

Notes from Small Group Discussions

The Third Annual National Mobility Summit of USDOT University Transportation Centers was held on April 15, 2021.

During the event, attendees had the option to join one of 7 small group breakout conversations.

The topic areas were:

1. Redefining the role of the curb
2. Connected and autonomous vehicles
3. Freight and goods movement, including deliveries (groceries, food)
4. Public transportation & transportation network companies
5. Rural challenges
6. Active transportation – ped/bike, micromobility
7. Future emergencies and transportation – lessons learned from COVID-19

Each break out session was facilitated by a representative of a mobility themed UTC and had a note taker.

The goal was to encourage dialogue among the participants, sharing of ideas, and produce a resource document that can be used to help generate ideas for research, student involvement and more. Each discussion group and summary are listed below and the next few pages.

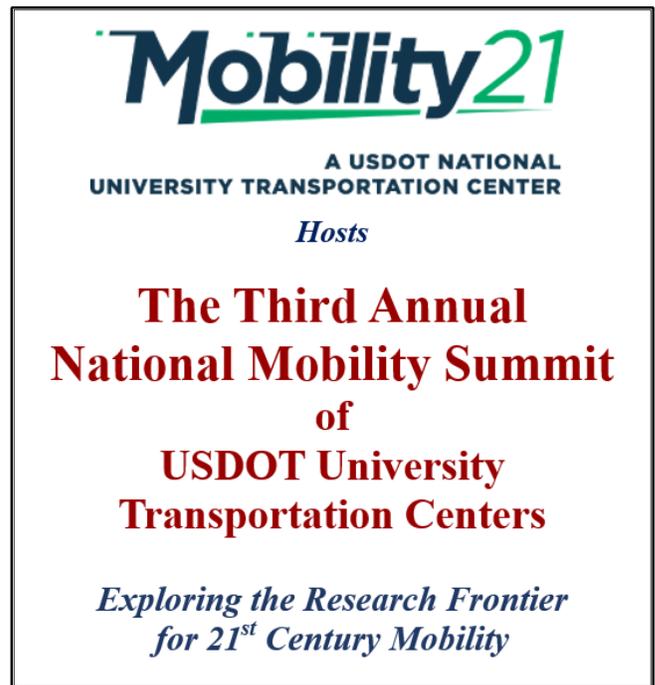
Questions or comments about this document, can be sent to the Mobility21 UTC Program Manager, Lisa Kay Schweyer, LKSchweyer@cmu.edu.

Group: *Redefining the Role of the Curb*

Moderators: *Jennifer Dill, Director of the National Institute for Transportation and Communities at Portland State University*

Cole Kopca, Assistant Director for Pacific Northwest Transportation Consortium, USDOT University Transportation Center for Federal Region 10

Note-taker: *Sophie Abo*



What do the group members know of the topic – what are the main concerns, trends, opportunities/gaps/interconnectedness to other topics, how does it relate to the federal research agenda, energy efficiency, racial equity, economic recovery

- *FHWA study is coming out soon that recognizes the importance of the curb (safety, efficiency) and encourages data-driven decision making for curb management. There is also a corresponding FHWA tool that allows cities to upload their data and simulate what re-designing their curbs could look like*
- *Many issues that intersect with curb management (accessibility for folks with disabilities, shared mobility, AVs, delivery)*
- *Temporary and flexible street redesigns, like we've seen in the pandemic*
- *How do we maintain sufficient road width to ensure room for micro mobility as well?*
- *Public acceptance of curb redesign on suburban main streets*
- *In Pittsburgh due to topography – not all streets can do everything – some curbs should have certain uses and not try to fit everything on one curb*
- *Restaurants in the streets - will this continue? What ordinances do we need to pass to sustain this?*
- *Suburban vs. Urban curb management*

What are the equity implications (for people and areas traditionally disconnected from mobility services whether due to rural access, inaccessibility, cost of service)

- *Monetizing the curb – change the dynamic between cars and the curb - those who hog the curb should have to pay for it – digital analytics to keep track of it – and we can use monetization to prioritize types of mobility (move more people – transit vs. amazon delivery)*
- *Optimize and monetize the curb via data collection, but while maintaining public trust and privacy*

What is the existing research on the topic

- *Managing increased curb demand (start-ups out of University of Washington)*
- *Standards for vehicle envelopes*
- *USC and CMU partnering together on curb management project – VTO/DOE*
- *Personal Delivery Devices (PDD) – first/last mile delivery – questions of safety? Equitability? Efficiency? – policies related to that*

What are the research needs (policy, funding, technology, analytics)

- *Federal government interested in freight research and curb management*
- *Temporal nature of curbside management – deliveries in the morning, allows for economic development at other times of the day – what are the co-benefits of curb management?*
- *How to bring public involvement in this discussion? FHWA wants social scientists to get involved to help initiate these conversations with communities*
- *Multiple scales of vehicles sharing the curb – huge trucks and scooters and dining and transit*

What are the educational and or student engagement needs/opportunities

- *Class at Portland State on “New Mobility” – Jennifer will share information if it is well received*

Potential industry, government, community partners to help explore the topic

- *FHWA encourages getting involved with their working groups (point of contact Jeff Price)*
- *Private Mobility Industry as a potential partner – generating a lot of demand for the curb – Bird came to talk to FHWA*
- *Urban Freight Lab at the University of Washington*

Group: *Connected and Autonomous Vehicles*

Moderator: *Mansoreh Jiehani, Interim Director of the National Transportation Center and Urban Mobility & Equity Center at Morgan State University*

Note-taker: *Allanté Whitmore*

What do the group members know of the topic – what are the main concerns, trends, opportunities/gaps/interconnectedness to other topics, how does it relate to the federal research agenda, energy efficiency, racial equity, economic recovery

- Moving AVS forward, issues with the FCC, major decisions to be made about moving forward with the technology as well as the workforce. The next year will be very important, the FCC side is still in waiting
- Universal Design is not at the forefront. AVs provide a great opportunity for people of all abilities to have access to transportation via CAVs.
- There's more input from differently abled individuals who are making comments but the AV industry/manufactures need to incorporate these comments.
 - Paratransit and AVs don't exactly align at the moment--there's an opportunity here
- There needs to be more research into the cheap, low--cost solutions that impact accessibility are important to figure out NOW.
 - There needs to be a standard for accessibility of AVS
 - Bonus: Profit inducing
- AV companies are sending \$\$ on robotaxis ,etc. and the connectivity is going back to the cloud, in terms of monitoring and OTA updates.
- There's no focus on V2I instead V2C, V2P (phones) are not happening; it will be an interim process.
- We can learn a lot through standardization of accessibility of the internet.
 - How we align the work with equity and environmental/sustainability development goals for the Biden administration
- Racial Equity/Implication of AVs
 - We've underfunded access for communities of color,
 - underfunded creative/non-conventional access to transportation
 - Understanding unintended consequences: private-owned AVs and rideshared AVs
 - Anecdote of personally owned vehicles leading to increase in VMT and the interface with equity

What are the equity implications (for people and areas traditionally disconnected from mobility services whether due to rural access, inaccessibility, cost of service)

- Emphasizing equity and access for people with disabilities
- Standards development for accessible automated vehicles to ensure access for people with disabilities and equity for other under-represented population groups
 - Learning from prior standards work, such how the World Wide Web Consortium (W3C developed the Web Content Accessibility Guidelines (WCAG) through industry partners in collaboration also with government)
 - Industry should partner on standards development, but government should help foster guardrails to make sure accessibility for people with disabilities and equity is not lost
- Unanticipated negative consequences, including digital and technology equivalent of modern redlining could occur if access and equity is not put at the forefront

What are the research needs (policy, funding, technology, analytics)

- Concerns for communication systems for connected mobility and automated vehicles revealing the identities of people with disabilities and other marginalized populations and causing greater victimization
- Infrastructure: Having an equitable approach for smart signaling. Allows for more creative revenue/funding models for local municipalities that manage local roadways
 - Public/Private partnerships
 - A participant had concerns, private may act in their own interest
- Safety community provides a great example of how to work with industry for public good
 - another example: advertising firms that put in a franchise bid to maintain bus shelters. Heavily negotiated to meet public good in competition with private company revenue drivers
- Communications:
 - Vulnerability for people with disabilities, women by bad actors via V2X communication is a concern.
 - Also potential for digital redlining
 - Protections need to be set in place

What are the workforce development needs/opportunities

- Priorities for workforce development for focuses on advancement of accessible automated vehicles and mobility innovation and overlap with ongoing priorities for clean energy and clean energy development
- Inclusive apprenticeships and work-based learning, including micro-credential development, co-ops, internships, etc. as a major priority for growth of career pathways in fields related to autonomous vehicles and mobility innovation
 - Ensure equity and full accessibility for people with disabilities in these activities to expand automated vehicle development, infrastructure advancement, and clean energy growth
 - Alignment with ongoing economic development and jobs plans at the federal level and the state and local levels
- Marginalized communities are prioritized for apprenticeship 1-2 million slots for clean energy, infrastructure development, etc. DOL is thinking about connecting the labor force development

- Work-based learning is happening, but not identified as apprenticeship due to legalities
 - Technical workforce development is happening at the community college level but there is opportunity for expansion
 - Creative ways to support workforce development could include micro-credentials

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Group: *Freight and Goods Movement, including deliveries (groceries, food)*

Moderator: *Victoria Deguzman, Associate Director, Education and Professional Development, Pacific Southwest Region (R9), University of Southern California*

Note-taker: *Chris Hendrickson*

What do the group members know of the topic – what are the main concerns, trends, opportunities/gaps/interconnectedness to other topics, how does it relate to the federal research agenda, energy efficiency, racial equity, economic recovery?

- Group was very knowledgeable about freight, including rail, truck, drones, waterways.
- Projected increase in freight, emission reduction/ fuels /Paris
- Varied concerns, here are a few: freight traffic/trucks – lack of familiarity of truck drivers of varied state road networks, e.g. Florida finds out of state drivers create accidents and other issues, how do we inform them.
- Emission reductions is a major concern and will be for decades. Also, concerned about supply chain resiliency. And safety – a recurring issue with freight movements.
 - Re emissions, would like to hear from us if electric batteries/hydrogen fuel cells, do we need a third infrastructure. Also, how do we handle the huge driver shortage? Autonomy needs to play a role
- Electrification, emissions, fuel cells, LNG exportation, LA has corridors development for that purpose, truck parking (not so much in LA but elsewhere), chassis – related pricing, litigation, etc. medical background checks – will it reduce drivers? Apparently less than 2% impact/reduction.
- Significant Issues
 - Truck Driver Shortage: The driver shortage has been an issue for the past several years and is expected to worsen as more drivers reach retirement age. Currently, the trucking industry employs approximately 7.7 million people and almost half of those employees are drivers. Speculation is that by the year 2026, the trucking industry will lack at least 175,000 truck drivers.
 - Delays: This equates to delays in transportation of goods, which is already causing product prices to increase, as well as shipping and freight rates. Retailers and manufacturers are feeling the pressure as well. Truck drivers make conducting business possible on several levels, including keeping consumers happy with fully stocked shelves

- Deepening of Mississippi river will increase traffic/flow and will have a tremendous impact and a competitive advantage for the first time over Brazil. Also wheat.
- Also parking lacking in the infrastructure bill.
- Big issues here - changing of fleet to alt fuels, a long process definitely. Also – as opposed to intercity and international, how about what is happening within cities with the huge increase in ecommerce/deliveries/shopping from home. Increased delivery demand is inconsistent with complete streets planning efforts to try to open streets to varied transportation = tremendous conflicts.
- Conflicts between passenger and freight rail, in particular in cities.

What are the equity implications (for people and areas traditionally disconnected from mobility services whether due to rural access, inaccessibility, cost of service)?

- Environmental concerns about communities adjacent to transportation corridors.

What is the existing research on the topic? / What are the research needs (policy, funding, technology, analytics)?

- Freight vs passenger movement – we have a relatively lack of data and have a hard time studying this topic as a result. New survey coming (v will ask D for this). Need a better understanding of the web of freight, in particular
- Hybrid battery-electric demonstrations underway.
- TRB has been holding a series of freight data webinars, chaired by Alison Conway.
- should look more at freight fuel/propulsion/ fuel consumption/fuel efficiencies and how freight can be the solution for longer distance movement. Could revisit electrified.
- How do we interconnect varied modes transferring goods – challenges are delays at interconnection, no just in time deliveries – trucks are arriving earlier – so someone has to pay the cost. Also, issues with empty trucks traveling the interstate, lack of incentives for truckers to use reduce emissions using various techniques. Also varied hours of work – 12-hour/nightly work, some states do not allow that, how can we fix it?

What are the educational and or student engagement needs/opportunities? What are the workforce development needs/opportunities?

- We have been working on freight for years and want state agencies to work with us to help education students in certain areas, e.g. logistics. Logistics companies want to education their employees who are not familiar with new tech. Large companies can train, small ones cannot
- Also, replacing increasing numbers of retiring. Need ready, trained employees at all levels. Recruiting, training, and retraining is sorely needed. Need internship opportunities and other ways to facilitate a pipeline of logistics workers. In Florida, for example, numerous freight industries are reporting serious worker shortage – in particular qualified truck drivers who can pass port clearance. Also, quality of trucks on roads are creating major issues – blockage, emissions, etc. Miami is a good example of congestion – exacerbated in no small part by trucks. Very difficult to engage a sufficient amount of students.

- Continuing demand for logistics knowledge, especially including new technology.
- Continuing demand for qualified truck drivers.

Who are potential industry, government, community partners to help explore the topic?

- RAIL INDUSTRY
 - Notes that “we” are not appreciated – can contribute to emissions, etc. concerns, E.g. locomotives are long lived BUT the rail industry is testing alternatives, in particular with regard to alternative fuels and charging methods – e.g. recharging battery while traveling downhill.

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Group: *Rural Challenges*

Moderators: *David Kack, Director of the Small Urban, Rural, and Tribal Center on Mobility at the Western Transportation Institute*

Jeremy Matson, Small Urban and Rural Center on Mobility, a program of the Upper Great Plains Transportation Institute at North Dakota State University

Note-taker: *Carlee Benhart-Kukula*

- Micromobility in rural areas
- Tremendous opportunity but animals and unsafe roads are a problem
- Issues of access and ability
- Public transportation hard to create demand for
- Poor quality of roads
- Climate compatibility for bike share, Northern states not always commonly bikeable weather
- Safety (isolation, volunteer first responders, cell reception)
- Gravel and non-paved roads
- Suspicious toward grant funding, just dropping micro mobility vehicles into the environment, maintenance, upkeep, etc??
- Not profitable to be a private company doing transportation solutions in rural areas
- Where is the innovation for rural environments with transportation needs
- School buses one of the most subsidized forms of rural transportation
- Long bus rides to consolidated schools
- How will new sec of transportation/infrastructure bill affect transportation
- Capacity given covid
- Wildlife (bears, cows, mountain lions, deer, coyotes, turkeys)
- Pre-collision avoidance systems
- Would autonomous vehicles even work with wildlife and on gravel

- Pandemic digital divide
 - Connectivity
 - Smartphones
 - Public private partnership harder
- Aging of baby boomers
 - Won't accept just staying at home when they can no longer drive
 - Not interested in autonomous vehicles
- Look at ability to bring bikes on bus/train
 - Accessible bikes

Group: *Public Transportation & Transportation Network Companies*

Moderators: *Shri Iyer, Managing Director of the C2Smart Transportation Center at New York University*

Note-taker: *Oscar Medina*

Summary

The conversation at the breakout focused on the intersectionality of transit and different societal issues. The group talked about equity and financial insecurity, homelessness, and the implications of Covid on transit ridership. There was also a discussion around the lack of attention that the transit industry receives from the research community.

Background and interests

- Always looking for stories. He is working on a report on the disabled community and how people on the autism spectrum get around. He is also interested in how TNC's increase VMTs, but could ultimately be good (and reduce VMT) if people give up their cars and pair TNC usage with transit.
- Works on federal policy on mobility issues related to the disabled community. Concerns about accessibility with relation to transit. Wants to maintain the gains the disabled community has made and better ADA compliance, especially at legacy systems like Chicago and New York City—expressed concerns around the role of public transportation during emergencies. Example of bus systems' weaponization during social unrest (i.e., when buses are commandeered to transport mass arrests during protests). She expressed concern about TNC and AVs cutting into public transit routes which have significant implications for the disabled community that relies on paratransit.
- Helping start a new university transportation center. In her role, she will focus on declining transit ridership. Shared that bus ridership is down 53% last year from peak 2012, rail is down 62%. No data yet on post-vaccination resurgence. Upcoming report on the recent decline in transit: <https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4524>

- Background is in homelessness. Is interested in the disparity in commute times between different transportation modes and how that affects people's quality of life.
- Research is on AV infrastructure and autonomous aerial fleets.

UTC research agenda, where should it be going?

- Transit funding needs a longer-term solution. Performance measures need to be revamped for transit beyond just ridership.
- Real concerns with TNC and essential accessibility with vehicles. TNCs companies do not talk with the disability community. TNC feel like they don't need to comply with ADA. Has concerns with people becoming institutionalized during times of natural disasters and emergencies when there are transportation limitations. If people can't access services, they often are put in institutions to get around the issue of a lack of transportation.

Technology Automation and Displacement of Jobs and Dehumanizing TNCs

- Electrification is essential. The US is behind in transit automation, especially when compared with Europe. There are issues with user acceptance.

How can we learn from best practices from other cities? There are also not a lot of people in the country focusing exclusively on transit.

- On-demand buses vs. fixed route. When does it make sense to have on-demand transit?
- How is Covid impacting ridership? The current administration will invest in more public transit. Advocacy is a crucial component for to see transit gains.

Closing thoughts around workforce development

- More inclusion of topics like ADA, universal design in workforce training. Efforts to increase the number of students with disabilities in education opportunities and employment in the transportation sector.
- The interconnectedness of transportation-system view.
- Thinks about social perception of transit and the need to fight bus stigma.

Group: *Active Transportation – Ped/Bike, Micromobility*

Moderators: *Hilary Nixon, Research Associate with the Mineta Transportation Institute*

Note-taker: *Hajra Shahab*

What do the group members know of the topic – what are the main concerns, trends, opportunities/gaps/interconnectedness to other topics, how does it relate to the federal research agenda, energy efficiency, racial equity, economic recovery

The group mainly focused on equity and infrastructural problems around active transportation including:

- The issue around equity and stigma around biking especially among different racial groups was discussed.
- Suburban areas do not have the infrastructure. Everything is so spaced out.

Opportunities:

- Subsidies to buy e-bikes for low income and other vulnerable group which seems like a step forward in the right direction. These scooters, skateboards should be safely introduced into transportation systems.
- Widespread campaigns around safety. A lot could be done as to how different communities view biking and participate safely.

Gaps:

- Research is needed in rural/ suburban areas of the country
- Wrestle whether Micromobility is usable in older cities. Car domination and parking is a critical issue. Question: where do bikes operate?
- 3-4 companies dropped bikes in a city in DC and it was not sustainable as the infrastructure was not supportive of it.

What is the existing research on the topic

Portland State University researcher, John MacArthur's work on transit wallet for transit riders especially low-income communities, last/ first mile connections and close collaborations with the city government is one of the research projects that has created a substantial impact.

<https://trec.pdx.edu/research/researcher/MacArthur/4673>

Other research projects cited during the discussion:

<https://trec.pdx.edu/news/study-finds-bike-lanes-can-provide-positive-economic-impact-cities>

What are the research needs (policy, funding, technology, analytics)

- Research is needed to assess the impact of transportation to access jobs, and other communities' resources. Roadways pose barrier to people walking and biking. Such obstacles need to be researched further.
- We need to think and research beyond personal safety. Acknowledge people of color have been harmed on public infrastructure and what can be done to tackle this issue.
- Develop research teams of engineering and social scientists. Some groups in University of North Carolina are working in these spaces. Need changes to MUTC that are developed by engineers who focus solely on roadways and not pedestrians.
- Integrate racial equality lens into this data. Who is the most harmed etc.?

What are the educational and or student engagement needs/opportunities

- Would love to see active transportation and its health benefits being discussed in physical activity curriculum in schools
- The designer of roads grow up with the idea that they are walkers. We need to build a wider lens.
- Granular level of research needed to make sure that you serve all kinds of populations.

What are the workforce development needs/opportunities

- Allow for technical innovations
- Engage people- funding is an expression of priorities.
- Effective messaging is important for social engineering.

Potential industry, government, community partners to help explore the topic

- Law enforcement funding: The US has user-fee model. Users pay gas tax but most people should be made to think driving is a bad thing and put those resources to biking.
- Plan multi-modal transportation networks and needs with private sector.
- Proposal: Set a day when you take away public officials' car keys and let them figure out how to get to work? How do you get to grocery store, etc.?
- Physical Activity Policy Research and Evaluation (PAPREN) is working hard to grow interaction between practitioners and board groups to create opportunity for people to work on small different projects. Such initiatives should be pushed further to encourage collaboration across different sectors.

Group: *Future Emergencies and Transportation – Lessons learned from COVID19*

Moderators: *Kaan Ozbay, Professor & Director, C2SMART Transportation Center at New York University*

Note-taker: *Zaheen Hussain*

- Moderator Has been working on topic for a long time, including with Hurricane Sandy. Worked with federal government around evacuation protocols.
- Used traffic cameras in NYC, processed to understand social distancing. Predict pedestrian spacing to better understand patterns of social distancing.
- Thinking about how COVID differed from 9/11.
 - The power of the internet, and how it made things less worse.
- Difficulties during COVID for people with mobility challenges in making errands. Access to transportation opportunities a challenge in order to meet basic needs.
- Thinking about how public transportation modes have yet to come back. How can data be better used for decision making.
- Thinking about distance learning or remote work and its impact on transportation infrastructure. Working on safety studies to reduce wrong way driving crashes.
- Wrong way traffic increased during COVID.
- Less students on campus, less traffic, less use of parking.

Ideas for future funding/research opportunities:

- What can we learn from COVID-19 regarding future transportation planning?
 - Interesting to see how construction projects sped up
 - Lots of bottle necks removed. Perhaps increased labor force.
 - How did low volumes of traffic impact crash rates? How can COVID data improve traffic models?
 - How can reductions in highway trust fund impact sustainability of infrastructure?
 - At beginning of COVID, people thought there was going to be a mass exodus from cities. However, that has faded over time.