

Climate Change and Transit Twitter Chat April 20, 2021

Summary

National RTAP held our second #ClimateTransit Twitter chat on April 20, 2021 to discuss how climate change could impact rural communities and transit agencies. We also discussed how transit agencies can prepare for potential effects of a changing climate, as well as tackle their emissions to mitigate potential climate impacts. The chat was moderated by Marcela Miceli, Manager, Energy Transition, Climate Nexus. Panelists were Jimmy O'Dea, Senior Vehicles Analyst, Union of Concerned Scientists, and Camron Gorguinpour, Director of Sustainability Solutions, ENGIE Impact. The chat was fun as well as informative, including animated gifs and of cute dancing creatures and an apt tweet from Marcela showing “actual footage of our panelists and transpo guests thinking hard about the many ways climate and transit intersect #ClimateTransit.”

There were over **9,300** impressions from this far-reaching Chat. Participants included Center for Transportation and the Environment (CTE), Ceres, Florida RTAP, HIRTA Public Transit, ITS America, National Center for Applied Transit Technology (N-CATT), National Transportation Library (NTL), Sturdy Automotive, Tampa Bay Clean Cities Coalition (TBCCC), Texas A&M Transportation Institute, Transportation Research Board (TRB), and many others.

Visit the [chat transcript](#) for questions asked during the chat and panelist and participant replies. Answers to chat questions are provided below.

Question 1: How is climate change impacting rural communities?

Answers:

- “Rural communities are among the most vulnerable to climate change,” stated Camron. From water shortages to lack of resilient infrastructure, the need to address and mitigate catastrophic effects of climate change is acute. Thinking about limited access to transportation, infrastructure vulnerabilities are exacerbated especially for alternative fuels and EV charging.

- National RTAP suggested to watch the Transportation & Climate Initiative at the Georgetown Climate Center's webinar on The Transportation & Climate Initiative: [Clean Transportation for Rural Communities](#). Learn about a multi-state compact to reduce emissions and what it means for rural communities.
- Fire, floods, and hurricanes are part of emergency planning and many transit service areas on a regular basis. "Climate change and transit is volatility," offered National RTAP Executive Director Robin Phillips.
- HIRTA notices that often times people who live in rural areas have longer trips to work, stores, etc. This makes for an increase in gas as well as trips to the mechanics. All of that equals more carbon emissions!
- From the Florida RTAP perspective, rural economies rely on natural resources and climate change may impact some of the economic drivers, i.e. forestry, agriculture, and tourism.

Question 2: How could the impacts of climate change affect transit routes and the people who rely on them?

Answers:

- Texas A&M Transportation Institute explained how climate change disproportionately impacts communities of color, people with low incomes, and people with disabilities — groups that are over-represented within typical transit ridership.
- Yale Climate Connections [found](#) that climate change is making hurricanes more dangerous. Stronger wind speeds, more rain, and worsened storm surge add up to more potential destruction. And that makes it harder for buses to travel.
- HIRTA noted that especially in the Midwest, storms become more frequent and more dangerous. This could lead to reduced services and routes.
- Florida RTAP finds that potentially for coastal rural communities - sea level rise could impact routes and could see more inland flooding. This effects where agencies can drive their buses.
- Tampa Bay Clean Cities [shared a study](#) that shows how climate change effects such as sea-level rise and melting of ice caps may have serious impacts on the maritime shipping & transportation industry.
- Camron believes that we need greater investment in public transit nationally, especially in rural communities where relatively minor events can have exaggerated consequences.
- Robin stated, "Transits need to protect their assets: people, buses, and data. Many transits have tested strategies and then have to adapt some more. Managing climate change and transit is adaptation that doesn't stop."

Question 3: What are some of the expected benefits of investing in public transportation?

Answers:

- From HIRTA - Reduced carbon footprint, using less energy and of course, saving precious dollars. It also helps people get to jobs, appointments, and other everyday trips.

- EBP's [Supporting Rural Communities Through Clean Transportation Investments](#) found that every investment of \$1 million in rural transit results reduces 142 tons of greenhouse gas emissions.
- Greater access to economic opportunity and health services, improved air quality, reduced greenhouse gas emissions, overall improvement in quality of life and happiness indicators, were the benefits shared by Camron.
- Tampa Bay Clean Cities shared that a study on U.S. government spending and its impact on worker productivity estimated that a 10-year \$100 billion increase in public transport spending would boost worker output by \$521 billion.
- “The better access and mobility that transit provides can help people access jobs, education, and vital services, which in turn increase quality of life and generate economic development,” said Texas A&M Transportation Institute.
- Florida RTAP believes that an increase the use of public transportation reduces CO2 emissions and helps to reduces the reliance on private vehicles.

Question 4: What can rural transit agencies do to prepare for climate change?

Answers:

- Make the move to zero emission vehicles. California [announced](#) an Executive Order banning the sale of gas-powered vehicles by 2035.
- “Early investment in resilience us essential, including infrastructure improvement, climate-centric emergency planning, and overall transit system upgrades to improve quality of service,” stated Camron.
- HIRTA reminded agencies to have an emergency plan in place for disasters. That helps keep the riders and drivers safe. Also, doing whatever we can to combat climate change. **It takes all of us!**
- New initiatives are on the horizon. President Biden announced his intent to nominate key individuals to lead on climate and transportation matters across key agencies, including the DOE, DOI, EPA, and U.S. DOT.
- Florida RTAP advises to increase the use of public transportation reduces CO2 emissions and helps to reduces the reliance on private vehicles. In Florida, looking at emergency planning and preparing to respond to an increase in frequency and intensity of hurricanes and other natural disasters.
- A pharmacist from Canada joined our chat and reminded everyone to sanitize face masks to protect yourself and the environment and also advised not to pollute with face masks.

Question 5: What role does public transportation play in combating climate change?

Answers:

- Be constantly educating yourself and take whatever steps necessary. Search for alternative modes, electric fleet, etc. Borrow best practices from other systems. Like HIRTA said in the last tweet, it takes all of us and **every. bit. helps.**
- Alternative fuel and electric buses help to reduce carbon emissions, according to Florida RTAP.

- Camron explained how ~30% of U.S. greenhouse gas emissions come from the transportation sector. Investing in public transportation and broader sustainable mobility activities is one of the most direct and immediate means to combat climate change. Plus...all the other benefits listed in one of his previous answers.
- A public transit, walking and biking infrastructure can reduce CO2 emissions by 25%, according to the Harvard C-CHANGE TRECH Project [Research Update on Health Benefits of TCI Policy Scenarios](#).

Question 6: How does taking transit help the environment?

Answers:

- EPA [shows](#) how investing in public transit makes it easier for people to drive less, lowering greenhouse gas emissions. It also helps reduce carbon monoxide, sulfur dioxide, particulate matter and other pollutants.
- Taking public transport reduces your carbon footprint, and decreases greenhouse gases and other pollutants that negatively affect the air and water, explained Tampa Bay Clean Cities.
- HIRTA had some great advice: Be constantly educating yourself and take whatever steps necessary. Search for alternative modes, electric fleet, etc. Borrow best practices from other systems. Like they said in the last tweet, it takes all of us and every. bit. helps. Riding public transit helps reduce your footprint. Fewer cars on the roads means reduced rush hour which lessens emissions. And less wear and tear on the roads leads to reduced construction. Taking public transit is a domino effect.
- Florida RTAP advised to take cars off the road, which helps to improve air quality.
- Camron supplied a benefit that most people don't know about. Each time a person rides the bus for the first time, an endangered species gets 6 months longer in its existence.

Question 7: How do emissions from electric buses compare to diesel or natural gas?

Answers:

- There isn't a one-size-fits-all answer, but HIRTA recommended a [great study](#) that Jimmy wrote that highlights the overarching benefits.
- Jimmy explained further: The life cycle climate emissions from electric buses are significantly lower than diesel and natural gas. Like 30 to 90% lower than diesel buses and 20 to 85% lower than natural gas buses depending on the grid in the US. And zero tailpipe emissions are hard to beat!
- Camron explained that the specific emissions reduction from electric buses depends on local grid emissions factors, however there is almost always a net reduction. It's also critical that we think about electric vehicles from a holistic perspective that includes green energy.
- Florida RTAP offered some statistics. Electric buses have 0 tailpipe emissions, Natural gas buses can come close to 0 compared to diesel buses.
- TRB's [Clearing the Skies with Research on Electric Vehicles](#) states that research overwhelmingly shows that an energy transition to zero-emission vehicles is critical to mitigating climate change and protecting human health.

Question 8: What are some examples of transit agencies tackling their climate emissions or preparing for climate impacts?

Answers:

- “Transit agencies have long been the early adopters of clean vehicle technologies, including zero-emission vehicles,” said Jimmy. National RTAP shared an [article](#) that showed that electric buses were around since about 1911.
- Capital Transit in Juneau unveiled Alaska's first public transit battery-electric bus on April 14, 2021. It was purchased through the FTA Low-No Grant Program. Juneau set a goal of 80% renewable energy by 2045. Capital Transit's battery-electric bus will charge from Juneau's hydroelectricity grid to "[run on rain](#)" - a plentiful resource in Juneau.
- Hawaii DOT just picked up its [first electric vehicle](#). Over the next seven years, their DOT plans to continue converting — or reducing — the rest of its fleet to electric.
- The City of Porterville, California is [electrifying its fleet and getting paid to do so](#) by the California Low Carbon Fuel Standard (LCFS) program.
- The Cherokee Nation unveiled its [first public, rural, electric buses](#), which are expected to reduce carbon emissions within the tribe's jurisdiction by over 5 million pounds over the lifespan of the vehicles.
- Last fall, Hillsborough bus agency HART received a large federal grant of \$2.7 million to replace existing diesel buses with electric buses, shared Texas A&M Transportation Institute.
- Diversifying modes of transportation, creating partnerships, seeking funds for electric fleet. HIRTA is part of a grant application to purchase electric buses. If awarded, these would be the first electric buses for Iowa rural systems.
- Hot off the press (literally, published the day before the chat): [UTA board approves purchase of Ogden BRT electric buses](#). Jimmy followed up with, “California has mandated all transit fleets transition to zero emission by 2040...sooo, list every agency in CA.”
- Some agencies are looking at route design to improve fuel efficiency, according to Florida RTAP.

Question 9: What resources are there to help transit agencies cut their emissions or prepare for climate impacts?

Answers:

- Here's a valuable new resource from the U.S. DOT National Transportation Library - the [Transportation and Climate Change Clearinghouse](#). It's a bibliographic guide to resources on transportation and climate change that is updated monthly.
- TCRP's [Guidebook for Deploying Zero-Emission Transit Buses](#) provides agencies with best practices for ZEB deployments and lessons learned from previous deployments, industry experts, and available industry resources.
- FHWA developed a [series of tools](#) to provide technical support and resources for the implementation of the Congestion Mitigation and Air Quality Improvement Program.
- In partnership with N-CATT, CTE authored two white papers specific for rural transit applications: [Developing strong partnerships with electric utilities](#) and [Fuel cell technology for rural transit applications](#). CTE authored the Guidebook for [Deploying Zero Emission Transit Buses](#) in partnership with TCRP, which is an excellent resource for transit agencies

looking to go electric. It provides best practices to achieve the maximum benefits and mitigate risks for ZEBs.

- There are so many great resources and materials out there. HIRTA suggested National RTAP's [resource center](#) for a great guide. National RTAP also provides an [Alternative Fuels Topic Guide](#).
- Florida RTAP provided the [Alternative Fuels Data Center](#) and connecting with your local [Clean Cities Coalitions](#). Tampa Bay Clean Cities also recommended the Alternative Fuel Data Center - their free, online [Petroleum Reduction Planning Tool](#) to help fleets save fuel and reduce emissions.
- A resource shared by Texas A&M Transportation Institute was the federal funding available via the FTA's [Low- or No-Emission Vehicle Program](#) that supports investments in vehicles and infrastructure.
- "Transit agencies in 44 states and DC are deploying zero-emission buses already," explained Jimmy. CALSTART has a great [annual report](#) documenting deployments. Transit agencies in California have put together [publicly available plans](#) for how they'll hit 100% sales by 2029 in California. Jimmy gave a big shoutout to Los Angeles County Electric Truck & Bus Coalition and Los Angeles Metro for the [plan to transition](#) all 2,300 buses in LA to electric by 2030. LA Metro is the second largest transit agency in the US!
- Jimmy also pointed out how transit agencies are excellent at sharing information with each other. They're collaborators, not competitors in moving people. Early adopters are sharing lessons learned in deploying zero-emission buses to help the next agency. National RTAP responded that this Climate Change and Transit Twitter Chat is an excellent example of organizations working together. For another resource on coordination and collaboration, see [TACL](#). Search for topics like shared mobility and partnerships.

Question 10: What about charging infrastructure or hydrogen fueling infrastructure? Where should a transit agency start?

Answers:

- Wise advice from Jimmy: It is never too early for an agency to start talking to their electricity provider, i.e., well before the first electric bus is purchased. **Plan, plan, plan.**
- Agencies should start thinking about charging infrastructure as soon as they start thinking about electric buses...it's the most overlooked topic, in Camron's experience. WRI Ross Center for Sustainable Cities and Engie Impact have great resources.
- Florida RTAP felt that California Transit Association's [Infrastructure Planning Tool: A Transit Fleet's Guide to Successful Electric Bus Charging](#) is a great resource for electric infrastructure.
- N-CATT's [Hydrogen as a Transportation Fuel in Rural Communities](#) demonstrates how range and flexibility of hydrogen fuel cell electric vehicles open up new opportunities where battery electric buses might not be as viable.

Question 11: What challenges do rural transit agencies face in preparing for climate change?

Answers:

- An idea from Union of Concerned Scientists' [Clean Transportation Strategies for Rural Communities](#): Local governments can set procurement targets to ensure that their fleet will be lower emitting as the fleet turns over.
- A challenge to zero emission vehicles is the cost relative to ones using conventional technologies. CTE's [Procurement Strategies for Reducing Capital Costs of Zero-Emission Buses](#) can help.
- The necessary fueling infrastructure for low- and no-emissions vehicles may limit adoption in rural areas or force transit agencies to take on additional infrastructure investments with limited funding was a challenge identified by Texas A&M Transportation Institute.
- More excellent advice from HIRTA: One of the biggest challenges is that some people don't think what they do matters in the long run, but that couldn't be further from the truth. Every tiny step to fight climate change is a huge victory. **We're all in this together!**

Stay tuned for the third annual [#RuralTransitDay](#) Twitter Chat on July 16, 2021!