Volume - Issue
09-09
August 2022

Telematics Industry
Insights by
Michael L. Sena

THE DISPATCHER

IN THIS ISSUE

The June 2022 Issue in Brief

Mobility Implications of America's Anti-city Legacy

The tragedy of transport planning in the U.S. is that there continues to be a belief that the reason there is low transit ridership is the car industry, which, in a conspiracy with politicians and land speculators, have made mass transit unsuitable for doing the job of moving people from where they are to where they want to go. With the exception of NYC and to a certain extent Boston and Washington, DC, American cities have been built when they were necessary, but with the objective of housing their residents in the type of dwelling they preferred, that is, a house on a piece of land that are both as large as the owner can afford. This has resulted in low densities and, therefore, lower than optimal numbers of riders to support public transit.

Dispatch Central

The U.S. Supreme Court showed its new colors in June. One of those colors is not green.

A little-known Swedish electric, self-driving truck-maker named Einride has received NHTSA permission to test its cars in the U.S. Why should that be news?

A German judge decided that Tesla should refund a buyer of one of its cars the full amount she paid for it. What if that becomes a precedent?

VW's CEO, Herbert Diess, has learned a lesson Americans have known for many years: You might not have a job when you come back from a summer vacation, so don't take one.

The first issue of *THE DISPATCHER* was in November 2013. I reported on a telematics conference, on call center services, what car companies are doing with their connected car programs, what insurance companies are doing with car companies. I saved some space for big data and vehicle-to-vehicle communications. When I decided to print out all of the issues that I have written since then and bind them into a book, including up to and including March 2022, there were fifteen hundred pages. That was too many pages for a single book, so I divided them into three. The first book contains all of the six-page issues, up to October 2018. The second and third books contain the longer newsletters with the current two-column format. I'm a printed page kind of person. I read neither books nor magazines on screens, and I prefer re-reading my own newsletter on paper. So the three volumes are now on my bookshelf, waiting for me to pick them up and leaf through the pages. We shall see if there will be a fourth.

THE DISPATCHER

Telematics Industry Insights by Michael L. Sena
August 2022 – Volume 09, Issue 09

Mobility Implications of America's Anti-city Legacy

Read This First

Use the right tool for the job. Transport tools range from our own two feet to rail rapid transit, bicycles to buses, taxis to trolleys, and, of course, private cars. If you live on the Upper East Side of Manhattan and work on Wall Street, you might enjoy a brisk two-hour walk every morning to work and another two-hour trek back home, but it's not the most practical way to make the journey. People who have the responsibility of planning for transport in cities and their surrounding regions have job of matching the transport tools to make it convenient and economically practical for inhabitants to take their trips. However, they too often err on the side of choosing the wrong tools or of simply emptying out the toolbox. Just as combining rail rapid transit, trolleys and buses for residents in high-density areas is not always the best answer, neither is leaving everyone to their own car devices in low-density ones.

As I explained in the May issue of *THE DISPATCHER*, U.S. cities are different from cities in Europe. The reasons for the differences are a direct result of the fact that they were built by people who left Europe to start a new and different life in North America. Applying European transport solutions to U.S. cities—which is what U.S. transport planners have done—is as inappropriate as using U.S. solutions in European cities. This issue's lead article will attempt to identify the key differences and their resulting effects on how well transport solutions work for those who need to use them.

Different Shades of Urban: Part Two

IN THE MAY issue of *THE DISPATCHER*, I wrote about America's anti-city legacy, why it started and how it affected the pattern of development in the United States compared with Europe. One reader commented that my father's painting of our house on a street just a short distance away from Scranton's city center nicely summed up my argument: Americans may have built cities, but Americans will bring the country into them. Another reader said that one sentence in the Daniel Elazar quote at the end of the article encapsulated my proposition: "…the American urban place is a non-city because Americans wish it to be just that." A few of you asked what America's non-city cities have meant for the development and acceptance of transportation solutions in the U.S. compared with Europe and other places where there is a clearer distinction between urban and rural. What are the mobility implications for America's anti-city legacy? This is what I will attempt to address here.

It must be verifiable, otherwise it's just non-sense

There is no point in making a lot of claims about the relationship between America's cities and the design and use of transport options if these claims cannot be tested and verified. It would be a waste of your time—and mine. Within the scope of this article, I will not be able to do the actual testing, but I will propose what data are necessary and the models which can be used to test the data. Nevertheless, in the debate between logical positivism (A.J. Ayer and the Vienna Circle), which says that if it cannot be verified, it is better left unsaid, and critical rationalism (David Hume, Karl Popper), which says that what may not be verifiable today might be verifiable tomorrow, and what might be verified today can be falsified tomorrow, I will come down on the side of the latter. I'll do my best to make statements that can be criticized, and I will count on you to provide evidence which either supports or refutes my claims.

Places where motorized wheels don't belong

Our first question is: Are there relationships between the specifications of a built-up place, both natural and human-made, and the forms of transportation that are the most and the least effective in that place. In other words, do buses, trolleys, undergrounds, cars, motorcycles and bicycles work anywhere, or are there limitations on their successful—including economic viability—operation? I began thinking about this twenty-two years ago when my wife and I visited the Medina in Fez, Morocco.[1] This was the first time I was in a place where time appeared to have stood still. Fez was founded by the Arab Muslim Idrisids over twelve hundred years ago beginning in 788 A.D., and the Fez Medina felt like it had not changed since then. Passageways in the Medina (it is difficult to refer to them as streets) are essentially the spaces left between buildings (interstitial space in architectural lingo), and range in width between 0.5 and two meters. Many of these passageways are punctuated by stairs and their surfaces are extremely uneven, making them difficult to traverse even by two-wheeled vehicles like bicycles and scooters. Because of this, all motorized vehicles are banned within the Medina. There are no cars or trucks, trolleys or buses allowed. Only hand carts, donkeys, horses and mules are permitted. When we met a donkey loaded down with leather skins on the way to the dying vats, like the one below, we had to slip into the nearest doorway to let him pass. The doorways seemed to be designed for this purpose.

The Medina in Fez may well be the largest urbanized area in the world impassable to cars and trucks, where anything that a human being can't carry or push in a handcart is conveyed by a donkey, a horse or a mule. If you have a heart attack while building the new room on your house, a donkey might well serve as your ambulance and carry you out. Your garbage is picked up by donkeys; your food supplies are delivered to the medina's stores and restaurants by mule. In Fez, it has always been thus,

1. *Medina* in this context means the non-European part of the northern African city of Fez. The Medina in Fez is also known as ***Fez el Bali***.

and so it will always be. No car is small enough or nimble enough to squeeze through the Medina's byways; most motorbikes cannot make it up the steep, slippery alleys.

THE SMITHSONIAN MAGAZINE (September 2009)
https://www.smithsonianmag.com/travel/moroccos-extraordinary-donkeys-40973739/

Fez el Bali is small, only 220 hectares (2.2 square kilometers; 0.85 square miles). It is surrounded by a wall that is 8 kilometers in length. Crossing from one side to the other takes approximately 40 minutes, mostly because the path through the Medina is so circuitous. There is one public square and many smaller squares created by the meeting of the several pathways. Buildings, which cover almost all of the non-passageway ground area, are one-to-four storeys in height. Inside the buildings are courtyards, usually with fountains, onto which the rooms of the buildings face. All of the buildings are completely mixed use throughout the Medina, and people live in proximity of their work and all of their social activities.

A view of Fez el Bali from above

When we were there in 2000, the number of people living in the Medina was 156,000, which was one-half of those living there twenty years earlier. With its population in 2000, it had a density of 71,000 people per square kilometer, or 184,000 per square mile.[2] It was double that in 1980. The population of the entire municipality of Fez is just over 1 million, so the Medina is approximately 15% of the total. However, the Medina contains 42% of the municipality's artisan workshops, and 75% of the Medina residents' incomes is derived from craftsmanship, with textile and leather making up 67% of the total. In the photo below you can see the city that has grown up around the original town, outside the walls, with cars and trucks and buses and every other type of transport. Outside the walls is not a place for transport of the four-legged kind.

2. Context: The density of Manhattan County, which has the highest population density of any U.S. county, is 28,154 people per square kilometer or 72,918 people per square mile. This is approximately 40% of the Fez el Bali. At its peak population in 1910, Manhattan had a density of 39,208 p/sk or 101,548 p/sm.

So Fez el Bali will be my basic transport benchmark with no motorized vehicles or related transportation infrastructure, no high-rise buildings that are a single function, like residences or offices or manufacturing.

Gamla Stan: An old town in the middle of a transport mecca

I will now look at a built-up place in the northern European reaches, the City of Stockholm, Sweden. I have chosen it for two reasons. First, it is considered to have one of the best public transport systems in the world. Having used its public transport for the past forty-five years, and experienced most of the other systems on the top twenty list, I can confirm that it is one of the top ten. It is faltering, but it remains one of the best. Second, Stockholm started its life as a smaller version of the Fez el Bali. Instead of a walled area carved out of the desert, Stockholm at its start comprised a small island at the confluence of Lake Mälaren and the Baltic Sea. What was the original city of Stockholm is now referred to as *Gamla Stan*, or 'old town'.

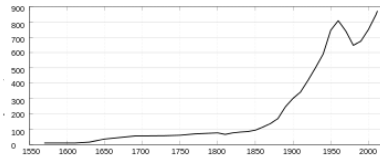
Gamla Stan was first settled at the end of the first millennium and the beginning of the second by Vikings who abandoned their principal settlement of Birka on the island of Björkö for a more strategic location from both a trading and defensive perspective. In the 13th century, it became the administrative center of those parts of Sweden which Birger Jarl had consolidated under his rule. It has some of the same characteristics as Fez el Bali, with extremely narrow passageways punctuated by stairs and multi-purpose buildings up to four or five storeys in height. It is likely that throughout most of its existence, those who lived and worked there depended on four-legged transport, and today most of its passageways are still unpassable by motorized vehicles. Cars and vans are not banned, however, and the two major north/south streets permit motorized vehicles.

The royal castle and two churches occupy approximately one-quarter of the area of Gamla Stan, which is around one-eighth the size of Fez el Bali. Its population in 2015 was 1,400, up from 710 in 1975, giving it a 2015 population density of 3,724 people/square kilometer.[3] At its height, at the turn of the 20th century, there were around 11,000 people living in Gamla Stan, giving it a population density similar to that of Manhattan.

Stockholm's population stayed below 100,000 until the middle of the 19th century, but then it grew quickly. The city expanded to the north and south, draining Gamla Stan's population and using

Mårten Trotzigs Gränd, less than a metre wide, is the narrowest alley in the Gamla Stan.

3. https://www.city-facts.com/gamla-stan-stockholm

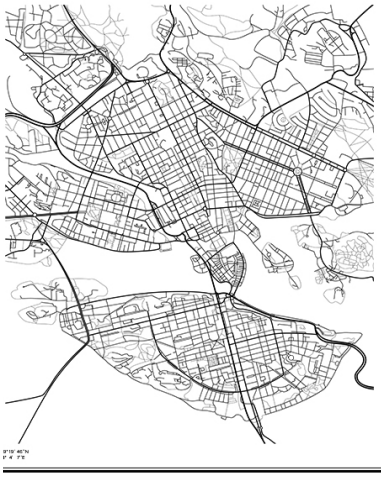


Stockholm Municipality population development years 1570–2012

The Swedish Empire was a European great power that exercised territorial control over much of the Baltic region during the 17th and early 18th centuries. The beginning of the empire is usually taken as the reign of Gustavus Adolphus, who ascended the throne in 1611, and its end as the loss of territories in 1721 following the Great Northern War.

the island's edges to connect the two new parts of the city with rail lines and roads. The mainline, commuter rail and underground lines emerge above ground along the western edge of Gamla Stan. This can be seen in the aerial view of Gamla Stan looking from the north. Sweden's parliament building is on the small island between Gamla Stan and the northern portion of the city, the royal castle is in the left/center, and Södermalm begins at the top of the photo.

When Stockholm expanded, it did so in an ordered gridlike manner. The gridded areas forming different neighborhoods in the city are separated by waterways. Bridged connections over the waterways are the links between the major arteries in the city. Within the city, with a few exceptions, building heights have been limited to six-seven storeys. Residential buildings throughout the city look like the apartment building below, neoclassical in design and mostly built at the end of the 19th and beginning of the 20th century. A third-floor apartment in this building was my home for two years in 1982-83. The entrance to the *Tunnelbana* (underground) station was fifty meters from my door, and buses that would take me anywhere in the city and beyond were all within a five-minute walk. For $25 per month, I could travel on any bus, train, underground, trolley or boat anywhere within the county at any time.



Stockholm's population in '82 was just under one million. It had a density of around 5,000 people per square kilometer, or 13,000 people per square mile, which is approximately 20% that of Manhattan's. However, Stockholm has an annual bus trips per inhabitant that is over twice that of New York City (158 vs. 67), and a subway usage rate that is remarkably high, even compared to NYC (142 for Stockholm vs. 212 for NYC).[4]

People live everywhere in Stockholm, and they have spread themselves evenly around the entire city. There are bus-only lanes on all of the city's principal arteries, and traffic lights are controlled to give buses the right-of-way. Buses run often, and many run twenty-four hours per day and on weekends. There are special fares for the young, the elderly and those with special needs.

4X. https://city-transit.uitp.org/stockholm/public-transport-ridership

http://web.mta.info/nyct/facts/ridership/

Most underground stations are manned and the stations are patrolled, so they are generally safe.

Stockholm will be my public transport benchmark. This does not mean that the city is trouble-free and car-free. The number of cars per thousand inhabitants is 367, which has been very steady for the past twenty years. But in 1980, it was 285. For the country as a whole in 2020 it was 477, and for the entire county of Stockholm, including the surrounding communities, it was 400. The number of trips into the city by car and by public transport increased from 1970 up to 1990, but then, after Sweden's first post-war recession, vehicle traffic was steady until 2003 as public transport use increased. There seems to be no correlation between further reductions in car use into the city and the institution of the Stockholm congestion charge in 2007.[5]

European cities are made for public transit—that is underground

London and Paris have terrific rail rapid transit/underground systems, and Brussels' trams do a yeoman's service, but buses in these cities are no match for every other form of vehicle that has pushed its way onto their surface streets, from cars and taxis to rickshaws and electric scooters. Brussels has a population of 2.1 million, and yet its public transport system carries 150 million fewer riders per year compared to Stockholm. It is well behind in both metro and bus trips, the former because it is not as extensive as Stockholm's *Tunnelbana*, and the latter because of the difference in street patterns. It is painful to watch Brussels' buses trying to manoeuvre through the narrow streets on hilly terrain, as the one I photographed during evening rush hour in late June.

Most of Europe's capitals look more like Stockholm's *Gamla Stan* than the neighborhoods that grew up around the old town when Sweden's capital began to expand. Paris, Brussels, and London streets, narrow and curving, are made for walking or riding behind a slow-moving horse, while Stockholm's gridded pattern and wider streets can accommodate both buses and cars. But you won't find single-family houses with lawns and carports for middle-class families within walking distance of a royal residence in Stockholm, London, or Paris, nor in Madrid or Rome or Vienna for that matter. If there are aromas of meat grilling over charcoal in Europe's capitals it will be street vendors doing the grilling, not families preparing a

This photo shows the interaction of buses, cars, pedestrians and cyclists along one of major arteries on the southern Stockholm neighborhood of Södermalm. Surfaces in red are cycle paths. Lanes delineated with thick, white lines are bus- and taxi-only lanes.

5. https://miljobarometern.stockholm.se/trafik/kollektivtrafik/resande-till-inner-staden/compare/

Paris, Brussels and London respectively below have street patterns that look more like Fez el Bali or Gamla Stan than the regimented grid of Stockholm.

summer meal that will be eaten in their garden. There won't be cars pulled up on private driveways in the capitals of Europe, not unless the city mansion is owned by a noble or someone with enough money to buy a peerage.

The American shade of urban—density is the decider

When the founders of the United States of America decided on the type of government their new country would have, they agreed they would not have a monarch or an emperor or a dictator. From a city planning point of view, that was an important decision because it meant there would not be a capital with a huge castle and nobles, hangers-on and servants to fill its rooms. The American capital would not have large houses built close to a castle where men lived with their own large families, hangers-on and servants who would grow wealthy from landholdings gifted to them by the monarch, and from trade in which they were granted monopolies. It meant that there would not have to be armies of butchers, bakers and candlestick makers, tailors, fish mongers and cabinet makers preparing and producing things to keep the idle rich and all the soldiers stationed there to guard them housed and clothed and well fed. They didn't all have to live close to the castle to answer the call from the king.

When the founders had their own capital city designed (by Frenchman, Pierre L'Enfant) in what may look from above like Paris or Rome redux, it was for the purpose of housing government offices. It has never come close to the population sizes of cities that were capitals of empires. At 718,000, it is three-quarters the size of Stockholm. Outside the very center of D.C., most of the residential areas look like the photos to the right. The fourth photo shows the house in the northwest corner of D.C. where one of my nephews lives with his wife and two children. It is the white house in the middle. Many houses in D.C. are white. The house in Scranton, PA in which my nephew grew up is also white and the street looks similar to this one in D.C. Many streets in U.S. cities look similar to those in the photos.

The District has a population density of 11,515 people per square mile, a bit less than Stockholm's but less than 15% of Manhattan's. It has had a rail rapid transit system called *Metrorail* since 1976, when its first services opened on the Red Line. The latest line opened in 2014. In 2021, *Metrorail* had an annual ridership of 57 million, while ridership on the combined bus and *Metrorail* was 104 million. This is 20% that of Stockholm's. At its peak in pre-Covid-19 2020, annual ridership was over 200 million riders per

Washington, DC Residences

year. It is the second-busiest rail rapid transit system in the U.S. after New York City, which says something about Americans and rapid transit.[6]

Boston is fourth on the list of rail rapid transit ridership metropolitan regions in the U.S., after NYC, DC and Chicago. It is 48.4 square miles (125 km^2) and has 696,000 residents according to recent estimates, giving it a density of 14,500. The Greater Boston Area, which is serviced by the MASSACHUSETTS BAY TRANSPORTATION AUTHORITY, has 4.4 million residents and is ranked 11th in size among U.S. metro areas. I lived in Greater Boston for 18 years, eleven of them in Cambridge, right across the Charles River from Boston. For two of those years I did not own a car. I used all of the public transit options, especially its mostly underground rail rapid transit. But unlike Stockholm, Boston's surface transport in the form of buses and trolleys, can be found mostly in Boston adjoining towns and serves principally to collect riders for trips to the rail rapid transit stations.

During the eleven years that I lived in Cambridge, each morning I walked ten minutes to Harvard Square, took the **T** to central Boston and walked to one of the seven offices in which I worked at one time or another. Most of the others who lived in my apartment building (which was converted to condominiums like most rental properties in Cambridge in the late 1970s) took the bus down Mass Ave to Harvard Square. One of them, a lawyer, drove his car every day into Boston. This was before women wore jogging shoes during their commute, and when men wore rubbers over their dress shoes when it rained or snowed. I had a garage space behind our building, where my car sat during the week. Like most of the others living in the condo, I moved out of Cambridge to the suburbs when I got married to a place where I could afford to buy (in our case, build) a house. When I needed to be in Boston, I drove to a commuter rail station in the vicinity of where we lived, or I drove to the park-and-ride facility at the end of the Red Line which had been extended out to Alewife while I was still living in Cambridge. There were days when I drove, leaving at 6 a.m. so I didn't spend an extra hour in traffic. There were no bus lines out where we lived.

Americans take the bus only if they have to

I have been searching for a way to visualize the relationship between the forms that places have and the intensity of use by the residents of the place of different modes of transport. This task is

6. https://pioneerinstitute.org/blog/mbta-ridership-trends-compared-to-public-transportation-agencies-nationwide/

Beacon Hill, Boston, MA

A typical residential street in Cambridge, MA

My reason for moving to the Boston region in 1974 was work-related, but I liked it well enough to stay in the region for eighteen years. It had places that reminded me of London, where I had lived the year before, like this street on Beacon Hill. But I didn't end up living on Beacon Hill, and any surface similarities Boston had with any place on the other side of the Atlantic disappeared like the Christmas present wrapping after the presents were unwrapped. I settled in Cambridge, across the Charles River from Boston, on a street close to Harvard Square that mixed single-family houses with duplexes and four-storey brick apartment buildings built for Harvard and Radcliffe professors and administrators.

made more difficult by the various cultural and economic differences that exist between countries and within regions of the same country. Most Americans don't travel home for lunch and a nap like Spaniards and Italians do (or did). Climate has a big impact on whether residents are willing to walk even a few kilometers. During the two years I lived in the Orlando area when I worked as a consultant to the American Automobile Association, just walking a hundred meters from where I parked my car to the entrance of the building was a sweaty experience. My apartment was only a twenty-minute walk from my AAA's office, but I would have had to carry my dress clothes and have a shower when I arrived—unless I left before the sun came up.

I've settled on two principal variables for comparing transport usage in different regions: the geographic area covered by the transport system, and the area's population density. There are those who argue that "density isn't destiny"[7] when it comes to whether to build a transit system. I agree. Even people who live in low density areas who do not have access to a car should be served by some form of transit option. However, if the transit option chosen is not a good match for the density and the area that needs to be covered, the result will be both poor service and low ridership. That is what the data indicates in the table below, and that is what is illustrated in the graphic on the following page.

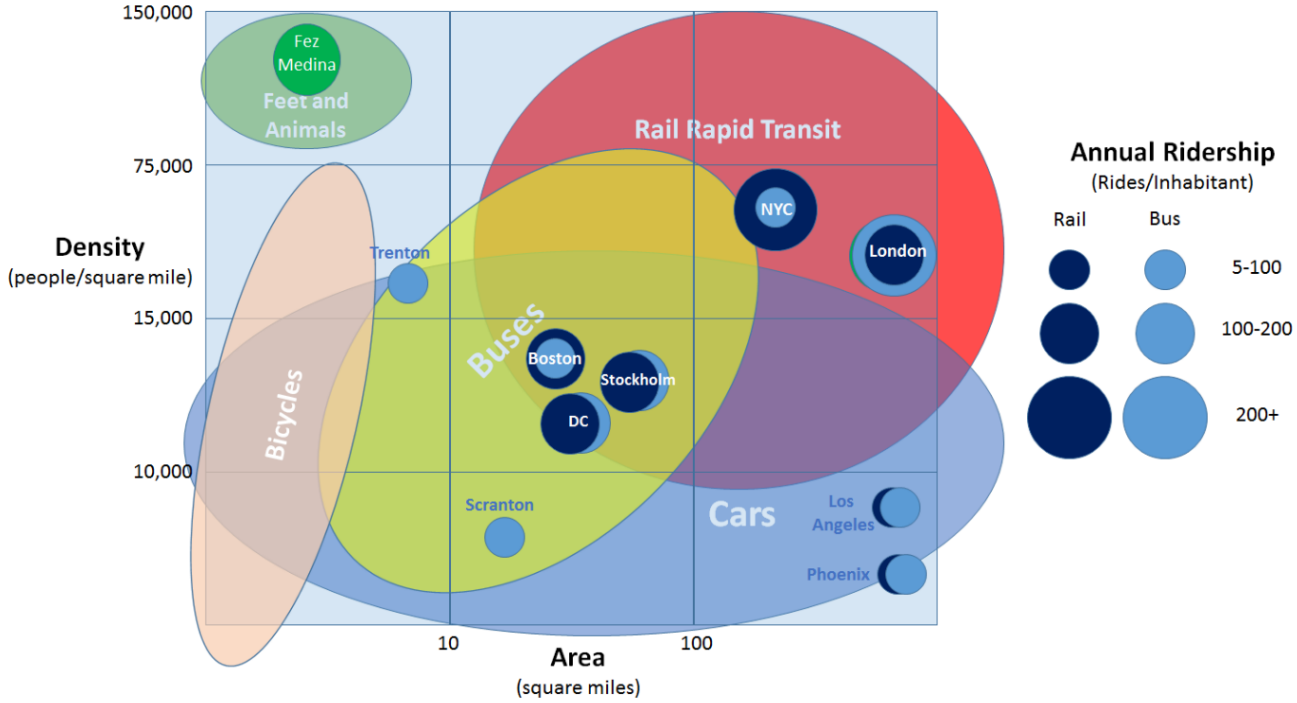
7. Mees, Paul. Transport for Suburbia (2010)

Region	Area (sq. miles)	Population (thousands)	Density (p/sq. mile)	Rail Rapid Transit Riders (annual trips/inhabitant)*	Bus Riders (annual trips/inhabitant)
Greater London	606	8,900	14,686	150	237
Inner London	123	3,500	28,455		
Greater Stockholm	2,517	2,400	953		
Stockholm	73	980	13,424	142	158
Greater NYC	3,450	20,100	5,318		
NYC	300	8,800	29,302	212	67
Manhattan	23	1,700	74,780		
Washington, DC	61	690	11,295	100	100
Los Angeles	469	3,900	8,304	11	34
City of Boston	48	696	14,500	112	64
Phoenix**	518	1,608	3,102	9	31
Scranton	25	76	3,003		8
Trenton	8	91	11,000		

* https://citytransit.uitp.org/london

**https://www.valleymetro.org/about/agency/transit-performance/ridership-reports

In the table above I have gathered the data on nine places, two in Europe and seven in the U.S. For each place, I list annual ridership on both rail rapid transit and buses. I have then transferred the data to a graphic showing the places in their respective locations on a graph with density along the vertical axis and area on the other, and used different sized circles to indicate annual ridership for rail rapid transit and bus transport.



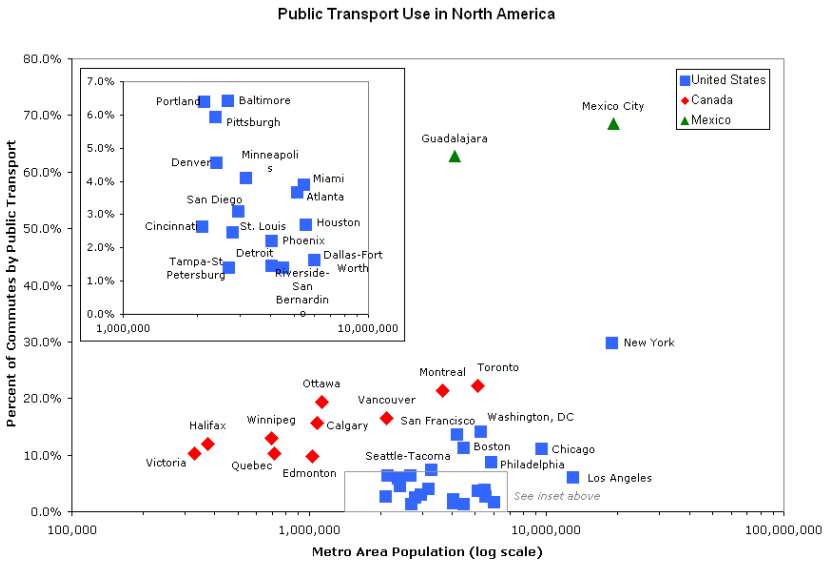
What do the numbers tell us? For starters, more people use public transit options in big, densely populated cities like New York and London than in big, sparsely-populated cities like Phoenix and LA. Both LA and Phoenix added a rail option to a bus service that had low ridership. The result is that there is now low ridership on both. LA and Phoenix, and most U.S. cities, are not built for efficient use of big buses and rail rapid transit. If they have the area, like Scranton, they lack the density; if they have the density, like Trenton, they lack the numbers of riders to make running buses on a continuous basis economical.

NYC's "subway" system does the job it was built to do. The city, principally Manhattan, is a perfect candidate for an underground rail system. Its buses get people to and from the subway stops, or provide service in the City's boroughs that have a lower density, like Staten Island. New York City is not and never was an "American" city, and it has not served as a model for any other city in the country. It is more like London, where the "underground"

moves people around quickly and efficiently in the inner boroughs, Westminster and London City, while buses do most of the work in the outer boroughs.

The most interesting results are in the middle of the graph with Boston, Washington, DC and Stockholm grouped together as places with both rail and bus services. They have similar densities and similar areas and similar populations. They are all in the vicinity of London's annual rail ridership per inhabitant. Stockholm and DC have higher bus numbers than NYC. Boston, like NYC, is also not a typical U.S. city. Beacon Hill reminds one of London's Mayfair, and its Back Bay and South End are reminiscent of London's expansion into Pimlico (and Manhattan's expansion into Brooklyn). Their transit systems, especially the underground systems, do their job well.

I have added another layer to the graphic indicating where the various transport options are best deployed. Rail systems belong in dense locations where big distances need to be covered. They have no business in sparsely-populated areas. Buses do their best work shuttling people from close to where they live to rail rapid transit stops or commercial/entertainment/work centers. They work well in denser areas where there are centralized focal points, like there were once upon a time in Scranton and Trenton, both of which had double their present densities fifty-or-so years ago and vital central business districts. Cars as a principal means of transport have no place in high density areas. They are, however, the only practical means of transport in low density places, which is what most places are in the U.S.



8. Arturo Ramos - Own work. *Public Transport in Major North American Metro Areas*

The chart above reinforces my point.[A] NYC is alone among large U.S. cities in which around 30% of people use public transit to get to work. DC, Boston, San Francisco, Philadelphia and Chicago, all with both rail and bus systems and all with similar densities, hover around the 10-15% mark. LA is around 7%, and Phoenix is around 2%.

The tragedy of transport planning in the U.S. is that there continues to be a belief that the reason there is low transit ridership is the car industry, which, in a conspiracy with politicians and land speculators, have made mass transit unsuitable for doing the job of moving people from where they are to where they want to go. With the exception of NYC and to a certain extent Boston and Washington, DC, American cities have been built when they were necessary, but with the objective of housing their residents in the type of dwelling they preferred, that is, a house on a piece of land that are both as large as the owner can afford. This has resulted in low densities and, therefore, lower than optimal numbers of riders to support public transit.

Let me make one thing very clear: A large percentage of the American population do not have a problem with public transit because they don't use it and don't want to use it. They have a house, a job and a few cars to get themselves and their family to wherever they have to go. If they are inconvenienced by public transit it might be because their child's nanny is often late for work in the morning because she missed one her bus connections. Many of them believe their way of life is threatened by climate activists and the politicians who support those activists who want to force them out of their cars and into disease-spreading, crime-ridden buses and trains. Many of them believe that if poor people were forced to get a job rather than living on government handouts--paid with their hard-earned tax dollars--they could afford to buy a car and we wouldn't have to worry about paying for public transit. American political, business and spiritual leaders have done little or nothing to counter these ill-informed thoughts; as you have no-doubt noticed, there have been more of the ill-informed political leader variety elected lately right up to the top.

If transport planners cannot fill the knowledge vacuum and provide viable solutions that meet the political, economic, and social realities of America today, that vacuum will continue to be filled with rubbish. Continuing to push for more buses and rail systems is simply wrong-headed. We have two choices. Either we rebuild all America's cities where public transit isn't working (which is es-

sentially most of them), or we stop with the buses and trains, already, and get with a new and better transport program. Let's look at both options.

Swallow hard; Britain did it better: Learn from it

We can start with building back better. Sorry, President Biden, I know you had something else in mind with your proposed trillion dollar Bill with the same name, but even though it made it out of the House of Representatives, it has been stuck in the Senate. The reason: it does not do what it advertises. It's a big barrel filled with a lot of pork, and the Republicans see none of the pork coming to their voters, except cash handouts for buying electric cars which they don't need. There is nothing in it that comes close to matching what the UK did following World War II to build back the cities that had been destroyed by German bombs, and to try to create a better way for its citizens to live, rather than huddled in cold, damp, drafty terrace housing with shared lavatories, only cold running water in the taps, and coal stoves for cooking and heating.

The British government began studying solutions to their miserable housing conditions in the late 1930s. Just before the War, a Royal Commission was established that was chaired by Sir Anderson Barlow. His group prepared a report that recommended "planned decentralization". When the War started, what became known as the Barlow Report was placed on a shelf and essentially forgotten. In 1942, the severe damage already sustained by Britain's cities and industries forced the government to consider what might be done once the War was over—assuming, of course that Britain came out victorious. The government viewed future planning as a morale boosting effort, and talked about building a "Better Britain". The *Ministry of Works and Building* was commissioned to draft ideas, and the Barlow Report was dusted off and became the centerpiece of a new policy. As the Report recommended, a central planning authority was established in the form of the *Ministry of Works and Planning*, and decentralization and relocation of the population in all cities, particularly London, would be carried out. This was the start of Great Britain's *New Town Programme* that would last until work on the fully new town of Milton Keynes in Buckinghamshire was substantially completed in 1992, twenty-five years after it was designated.

All paths lead to Central Milton Keynes

Britain's planners and architects created tired versions of country villages, copies of Le Corbusier's Radiant City and even a concrete

rendition of a medieval fortress (Cumbernauld, Scotland). They finally got it right with a design for the perfect American city. The planners, LLEWELYN-DAVIES WEEKS FORESTIER-WALKER & BOR, provided a brilliant solution that knitted together existing communities (Bletchley, Fenny Stratford, Newport Pagnell, Stony Stratford, Wolverton, Milton Keynes and others) with a network of roads intersecting in roundabouts every kilometer. Within the kilometer square grids, residents live in detached, semi-detached and row houses with schools, recreation areas, health centers and small commercial centers within short walking distances. Pedestrian and bicycle paths are everywhere and are level-separated from the major road systems. It is 119 square miles in area, and with a 2022 population of 280,000, it has a density of 2,352 residents/square mile.

A typical single carriageway grid road, H4 Dansteed Way, looking east from Two Mile Ash. Note the tree lining, the redway cycle path and the staggered junction for local roads.

Milton Keynes has a major commercial and cultural center, which is the big red area covering two squares in the map below. Note: it is in the center, not in the next county along a motor way. There is bus service, which is mainly for connecting the pre-existing villages. They all connect via Milton Keynes Center. More important for the residents is a "dial-a-ride" on demand bus service. In honor of Queen Elizabeth II Platinum Jubilee, Milton Keynes was finally granted the designation of a *City* on its fourth try. The city has had its detractors from the start. Designing a city around the car was not popular when it was done in the late '60s, and it is even less popular today.[9] But in survey after survey of the people who live there, they say they would not want to live anywhere else.

9. Full Disclosure: I first visited Milton Keynes in 1971 when there was no 'there' there. It was the subject of my planning thesis for my Master's degree. I met the planners and the architects, and have followed its progress for the past fifty years. It's a city that works.

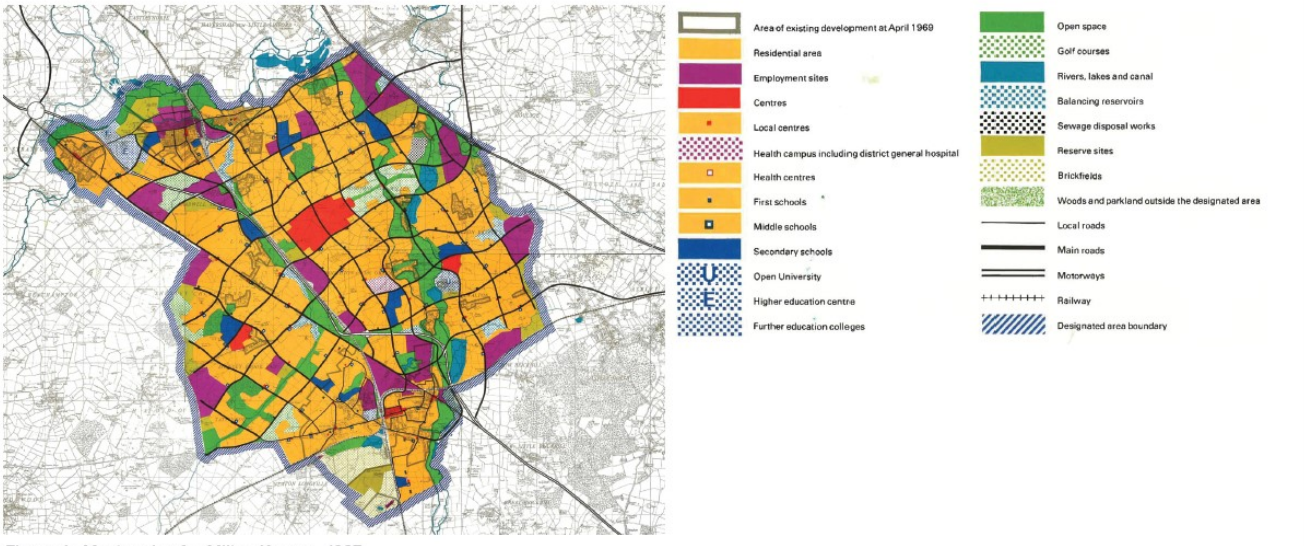


Figure 4: Master plan for Milton Keynes, 1967

Do I believe that anyone at any level of government in the U.S. has the vision to rebuild its city regions in a similar way as a once-

enlightened UK government did with Milton Keynes? I do not. Not within the foreseeable future. Not while it is still possible to elect a demagogue as President and Members of Congress who are more interested in identity politics than in creating a functioning country for all of its citizens. I believe there is a greater chance of improving transport for the minority of people who cannot afford their own car by actively working to replace expensive and ineffective bus systems, lobbying against building fixed rail systems and trying to gain support for re-centralizing commercial and cultural activities.

The end of the line for big buses

The answer to lower ridership in low density areas has been to reduce the number of routes, reduce the frequency of passes on the routes that are left, and to reduce the number of drivers (the biggest cost or operating a bus transit system) by running larger buses. All of these measures result in even lower ridership as those who absolutely need a ride are forced to find other alternatives. The other bright idea has been to add a light rail system, as if that would generate higher ridership because once it is built at huge cost—usually paid for by the federal government, not the local transit authority—it would have a lower cost per seat to operate than lower-capacity buses. Unfortunately, these lines are not built where people who need a ride live or need to travel. These solutions are not serving the people who have to use public transit because they either cannot drive themselves or cannot afford their own car.

On-demand, shared shuttles that take people from as close to where they are to as close as possible to where they need to go is what the U.S. should be putting into place in the large majority of its medium-to-small cities and their surrounding regions that have densities below 10,000 people per square mile. Scooters, bicycles and big buses do not help people who need to get to their jobs, to medical facilities, to places where they can buy affordable food. American cities have not been built to make these transport modes practical, and the longer it takes for everyone to realize this fact, accept it and start working with it as the basis of providing equitable mobility for everyone, the longer it is going to take to provide such mobility. Let's join forces to become part of the solution.[10]

10. 143 counties in the U.S. contain 50% of the population (160 million). There are more than 3000 counties in the U.S., so 2850 counties contain the other 160 million, or an average of around 55,000 per county. Lackawanna County, in which Scranton is the main city, contains 215,000 inhabitants. The COLTS bus service that serves Lackawanna Country has a budget of $16 million, or $74 per inhabitant, of which only 15% is covered by fares. This amount is for all costs, including drivers, operation, depreciation, etc. The amount not covered by fares is paid for by subsidies from the Federal and Pennsylvania governments. If the government pitched in $60 per inhabitant in the 2850 counties that may or may not have bus service that would add up to $9.6 billion. If we take Lackawanna Country as four times an average county, and use 85% of the cost of running a bus service in the county, it would add up to $9.6 billion. This is what could be used to replace all bus services and replace it with on-demand mobility. That's less than 0.9% of the Build Back Better proposal.
https://www.census.gov/library/stories/2017/10/big-and-small-counties.html

Dispatch Central

These are the men who wrote the U.S. Constitution upon which the laws of the country are based. The Constitution came into force in 1789, superseding the Articles of Confederation, which was the nation's first constitution. It delineates the national frame of government. Its first three articles embody the doctrine of the separation of powers, whereby the federal government is divided into three branches: the legislative, consisting of the bicameral Congress (Article I); the executive, consisting of the president and subordinate officers (Article II); and the judicial, consisting of the Supreme Court and other federal courts (Article III). Article IV, Article V, and Article VI embody concepts of federalism, describing the rights and responsibilities of state governments, the states in relationship to the federal government, and the shared process of constitutional amendment. Article VII establishes the procedure subsequently used by the 13 States to ratify it. It is regarded as the oldest written and codified national constitution in force. Since it came into force, it has been amended 27 times. In general, the first ten amendments, known collectively as the Bill of Rights, offer specific protections of individual liberty and justice and place restrictions on the powers of government. The majority of the 17 later amendments expand individual civil rights protections. Others address issues related to federal authority or modify government processes and procedures. The original U.S. Constitution was written on four pages of parchment.

The U.S. Supreme Court does not make the country's laws; it interprets them

VERY DIFFERENT REACTIONS were heard following the U.S. Supreme Court's three rulings in June: howls from the progressives and cheers from the traditionalists. Progressives called for piling in more justices to counter the current 6-3 majority of strict interpreters of the U.S. Constitution, the *Originalists*, limiting their terms, only allowing presidents who won the popular vote to appoint them, administering lie detector tests as part of the Senate approval process, and other remedies to correct what they see as a hostile Court. Similar calls were made in the past by the *Traditionalists* during the years when the Court had a majority of *Pragmatists* and believers in *Stare Decisis*.[11] It was during these years that the Supreme Court decided to strike down a Texas law which banned abortion. It ruled on January 22, 1973 in *Roe vs. Wade* that a woman's right to abortion was implicit in the right to privacy protected by the 14th Amendment to the Constitution. The Court's ruling effectively legalized abortion in all states. <u>But note: there was no Federal law passed by Congress to ensure that this ruling would not be overturned by a future court that disagreed with the Roe vs. Wade conclusion.</u>

On June 24, 2022, a different Supreme Court ruled in *Dobbs vs. Jackson Women's Health Organization* that a woman's right to abortion was not implicit in the 14th Amendment nor in any other part of the Constitution and its Amendments. This decision effectively turned the job of making abortion legal or illegal back to the States. The majority opinion of the Court stated the following: *"We end this opinion where we began. Abortion presents a profound moral question. The Constitution does not prohibit the citizens of each State from regulating or prohibiting abortion. Roe and Casey (*previous decisions made by the Court*) arrogated (*i.e., claimed or seized without justification*) that authority. We now overrule those decisions and return that authority to the people and their elected representatives."*

A day before the *Dobbs* ruling, the Supreme Court issued another ruling that caused squeals from everyone, liberal

and conservative included, this time on the Second Amendment. That's the one which says simply: *"A well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed."* It is this Amendment that the January 6th marauders who attacked the U.S. Capitol claim in their defense. The Court ruled on June 23 as follows: *"Because the State of New York issues public-carry licenses only when an applicant demonstrates a special need for self-defense, we conclude that the State's licensing regime violates the Constitution. Only if a firearm regulation is consistent with this Nation's historical tradition may a court conclude that the individual's conduct falls outside the Second Amendment's unqualified command. We too agree, and now hold, consistent with Heller and McDonald, that the Second and Fourteenth Amendments protect an individual's right to carry a hand-gun for self-defense outside the home."*[12]

Then it was the environment's turn to take a hit

The Supreme Court handed down a third opinion in June which was a win for those who believe the Federal government in general, and the Executive Branch in particular, has overreached its Constitutional remit. On the last day of June, the Supreme Court ruled that the *ENVIRONMENTAL PROTECTION AGENCY* (*EPA*) does not have the authority to set national energy policy and regulate carbon emissions from power plants. Specifically, the Court ruled in *West Virginia v. EPA* that the *EPA* does not have the authority to dictate that power generation be shifted from one source to another (for example, from coal to wind or solar) because the *Clean Air Act*, passed by Congress in 1970, does not authorize the *Clean Power Plan* (*CPP*). This was the mechanism through which the Obama administration sought to force America's electricity sector to switch to renewable sources. This plan seeks to limit each state's total allowable greenhouse gas emissions under the guidelines of so-called "performance standards" for power plants.

The Court declared that such a mandate should only come from Congress. *"There is little reason to think Congress assigned such decisions to the Agency (EPA),"* Chief Justice John Roberts wrote in the 6-3 decision. *"The basic and consequential tradeoffs involved in such a choice are ones that Congress would likely have intended for itself."* Justice Neil Gorsuch added: *"The Constitution does not authorize agencies to use pen-and-phone regulations as substitutes for laws passed by the people's representatives."*

Writing for the dissenting three justices, Elana Kagan, who was appointed by President Obama, wrote that "*it's dangerous to take*

11. There are four major ways that justices on a court may interpret the Constitution for a case:
Originalism – believe that the Constitution should be interpreted at the time that the Framers drafted the document. The originalist interpretation can be further divided into two schools, intent and meaning.
Textualism – simply look only at the text of the Constitutions to provide answers to various issues. A textualist would not examine the further intent of the individuals behind the framing of the Constitution.
Pragmatism – consider the consequences of various outcomes and seek to provide a solution that would lead to the least negative impact.
Stare Decisis - believe that Courts should follow past Court cases to help decide current issues before them.
(https://www.theodysseyonline.com/interpretations-constitution-originalism-textualism-pragmatism-stare-decisis)

12. The 14th Amendment reads: "All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws

.

any power away from the EPA just when the United States—and much of the world—is missing its decarbonization targets. If the current rate of emissions continues, children born this year could live to see parts of the Eastern seaboard swallowed by the ocean," Kagan wrote. *"Whatever else this Court may know about, it does not have a clue about how to address climate change. And let's say the obvious: The stakes here are high. Yet the Court today prevents congressionally authorized agency action to curb power plants' carbon dioxide emissions. The Court appoints itself—instead of Congress or the expert agency—the decision maker on climate policy. I cannot think of many things more frightening."*

Obviously, the majority of the Court felt that an agency that has not been mandated by a specific law to create and oversee regulations that have such a profound impact on the lives of the country's citizens is more "frightening" than the possible impacts of restricting the reach of the EPA.[13] In 2008, Democrats introduced a bill that would have provided the EPA with the necessary authority. It was the *Waxman-Markey* bill. It was a cap-and-trade approach that would have significantly reduced carbon emissions. However, even though the Democrats had a supermajority in both houses, Congress failed to pass the proposed bill. When the Democrats lost the House in the midterm elections in 2010, President Obama came up with the Clean Power Plan to pressure states to close down coal and gas plants. The EPA used a provision in the Clean Air Act that empowers the EPA to "designate the best system of emissions reduction (BSER), which had been intended for solid waste incinerators. The EPA decided to extend it to power generation.

13. I disagree with Justice Kagan. The ruling specifically states that it is Congress, not the President or the Supreme Court, that should be the decision-maker on climate policy, and should pass appropriate legislation that stands up to the constitutional review of the Supreme Court and is signed into law by the President, or over his veto by a two-thirds majority by both Houses of Congress.

What makes this ruling so important is its potential to cut to the very core of the EPA's activities. As I said above, the Agency was not established by an act of congress. It was created by an Executive Order from then-President Richard Nixon in December, 1970. This Order was called '**Reorganization Plan No. 3 of 1970'**. There was a heightened awareness of a growing global environmental problem at the end of the 1960s—as well as ever-louder protests against the war in Vietnam. The first Earth Day was held on the 22nd of April 1970 during Nixon's second year in office. If you won't stop the war, why not give the protesters another bone they are contending, one for the climate. In December of the previous year, Congress had passed the *National Environmental Policy Act* (*NEPA*), which required any federal agency planning a project that would affect the environment to submit a report on the

likely consequences of the plan. President Nixon's Order establishing the EPA was ratified by committee hearings in the House and Senate. Its Administer is appointed by the President and must be approved by the Senate.

In Reorganization Plan No. 3, President Nixon outlined the following as the roles and functions of the EPA:

- Establishing and enforcing environmental protection standards consistent with national environmental goals;
- Conducting research on the adverse effects of pollution and on methods and equipment for controlling it, the gathering of information on pollution, and the use of this information in strengthening environmental protection programs and recommending policy changes;
- Assisting others, through grants, technical assistance and other means in arresting pollution of the environment; and
- Assisting the Council on Environmental Quality in developing and recommending to the President new policies for the protection of the environment.

Oh, what tangled webs we weave

Fifty-two years have passed since the Executive Order was issued that created the EPA. It was never successfully legally challenged prior to *West Virginia v. EPA.* During that time it has acted as judge and jury with its agenda set by the President who appoints its Administrator. Americans and the rest of the world deserve better. The EPA has outlived its usefulness. It is time for the U.S. to establish a cabinet level department for the environment along with Defense, Agriculture, Transportation, Treasury and the others. This needs to be done by an Act of Congress. The Supreme Court has given both Congress and the President a clear sign that they should untangle the webs they have woven around climate policies during more than half a century and do the right thing.

What are Executive Orders?

According to the American Bar Association, an Executive Order is a signed, written, and published directive from the President of the United States that manages operations of the federal government. Executive Orders are not legislation, and they require no approval from Congress. However, they have the force of law, and Congress cannot simply overturn them. Congress may pass legislation that https://www.americanbar.org/groups/public_education/publications/teaching-legal-docs/what-is-an-executive-order-/

Einride got a pass from NHTSA

A NEWS RELEASE in June from a little-known Swedish manufacturer of a driverless truck caused a flurry of messages in the U.S. transport press. The news release stated that NHTSA had given EINRIDE AB its approval to operate its vehicle on U.S. public roads. Why would it need approval? Well, for starters, EINRIDE's truck has no cab for a driver, which means it has no driver in the terms defined by *Part 571 – Federal Motor Vehicle Safety Standards (Title 49/Subtitle B/Chapter V/Part 571)*.

According to *Subpart A – General, §571.3 Definitions*, "Driver - means the occupant of a motor vehicle seated immediately behind the steering control system."[14] EINRIDE has not provided any space behind the steering control system because the EINRIDE driver is either sitting in a remote location operating the vehicle using remote controls, or, the vehicle will be driven by an on-board robot.

14. A loose interpretation of "steering control system" could put it out of the vehicle, not physically present in the vehicle, but that loose interpretation is not implicit in the Federal Motor Vehicle Safety Standards.

So EINRIDE started exactly where it should have started if it wants its vehicle to operate on U.S. roads. FMVSS does not actually define a 'road', but mentions various types of surfaces and conditions on which vehicles shall operate. The Standards apply to any vehicle operating within the political boundaries of the U.S. and its territories and possessions. NHTSA has given Einride permission to test its vehicle, not sell it to customers or use if for commercial purposes. NHTSA's Administrator has the authority to waive particular requirements on a temporary basis for companies that wish to import their vehicles into the U.S. This is what has been done with Einride and its Pod vehicle. Einride and GE Appliances will engage in a pilot program to "test and showcase the commercialization capabilities of autonomous, electric Pod trucks". The pilot is planned to start in Q3 of this year.

There are conflicting reports on whether the Pod vehicles will actually operate on public roads or just on the GE Appliances site's roads. There is a mixture of what GE and Einride hope to achieve with the tests if they prove to be successful, and what will actually be done during the tests. GE has said they would use six Chinese-made BYD electric trucks that have been fitted with Einride's SAGA data-driven operating system. The BYD trucks will supposedly be driven between facilities operated by the Port of Savannah and GE Appliance's inbound warehousing and logistics centers, manufacturing sites and finished goods warehouses. What is being done with Einride's own Pod vehicle and the Chinese electric trucks is unclear. We are going to have to revisit this once the test gets underway in the autumn.

GM's Cruise petitioned NHTSA in February for permission to deploy vehicles without steering wheels, mirrors, turn signals or windshield wipers. Ford's Argo had made a similar petition in July 2021. Ford said that their petition "is an important step toward helping create a regulatory path that allows autonomous technologies to mature over time, eliminating controls and displays that are only useful to human drivers." Neither petition is for providing vehicles for sale to consumers. They are for package delivery and taxi services. NHTSA has published both petitions and opened them for

comment for 30 days. NHTSA Administrator Steven Cliff said the agency "will carefully examine each petition to ensure safety is prioritized and to include considerations of access for people with disabilities, equity and the environment."

A German judge: the adult in the room

A MUNICH JUDGE has finally done something that should have been done years ago, which is to tell TESLA to return the entire amount of money a customer had paid to buy his or her TESLA because it does not perform as advertised. In this case it was a woman who dropped around $100,000 on a Model X. He said that the software was unreliable and a "massive danger" in city traffic. Further, he said that it was proved that the software could not in a reliable way recognize obstacles, such as roadworks when lanes are reduced in width. The car also performs constant braking for no apparent reason, which may result in drivers behind the vehicle passing in dangerous locations.

Tesla's lawyer argued that Autopilot is only supposed to be used on highways. The judge was not impressed by this argument. If the driver has to turn the systems on and off manually, the driver is going to become distracted. "Once again, this shows that Tesla does not keep the promises it makes concerning Autopilot," said the judge. Maybe Andrei Karpathy, Tesla's head of artificial intelligence for Autopilot who left around the time the German decision was read, didn't want to be around for the fallout and blame that Musk will be dishing out to the team for failing to get the "right" decision.

Eventually, all of these small cuts are going to have a result. Authorities are going to finally have to take the action they should have taken when TESLA first started selling its driver assistance systems, which clearly did not work, and still don't work. The EU should force TESLA to deactivate both Autopilot and its so-called Full Self-Driving products. They do not meet the EU Type Approval specification for ALKS. All customers should be refunded the money they paid for buying them. The U.S. should add the *UN Reg 157 ALKS* to the *U.S. Federal Motor Vehicle Safety Standards*, recall all TESLAs with Autopilot and FSD, and ban any future sales of the product until TESLA can show that it meets the regulation.

Second, TESLA's investors will finally have to demand action. The company's stock has lost almost one-half of its value during the past six months, and investigations into the safety of its cars is

Cartoon from THE NEW YORKER

"The navigation says that we're wasting our time and should never have left home.

not helping. They are going to have to force the company's CEO to concentrate on building safe cars and get him out of the software development loop in driver assistance systems. Third, other car companies, particularly GM with its *Cruise* subsidiary, are going to have to stop feeding the sharks in the financial markets. GM's stock price has been cut in half since the start of the year and is trading back down where it was before its CEO started talking like the Musketeer.

VW's Diess throws in the towel

VOLKSWAGEN'S SUPERVISORY BOARD chairman, Hans Dieter Pötsch, announced on Friday, the 22nd of July, that the company's CEO, Herbert Diess, would leave his position at the end of August and be replaced by PORSCHE boss, Oliver Blume. As of the 1st of September, Blume will run both the PORSCHE brand and the group, just as Diess ran the VW brand and the Group when he took over as CEO from Matthias Müller in 2018. Diess had three years remaining on his contract when he was terminated.

Former VW CEO Herbert Diess

Diess had a few strikes against him before the ax finally fell. He was Austrian not German, for one. He was always going to be a good candidate to serve as a scapegoat[15] when VW decided it was time for a purge. He is a native of Munich, not Wolfsburg, and had jumped off the BMW ship in 2015 when he was passed over for the top job in favor of Harold Krüger, so he was not a long-term loyal VW team player. While at BMW, Diess started his bromance with Elon Musk, and was offered the top spot at TESLA before taking the VW offer.

15. In the Bible, a scapegoat is one of a pair of kid goats that is released into the wilderness, taking with it all sins and impurities, while the other is sacrificed. The concept first appears in the Book of Leviticus, in which a goat is designated to be cast into the desert to carry away the sins of the community. Practices with some similarities to the scapegoat ritual also appear in Ancient Greece and Ebla.

The Porsche and Piech families, who control the voting shares in the company, seemed to like his swaggering style as he took the company out of the 'dieselgate' doldrums and into the electric car future. He stood up to the powerful works council who wanted him out, and the families supported him. Apparently, his departure is the result of delays in delivering software by the *CARIAD* software subsidiary, which he took over managing from Markus Duesmann, who is Audi's CEO.[16]

Diess, in a LinkedIn post before the announcement of his departure, said: "After a really stressful first half of 2022 many of us are looking forward to a well-deserved summer break." Looks like the VW Board thought Hans needed more time off than he had bargained for. Maybe Musk's offer is still on the table.

16. Cariad was founded by VW in 2020 to be the Group's software development division. Its mission is to "build the leading tech stack for the automotive industry to make automotive mobility safer, more sustainable and more comfortable in a new way". Things haven't been going so well, and the introductions of new models are being delayed as a result. Diess thought he could fix the problems by taking a direct, hands-on approach. Someone else will have to pick up that particular torch.

About Michael L. Sena

Through my writing, speaking and client work, I have attempted to bring clarity to an often opaque world of highly automated and connected vehicles. I have not just studied the technologies and analyzed the services. I have developed and implemented them, and have worked to shape visions and followed through to delivering them. What drives me—why do what I do—is my desire to move the industry forward: to see accident statistics fall because of safety improvements related to advanced driver assistance systems; to see congestion on all roads reduced because of better traffic information and improved route selection; to see global emissions from transport eliminated because of designing the most fuel efficient vehicles.

This newsletter touches on the principal themes of the industry, highlighting what, how and why developments are occurring so that you can develop your own strategies for the future. Most importantly, I put vehicles into their context. It's not just roads; it's communities, large and small. Vehicles are tools, and people use these tools to make their lives and the lives of their family members easier, more enjoyable and safer. Businesses and services use these tools to deliver what people need. Transport is intertwined with the environment in which it operates, and the two must be developed in concert.

Michael L. Sena

Editor

SUNDBYVÄGEN 38

SE-64551 STRÄNGNÄS

SWEDEN

PHONE: +46 733 961 341

E-MAIL: ml.sena@mlscab.se

www.michaellsena.com