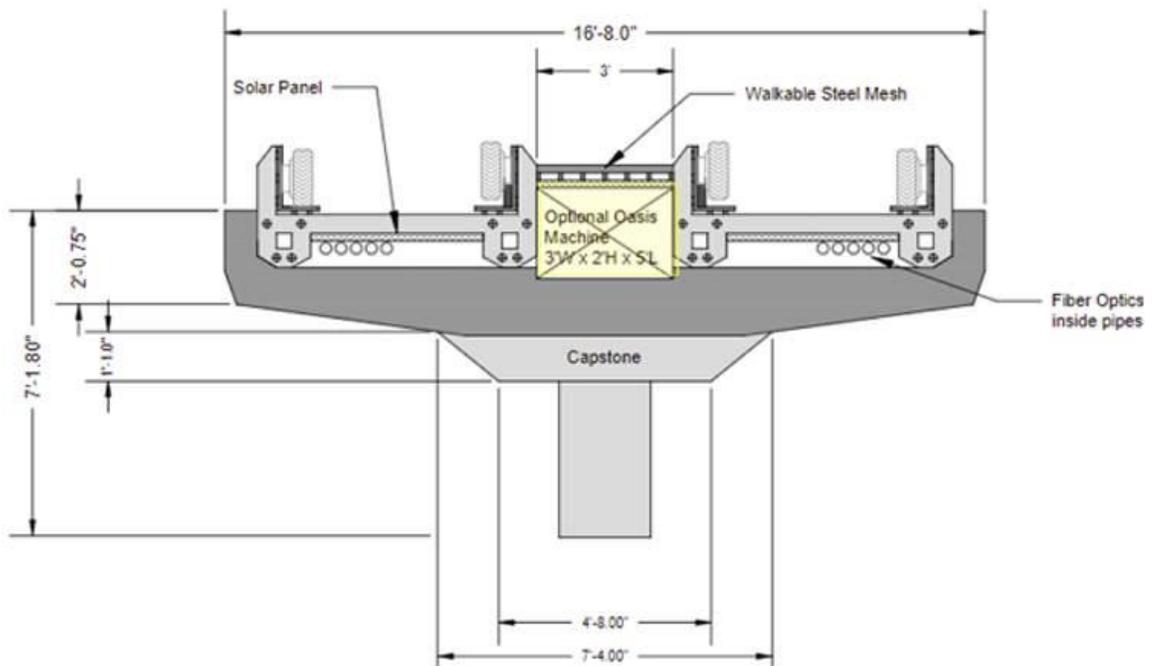
4. Oasis Machines- Newer technologies such as capturing water from water vapor in the air could generate each mile with both electricity and water and enough energy to supply adjacent uses such as farming. This is an add on feature that has not been studied yet with outside consultants as the driverless technology has. It needs input. Oasis Machines are small generators for both electricity and water that use electrolysis of water to split H₂O into hydrogen and oxygen as shown in the illustration below. It is a 260-year-old technology. The starter source is [solar](#). These gases then run small electric generators that could someday provide up to 6000 watts per 75-foot section. Among several uses: 3,000 Watts for sale as a smart grid and 3,000 watts for water generation. This information was gained by Kent Bingham (he was Disney's chief engineer for EPCOT and for Skyways) who built a testing model before he died that achieved many times the input. He could only get it to run for a few days. It needs to run for a year before maintenance. This [new technology](#) might solve that. While Kent's R & D is not proven, the DOE has launched a [\\$100 million Consortium](#) for further research in Electrolyzers. He left his [R&D as Open Source](#) so anyone could take the ideas for free although there is already an existing cottage industry of R&D taking place all over. [Etching](#) helps Electrolysis.

Features of Oasis Machines: The seventy sections of 75 feet in a mile might produce enough water (depending on humidity) to farm an adjacent square mile with pivot sprinklers There are problems, but the science appears feasible. Among them is getting the machine to operate for years without maintenance Today, this is an optional feature for the guideway, but if it becomes feasible, Kent thought they could be made for \$3,000 to \$5,000 each.



**Project Summary for Bingham Labs
DBA OASIS TECHNOLOGIES
April, 2015**

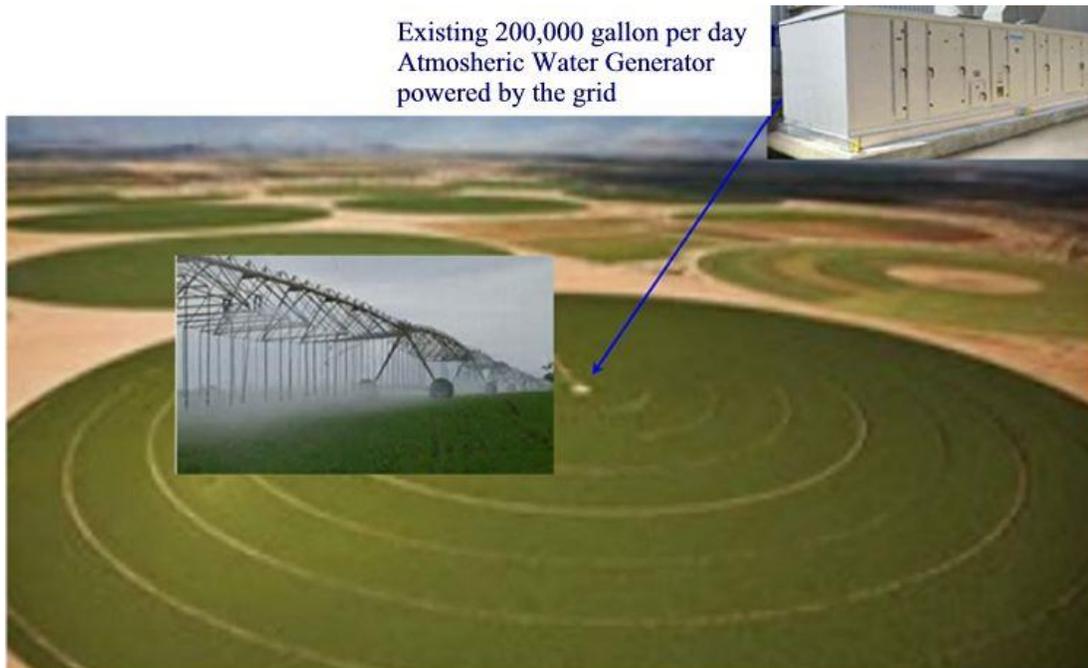
Yellow shows the location of the Oasis Machine on top of each Column/beam.



New [Aquarius Engine Generators](#) from Israel runs on Hydrogen and generates electricity without a fuel cell. It can be scaled to any size and will fit in the Oasis machine on top of columns.



An Atmospheric Water Generator can be purchased today that will supply 200,000 gallons, but the costs of electricity to run it from the grid is uneconomic. So, the technology already exists.



The Greening of America- By linking 75 Oasis machines together per mile, they might someday produce more than 45,000 gallons per mile per day. This is enough to sprinkle many pivot sprinklers of farmland, as a part of the installed cost of the overall system and not have to pay for power or water generation to make the desert bloom and capture carbon. A Canadian inventor is already selling a small water from air device. Climate change adds more water vapor (humidity) to the air making it feel hotter. The Oasis machines could make a difference in pulling carbon out of the air in a couple of ways. First is that some carbon is trapped in the water vapor and could someday be filtered out. Second by generating power along each corridor, any future inventions that suck carbon from the air could be powered along each route.

5. Carbon Farming- This infrastructure can grow about 5 million sites between the columns for landscaping sinks and air capture machines. A lofty goal is to have 3 kw available from each column and up to 600 gallons of water. Efforts by others will be able to reduce current and future emissions but leaving 100 years of carbon emission in the air will still ruin the planet. The 100's of billion tonnes of accumulated CO2 should be the target of this new infrastructure. Operating over decades, it could make a big difference. [The data supports the need](#) for immediate action. Carbon capture must be a part of the arsenal to combat climate change. This Greentech Economic Model reduces vehicle emissions, but the bigger opportunity is to create millions of spaces where carbon capture can occur both thru landscaping and machinery to suck the carbon from the air. Injecting it back into the nearby soils can create a lush farming area parallel to the highway. Each column is 75 feet apart where shrubs, flowers and even trees can be grown. On top of each column, we may see someday an atmospheric water generator that captures water vapor and turns it into water like an air conditioner does. Depending on humidity up to 600 gallons per day someday could be captured onto of each column and drain to a piping system below. This report shows how carbon could be sucked from the air. Labs are working on new materials to filter out the carbon. So, every 75 feet both water and electricity can someday be generated to create carbon sinks. They also may power carbon capture machines that can supply carbon for an abundance of products. Scientists have long known

that plants grow better in CO₂-enriched air. Collecting the carbon filtered from the air may be a challenge, but the conditions of water, power and site could be abundant. Carbon futures traded Dec 24 for [\\$39.08 a tonne](#). It is intended that a 3rd party provide the machines. It may be possible to somehow connect the carbon capture devices with carbon



tax credits. Here is a story about the state of Carbon Tax Farming. Exon sees a \$2 Trillion carbon capture market. Exon announces a \$3 Billion investment in Carbon Capture. What is still missing is a global price for Carbon dioxide emissions that will make projects economically viable. See an example for a \$200 per tonne price in California Fuel Standards. Indoor farming can grow [1,500 times](#) more food.

From air capture to fuel from this machine which is about the size of a shipping container

Relevant Links

* [Ten reasons to take Direct Air Capture seriously.](#)

* [Current Air Capture Technology.](#)

* This Company says their technology can remove for as little as \$94 per tonne

* Limits of Soil Carbon Sequestration <https://thebreakthrough.org/issues/food/carbon-farming>

* Transforming atmospheric carbon <https://phys.org/news/2021-05-atmospheric-carbon-industrially-materials.html>

* What on earth are carbon offsets? <https://convoy.com/blog/what-are-carbon-offsets/>



* Capture Technologies Are Improving <https://www.scientificamerican.com/article/carbon-capture-technologies-are-improving-nicely/>

* Soils Key to Curbing Climate Change <https://www.ft.com/content/a2e1476a-9390-11ea-899a-f62a20d54625>

* Ten carbon Capture Methods Compared <https://energypost.eu/10-carbon-capture-methods-compared-costs-scalability-permanence-cleaness/>

* How Soils Can Help Curb Climate Change <https://www.southpole.com/blog/regenerative-agriculture-soil-capital>

Modular Carbon Capture <https://cleantechnica.com/2021/07/02/holy-grail-raises-2-7-million-in-funding-for-its-modular-carbon-capture-technology/>

6. Pedestrian Villages In the ripple effect phase, another use of the Oasis Machine is to grow small [Pedestrian Villages](#) around station stops in the countryside with Oasis Machines shown below as small red dots. The Pandemic is driving people to use the Internet for work. With the fiber connectivity, living in these small green villages will be safer than city living. With a National driverless infrastructure connecting thousands of these small villages that grow their own foods, America can combat Climate Change with engineered solutions that make money and are sustainable. At the same time these small villages will lower the density of urban America, provide more protection from pandemics and provide for millions of climate refugees.

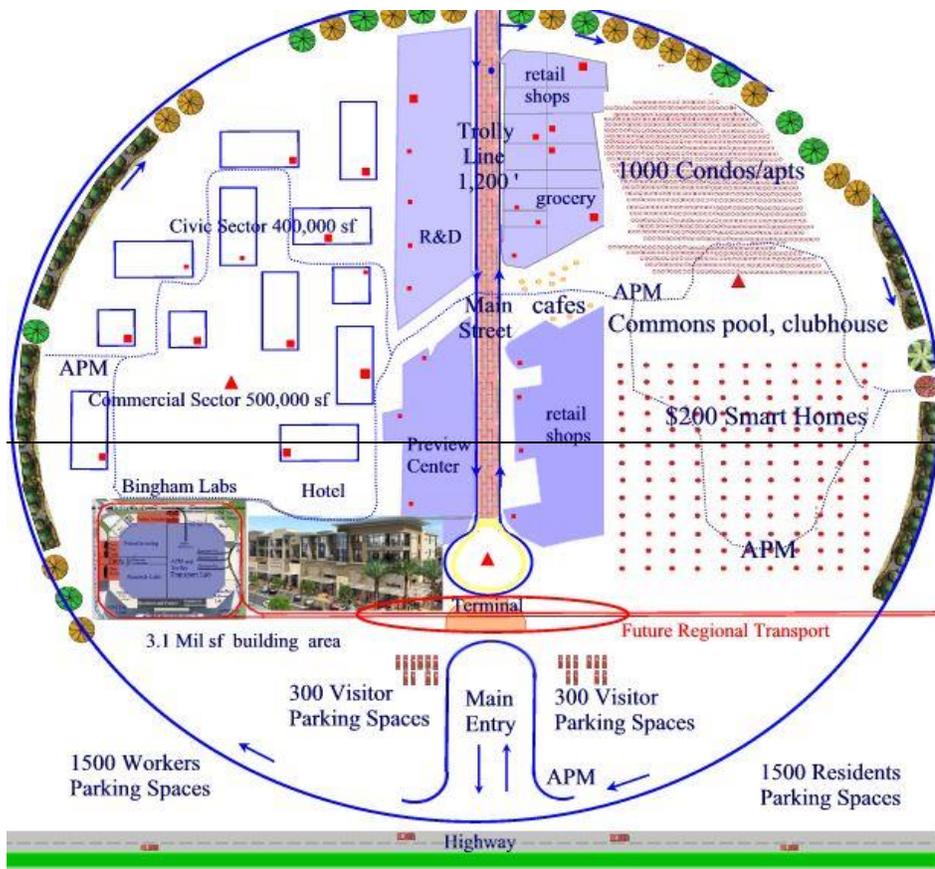
Another use of these small villages is to highly landscape them including lots of trees for use in carbon capture areas and shading as the environment warms. These Villages start at about 120 acres with potential sports fields, barns, parks, and farmlands on the outskirts. Parking is clustered near the stations. Red dots are Oasis machines.



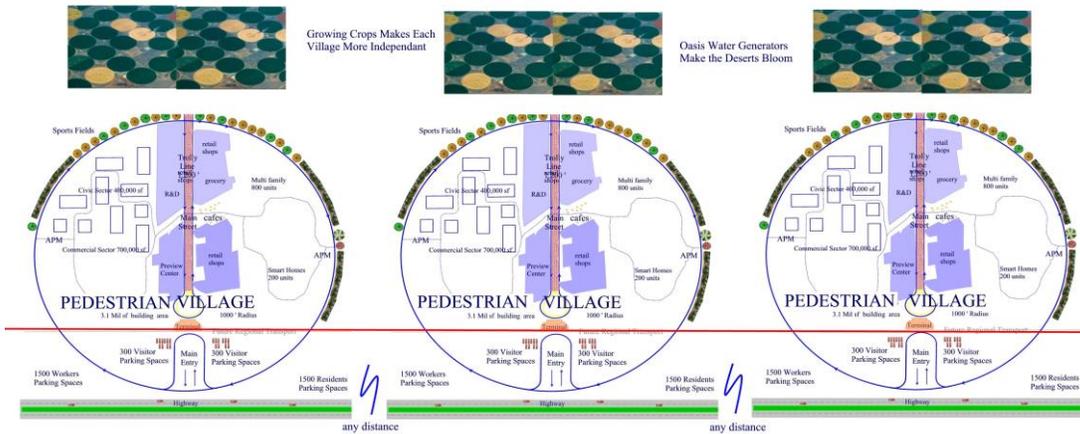
Climate Change Refugees

As time goes on, we expect to see more storms, wildfires, cold snaps, droughts, floods and unexpected weather events so drastic as to cause populations fleeing for safety. A National system as proposed herein will provide for rapid movement of people into safer areas for permanent or temporary shelter. These pedestrian villages can be designed to accommodate moving populations thru a

plug-in lifestyle for remote work, education, medical, religious, banking or even retirement. They can be small enough that a single company can develop one for \$100 million and up and also provide all the management services. A 120-acre size is comparable to the original Disneyland and uses that plan as a template with four diverse sectors linked by an activity mall. This size can comfortably support a mix of about 5,000 people living, visiting and working inside an urban control ring road. Outside are larger land uses for recreation, farming, and sporting fields. Pressures to grow can be sent to a new village down the way. The pandemic is showing people fleeing the crowded city for more spacious and safer suburbs and small towns. Each village can be unique in architecture, culture, landscaping, attractions, and economic base.



A String of Pearls—50,000 miles of countryside



\$1 Trillion for Local Circulation in Cites Today there are 275 cities with populations over 100,000 in America. In 20-years there may be 400. Adding another 50,000 miles of urban Driverless technology both in elevated and ground-based systems is an average of 125 miles per city. As the Driverless technology spreads, cities will spread out more like Los Angeles than New York. Density will be lower, and stations will become the focal points. Someday ground based cars can drive on and off the elevated systems. Until then a transfer will take people to any destination within a mile of the stations using dedicated paths for ground based driverless vehicles. These improvements and circulators are envisioned to be paid for and maintained by local “Improvement Districts” around a mile of each station.

Security In this world of increasing threats from terrorism and now the Corona Virus, security is a must. In the bigger stations one or two staff will be planned. These can include other tasks such as information, emergency, and crowd control. Entry onto the loading dock will have to consider how to scan for the Corona Virus and security will have to respond somehow. To use the system and to purchase a subscription or even a day pass, users will have to voluntarily be checked out for accurate Identification. Otherwise many the population may not use it unless they have confidence in their fellow riders. The cell phone is the ideal candidate to store this info and to scan at the station. A recent certificate of health may also be necessary given the new virus environment. This is not just for riding, but everywhere people gather in restaurants, hotel, events shopping and even office building are going to have to deal with this. Inside each car videos will monitor the activity and remind riders that they are being centralized monitored.

Some States are building Driverless Testing Grounds

According to *The New York Times*, "[States are] financing research centers, building fake suburbs and, perhaps most important, going light on regulation, all in an effort to attract a rapidly growing industry." For instance, a fake town is being built outside of Lakeland, Florida lined with sidewalks, intersections, and shops. Virginia has blocked off an entire 70-mile combination of highway, arterial roads, and urban streets. There is a fake city being built in the middle of the New Mexico desert capable of holding an imaginary population of 35,000 people. And more states are jumping onboard testing sites quickly.

Who would use it? Driverless America should be cheaper than car ownership which costs an average of \$773 per month according to AAA. This includes insurance, maintenance, fuel, parking, washing, roadside assistance and depreciation. Car ownership is the second highest cost for Americans after home ownership. Those who are traveling such as the military and tourist would save money at \$5 per day for unlimited ridership over car rentals. Approximately 10% of Americans don't own a car such as the poor and elderly and this could allow them the mobility to find jobs, shops and restaurants. Commuters would also find it cheaper than operating their cars. In large cities driverless buses will increase the ridership especially for the poor. A full national system could attract over 60 million monthly urban subscribers. The guideways will be capable of 20 passenger buses although some stations will have to be modified for docking and loading facilities for this size.

What Would It Take To Implement This Model? It would take political action, public sentiment, and better funding. The growing congestion is creating a new demand for political solutions to relieve and expand our infrastructure as gridlock sets in. It will be cheaper to build beside the existing multi-Interstate Highway network with smarter computerized and electrified technologies in time to take us beyond oil. And these new 3 to 6 passenger technologies generate revenues that can finance them. Over time 15 to 20 passenger buses can be added. By starting now, we can plan and gradually construct what we want, instead of having climate change control us and force us to change our ways without any preparation. Hundreds of new and a few older companies are preparing to compete for a share of this trillion-dollar upgrade market with local circulators now and then Interstate routes soon. The industry is getting traction now with 12 cities starting studies and Colorado is already seen proposals for a \$3 billion system on I-70 mountain corridor. Such

systems would need to have profitable revenues to attract private capital. And it would need popular selling points such faster and more convenient service, clean energy, 200 mpg equivalency and reductions in our congestion/pollution.

1. Startup Ventures- Everything begins with a first step and in this case, it is forming a business venture to get started by building a proof of concept The estimate for this phase is \$25 million to build a test track and a one mile demonstration model with 6 stations (2 every ½ mile)

2.Consortia

It will be necessary to find larger partners to build the actual routes. For example, a 15-mile demo needs approximately \$250 million including all the add-ons. That requires many large companies to engineer, construct and operate. Five or six partners investing \$50 million or so each, will provide enough funds to build a first operating route system. An attraction for members is the revenue opportunities from the demo operations to support the investment. But the bigger attraction is the opportunity to grab market share for a single state or even a regional system.

Five new members, each investing \$50 Million. If 10,000 miles is an example, here are the amount of business development potential:

Driverless Software	10% of route for \$15 billion market
Car manufacturing	30% of route for \$45 Billion market
Systems Integration	10% of route for \$15 billion market
Telecom over fiber	10% of route for \$15 Billion Market
User travel management	5% of route for \$ 7 Billion Market
Construction	30% of route for \$50 Billion Market
Shipping	5% of route for \$ 7 Billion Market

Then a State would have in place a Consortia to deliver the development and construction of routes. Next 100% financing of routes can be obtained by selling an Industrial Development Bond. Let us visualize a Bond like structure with blockchain features of Cryptos. These will earn at 3.0 % interest with 30-year amortization and 50% of the surplus. And there will be huge surplus over the years. Any number of companies could market these bonds and manage the treasury on behalf of each state without government investment.

3. Washington Doesn't have to pay for it: Under this economic model the Federal Government does not invest any construction money. There are several

things they can do to help. First is offer a Tax-Free Status like Municipal Bonds use. The second is to approve a new Digital Currency Asset Class for the first \$3 Trillion invested. Capital Formation is key to Development. This essay describes an economic concept for a USA PUBLIC BENEFIT CORPORATION (PBC) to provide the national tax-free structure, safety and interoperability oversight. Each State will own the Driverless infrastructure and form Public Private Partnerships (PPP) within the PBC partnering with developers and capital to fund corridors that provides portions of the 50,000 miles. Collectively this becomes a \$1 Trillion-dollar driverless backbone built within and beside the existing Interstate Highway system. A possibility of this concept is to go after some of the \$10 trillion "*flight capital*" that is on the move around the world. It is looking for safe havens and assurance they will get repaid. What assurance is better than investing in 5 different kinds of critical transport infrastructure that generates all its revenue from user fees?

In addition to "*flight capital*" are repatriated dollars. The Public Benefit Corporation could create a Federal Bank Depository for foreign and repatriated dollars. Then there are the Pension funds which are looking for long-term growing profits opportunities. Digital Currencies and Cryptos are new forms of capital that offer an exciting opportunity.

Features of infrastructure framework

- * \$1 Trillion for a Driverless America Backbone of 50,000-miles
- * \$1 Trillion for local circulators in 275 cities totaling another 50,000-miles
- * \$1 Trillion for a Smart Grid and FiberNet for Virtual Reality TV and all media
- * All weather, all electric operations with 45 mph city to 150 mph country
- * All carriers sharing the same easement and structures
- * 100% funded by private sector with State government ownership
- * Getting more juice into the economy and creating millions of jobs
- * Ripple effect of 5 x 1 economic development at stations
- * Feds approve a State model Public Private Partnership
- * States approve fundings and competitions for Consortias
- * Consortias to design, build and operate for 30 years
- * Funded by offerings using blockchain technology

The third area where the Federal Government can contribute is oversight. Safety and Interoperability are two big needs. Vehicles must be able to cross state borders without having to transfer into another vehicle because some State wanted a monorail. The main technology should use rolling wheels on guideways built like a

bridge. Operating software should be able to hand over control of vehicles and passenger information as they pass over each State's border.

4. States Should Own 30% - The \$3 Trillion Cost can be sliced and diced by 50 states working concurrently on a national backbone. States would be the most logical owners because this is revenue infrastructure that will survive for a very long time. Also, States will be needed to provide the Rights-of-Way and operating authority. This proposal is for the States to own 30% of the surplus (profits) for 30 years and then the funders capital will be amortized, and their mortgage expired. Then the States will receive 100% of the Net Operating Income. This is likely to be a huge annual amount that could expand as spurs and even make up for other State revenue short falls in other programs. During the last 10 years of the mortgage States could put in place seeds that they want to grow when the mortgage disappears. Also States could invest some of their 30% into carbon capture technology within the easement.

5. Digital Currency. A new global arms race in Digital Finance is heating up. Digital Finance could be issued in each State as a Public Private Partnership (PPP) based on earning significant infrastructure revenues. Since each State would own their routes via the PPP, they could sponsor competitions for funding and for developers. Funding in effect puts a 30-year tax free mortgage on each route. The Bonds would be like industrial Development Bonds with 3.0% interest, 30-year amortization and a surplus. Over time there will be large surpluses, so each party gets a share: developers 20%, each State 30% and the capital funders 50%. This should attract the needed capital for each route. After 30 years the mortgage is paid in full and the State gets everything. Although there is Wall St. Pension Funds, Insurance and Silicon Valley venture capital, Digital Currency is a new wave sweeping the globe. Here is a chance for the government to establish a new asset class for infrastructure funding. There are thousands of Crypto companies already set up to market investments. Using their blockchain technology would offer investors some of these features such as instant liquidity, faster and cheaper transactions, tamper proof, anonymous, decentralized and appreciation of shares. With the earnings from Cross country (day) ridership and (monthly subscriptions) urban ridership, automated shipping, fiber optics, and a solar grid, the volatility would be minimized compared to today's Crypto market. The Crypto industry is going mainstream. In 2021 Big business, big banks and big governments are preparing their own form of digital currency. Technology companies such as [Microsoft](#), [Google](#), [Amazon](#), [Apple](#) and [Facebook](#) have plans to issue this year or next. [Walmart](#), [Ford](#), [Disney](#), [Met Life](#) and [Intel](#) are said to be preparing for issuing digital

currency products next year. Even the big banks which have resisted Cryptos so far are known to be preparing their own digital currency: [JP Morgan](#), [Wells Fargo](#), [Morgan Stanley](#) and [Bank of America](#). The United States government has a plan to issue Fedcoin soon. Even [China](#) is getting into [Digital Currency](#). Also [Congress](#) has Introduced 32 Crypto and Blockchain Bills for Consideration. [J.P. Morgan](#), a global leader in financial services, is [set to launch](#) a 'Cryptocurrency Exposure Basket'. These are all just timid first steps.

6. A Proposed Structure for any State

* First is a \$25 million Startup Venture to organize a team, build scaled Models, buy a testing site on large acreage and build a one-mile demonstration model. Draft a model Public Private Partnership to propose to the State.

* Second - Market a Development Consortia that contracts with Public Private Partnerships in selected States for funding an incubator with \$250 Million consortia capital. This will fund an incubator of 10-mile to 15-mile operating route. Early models will be built as national demonstrations

* Third - Begin private funding for engineered routes and proposals to the private sector markets for the Consortia to develop 3 to 4 additional incubators. This phase is the Beginning of Revenue Production with 3 illustrations:

A Metro example-

A Resort example

Downtown Core-

An Office Park example

* Fourth build an Interstate example connecting at least two cites

7. Sustainable Economics. There are daily revenues for cross country trips and subscriptions for unlimited use in urban areas. Based on a subscriptions service of around \$100 per month for unlimited ridership in the metro areas, travelers would save money over car ownership and normal travel costs. The "last mile" problem has always been the short fall to transit, but with Uber and other shared services this problem is easily solved. In addition, Improvement Districts can be installed for one mile around each station to provide dedicated paths for driverless buses, trolleys, carts and trams, Our rough economic evaluation is that these routes can pay for themselves and can retire debt over a 30-year period. With the "Stacked Pay Zone" concept they could pay double

today's market returns. If investors could also get 50% of the surplus, it would make the funding even more marketable. Why will there be a surplus? (1) less labor costs (2) multiple revenues such as travelers, cargo (fills the night-time hours), fiber optics (underneath guideway) and solar electricity (3) increasing prices over 30 years (4) increasing users will grow huge over 30 years of the partnerships. Users should be able to use their cell phones to coordinate their elevated travel with ground based driverless, banking, shipping, media, restaurants, hotels, events and purchases.

Profits on these systems are thought to be in the 6% to 10% range in the early years and grow up to 4 times higher within the full 30 years. This is just for the movement of people. Adding in the other revenues, the profits could grow from 20% to 30% combined ROI in the early years. Small systems costs for malls, resorts, universities, hospitals, airports, office parks and venues will cost \$25 to \$50 million, small city circulators will be \$150 million range and up and Interstate systems will be in the Billions of dollars. By stacking the various carriers (travelers, cargo, fiber and energy) into one easement, the combined profits are expected to be larger, more sustainable and growing faster.

This will stimulate the economy, give each state the authority to design and sell new Bonds based on tax free incentives and higher returns. America needs a new green economic model for the movement of goods and people. It also generates new jobs building it. Mobility is the heart of our economy and the lifeblood of every community in which we live, work and invest.

The Ripple Effect -If we could attract trillion of dollars to a new industry that funds a national mobility system equal to the Interstate Highways Size of 50,000-miles, then here are some ripple effects: The next \$1 Trillion comes from adding metro circulators in the cities that collect and distribute for the backbones. It can be paid for with new Driverless America Bonds by offering a portion of the surplus. Each dollar invested in a Driverless America Bonds is expected to generate 5 or more times in development projects around small stations in the cities. Transportation investment has historically



generated this kind of multiplier investment in adjacent real estate property. A Driverless America would cause a \$15 trillion construction boom developing 10,000 [pedestrian villages](#) at station some stops and creating an array of public benefits over the next few decades. If the urban one third of the Driverless America has two stations per mile (30,000 stations), many thousands of pedestrian villages could result. If each one averaged 1000 condominiums and a supporting mix of commercial services, then 30 to 50 million people could live work, play and shop without the need for owning a car. These pedestrian villages could support much of the migrating populations from the Climate Change. In suburban areas, they could use buses, taxis, trolleys and car rentals to go off-line into final destinations. Such systems will also attract a sizable commuter ridership and more revenues from outside people working and visiting in these villages. A Driverless America can link activity centers such as hospitals, malls, resorts, campuses, airports, trains, cruise terminals and office parks. Its pedestrian villages can require clean energy usage. The new labor and property tax bases generated will add hundreds of billions of dollars per year to both federal and state coffers from the trillions of dollars in additional investments for real estate at the stations. Then there is spending \$500 billion or more on a 100,000-mile fiber optics enterprise. This will include new applications and jobs for telecom, such as augmented reality, virtual reality, holograms and G-5.

Ripple Effects in Job Creation At the turn of the century when automobiles started, there were over 500 companies competing for their idea of what a car should be. The same thing is expected again, but this time the stakes are higher. This infrastructure can set the conditions for thousands of companies to grow new profits by incorporating new innovative automation, information and robotic technologies in tomorrow's economy of innovation. In every state, various industries will be required to organize, fund, build and operate a variety of Driverless transport routes and technologies. Below is a list of the main industries that would be stimulated by millions of jobs to build a Driverless America network:

Propulsion Systems	Credit Cards processing	Voter Campaigns
Travel Reservations	Cargo Integration	Vehicle Assembly
Media Companies	Amination Companies	Demographic data
Civil Engineers	Structural Engineers	Fiber Engineers
Automation Software	Station Development	Underwriting Docs
Power Distribution	Raw Concrete & Steel	Money Management

Guideway Fabrication
Economic Feasibility

In Car Advertising
Construction Management

Station Car Rentals
Energy Generation

Most displaced workers such as truck drivers will still have jobs for decades while the systems are constructed. Even afterwards there will still be routes for them to collect and distribute traffic to the Driverless backbone. Cities will still need to operate their transit systems, but they will be more oriented to the driverless backbones. Fossil fuel companies will grow smaller, and those jobs will be replaced with newer technologies.

Ripple Effect in Combating Climate Changes In the easement space next to the guideways, there could be millions of sites to locate such devices if the Oasis Machines water and power sources are available. Each site is a 75-foot location to place carbon capture machines. With water, electricity and cool air provided to each section, carbon capture should thrive. You can see the number of jobs created to clean the air through Carbon Capture devices like [these](#) and even opportunities for [Big Oil](#) to suck it up too. Because of all the combined revenues, the surpluses could afford to Joint Venture Carbon Dioxide Removal machines from the air in the 75' spaces between the columns. Overtime over 5 million of these spaces could be deployed to suck it up like no other solutions. [Several](#) large Oil Companies are talking about getting into the business of Carbon Capture. Some say machines that Carbon Capture from the air are a [\\$1 Trillion New industry](#), but there are [many issues](#). Here is a [video](#) about 7 ways to suck carbon out of the air. [Paying farmers](#) to bury CO2 is another storage solution.

How does a \$ Multi Trillion Driverless Market Compare? Systems will cost, on average, about \$15 to 20 million per mile, funding about 50,000 miles over 20 years – is about the size of the interstate highway system. If it earns more than other public investments, there is plenty of private money to fuel a trillion-dollar Driverless Industry. For example, the Internet showed how quickly a trillion in capital formation can occur for national infrastructure. The Internet attracted over \$2 trillion in capital in less than ten years. The Iraq and Afghanistan wars are said to have cost over \$5 Trillion. The war on terror in America is said to cost \$6.4 Trillion. What do we have to show for these massive investments? At least a \$3 Trillion Driverless America would not only have infrastructure to show for 50 years or longer, but it would also have huge profits and a ripple effect on top of that. Today there is over \$2.5 trillion in money markets saving accounts earning less than 3% and waiting for better investment climate. Over the next ten years, America's GNP is expected to

exceed \$200 trillion cumulatively and yet is dependent on an aging and overloaded transportation network. We are proposing a Driverless America Infrastructure capable of attracting capital for any route that can offer a 10% long term return. Transportation, being America's fourth largest industry and accounting for 11% of the Gross National Product over \$22 trillion, is primed for automation and possesses conditions that are ripe for explosive growth.

First Steps: A Public Feasibility Discussion –And what is needed is public education about the opportunities. A Driverless America [Feasibility Discussion](#) would bring public awareness to the opportunity. Think what a \$1 million social media discussion could accomplish. Someone would have to run it, but that should not be hard to find. Once the public sees the number of benefits involved, political action is more possible. In exchange for their 30% congress would have to provide tax-free incentives and approval for the funding concepts. A public feasibility conversation is necessary to attract government interest and attract many of the players with expertise. A Public conversation would be an inexpensive way to start. It would also narrow the opportunities into the most feasible methods and configurations. Technology is not the issue. All the technology described herein already exists, meaning the components are off shelf. They are just configured differently. Money is the issue. There is plenty of money around to build these engineered solutions. What is missing is the will to use it. [See \\$4 Trillion](#) example of taxing polluters.

Mobilization of a Brain Trust-Eventually all these human resources from the feasibility conversations will need to be organized into something that allows them to collaborate with each other, sources of capital, conferences, ideas and events. This should be a revenue generating enterprise that allows its services to grow with the number of opportunities.

Start \$1 Billion Incubators - From the Driverless industry shown on page 9 to 13 entrepreneurs can form Partnerships in the States of their choosing to study Driverless Corridors and begin discussions with those Depts of Transportation to build incubators. Many opportunities are available to study.

Final Thoughts- Climate change is happening faster than it was predicted. We continue to ignore it at our peril. Small efforts will not save us. We need bigger ideas to combat it. This essay is a public proposal to the government and business leadership about a New Economic Model that combats Climate Change

while making money. It does this by looking to the sky for resources like water, electricity, carbon, and uncluttered pathways. Once a Driverless Infrastructure is built, these other features can be added to that structure bringing in more revenue. The above engineered solutions provide impact and sustainability for a long-term effort to fight Climate change and there is the byproduct of economic development. Since it makes exceptional money long term, this effort should cause several new industries to grow across America from a series of projects built in each state, then connected.

Starting this year there is going to be a huge debate in this country about climate change. There is talk about Washington declaring Climate Change a National Emergency. Chime in. What do you think? Advise and/or sponsor a public discussion of this economic model. Also encouraged are adding better links, more recent information and opinions. Research is needed in air capture and soils sequestration. If you would like to know more, please contact me by email to discuss your area of interest: I am seeking partners to start small and work together to grow this economic model. With a sponsor, this idea could lead to a Public Discussion and cause both State and Federal Government to become involved. A public conversation could grow into a Brain Trust linking ideas, people, projects and capital.

Here are some ways you can collaborate

1. Co-sponsor a [public discussion](#) for \$1,000,000 for a year
2. Set up A Research Lab for air capture with 3 ventures for \$1,000,000 each and starting with the Oasis machine, then a Carbon Capture machine and last is Soils Sequestration venture. Request more information
3. Set up an Incubator and explore a model building for three sizes starting with a 1/10th scale indoors, ¼ mile full size test track and a one-mile sales model. Estimated at a \$25 million for Joint Venture. Request more information

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