

# Eno's Notes

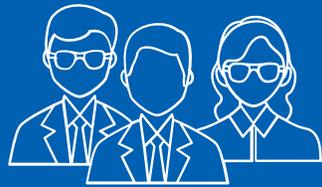
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A Summary of the Centennial Institute Sessions

September 15-24, 2021



**Eno**  
Center for Transportation



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# » Institute in Review

An important part of the Eno Center for Transportation's ongoing celebration of our 100-year anniversary was the Centennial institute. This four-day virtual conference brought together experts from across the transportation space to explore the latest innovations, new research, and how public, private, and non-profit leaders are navigating the NEW NORMAL.

The Centennial Institute was created to provide transportation professionals with information and resources they can use, while connecting them with peers in the industry for rich networking-building opportunities. We intentionally designed it to feature a diverse, innovative set of speakers who were not afraid to challenge us to think differently. But more than spotlighting the well-known problems in transportation, the Institute featured innovative solutions, ideas, and best practices.

Eno was also fortunate to be able to feature several key leaders from the U.S. Department of Transportation at the Institute. Deputy Secretary Polly Trottenberg, Federal Transit Administrator Nuria Fernandez, Deputy Federal Aviation Administrator A. Bradley Mims, and Acting Federal Highway Administrator Stephanie Pollack shared with us the department's priorities around economic growth, social equity, environmental sustainability, and safety.

Last, I want to thank the myriad supporters of Eno for helping make the Institute possible. I am grateful for the hard work of the Centennial Steering Committee, and especially the co-chairs Lillian Borrone and Diane Woodend-Jones. Their tireless work and dedication to this organization is a big reason we have the impact and relevance we do. I am looking forward to the next hundred years!



## » Robert Puentes

President and CEO  
Eno Center for Transportation

### ***Thanks to the Centennial Steering Committee:***

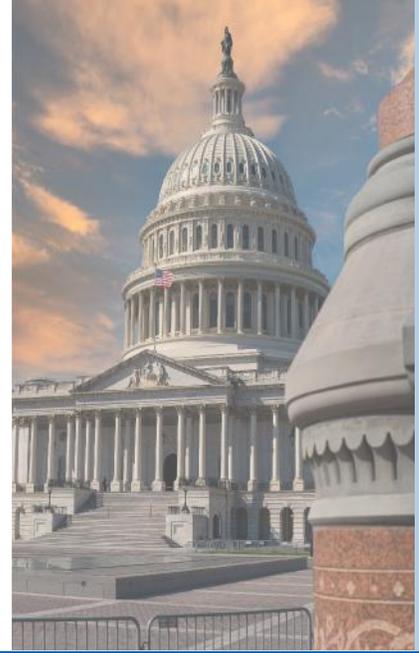
Lillian Borrone, Co-Chair  
Diane Woodend Jones, Co-Chair  
Asha Weinstein Agrawal  
Avital Barnea  
Susan Binder  
James Burnley  
Emil Frankel

Patricia Hendren  
Joung Lee  
Linda O'Bryant  
Jerry Premo  
Joshua Schank  
Robert Skinner  
Stephen Van Beek

Martin Wachs, in memorium  
Linda Washington  
Martin Whitmer  
Tay Yoshitani

# » Funding and Finance Strategies

The COVID-19 pandemic hammered transportation funding and finance. Even with massive federal assistance, places need to innovate more than ever both to raise revenues and also rethink their existing funding and finance tools. Leaders are questioning the traditional method of paying for maintaining and improving our transportation infrastructure and looking at alternatives



## EXISTING FUNDING MECHANISMS

1

### Fuel Taxes

Today, states and the federal government rely on motor fuel taxes to fund the surface transportation system. Motor fuel taxes have offered revenue stability and predictability with a relatively low administrative burden. Compliance costs in paying motor fuel taxes are also limited, and there is a low risk of tax evasion. However, gas taxes are facing several serious problems. By charging per gallon, fuel taxes provide an incentive for users to purchase more efficient vehicles. As cars become more efficient and electrified, governments at all levels will collect less revenue generated from gas taxes.

2

### User Fees

While user fees like tolling have been employed for decades, there is a renewed interest given ongoing challenges with fuel taxes as well as a number of successful deployments around the country. This stems from advances in technology that allow for easier collection, plus the desire to use pricing to better manage the metropolitan transportation network. Other strategies such as vehicle miles traveled (VMT) fees and variable parking charges are at the cutting edge of the newer strategies.

3

### Registration Fees

In addition to tolling, transit fares, and gas taxes, local and state governments generate revenue using vehicle and license registration fees. Fees can be based on a flat rate, or be issued based on a vehicle's weight, value, or age. A 2019 National Governors Association white paper revealed that current vehicle registration fees range from \$15 to \$30 and account for on average 22% of state transportation funding.

4

### General Taxation

Although the United States is one of the few countries that still uses a highway trust fund to fund transportation, Congress typically takes funds out of the General Fund to make up for lost gas tax revenues. Since at least 2008, the appropriation of general funds has saved the Highway Trust Fund from bankruptcy. As the gap between revenue and outlays continues to grow, general funding seems likely to play a continued role in supporting the federal program.

# Funding Alternatives

Although there are issues with current funding mechanisms, there are a number of alternatives which could help make up for shortfalls.



## Congestion Pricing

Though revenue generation has not been the primary objective of most congestion pricing programs, it can yield revenues for investments in other modes and other community priorities. Charging a fee for the parts of the roadway network used the most during the busiest times of day reduces demand. The charges incentivize travelers to switch to other modes of transportation, seek alternative routes, or travel at other times. The charges can help to reduce negative effects of traffic such as air pollution, carbon emissions, road damage, and traffic crashes.

### Types of Congestion Pricing

1. **Cordon Pricing** is congestion pricing bounded within a certain area. An example would be New York City's Congestion Pricing plan. Under the current plan parameters, drivers would be charged for driving south of 60th Street in Manhattan.
2. **Corridor Pricing** focuses on charging for certain parts of the road, such as high occupancy vehicle (HOV) lanes. Instead of charging a specific area or boundary, corridor pricing charges for a specific route.



## Vehicle Miles Traveled Fee

### Types of VMT Fee Implementation

1. **Odometer reading** would require few expenditures on new equipment or facilities, but would come with a high enforcement cost.
2. **RFID readers**, mounted on roadway infrastructure, could also measure VMT and require lower enforcement costs, but would require frequent RFID placements to accurately assess miles traveled.
3. **Electronic logging devices** would come with high capital costs to install the devices.

One way to raise revenue from vehicles (particularly electric vehicles) is by implementing a vehicle miles traveled tax, or VMT. A VMT charges users for their use of roadways by measuring their distance travelled. However, roadblocks to VMT introduction include difficulties with implementation and privacy concerns, as well as opposition from trucking industry groups. In the Pricing Transportation session, Emeka Moneme encouraged organizations doing pilots to share their findings and communicate the benefit of their programs clearly to their community because "the better you can explain and communicate value the more on board they'll be."

# » Heard at the Institute:

## “ Patricia Hendren

"The barrier that we don't talk enough about is the public knowledge gap. Most people in the U.S. don't think about transportation. We've done a bad job of highlighting how transportation systems work and how they're paid for. That's a problem when we're trying to engage the public in change. Most people don't sense the urgency of the system's problems in the way that the profession knows. A lot of people think transportation funding is staying the same or increasing."

## “ Emeke Moneme

"The experiment we're delivering on dynamic tolling sends clear price signals to users about the viability of our facilities. That tool can be extrapolated to other ways to influence driver behavior: cordon pricing, corridor pricing. We're getting more information from the network through data and can use it to understand the cost of the right of way. You can choose to access it in your car, by Metro, by bike. The demand management piece of the road network will have to be in place moving forward."

## “ Harriet Tregoning

"What is it we are trying to get out of our transportation investment? Surely it's not moving a metal box more rapidly through a single intersection, but that's mostly how we make our transportation investment decisions."

### Reference:

» [Eno's Funding and Finance Reference Page](#)

### Discuss:

» [Funding and Finance Strategies Forums](#)

### Read:

- » [Congestion Pricing in the US](#)
- » [Refreshing the Status Quo: Federal Highway Programs and Funding Distribution](#)

### Watch:

- » [Now + Next in Transportation](#)
- » [Wheels of Fortune: Pricing Transportation for the New Normal](#)
- » [The Buck Stop Here: Addressing The Absurdity of the Highway Trust Fund](#)
- » [Where's the Beef? Supply Chain Disruptions and Infrastructure](#)

# » Environmental Sustainability in Transportation

Transportation is the largest source of greenhouse gas emissions in the United States, and is also a considerable source of other local pollutants. Mitigating these emissions is critical to maintaining a livable future, and a variety of approaches are necessary to curb emissions. Achieving emissions reductions will require a mix of near- and long-term strategies including electrification, mode shift, and syncing transportation and land use planning are all



## Ideas to Encourage Electric (EV) Adoption

### Invest in charging infrastructure

One of the current barriers to widescale electrical vehicle adoption is the lack of charging infrastructure. Businesses may not buy electric vehicles due to lack of infrastructure, and utilities may not build electrical infrastructure due to lack of electric vehicles. In 2021, cities like Indianapolis, St. Louis, Columbus, adopted electric vehicle codes to prepare for EV growth.

### Incentivize clean vehicle production

In addition to investing in electrical infrastructure, governments can incentivize cleaner vehicle production through tax policy. Tax credits for manufacturers and EV owners can shift consumer and industry practices. Fuel efficiency standards, such as CAFE like "north stars" and incentivize the production of cleaner, more efficient vehicles by enacting stricter production requirements.

### Electrify public vehicle fleets

In April 2021, the Biden Administration announced its goal to transition the federal fleet to zero-emission vehicles. In 2019, the U.S. government owned 645, 047 vehicles that traveled around 4.5 billion miles, consuming 386 million gallons of gasoline. A large-scale federal transition to zero-emission or electric vehicles would reduce GHG emissions and provide an incentive for electric vehicle production.

# The Limits of Electrification

Despite its potential, vehicle electrification is not a silver bullet solution to cutting greenhouse gas emissions for a variety of reasons.

## Charging Vehicles Requires A Lot of Energy

Research shows that household energy rates spike while charging electric vehicles. Not only does this indicate that electric cars require a substantial amount of energy, but the current price structure for energy consumptions hampers electric vehicle procurement. At the moment, pricing is cheapest for the dirtiest electrical grids while more expensive for the cleaner. Although emissions may decrease with the adoption of electric vehicles, that does not solve the issue of a polluting charging system. Additionally, distance and charging issues remain with heavy trucks.

At the moment, lithium ion batteries (LIBs) are considered to be the most promising candidates for widespread battery use. However, the scarcity of lithium in addition to necessary life cycle and safety improvements of the materials are still under development. Additionally, due to their recent introduction, there are no serious recycling methods for lithium batteries.

## Battery Technology Is Still Developing

## Manufacturing Batteries Is Not A Clean Process

If the United States wanted to replace every combustion engine with an electric one, the material cost and industrial output would be enormous. Mining lithium requires billions of gallons of water which can deprive local residents of irrigation or feeding resources. Lithium mines also require extensive machinery and industrial materials, such as sulfuric acid. Processing equipment, which includes power plants, trucking equipment, and other industrial machinery, can also negatively impact the local environment.

# » Heard at the Institute:

## » Amanda Eaken

"There is not a single American whose life is not impacted or whose issues they care about are not affected by transportation so i think everyone including policy makers, decision makers, everyone needs to care about this."

## » Stephanie Pollack

"Our new normal is shaped not only by the pandemic but by the evidence that is now all around us that the climate is changing and affecting our planet, our communities, and even our everyday lives."

### Read:

- » [The Perverse Reason It's Easier to Build New Highways than New Subways](#)

### Watch:

- » [Is Electrification Enough?](#)
- » [What are the Priorities of the US DOT?](#)

### Discuss:

- » [An Environmentally Sustainable and Resilient Future Forums](#)

## » Kristina Swallow

"[A]s we move forward with electrification, we need to remember that it will involve fundamental changes to what we're asking of the energy grid at a time when the transmission and distribution systems are already rapidly exceeding their lifespans. [N]ot only is the existing grid aging but we're under investing in the needed infrastructure to accommodate that electrification. Electrification is not enough. It won't be fast enough - our cities and states in the u.s and globally are already seeing the impacts of warming and it fails to address any aspect associated with urban heat island impacts that contribute to overall warming and where we are looking at electrification we need to be thinking about it broadly and the systems required to ensure its success."

### Reference:

- » [Eno's Environmental Issues Page](#)

# Equity in Transportation

Equity - or the quality of being fair or impartial to ensure equal opportunity - is one of the most important parts of providing transportation services. In the past, transportation services discriminated against Black and Latino communities by ignoring their concerns and disrupting their neighborhoods. These transportation inequities were exacerbated by the COVID-19 pandemic. As the world moves out of the pandemic, it is important that we address past and future equity concerns.



## What are some disparities in transportation?

### Environmental Impacts

Disadvantaged communities, especially communities of color, are disproportionately affected by neglectful or harmful environmental practices such as proximity to highways or transit facilities.



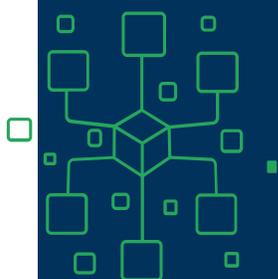
### Unfair Law Enforcement

Police are 20% more likely to stop Black drivers and twice as likely to threaten or use lethal force against Black and Latino drivers. Exploring equity in transportation means ensuring equal outcomes and fair treatment, especially when it comes to safety and policing.



### Lack of Connected Services

Lack of access to health, education, work, and recreation are compounded by poor transportation that does not service communities in need. For instance in Chicago, 95 out of 100 census tracts with the longest commutes were majority Black or Latino.



# What are some alternatives to current policies and systems?

## Addressing the Impact of Infrastructure

Highways across the country were built in and through Black communities, from Rondo in Minneapolis to North Claiborne in New Orleans. Highways not only segregated communities, but are also linked to influencing asthma and other health issues. In recent years, cities like Boston, Seattle, and San Francisco removed highways to reconnect neighborhoods, encourage economic activity, and make their cities more pedestrian friendly. However, highway removal has its own drawbacks. After burying one section of its inner loop, Rochester, NY is struggling to provide affordable housing to new and old residents. Additionally, highway removal projects are expensive undertakings, sometimes climbing into the tens of billions. Despite the challenges, the most recent bipartisan infrastructure bill provided \$1 billion for future highway removals.



## Reviewing Traffic Enforcement

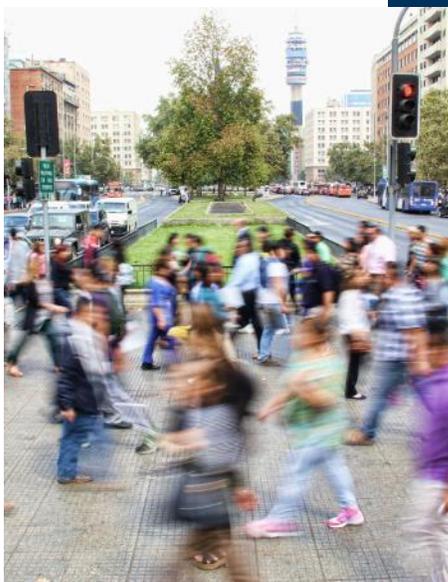
Groups like the Eno Center for Transportation, then known as the Eno for Highway Traffic Regulation, Inc., popularized traffic regulations and enforcement in the early 1920s to reduce traffic accidents. However, traffic enforcement has now become problematic for numerous communities. Police not only disproportionately fine and stop Black drivers, but also cyclists and pedestrians as well. Police encounters can even turn deadly, as seen in the death of Sandra Bland and Walter Scott. Alternative methods of accountability and safety, such as body cameras or the establishment of an unarmed public safety corps. However, both of these reforms require public investment and oversight that is difficult to find in many cities.



# What are some alternatives to current policies and systems?

## Including Equity in Analyses

Although existing policies and systems provide relief, they do not automatically improve unequal outcomes. Current standards found in the [National Environmental Policy Act](#) or anti-discrimination legislation like Title VI in the Civil Rights Act do not provide instant relief due to the ingrained, systemic nature of inequality. In addition to burdens and benefits, equity should be included all project types. Thinking more holistically about transportation—including community input, distribution of transit service frequency, multimodal safety, etc—and including them in transportation plans will help create more equitable outcomes.



## Incorporating Lived Experiences

Consulting communities and reviewing history is just one way to embed equity in planning processes. Another tactic is to specifically study and plan transit around different groups to create the most accessible transportation system. [In a 2019 study](#) on the transportation trends of women, the Los Angeles Department of Transportation discovered that due to their higher ridership, women are more likely to experience the risks and burdens associated with unaccommodating transit. Focusing on travel trends, safety, access, reliability, convenience, and comfort for different cohorts can help transportation planners identify deficiencies and inadequate services.

# » Heard at the Institute:

“**Carol Tyson**

"99 percent of the busses are accessible but pretty much the rest of all of the modes are not. We should be making sure to include that in any data equity analysis."

“**Nadine Lee**

"Where we are today has been exacerbated by the fact that most of our built environment, pretty much all of our built environment, was largely funded, planned, designed, built, and operated by one particular demographic."

“**Ines Sigal**

"We realize that we're not going to get to where we need to go if we just continue doing the same [thing] which we know is not working for our communities and this trend is really happening all across the country."

“**Veronica McBeth**

"The endgame of this is that I don't only care about your transportation issues, I care about you holistically. And it goes back to the trust and showing that you're not just invested about what you need from them, but you're invested on a very holistic level for community issues."

“**Connie Llanos**

"Now that we are in a period of thinking about how we take lessons learned from this crisis, disaggregating our data to really make sure that we are understanding the full picture is really important."

## Watch:

- » [Now + Next in Transportation](#)
- » [What Does Equity in Transportation Actually Mean?](#)
- » [What are the Priorities of the US DOT?](#)

## Discuss:

- » [Urban Development Policies Forums](#)
- » [Workforce and Leadership Forums](#)

## Read:

- » [Toward Universal Access: A Case Study in the LA and Puget Sound Regions](#)
- » [Propel Alumni Magazine: The Equity Equation Edition](#)
- » [The Role of Transportation in Improving America's Health](#)

## Reference:

- » [Eno's Equity Reference Page](#)

# Cybersecurity in Transportation

We live in a world where devices, vehicles, and infrastructure are more interconnected than ever. The implementation of 5G technology will mean faster connections that help guide automated vehicles, personalize internet experiences, and usher in the "internet of things." As transportation systems grow more connected, it is important that proper safety and security measures are enacted.



## How could connectivity change transportation?



### Better AV Navigation

Faster and more reliable internet connections means improved automated vehicle (AV) navigation, whether that be trains, busses, or private vehicles. In the future, AVs will require fast and reliable satellite information for navigation. Better connections will translate into more effective AVs that can safely transport passengers to their destinations efficiently.

### Improved Traffic Infrastructure

Faster and more reliable connectivity also spells changes for traffic infrastructure. Faster connections means that traffic cameras, sensors, and drones could report on traffic developments in real time, adjusting services and equipment when needed. The benefit of faster and reliable connections might significantly improve and reduce trips with accurate, real-time data.



### Better Infrastructure Management

Faster and more reliable connectivity also means that transportation services can better maintain their infrastructure. Higher quality connections means better communications between operators and equipment such as signals or security systems.

# Current Connectivity Concerns

Greater connectivity comes with its own share of challenges and dangers.

## Infrastructure Systems

In May 2021, the ransomware attack that shut down the Colonial Pipeline in the Eastern United States for days prompted panic buying and gas shortages throughout the country. The ability to attack infrastructure is a serious concern, especially as facilities and pieces of infrastructure are brought online. Electrical grids, power plants, vehicles, and transportation infrastructure could prove vulnerable in the future to cyberattacks by small-scale actors and national governments. Additionally, transit systems are susceptible to attacks that can disrupt signaling systems, potentially harming riders and drivers.

## Vehicle Systems

Interconnected systems can also compromise vehicles. Over the past two years, federal officials have raised the alarm over international manufacturers supplying a number of U.S. cities with vehicles and equipment. The concern raised by officials is that these interconnected vehicles can report data back to their manufacturers. Additionally, the prospect of hacking a vehicle to jam sensors, manipulate communications equipment, or use DDoS tactics to disable vehicles outright is also becoming more apparent as the popularity of AVs increases.

## Potential Cybersecurity Solutions

### Establish Clear Cybersecurity Standards

According to Charles Eagan, Chief Technology Officer of Blackberry, NIST cybersecurity, ISO 15408, and the MITRE framework can act as a broad set of cyber guidelines for public use. One piece of federal legislation that plans on shoring up cybersecurity standards is the "State and Local Cybersecurity Improvement Act," introduced in 2021. The bill would create a \$500 million Department of Homeland Security grant program, and would require governments across the U.S. to create "comprehensive cybersecurity plans."

### Observe International Best Practices

The U.S. may also benefit from observing international practices. For instance, Sweden is constantly updating its national cybersecurity policies. The "National Cybersecurity Strategy," sets national standards for public and private actors, encourages cross-sector collaboration, and provides funding for cybersecurity higher education sources. Additionally, Israel's National Cyber Directorate coordinates public and private efforts. However, critics are concerned that the agency is too intrusive.

# » Heard at the Institute:

## » Shailen Bhatt

"It takes Katrina hitting New Orleans to get the levee system, pump system up that protects it from Ida when that comes along. We're really good at reacting to crises. We're less good about being prophylactic."

## » Samuel Spector

"There's also a growing recognition and acceptance by many in industry that on the issue of cyber security self-regulation often doesn't work."

## » Steven Polunsky

"That all got turned on its head when we started connecting things together and using digital operating systems. Because the bad guys could take what they learned robbing banks and apply that to other systems; Not just revenue systems, but operational systems as well. So they no longer have to be physically present to mess up your infrastructure... they can download a script and point and click."

### Discuss:

- » [Forum: What is the most important thing the federal government can do to ensure we are ready for cybersecurity threats in an increasingly connected future?](#)

### Watch:

- » [Getting Protected: How Do We Secure Transportation Systems in a Hyper-Connected World?](#)
- » [What are the Priorities of the US DOT?](#)
- » [Webinar: Transportation Cybersecurity](#)

### Reference:

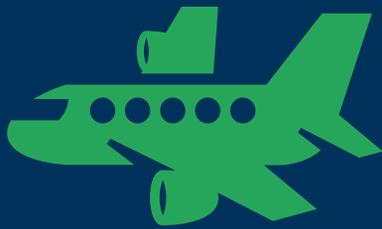
- » [Eno's Cybersecurity Reference Page](#)
- » [Eno's National Security Reference Page](#)
- » [Eno's Data Reference Page](#)

# Future of Aviation

The global airline industry was expected to generate \$188 billion in 2020—until COVID-19 changed everything. Faced with lockdowns, border closures, and severely reduced travel, airlines, airports, and those dependent on the aviation industry found themselves scrambling to adapt to a world without passengers. As rates of vaccinations increase and travel restrictions are lifted, the airline industry is now faced with returning to pre-pandemic services. But what does returning air service even look like?



## How did COVID-19 affect the airline industry?



### Travel Plummeted

At its lowest point, air travel fell 90 percent in the United States due to lockdowns and other COVID-19 restrictions. In April 2020, only 100,000 passengers were flying daily nationwide.

### Revenues Were Slashed

Airlines operated at a loss due to the pandemic, with Delta airlines losing up to \$12 billion in revenue. Although federal legislation like the CARES Act and the American Rescue Plan helped avoid costly firings, 4,000 flight attendants had to be furloughed due to lack of travel.



### Infrastructure Projects Stalled

Infrastructure costs were already rising before the COVID-19 pandemic. A lack of clear revenue sources forced airports to halt many of their infrastructure operations, concessionaries and current construction projects.



## Used the Payroll Support & Aviation Loan Assistance Programs

The Payroll Support Program and Aviation Loan Assistance programs helped airports and airlines weather the worst of the pandemic. In total, airlines received \$48 billion from various federal support systems.



## Initiated Workforce Changes

In 2020, 20 percent of North American pilots were unemployed and 17 percent of pilots were furloughed globally. Additionally, airlines hired public health directors to evaluate and coordinate COVID-19 mitigation responses.



## Adopted COVID-19 Mitigation Strategies

Airlines and airports also adapted to the potential spread of COVID-19 on flights. Efforts included mask mandates, elimination of certain seating, installation of air filters, and aggressive cabin cleaning measures. Additionally, some airlines required all U.S. employees to get vaccinated or face penalties.

# What challenges does aviation still face?

## Changing Travel Habits

International travel changed significantly since the onset of the COVID-19 pandemic. About 2.7 billion fewer people traveled globally in 2020 than in 2019. Although leisure travel returned to almost normal levels in June of 2021, business travel is down by 40%. Full passenger recovery is not expected until 2023, air cargo activity was up 20% compared to 2019 levels.

## Changing Passenger Behaviors

Airports and airlines are facing fundamentally different travelers as a result of pandemic. In 2021, FAA passenger investigations increased to 17.8 per 10 million passengers, up from 1.6 per 10 million in 2019. Tourism-oriented airports and states like Florida and Wyoming have seen stronger rates of recovery due to changing travel habits.

## How can the aviation industry move forward?

With COVID-19 variants persisting, the airline industry is adopting new approaches to enable safe travel. Airports are planning on modernizing infrastructure from baggage claim areas to air traffic control, which could process flights more efficiently and reduce the environmental impact of aircraft. Airports are also providing more multi-use spaces such as aeroponic gardens, playscapes for children, and university courses to increase returns on investments. However, navigating vaccine passports and proofs of vaccination will remain a difficult issue for carriers and airports across the world.

# » Heard at the Institute:

“**John Clark**

"[In a recent white paper] four top issues [were identified for concessionaires] the first being rent, the second one being capital investment, the third being labor, and the fourth was operational flexibility."

“**Captain Bob Fox**

"[C]ongress has mandated that all new aircraft coming off the factory line have a secondary barrier, a way to seal off the cockpit so that when that cockpit door is open nobody really can get in there. If we don't get this rule in place, 300 aircraft [currently on order] will not have secondary barriers on them and that's a critical thing when you're talking about unruly passengers or the threat to our cockpits."

## Watch:

- » [Looking to the Skies: What is the Current State of the Aviation Industry?](#)
- » [What are the Priorities of the US DOT?](#)
- » [Now + Next in Transportation](#)

“**Chellie Cameron**

"We are at a time where we have to start thinking about how we can reimagine the journey for our passengers, for our customers, for our travelers. Business travel is not back like it was before - it's all about the leisure journey. How do we make sure that we are an integral part of people's journeys, that we're adding value every step along the way and that we're thinking differently about how to get people from point A to point B."

“**Andy Cebula**

"[T]he recovery from COVID, both you know all of us individually and how it's affecting our lives will then affect what's most key to the carriers and that is business travelers. Tickets being sold that are business related are down by 62% compared to what they were in 2019"

## Discuss:

- » [Future of Aviation Discussion Forum](#)

## Reference:

- » [Eno's Aviation Reference Page](#)

## » Heard at the Institute: On Supply Chains



**Chris  
Connor**

"The challenge is educating legislators and the public writ large about the entire freight fluidity system. Early on in this pandemic, a lot of the attention was focused on ports and clearly this is not a port only issue. This is a national freight mobility challenge and I think that's become clearer and clearer and clearer as this thing has aged on but getting that understanding out there so that solutions are properly approached remains job one for us."



**Bob  
Costello**

"Trucks and trains are much more compliments than they are substitutes and less than 10% of all truck and train freight is competitive so I think that shows you how we have to work together and it's not just other modes of freight transportation but it's also shippers. I think that the entire supply chain needs to come together to address some of these challenges."



**Jordan  
Stone**

"[Our] interconnected freight network moves 57 tons of goods per American per year throughout this country, but you know ultimately the impacts have occurred for us where in-gate movements have exceeded out-gate movements. At the end of the day COVID-19 has resulted in massive shifts in demand and traffic, especially a growing demand of goods and increased imports. The first six months of this year were the most intermodal traffic that's ever been experienced on the rail network."

*"The Interstate was key to providing commercial and personal mobility and an almost universal access. While it makes up only 1.2 percent roadway line-miles of the country's public road system, it handles nearly 25 percent of the total vehicle miles traveled (VMT) annually and almost 40 percent of the nation's total truck traffic. With a network that has changed little since its beginnings, it serves a different economic geography than when it was authorized in 1956."*  
*The Future of the Interstate Roundtable*

*"Collaboration is key. Carriers, shippers, terminal operators, labor unions need to collaborate and there is increasing acceptance of this fact. Ports are leading the way in sharing information that would have been proprietary in the past."*  
*Digitalization of Freight Roundtable*

# » Heard at the Institute: Final Thoughts

## On What's Next:

*"We need to go back to the outcomes that we want to achieve. There is no universal vision of how we should move forward."*

*Now + Next Session*

*"It seems like there are tremendous opportunities in aviation, in particular. I think there is no better place to incubate smart cities innovations than at airports - airports are increasingly cities with runways."*

*Now + Next Session*

*"In our Journey Toward Zero Deaths, we've reached a plateau in the reduction of fatal crashes and we may even be seeing numbers increase again. It is critical for transportation professionals to utilize a safe systems approach that incorporates safety strategies into all aspects of transportation. Eliminating Traffic Fatalities is an Admirable Goal – Are we up for the Challenge? Roundtable*

*"The four major HSR projects in the US (CAHSR, Texas Central, Brightline, and the NEC) will decide what model of HSR works best. All of these projects are different in their own ways, and that means the US has no method for standardization like other countries, such as China." Seven Best Practices of High-Speed Rail Roundtable*

*"Planning efforts and how the built environment should be more flexible and adaptive across all infrastructure modes similar to "curb space management". For example, roads that are intended to be flexible can allow changes like converting lanes to BRT or light rail. Building in this flexibility is important as demand, use, and preferences change over time."*

*Right-Sizing: Changing our Transportation Strategies to Meet Evolving Needs Roundtable*

## On Funding:

*"Public acceptance of roadway pricing is an ongoing challenge. Programs that provide options, for example, different ways of tracking miles driven, may help to address some of the public's hesitation."*

*Congestion Pricing Roundtable*

*"In rural areas, we need to think outside the box as well. How do we get folks to medical appointments/shopping. And we have the opportunity of gaining the funding."*

*Now + Next Session*

*"[A] key point, is that the operational recovery is likely to outpace the revenue recovery in the industry. This is due to the lack of international and business travel and the overweight leisure and holiday segments. This will have significant downstream implications aviation businesses, public airports and the FAA."*

*Funding Aviation in the New Normal Roundtable*

# » Heard at the Institute: Final Thoughts

## On Equity:

*"A silver lining of the events of 2020 and 2021 has been the increased accountability for transportation officials, who are prompted to think more critically about how service and capital decisions have and can exacerbate inequities, and what steps can be taken to ensure all stages of project development and future service/capital projects promote access and equity for all communities."*

*Equitable Transportation Recovery Roundtable*

*"Who is missing while measuring the data matters."*

*Now + Next Session*

*"User fees (associated with vehicle purchase and operation) have been generally accepted by the public because of the confidence that the collected fees are used for purposes directly linked to their burden. That begs the question whether that traditional test of fairness – an accepted balance between direct users vs. beneficiaries – still works. If the fairness test will work in a public welfare construct, we would need to be able to look toward the different portions of the populace and ask whether the distribution of the tax burden is fair and whether the mechanism could be modified to address it."*

*Addressing the Regressive Nature of User Fees Roundtable*

*"Use current climate of heightened public awareness of social equity, potential funding resources, technical innovation and pandemic lessons learned to accelerate/advance equity initiatives"*

*Success through Synergistic Strategies Roundtable*

*"Current planning processes are not equipped to address the full scope of accessibility needs and the need to look for opportunities to fund or connect people with less traditional transportation resources. For example, what the role of human service agencies and the healthcare industry is in starting to fund transportation programs."*

*Equity in Data-Driven Decision-Making Roundtable*

## On User Experience:

*"User experience can be everything from time spent waiting in queues at check in, TSA, headways on transit systems. What are the perceptions of the users? One area I am passionate about is improving the landside experience at airports by applying CASE ideas."*

*Now + Next Session*

*"If we are talking about user experience [in transit], what metrics can we use besides number of trips? How do we collect data for them?"*

*Now + Next Session*

# Thank you

for making 100 years possible!

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## What You Said About the Institute:

“ First, speakers were inspiring; roundtable discussions were useful ”

“ The honesty and knowledge from the presenters was impactful. ”

“ I appreciated that the panel discussion had various diverse points of view. It wasn't just everyone agreeing with each other. ”

“ It was great to hear from top USDOT leadership! You don't get this experience often. ”

“ It was great to hear from the local officials and specific agencies who provided really nuanced insights. ”

“ The panelists for both sessions were outstanding! Well done Eno for assembling such a talented and visionary collection of speakers! ”

Stay Connected:

