The Future of Transportation — Congestion, Infrastructure & Energy Efficiency

Center Forward Basics

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Overview

Transportation and its related infrastructure are a vital component of a well-functioning American economy. Much like how blood is vital for human life, transportation is critical to the functioning of our society. Both serve as carriers – blood is responsible for transporting vital oxygen to organs, while transportation is responsible for moving people and goods around our cities. A profound similarity between the two was mentioned in a publication by the Department of Transportation, explaining this connection is not surprising, instead one that is just overlooked.

The future of transportation holds immense potential for advancements that are beyond our current understanding. With the progression of technology, emerging innovations, and a growing focus on sustainability, transportation is set to evolve rapidly. Transportation innovation is being driven by human growth challenges and technological progress worldwide. Many cities find these advancements appealing due to issues they are facing each day, such as overcrowding and climate change effects. From autonomous vehicles and micro mobility to electric mobility solutions and upgraded infrastructure plans, the possibilities are endless. Even with all the excitement around these advancements, new levels of fear and uncertainty arise and can generate questions about the logistics and timeline of it all.

This new era of transportation is one that is more efficient, interconnected, and environmentally friendly than ever before. However, embracing these new ideas poses numerous questions and logistical obstacles. With the combination of urbanization and the continued growth of our population, the topic of congestion is brought about, and a significant burden is placed on our infrastructure, which plays a vital role in ensuring that our society is prosperous.

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Center Forward brings together members of Congress, not-for profits, academic experts, trade associations, corporations and unions to find common ground. Our mission: to give centrist allies the information they need to craft common sense solutions, and provide those allies the support they need to turn those ideas into results.

In order to meet our challenges we need to put aside the partisan bickering that has gridlocked Washington and come together to find common sense solutions.

For more information, please visit www.center-forward.org

Recent Legislation

On November 15th, 2021, President Biden signed the Infrastructure Investment and Jobs Acts, also known as the Bipartisan Infrastructure Law. The bill represents the most significant long-term investment in our nation's infrastructure and economy to date. It allocates $550 billion in new federal investment for infrastructure projects spanning fiscal years 2022 through 2026. This funding plans to support critical areas such as roads, bridges, mass transit, water infrastructure, resilience initiatives, and broadband development across the county.

In 2022 the United States Department of Transportation (USDOT), along with the Biden Administration, launched Freight Logistics Operations Work (FLOW). This program was designed to measure the nation’s cargo traffic demand against infrastructure and equipment supply, leading to a novel approach to optimize the use of supply chain assets. FLOW provides statistical products to optimize network capacity and establish macroeconomic indicators of goods moving

throughout the supply chain. With a wide range of stakeholders including cargo owners, ocean carriers, railroads, and warehouses, FLOW allows interested parties the ability to make decisions and take actions that help drive fluidity.

More recently, in July of 2023 a press release was published by the Energy and Commerce Committee announcing a subcommittee hearing titled "Self-Driving Vehicle Legislative Framework: Enhancing Safety, Improving Lives and Mobility, and Beating China." When reported, Chair Cathy McMorris Rodgers (R-WA) and Commerce Subcommittee Chair Gus Bilirakis (R-FL) released a statement informing the public that, "We look forward to hearing from industry experts, advocacy groups, and manufacturers about ways we can improve people's lives, spur American innovation, and strengthen America's technological competitive edge." As the spotlight remains on the future of transportation, it can be expected that more information surrounding the topic will be released.

Congestion

Congestion has posed a significant challenge for many cities across the world, leading to increased commute times, environmental pollution, and reduced overall productivity. However, the future of transportation holds promising solutions that could alleviate this problem. With the potential of advanced technologies such as autonomous vehicles, flying drones, and shared mobility services, a shift in how individuals move around cities can be anticipated. These innovations promise more efficient, safer, and emissions-friendly transportation options. Electric vehicles and cleaner fuels will further reduce emissions, contributing to cleaner air and a healthier environment. As Congress embraces the potential of these developments, it is possible to envision a future where congestion becomes a relic of the past, unlocking new possibilities for urban mobility and fostering sustainable, vibrant cities.

Failure to address the gap in critical transportation networks and assets, will result in dire consequences. Congestion will inevitably worsen, leading to more frequent reliability issues. However, the opportunity to break free from this cycle is possible by making a change and reimagining the future of the transportation industry. Embracing innovative solutions and investing in advanced technologies could pave the way for a more efficient, reliable, and sustainable transport system.

Infrastructure

Agencies such as the Environmental Protection Agency (EPA) provide up to date data on what can be done at municipal, state, and national levels to combat the impacts of climate change relating to our transportation infrastructure. Building resilience is crucial for communities and transportation agencies to safeguard their transportation systems. This involves a comprehensive assessment of risks, thoughtful consideration of potential solutions, and the desire to implement necessary change. Being proactive in addressing vulnerabilities can allow communities and transportation agencies to prepare for potential disruptions and unforeseen challenges. Making smarter and more energy efficient choices can aid in the development of new infrastructure, in turn making our streets safer and providing more transportation options.

For our society as we know it to survive and flourish, it is no shock changes and upgrades are needed. The goal of lower carbon emissions is one that is discussed by many. Achieving this goal demands political and economic backing, as well as social transformation. The professionals who are designing, constructing, and managing the world's infrastructure hold the potential to enact these essential changes and set our infrastructure up for years to come. By reimagining the future of our transportation industry, they can pave the way for a brighter and more promising tomorrow. Electric vehicles (EVs) are just one of the many developments that have come about with this idea of reducing emissions in mind. Electric vehicles, which come with some advantages, also pose new challenges as well. Installing charging stations for these EVs can be costly and some types require specific infrastructure permits. For those wanting to install chargers at their residence, single-family homes pose the ideal setup. It can be more complicated to install these charges in multiple-dwelling units. Even with all the unknowns about EVs and their potential charging barriers, more companies are working towards the transition and are expected to be operational in the next few years.

What We Can Expect in the Future

When thinking about what one can expect to see in the future of transportation, the possibilities are endless. Flying taxis, delivery drones, autonomous vehicles are just a few examples of what can be expected in the air and on the ground in years to come. These innovations can lead to decreases in transportation-related deaths, road congestion, and reduced carbon emissions.

The future of transportation stands ready to confront a diverse array of pressing issues, each offering distinct challenges and opportunities. Among these concerns is the urgent need to address greenhouse gas emissions. As society advances forward with ambitions to electrify new vehicles, near-term policies, such as lifecycle-based fuel and vehicle standards, could also help reduce emissions from existing vehicles. Similarly, policies that encourage investments in reducing the carbon-intensity of fuels could help reduce emissions, perhaps most immediately through technologies such as co-processing. Renewable energy alternatives and additional cleaner solutions are expected to become more prominent with the hope of limiting carbon emissions and dependence on gasoline.

A crucial focus has been placed on effective ways to prevent fatalities caused by car crashes; leading engineers and other innovators to devise safer means for drivers to travel. Their hopes are to minimize the risks of speeding along with distracted driving. With this comes alternative modes of transportation, which in turn could aid in the concern of congestion in major cities.

As new technologies emerge, security concerns rise. This is prompting developers to ensure that innovations are safeguarded against potential hacking threats. This specific type of delivery service has the potential to revolutionize the way goods are transported to and from consumers. This quest for increased speed and efficiency remains at the forefront of technological advances. By working to address these issues, the possibility of paving a way for a more sustainable and equitable tomorrow is closer than one can imagine.

Links to Other Resources

- American Chemistry Council - Transportation and Infrastructure
- American Society of Civil Engineers - America's Infrastructure Report Card
- Department of Transportation - Connecting the Goods Movement System
- Department of Transportation - The Transportation Future: Trends, Transportation, and Travel
- Energy & Commerce - Chairs Rodgers and Bilirakis Announce Subcommittee Legislative Hearing on Boosting American Leadership in Self-Drive Technology
- Environmental Protection Agency - Climate Change Impacts on Transportation
- Federal Highway Administration - Strengthening Our World-Class Highway System
- Federation of American Scientists - Collaboration For the Future of Public and Active Transportation
- Great Plains Institute - Charging Medium- and Heavy-Duty Electric Vehicles: Plugging Into the Future Part II
- JD Power - The Future of EVs
- National Grid - The Future of Transport: Driving Change In the Next 10 Years
- New York Times - E.V.s Start With a Bigger Carbon Footprint. But That Doesn't last

- Science Daily - All-electric Rideshare Fleet Could Reduce Carbon Emissions, Increase Traffic Issues
- Science Daily - America On the Move: How Urban Travel Has Changed Over A Decade