**Proceedings of a Workshop –** NOTES IN BRIEF

**November 20, 2019**

**Ushering in an Era of New Mobility: People, Community, and Technology**

BACKGROUND

Many older adults and people with disabilities have difficulty reaching medical appointments, grocery stores, work, school, or social or religious venues for community connections. The challenge is growing as our population ages and more Americans cope with chronic health conditions and major disabilities. The resources to provide needed mobility are constrained and often inadequate – especially in rural areas. Operating separate ride services for specific clientele groups – even when two vehicles are travelling in the same neighborhood in the same direction at approximately the same time – is not financially sustainable. Information must be exchanged to efficiently refer clients to Demand-Responsive Transportation (DRT) ride providers. Information must be exchanged to enable ride providers to efficiently group and transport clients with clients of other providers or subsidy programs.

At the same time, public transportation is transitioning toward a mobility system employing a variety of shared-ride services. Public transit remains the leading mode of use with increasing focus on frequent services in congested corridors. Suburban areas (neighborhoods and office/industrial parks) are transitioning to Demand-Responsive Transportation (DRT) services with connections and transfers at mobility hubs to and from limited-stop rail and bus transit routes. These DRT ride providers include public sector services as well as private sector shared-ride taxis; app-based ride providers such as Lyft and Uber; neighborhood and office/industrial park shuttles, and app-based circulator services provided within specified geographic boundaries. Information must be exchanged to enable the public to find appropriate ride options, book rides that may require transferring between vehicles, and pay for those rides.

Exchanging the information necessary to efficiently provide needed rides requires standardized data formatting specifications.  Transit Cooperative Research Project G-16 was conceived to develop the technical specifications for transactional data necessary to allow information to be exchanged by entities involved in the provision of DRT. This collaborative research effort engaged stakeholders including public, private, and nonprofit entities; software developers; and academics.  The technical specifications were to be built on the framework presented in Table 2 of TCRP Web-Only Doc 62: Standardizing Data for Mobility Management  <http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_w62.pdf>, with consideration of changes since the completion of that research and emerging trends. The information to be exchanged includes the trip origin, destination, date, departure or arrival time, fare, and necessary information about the rider.

In October 2019, the National Academies of Sciences, Engineering, and Medicine (the National Academies) released the culmination of this effort: Transit Cooperative Research Program's *TCRP Research Report 210,* “Development of Transactional Data Specification for Demand-Responsive Transportation”. This report is available as [**TCRP Report 210**](http://www.trb.org/Main/Blurbs/179848.aspx).  A **validator software tool** that verifies data messages generated by a software system is found at the following URL: [http://tcrp.demandtrans.com](http://tcrp.demandtrans.com/).

The recommended specification has the flexibility to accommodate further innovations and may evolve, at some future time, to standards for transactional data. Privacy and security considerations are a focus in the transmission and storage of transactional data. The report also identifies key strategies to encourage adoption of the proposed specifications; propose and carry out an approach for testing the specifications; create an open source tool for data producers to validate their data against the specifications; and create and convene a forum for consensus-based refinement of the technical specifications.

ROUNDTABLE SUMMARY

A Roundtable to discuss this research as well as steps to support implementation of the research results was held on Wednesday, November. 20, 2019 at the offices of AARP in Washington D.C. The Roundtable had three objectives:

1. Learn about emerging visions for *New Mobility*;
2. Recap the challenges non-drivers in America face in reaching healthcare, jobs, and other life sustaining and social activities; and
3. Explore opportunities for ensuring that those who rely on flexible Demand- Responsive Transportation can benefit from new mobility ecosystems.

KEY ROUNDTALE CONCLUSIONS AND DIRECTIVES

* Convening representatives from a variety of perspectives enabled a very productive exchange of perspectives and ideas to produce consensus recommendations. Roundtable attendees included healthcare and mobility perspectives from service planners, providers and consultants; technologists; federal and regional agencies; and relevant trade associations. This exchange produced a consensus on the need to break down silos and to collaborate across disciplines.
* The need for a standard Transactional Data Specification for Demand Responsive Transportation is cross-cutting. Rural, suburban and urban agencies serving older adults, people with disabilities and low-income Americans would all benefit from more rides within budgetary limitations. Small and large; established and new, ride providers could all participate in a local mobility system of services. More Americans outside densely populated cities would be able to maintain their mobility without reliance on driving alone. Consequently, pilot projects in both rural and urbanized environments that include public transit as well as human service transportation providers are necessary. The utility of this Transactional Data Specification for Demand-Responsive Transportation has to be demonstrated in a variety of situations to show the broad need for inclusion in DRT technology and service procurements.
* This new Transactional Data Specification for Demand-Responsive Transportation must be accepted as a universal standard to attain maximum effectiveness across the country. This would require a unified and consistent focus.
	+ Adoption of this standard is intended to enable employment of the services of all interested mobility services, including app-based providers, on a common mobility platform in each locality. However, a common mobility platform entails consistent reporting for all federally subsidized DRT. This can be accomplished if the Coordinating Council on Access and Mobility (CCAM) designates the Federal Transit Administration (FTA) as the lead federal agency to develop and vet a consistent data set for reporting in conjunction with the other eleven CCAM members as well as representatives of transit, taxis, and app-based ride providers.

* + Establishment and maintenance of a Transactional Data Specification industry standard requires creation or designation of a central organization to assess and certify compliance and enable flexibility to accommodate further innovation. This central organization can be in the public or private sector.
		- Two examples of public sector industry oversight in the transportation field are:
1. The National Highway and Traffic Safety Administration (NHTSA) – NHTSA is charged with regulating the safety of motor vehicles and related equipment by specifying vehicle construction and component standards, testing and monitoring compliance, and mandating the issuance of recall notices as necessary.
2. The United States Access Board – an independent federal agency with the purpose of developing and maintaining accessibility design criteria for the built environment, transit vehicles, telecommunications equipment, medical diagnostic equipment, and information technology.
* Examples of a private sector industry standard oversight organization include:
	1. The Society of Automotive Engineers – SAE oversees and specifies maintenance technician training and certifications.

* 1. Generally Accepted Accounting Principles – GAAP are followed by accountants and auditors and are jointly overseen by the Financial Accounting Standards Board and the Governmental Accounting Standards Board.
	2. A more restricted example is the Consortium for Advanced Management International, which provides its members with process-based cost management models and tools.
	+ Common procurement language requiring adherence to this Transactional Data Specification should be included in transit technology and service procurements. Suggested language is presented in Appendix 8 of the Transit Cooperative Research Program (TCRP) Report 210.
* The need for a broad application of this Transactional Data Specification has to be explained to a very broad audience using a variety of medias. Articles, blogs, and webinars are needed to provide a general overview to include the benefits of use to riders and organizations, followed by further outreach to each market segment (including transit, healthcare, advocates, technology vendors, and funding agencies).

ROUNDTABLE PROCEEDINGS

***Susan Reinhard***, Senior Vice President & Director, AARP Public Policy Institute welcomed attendees and introduced the schedule for the day.

***Sandy Markwood***, Chief Executive Officer, National Association of Area Agencies on Aging (n4a) provided Opening Remarks on the Challenges We Face, discussing the mission of the National Aging and Disability Transportation Center (NADTC) regarding transportation opportunities for older adults and people with disabilities that enable them to continue living independently in their communities. NADTC is a partnership of n4a and Easterseals. Ms. Markwood stressed that transportation is a lynchpin to independence – but is still a challenge in most communities. Transportation is necessary to access healthcare, to engage in the community and avoid social isolation, which essentially makes it a public health issue. Transportation is a lifeline to “aging in place” – the ability to go where people want to go, when they want to go there. Demand-Responsive Transportation is a critical option, with multiple modes of ride provision. Bringing these options together – including information about and access to person-centered transportation – is a critical challenge that the research presented in TCRP Report 210 addresses.

NADTC’s 2018 National Survey of Older Adults and People with Disabilities had several key findings including:

* ¾ of respondents rode primarily with family and friends.
* Only 15% of people surveyed used public transportation.
* Fewer used specialized transport services including volunteer-provided rides.
* Challenges were further exacerbated in rural areas and small towns, which have fewer ride resources.
* Too few respondents could access (and fewer were aware of) one comprehensive informational source of transportation services available to them.
* Transportation was the #1 issue for information requests by or for older adults.
* Rides are needed to church, grocery stores, and community life, not just to healthcare, school or work.

The United States has a growing population of older adults and people with disabilities; consequently, the challenges are enormous. The recommendations of TCRP Report 210 offer an opportunity to look at these issues differently – to connect resources beyond our own programs and clientele – to build an interconnected and truly coordinated system that will benefit all.

***Jana Lynott***, Senior Strategic Policy Advisor—Transportation & Livable Communities, AARP Public Policy Institute presented Universal Mobility as a Service: A Vision

A tremendous amount of innovation and disruption are happening in shared-ride and shared-vehicle transportation, from scooters to Uber/Lyft to transit apps. Are these new resources thinking of the needs of older adults and people with disabilities? The heart of the Roundtable’s discussion is based on how these needs should be served in this new mobility ecosystem.

America has a 2-class transportation system now – one for those who have a car to meet their needs, and one for those who don’t. Requirements of advanced notice to book a ride, restrictions of trip purpose, jurisdictional boundaries, inefficiencies and poor on-time performance all serve to isolate older Americans and people with disabilities. For example, Detroit has 120 transportation providers that can’t cross the city boundary to reach nearby medical and other resources in Wayne County, Michigan.

A regional coordinated center transportation plan is required of metropolitan and regional planning organizations. Mobility Management has fostered one-call/one-click information centers as well as the mobility management profession. We need to build upon this work from the past decades.

Universal Mobility as a Service will help us carry mobility management into the future. LA Metro, for example, is trying to be a one-stop source in this vision. Ford is transforming into a mobility company, as is Uber. However, they need to add focus on serving the needs of older adults and people with disabilities. One-third of the U.S. population does not drive. A Universal Mobility as a Service platform can enable this population to be mobile. A universal mobility app could provide information, directions, reservation options, and the ability to make payment.

How do we move toward this vision? We need to modernize DRT. The current process is primarily manual, with multiple communications and reviews of program rules. This process can be automated using Transactional Data Specifications for DRT – as described in TCRP Report 210. This approach uses electronic communications with standard data fields to connect information and referral, scheduling centers, ride providers, and agencies subsidizing rides. With an Open Platform architecture Federal Perspectives on Demand Response Transportation in the Era of New Mobility Innovations-based providers such as Uber/Lyft, to active transport such as bikeshare, can be accessed. See [www.aarp.org/FutureOfTransportation](http://www.aarp.org/FutureOfTransportation) for more on the Universal Mobility as a Service vision.

An exemplar of DRT maximizing use of transactional data specifications is Flex Danmark. Flex Danmark coordinates 15,000 trips/day with 250,000 unduplicated customers. This is a public endeavor owned by five public transit authorities nationwide with over 550 providers. Costs are allocated to produce fair billing to ride-subsidizing agencies. FlexDanmark includes components focused on patients, those with disabilities, and municipal needs.

***Angela Williams***, CEO, Easter Seals moderated a panel on Federal Perspectives on Demand Response Transportation in the Era of New Mobility Innovations, introducing the federal partner panelists.

***Kerry Branick***, Deputy Director, Models, Demonstrations, and Analysis Group, Centers for Medicare and Medicaid Services (CMS), discussed how the current system works from the CMS Medicare/Medicaid Coordination Office perspective. Medicaid focuses on low-income beneficiaries as well as persons with disabilities, while Medicare focuses on older adults. Together, they serve 11-12 million Americans, some of whom are dual-eligible. However, these programs were never designed to work together – and that coordination is the challenge. The Financial Alignment Initiative is a partnership with 10 states on Medicare/Medicaid plans in which CMS and each state capitate the costs. They hope to neutralize unintended incentives. The dual-eligible are the most vulnerable and expensive beneficiaries. Twenty percent of Medicare and fifteen percent of Medicaid beneficiaries are dual-eligible, accounting for 1/3 of expenditures in each program. Being dual-eligible is the most powerful predictor of health outcomes, with transportation cited as the biggest barrier to access healthcare. Access to the doctor, to prescriptions, and to long-term supports for community living are critical. These Financial Alignment Initiative plans require a care coordinator/care team to coordinate services.

Ms. Branick sees a lack of focus on best practices in transportation, though the initiatives are welcome. However, much of the country has few transportation options. An example of what can work is the Michigan Upper Peninsula which relies on volunteers, as they have few or no public transit alternatives. Transportation needs to be door-to-door, accessible for those with limited English proficiency, and be culturally competent (where women won’t ride alone with a male driver). Improving the flu vaccination rate requires transportation access – so having the driver ask a rider about a flu shot and suggest sites where the shot can be obtained is important. Transportation to religious and social venues also is important for mental and other health outcomes. Transportation advocates and providers need to strongly present the case for mobility needs.

A question was raised about providing transportation benefits in either of two modes:

* Through the Medical Home concept, in which a centralized caregiving service arranges rides as well as other services for those who can’t do so for themselves (e.g., as applied in the PACE Program for All-inclusive Care for the Elderly); or

* Through an account-based mobility card to which ride subsidies accrue monthly (similar to WIC & SNAP cards), enabling beneficiaries to choose their ride providers.

Ms. Branick responded by explaining that Medicare Fee for Service, unlike Medicare Advantage, doesn’t pay for rides. Dual beneficiaries face a barrier, especially on the Medicare side – unless the recipient is enrolled in a PACE program. Aging and Disability Resource Centers (ADRCs) and some Area Agencies on Aging (AAAs) help support community workers who blend transportation funding streams. Requiring beneficiaries to pay fares out of pocket is a barrier.

***Lori Gerhard***, Director, Office of Interagency Innovation, Administration for Community Living (ACL), discussed Flexible Transportation in the Era of New Mobility Innovations. ACL has a national network through which they sponsor innovations and new ways of thinking of transportation as a social determinant of health.

ACL is the newest Department of Health and Human Services (DHHS) operating division (2012) covering a broad spectrum of services that now includes Centers for Independent Living; the National Institute on Disability, Independent Living, and Rehabilitation, the National Independent Living Center for Research & Rehabilitation (NIDILRR); the Administration on Aging; the National Assistive Technology Program; the ADA Participation Action Research Consortium; University Centers for Excellence in Developmental Disabilities Education, Research and Service (UCEDD); and in partnership with the National Center for Mobility Management (NCMM), the Inclusive Community Transportation Planning program. ACL works to hear from older adults, people with disabilities and caregivers regarding their challenges and suggested solutions. The ACL national network includes 1,322 access points – one in every community, state and territory. The purpose is to share and replicate proven tools and resources. In Fiscal Year 2018, 20 million rides were provided to 16,900 individuals. Over 10% of these rides (2,300,000) had an assistant on-board the vehicle. ACL works with the University of Massachusetts/Boston, David Bernstein Consulting, the National Center for Mobility Management, and the National Association of Area Agencies on Aging to evaluate these programs and rate how well the voice of the consumer is considered in program development.

Among the replicable innovations arising from ACL’s efforts are: a University of Kentucky app that enables those who can’t speak to interact with community bus drivers; a Portland, Oregon Ride Connection program that educates dialysis patients and drivers on the needs of end stage renal disease and to consider transportation as a necessary service; and through NIDILRR, the Americans with Disabilities Act (ADA) Participation Action Research Consortium (PARC) database of transportation systems across the country. The PARC database in Austin has been enhanced with local funds to indicate where sidewalk repairs are needed to provide accessible pathways to transit, including charging station sites for power wheelchairs. The National Assistive Technology Act Program loans assistive technology to individuals, teaches people how to use the equipment, and allows individuals to test functionality of equipment before they make a purchase. An example is the We Walk Cane for the visually impaired that includes Google maps with voice instructions. Through a grant in Boulder CO, ACL is learning how younger and older adults use and teach each other ride-finding apps and providing Peer-to-Peer travel training. A Maryland project is focused on wayfinding for the visually impaired using Metro. The Bike Safety – PEAK program in Michigan is led by a teacher instructing student cyclists with disabilities to focus on bike safety and navigation.

While the ACL Fiscal Year 2020 program is in development, their priorities include reducing social isolation, providing access to healthcare, reducing hospital readmissions, and improving access employment & schools.

ACL and other Department of Health and Human Services funding is available to match other federal funds including from Federal Transit Administration (FTA) 5307, 5310 & 5311.

***Vince Valdes***, Associate Administrator, Office of Research, Demonstration & Innovation, Federal Transit Administration (FTA) & primary advisor to the FTA Administrator on technology discussed the mobility environment. While Public Transportation provides the foundation for mobility, the current environment includes many other ride provider partners. Mr. Valdes gave the example of an older resident of Truth & Consequences, NM who is considering relocating due to lack of transportation options after he stops driving. A framework is needed to support an integrated and innovative mobility network. This framework could be developed in any of three alternative structures:

1. Public transportation services complemented by mobility services; or
2. Public transportation services competing with mobility services; or
3. Public transportation and mobility services integrated to operate a single seamless mobility system – a Person-Centered construct.

Option 3 is the objective – with consideration of the Complete Trip Concept that begins with the decision to make a trip**;** planning an itinerary; traversing the environment (with or without a vehicle); navigating the transportation network (streets, intersections, facilities, stations, etc.); and arriving at the destination (safely, efficiently, seamlessly, and carefree). Public transport may be the trunk of the trip or not, depending on the circumstances.

The FTA Mobility Innovation research portfolio includes:

* Mobility on Demand (MOD) - <https://www.transit.dot.gov/research-innovation/mobility-demand-mod-sandbox-program.html> and <https://www.transit.dot.gov/research-innovation/fiscal-year-2016-mobility-demand-mod-sandbox-program-projects>
* Mobility Payment Integration (MPI) - <https://www.transit.dot.gov/IMI> (dedicated website under development)
* Strategic Transit Automation Research (STAR) - <https://www.transit.dot.gov/automation-research> (many barriers still exist)
* Accessible Transportation Technologies Research Initiative (ATTRI), which is conducted in conjunction with the Federal Highway Administration and the Intelligent Transportation Systems’ Joint Program Office - <https://www.its.dot.gov/research_areas/attri/index.htm>
* Integrated Mobility Innovation (IMI) - <https://www.transit.dot.gov/IMI>
* Mobility Performance Metrics (MPM) – value what you measure - <https://www.transit.dot.gov/PerformanceManagement>
* FTA Research Office Website: <https://www.transit.dot.gov/about/research-innovation>

Mobility on Demand (MOD) is a framework for an integrated, connected, multimodal network to leverage partnerships and technologies to provide and expand safe, affordable, equitable, and reliable options for personal mobility *and* goods delivery available to all.

Mobility Payment Integration: State-of-the-Practice Scan (MPI) promotes coordinated payment systems for multimodal travel to enhance efficiency, improve customer convenience, and increase access to evolving personal mobility services.

Strategic Transit Automation Research (STAR) plan explores transit automation technologies and provides policy guidance to make informed deployment decisions.

Accessibility Transportation Technologies Research Initiative (ATTRI) is focused on providing technology to overcome physical barriers to transportation, enabling people with disabilities to be independently mobile. These technologies encompass factors from wayfinding and navigation to safe intersection crossing, pre-trip concierge and visualization, robotics and automation.

Integrated Mobility Innovation (IMI) has been used to develop innovative demonstration partnership and technology projects to improve the quality and safety of operations and the user experience.

The Multimodal Performance Measure (MPM) effort is developing measures of operational adequacy, system efficiency and system performance for a multimodal platform of service options, using both operator and traveler feedback. Quantitative and qualitative measures are needed to assess how ride impact lives in connecting people to destinations. Measuring the effectiveness of systemwide (multimodal) performance – including connectivity and integrated service provision - requires new indicators. Should Metropolitan Planning Organizations (MPOs) participate to create adequate regional models?

**Danielle Nelson, FTA Office of Program Management, Rural and Targeted Programs Coordinating Council on Access and Mobility Lead,** discussed the Coordinated Council on Access & Mobility (CCAM). By Presidential Executive Order, CCAM is comprised of 11 agencies and 130 programs for older adults, people with disabilities and Americans with limited incomes. CCAM activities has been a focus of General Accounting Office (GAO) analyses. On October 29, 2019, CCAM issued a strategic plan. On September 30, 2020, a CCAM report on barriers to coordination is due to the President and Congress. CCAM met the third week in November 2019 and has 25 draft recommendations for this report, affecting eight of the eleven-member agencies. Ten of the CCAM agencies (excluding the Department of Interior) have been participating in this effort. The CCAM website, <https://www.transit.dot.gov/coordinating-council-access-and-mobility> has a pull-down menu discussing federal ride subsidy programs. For most of the programs, transportation is an eligible expense – but not the main purpose. Mobility Management is broadly defined for CCAM purposes. The Department of Veterans Affairs, in particular, is committed to mobility management, employing mobility managers at the GS-12 level.

***Rodney Harrell***, Vice President, Livable Communities and Long-Term Services and Supports, AARP Public Policy Institute moderated a panel on Promising Examples of Coordinated Service

***Rich Farr***, Executive Director of Rabbit Transit in York County, PA gave a presentation entitled, “*Providing Access to Rural Communities – Ushering in an Era of new Mobility: People, Community and Technology”*

*Find My Ride* is a One Call/One Click service as a joint effort with, and funded by, PennDot in York County – a rural area. This service provides callers with mobility options but doesn’t directly connect those options. TCRP Report 210 offers a mechanism to make those direct connections. The challenge is getting transportation operators to connect such as volunteer-based services and some taxi operators. Ninety percent of the callers use the service to book transit trips.

In Pennsylvania, ADA paratransit and senior transportation, which are lottery-funded, are essentially available statewide. Someone using the *Find My Ride* system, can pin the origin, destination, date and time, add a purpose code to determine the fare, and then book the shared-ride trip. Comments on the pickup or destination location can be added, and the user can see the provider and average (likely) cost. A link is provided to call the participating provider. However, most taxi operators in York County don’t have the technological capabilities to fully participate in the program. The scheduling engine statewide (excepting the two major urban counties) is Ecolane, which provides on a count-down basis, the expected pickup time. However, a transportation vendor also needs the ability to track vehicles and create an audit trail for accounting purposes. Eventually, *Find My Ride* will be the Pennsylvania Universal MaaS platform. *Find My Ride* is open source, using an Application Programming Interface to connect to Ecolane.

*4Ride* is a brokerage platform developed in cooperation with Geisinger Health and university partners focused on social determinants of care. Objectives include reducing missed appointments as well as accessing healthcare. Community Outreach Coordinators collect information that is processed by Geisinger for mobility managers to convey to the eight participating ride providers. This project is less than two years old, but hospital readmissions, missed appointments and emergency room trips have decreased. Between April 1 and September 30, 2019, 457 unduplicated riders and 4,880 rides have been provided. Of those, 132 people are now regular transit riders. Geisinger has a grant to use artificial intelligence (“Olive”) to input client information into the database.

***Jeff Becker***, Senior Manager of Service Development, Denver Regional Transit District discussed, “*Is Coordination of Demand-Responsive Transportation Services Achievable?”*

Longmont, CO has a population of 100,000 living within 30 square miles and served by RTD fixed-route bus service, Call-n-Ride DRT service, and ADA paratransit, as well as Via Mobility DRT service for older adults. Via provides both ADA & Call-n-Ride DRT under contract to RTD, that substantially overlap. RTD and Via are working to share resources, coordinating DRT using a mobility coordinator and technology. Replicability of this sharing is problematic. VIA Mobility schedules and assigns ride requests using RouteMatch to transit or to Via Mobility services, as appropriate. Call-n-Ride customers can book their rides directly. The Via coordinator will reassign trips, as needed, to improve productivity within the common service area. This requires data exchange between scheduling systems. The platforms post files into a server, where the processing occurs. ADA Rides within Longmont are transmitted to VIA (file transfers) via an emailed spreadsheet. While vehicle hours increased 20%, productivity improved between one-quarter and one-third between 2010 and 2012. Fifteen percent of all Longmont trips were coordinated by the mobility coordinator.

Resistance to using coordinated scheduling was overcome. However, providers differ in some operational characteristics. For example, Via Mobility, who serves older adults, has a dwell/boarding time that is two to three times as long as Call-n-Ride, who serves the general public.

Our focus in the U.S. is more on competition and coordination, as opposed to integration. That needs to change to improve the efficient provision of rides. The key is to develop transactional data specifications for a DRT trip exchange process, where providers share a Trip Data Exchange Hub for the several necessary data transactions – the thrust of TCRP Report 210.

***Scott Rinefort*** Senior Director of Product Design for Anthem, Inc.’s CareMore Health service delivery program presented on “*How CareMore Health’s Culture of Applied Innovation Drives Whole Person Care through Compassion and Technology.”*

Anthem is focused on bolstering corporate culture as they evolve into an inclusive community partner dealing with the major social drivers of health. These are food, housing, and transportation. Transportation is the third most commonly cited barrier in access to healthcare for older adults, affecting 3,600,000 Americans. Most (84%) of transit riders over 65 worry about obtaining seating on-board the bus, as well as the availability of shelters while waiting for the bus. Missed healthcare appointments cost the healthcare system $150B annually.

CareMore Health has accessible vehicles providing door-to-door and on-demand, curb-to-curb transit services through American Logistics Company (ALC) in partnership with Uber Health. These rides are scheduled by calling Anthem customer service, which can view expected medical appointments listed. The wait time is five minutes from the scheduled pick-up time. The focus of this program is to provide person-centered transportation. Through that endeavor, Anthem staff soon learned that most members don’t understand their healthcare benefits or costs. ALC & Uber Health use a *My Ride Manager* platform with GPS tracking and standard data formatting.

CareMore Health’s internal statistics show that since 2016, they have provided 1.1 million rides, reduced wait time 30% (to 9 minutes), provided a 32% reduction in trip costs, accomplished 92% on-time performance, and served 16,691 clients with 97% patient satisfaction.

CareMore Health has identified several challenges including finding ride providers in rural areas and educating drivers in passenger assistance (especially Uber drivers).

They have identified opportunities that include calculating the optimal ride time for each trip and providing riders with a mobile app to track their rides.

Question & Answer Period:

1. What are the biggest barriers to replication?
	* Scott Rinefort: Patient awareness of transportation options. Most are on a fixed-income with chronic conditions and are dual-eligible. They don’t know the ride is free.
	* Jeff Becker: Institutional barriers prevent coordination. The CCAM effort needs to move faster.
	* Rich Farr: Fear by the ride providers that they will lose clients. Choice and flexibility are needed.
2. How do we get partner buy-in?
	* Jeff Becker: We often are faced with a choice: either ask for permission or ask for forgiveness. The first approach doesn’t work.
	* Scott Rinefort: Company culture has to be considered, as the client-facing approach is a huge factor. Staff working in different disciplines need to talk wth each other. Potential partners need to negotiate in good faith based on common objectives and get to know the key individuals.
	* Rich Farr: When negotiating, transparency must have the first priority, with visible data. There needs to be a pledge that potential ride providers have the first right of refusal for rides.

1. Using Uber – how has that worked regarding driver credentialing and training?
	* Scott Rinefort: The CareMore Health arrangement with Uber Health has worked well. They identify and match the right drivers with riders for each trip assignment. Uber drivers are independent contractors, so they can’t be required to attend refresher training. They volunteer to attend with enticements such as pizza and updates from Uber management. However, recruiting and training drivers to provide door-to-door service is tough.
	* Rich Farr: The *4Ride* experience with Lyft is 80% positive, but some drivers reject trips without tips (*4Ride* doesn’t pay tips for Lyft rides). Some agency contracts prohibit use of Lyft drivers who don’t meet specified driver credentialing requirements.
2. How many Anthem members use the CareMore Health services?
	* Scott Rinefort – 90,000 Anthem members are eligible, of which 17,000 use the service – often just once.
3. Are program benefits for older adults visible to the clients?
	* Jeff Becker: First, one should ask how many seniors can use fixed-route transit? Most older adults are able to use fixed-route transit and don’t need DRT. Overall service to older adults is based on improved fixed-route service.
	* Scott Rinefort: Rides to gyms and other community sites are needed to support both health and morale. While these rides aren’t subsidized by Anthem, CareMore Health connects older adults to those rides.
	* Rich Farr: Some clients enjoy their ride for the socialization opportunities on the bus. On a separate note, Rabbit Transit has observed that dialysis riders often pass the nearest center because they were kicked out for no-shows. In response, Rabbit Transit worked with the dialysis centers to improve confidence that fewer appointments will be missed, to get clients reassigned back to their closest center.

***Kim Sedmak***, Policy Outreach Director, AARP Policy, Research, and International Affairs set the stage for the FlexDanmark introductory video which was shown to the audience.

Ms. Sedmak then introduced Dorthe Nøhr Pedersen, CEO, MOVIA and Board Chair of FlexDanmark to discuss both MOVIA and FlexDanmark services.

MOVIA is owned by and covers two regions and 45 municipalities in Denmark and is partnering with the Danish State (trains) and the State and Municipalities of Copenhagen and Frederiksberg to provide transit services. The municipalities provide rides for general public and specific clientele needs. Denmark is divided into five Public Transit Associations (PTAs), plus a sixth for a small island, to advise on public transit planning and implementation. Each association has an equal vote on the FlexDanmark board, though the populations of the PTAs aren’t equal. The five PTAs, including Movia, own FlexDanmark. All non-rail rides are provided through contractors. Contracts can be for 12 years. Some contractors are small locals, and others are multinational. FlexDanmark started as an association to provide technology and is now a formal company to provide ticketing for transit and the technology needed to support several services. Among the services supported by FlexDanmark are: the FlexTrafik platform for situations or areas where citizens can’t use fixed route transit; Reisaplanen, a nationwide travel planner; and Resiekort to provide nationwide ticketing for rides. The income from the tickets is apportioned among the ride providers. DOT is a new Flexdanmark service to integrate the customer experience in Copenhagen and Zeeland.

The FlexTrafik platform includes FlexPatient to provide rides to and from hospitals; FlexHandicap to provide rides for those with severe mobility impairments to social, religious or leisure venues; FlexMunicipality to provide rides to non-hospital medical appointments; and FlexTur for rides to any destination within a municipality including first/last mile transit connections, with costs shared by the municipality. Fare structures vary, but generally encourage use of fixed-route transit in urban areas. The FlexTrafik platform enables the sharing of rides among different subsidy programs, enabling scheduling by geography and arrival/departure time requirements, as well as vehicle accessibility needs.

FlexTrafik is reliant upon a standard transactional data specification developed in Sweden – Standardiserat Utybyte av Trafik Information (SUTI). The SUTI specification was also used as the platform for TCRP Report 210.

An initial challenge faced by FlexDanmark was transit coverage in rural areas. Rural fixed routes had insufficient use, despite a major and growing need for rides due to an aging population. The PTAs are legally required to provide mobility for several mandated purposes, but fixed routes weren’t the solution. FlexDanmark is charged with coordinating solutions for the PTAs to meet these requirements. North Jutland was an early focus, as unproductive fixed routes were pulled in favor of DRT solutions.

Only 20% of hospital transportation needs are provided through FlexPatient, although a higher proportion would provide a catalyst to boost productivity. Municipalities do have control over cross-boundary travel, especially in the FlexTur service. Trips are coordinated nationally through the technology. Offerors compete for contracts, almost on an auction basis, specifying the service span and rates. Vendors can volunteer to provide more rides and serve other clients.

Correct data is key. FlexDanmark assigns resources to maintain databases on clientele; driving times; walk time to/from major destination building entrances; vehicle specifications, capacity and operating base locations; and vendor rates. Medical offices can input ride requests into the database. Dialysis patients get some priority to minimize their ride time. Rides are dispatched real-time with no printed manifests, allowing constant optimization of vehicle schedules. Costs are allocated and invoiced monthly to fairly distribute expenses on a common basis.

They are now piloting on-demand autonomous buses using FlexDanmark Dispatch on hospital campuses to reduce walking distances. The vehicle mechanical technology and durability still needs improvement.

New legislation focused on Mobility as a Service (MaaS) requires FlexDanmark to include mobile phone payment capabilities. The initial response will be app-enabled planning, booking and paying for FlexTur first/last mile transit connection rides, with data collection structured to facilitate program evaluation. Most (70%) of FlexTur rides currently are used by older adults. The new app should attract younger people, who will also need educating on using FlexDanmark technology.

Question/Answer Period:

How is ride time split between riders?

FlexTrafik calculates the minutes of ride time – alone vs, shared – and depending on the subsidy program, the home region is allocated the cost. The municipality invoice doesn’t detail the clients who ride. Some riders buy tickets, while others are sponsored by a program.

Why don’t some municipalities participate?

They might have their own ride structure, while others prefer to use a local ride vendor which may not be the least expensive, appropriate provider. They may object to paying the per-ride administrative cost to the local PTA, although that can be dealt with as a budget line-item.

***Roger Teal***, President, DemandTrans Solutions and Principal Investigator, Transit Cooperative Research Program Project G-16 (Report 210), presented on TCRP Report 210, Extending the Reach of Demand-Responsive Transportation in the USA via Data Specifications

FlexDanmark is the graduate school for DRT, while many providers in the U.S. range from elementary to high school level. FlexDanmark shows that good DRT technology works. One critical factor in FlexDanmark’s success is the transactional data standards for all 550 participating providers and nearly 1,000 funding agencies and programs.

*History*: DRT in the U.S. was developed in the 1970’s as Dial-a-Ride on an advanced reservation basis, proliferated in the 1980’s (without technology), but it was not embraced by transit until after the Americans with Disabilities Act (ADA) was signed into law in 1990. Interoperability among referral agencies, call centers, schedulers and ride providers has not been in the mission or vision. Technology and service provision became siloed and proprietary.

*Problem*: The current technology doesn’t integrate service providers, and it precludes coordination. This is a major impediment to both mobility management and one call/one click systems. We have no well-defined pathway to integrate technology for a multimodal, mobility platform.

Benefits of Technology Inter-Operability include:

* Increased capacity
* Improved cost-effectiveness/economies of scale and scope
* Better service quality – especially the ability to provide rides on or near the needed time.

Transactional Data Specifications – a language with syntax that enables software applications to exchange information to deliver service. Data messages encompass:

* Requests for a transaction (book a ride) to include the:
	+ Origin
	+ Destination
	+ Requested time of pickup or arrival
	+ Passenger attributes (e.g., mobility equipment)
	+ Trip fare paid by passengers
* Information regarding the provided ride to include the:
	+ Actual pickup time
	+ Actual arrival time
	+ Trip cost for the provider

In the Anthem CareMore Health example, American Logistics exchanges data with Uber Health to include trip booking, scheduling, execution and reporting. Each effort requires a specification with sufficient data.

FlexDanmark uses SUTI standards that includes a comprehensive set of DRT data specifications and flows. Dispatch and vehicle data terminals use SUTI, enabling vehicle tracking.

TCRP Report 210 adopted the SUTI data telegram concept for standardized messages, but with fewer messages than used in SUTI – down to eleven basic messages, each with options. The programming language is either SML or JSON, using a standard approach.

*Challenges*: We need a government or industry forum to organize and govern implementation. The G-16 study had a panel including a wide variety of ride providers, but none offered to moderate implementation. We don’t have a dominant industry player. A government forum is very unlikely. DRT doesn’t have an industry forum mobility equivalent to the Society of Automotive Engineers (SAE) in the automotive sector. Should a transit association such as the American Public Transportation Association (APTA) or the Community Transportation Association of America (CTAA) step up, or perhaps a consortium of private providers? Regardless, the specification needs to be developed as open source to enable new participants with innovative ideas to join. Decisions are needed regarding who provides the leadership, resources, and who convenes the group.

***Susan Reinhard***, Senior Vice President & Director, AARP Public Policy Institute, provided closing remarks to the morning session.

**Roundtable Discussion –** AFTERNOON SESSION

**November 20, 2019**

**Virginia Dize,** the National Aging and Disability Transportation Center (NADTC) Co-Director, welcomed attendees to the afternoon Roundtable, asking them toshare and interact, as the group develops concrete recommendations based on the morning discussions.

The afternoon Roundtable was moderated and facilitated by **Roger Munter,** Director of Public Engagement for the Arlington County, Virginia County Manager’s Office and **Jerusalem Solomon**, Arlington County Public Engagement and Community Outreach Specialist. They asked attendees to use accessible language, avoiding jargon and acronyms.

The roundtable began with **Introductions & Core Concepts for Advancing New Mobility**

As part of introductions, attendees were asked to offer Core Concepts (essential ideas) to advance new mobility and to build the elements of a vision statement. Some attendees also provided key words and key terms for consideration:

* Person-centered
* Livable communities’ intent
* Inclusiveness (Enable all stakeholders to participate, including riders, caregivers and service sites/healthcare)
* Diversity of perspectives can lead to an integrated vision.
* Educate consumers regarding mobility options – Education is implicit in consumer choice.
* We need to be aware of political realities, within the Livable Communities approach, to provide people with the necessary options to live their best lives. Transportation isn’t “just to the doctor”.
* Rural areas are a particular challenge due to the limited availability of ride providers. Each rural area needs one transportation system using one database that reflects mobility options.
* Integrate transit & human service rides
* Accessibility is financial as well as physical. Can the unbanked pay the fare for rides?
* Simplify access to mobility – This requires understanding potential riders with a focus on accessibility for the end-user. Mobility programs need to be simple and accessible to be usable.
* Use market-based approaches in the planning process to assess needs before developing and implementing standardized data transactions. This will avoid incurring costs later in the process. If we ignore aspects and local needs, we externalize costs in negative health or environmental impacts. It is better to assess and include needs from the project beginning.
* Promote a multimodal transportation system that works for all.
* The key terms: e**quity, diversity and inclusiveness**, were mentioned by several participants:

**Data Standards**

* Consistent Data Standards are required.
* Data is needed to ensure accountability and equity. Data from Non-Emergency Medical Transportation (NEMT) providers, especially from Medicaid vendors, isn’t transparent on whether rides are delivered satisfactorily.
* Data is needed to measure Return on Investment (ROI) from a community sustainability perspective.
* Platform-based comprehensive transactional enablement
* Customer-centric data platforms
* One system connectivity, stressing sustainable interoperability of technical and human resources to accommodate divergent scenarios and consumer choice
* Use consistent data formatted according to common data specifications. How does Open Architecture fit in – as a subset?
	+ Portland has three transit agencies using an open architecture platform that is agnostic to the source (phone, desktop…) and with open interfaces that are available to multiple vendors. Open Architecture offers a complementary vision to Common Data Specifications.
* FlexDanmark has a great platform. In contrast, the availability of multiple platforms in a metropolitan area would be confusing.
* Just as Orbitz and Expedia have transformed the booking of and payment for intercity travel, a platform similar to FlexDanmark would enable interoperability and coordination between agencies subsidizing, booking, scheduling, providing, and paying for rides.

**Market Incentives**

* Market-based strategies can be applied to minimize friction in the marketplace and facilitate mobility economics for all stakeholders.
* Incentivize an even, open marketplace to provide convenient accessible mobility options
* Offer cost-effective mobility options to provide consumer choice

**Leadership Approaches**

* Encourage people to step forward in leadership to make this happen – recognizing leadership abilities and capabilities to take individual responsibility for leadership.
* Diversity of perspectives – Inclusiveness means that beneficiaries are at the table.
* Break down silos – Turfism, from many perspectives, is the biggest barrier and must be overcome. This issue should be addressed in a mission statement.
* Encourage, enable and incentivize individuals and organizations to overcome bureaucratic Inertia to change business practices. Information is available and willingness is present, but the inertia has to be overcome before change happens.
* Adopt a collective impact approach to major systems change, with agreed upon metrics. Start now with willing participants, and others will join later.
* Must have everybody on-board from the start, ideally. (This opinion was not a consensus among the group.)
* Public transit authorities can be very conservative in perspective. They need to be more inclusive, using community engagement techniques and practices to learn about and consider consumer needs.
* Return on Investment (ROI) needs to be assessed both from the human and the economic perspective. Planners should consider demographic aspects and societal needs when developing the ROI of infrastructure projects.
* We each need to take personal responsibility to move this project along. Don’t wait for colleagues. We each need to identify and act on an aspect of implementation.
* Incentives are needed to create that inclusive, person-centered mobility system to include accessibility, convenience, and ease of use.

**Practicalities**

* Walkable street networks and accessible bus stops with shelters, benches and real-time bus arrival information are necessary to support fixed route transit.
* Look for the missing links on a Complete Trip process as identified by ATTRI.
* Revenue is needed to cover costs. Many states and localities don’t have enough revenue to maintain bridges. Mobility Management is competing against many transportation needs. We need to make the case that Mobility Management uses tax dollars wisely but is challenged by the lack of a universal fare system.
* Divergent scenarios should be considered to focus the conversation on what level of mobility integration is most beneficial.

Mr. Munter and Ms. Solomon divided the attendees into four groups to discuss **How** **can we advance *New Mobility* through the coordination and interoperability of Demand Responsive Transportation (DRT)?** Each group rotated among four stations devoted to one of the following four aspects of this question. Members noted responses and indicated (with stickers) their support for each response.

* 1. How does the data specification advance the coordination and interoperability of DRT?
		+ Provides systems the capability to communicate and interoperate – 19 concurrences
		+ Open and transparent forum with a common data structure for sharing needs, options, and conducting research – 17 concurrences
		+ Offers a provider-agnostic system for consumer choice across all markets, open to new technologies and providers – 16 concurrences
		+ Improves efficiency – 15 concurrences
		+ Enables the integration of payments (fares and subsidies) – 14 concurrences
		+ Offers cross-cutting accountability and performance measures visible to funding agencies – 8 concurrences
	2. What are the opportunities (policy, regulatory, market, institutional) to implement an automated system to share trip data (e.g., Trip Request, Scheduling, Dispatch, Payment, Distance, Route, Rider Characteristics, and Other Areas)?

* + - Use Federal Transit Administration (FTA), Department of Health and Human Services/Administration for Community Living (DHHS/ACL) and other funding sources to create incentives for people and projects to participate in this effort – 21 concurrences
		- Employ Coordinated Council on Access and Mobility (CCAM) as a lead agent to promote removal of obstructive rules affecting individual federal subsidy programs; promote urban and rural collaboration; and add flexibility – 10 concurrences
		- Employ CCAM to designate FTA as the national policy lead – 10 concurrences
		- Ridesharing enables cost-sharing and per-trip cost reductions – 10 concurrences
		- Educate regarding opportunities and service criteria – 7 concurrences
		- Create, fund and test prototypes in the next 12 months to implement this common data standard – 6 concurrences
	1. What are the barriers (policy, regulatory, market, institutional) to implement an automated system to share trip data (e.g., Trip Request, Scheduling, Dispatch, Payment, Distance, Route, Rider Characteristics)?

* + - Institutional barriers are an impediment, whether due to siloed perspectives, lack of trust, comfort with existing methods, or lack of transparency in programming costs due to shared accounting. – 26 concurrences
		- Regulatory barriers as well as jurisdictional boundaries – both perceived and actual – have prevented sharing of data and costs. The Mobility on Demand (MOD) Sandbox projects enabled some flexibility. A forum to list and discuss these barriers might be beneficial. – 24 concurrences
		- Lack of resources – both personnel and financial. While agency leadership may be willing and able, how many agencies have someone on staff fully informed to support leadership in this effort? Agency band width is too narrow in most jurisdictions. People beyond agency heads are needed as champions with a multiple year commitment. – 15 concurrences
		- Concern about losing market share and funding – 12 concurrences
		- Lack of awareness of the need for this solution – 10 concurrences
		- Complexity of the issue – 6 concurrences
		- Trend towards paying for rides on a per capita basis by jurisdiction rather than on a per ride basis – 4 concurrences
	1. What are the key elements that would need to be included in a pilot effort?
		+ Riders, providers, caseworkers, caregivers as well as potential partners and champions to include the Chamber of Commerce, Employers, Schools, Mobility Managers, Planning Organizations and State DOTs – 34 concurrences
		+ A scale-able roadmap stating the vision, goals, objectives, measures, and prospective funding opportunities – 32 concurrences
		+ Concrete institutional political, organizational and financial commitments among partners to educate each other, collaborate toward outcomes, and address barriers that appear – 10 concurrences
		+ Education and marketing describing the need for this technology framework – 8 concurrences
		+ Performance measures – 3 concurrences
		+ Pilot projects need flexibility to meet changing circumstances.
		+ Pilot participants need to be incentivized. (MOD Sandbox did that.)

After viewing a second FlexDanmark video focused on FlexTrafik and FlexTur, the attendees discussed, **“What would it take to build a national consensus or standard to develop and advance coordination and interoperability of DRT – to Imagine the Roadmap?”**

Responses were solicited in response to four questions:

1. **What are the key actions needed to advance consensus?**

**Education**

* Examples of where we have interoperability are needed to tell the stories that explain the ideas for greater resonance. (Best Practices)
	+ - Neutral and reliable educational material is needed to explain this technically complicated project to non-technical people. CityLabs may be a resource as they are able to take technical topics and translate them into though-provoking policy concepts and articles.
		- How do we avoid enabling proprietary technology contractors to prevent collaboration? Information from private software providers isn’t neutral, and the audience is skeptical. The source has to be reliable and neutral to avoid a proprietary fence.
		- Focus on practical aspects of the intended outcomes for users – service choices, frequency or wait time, etc. Use data and stories to describe these aspects.
		- The messaging must be clear.
		- Rural areas have less capacity to be cognizant of the technology issues, options and potential partners. Ideas need to be broken into pieces that are easier to digest. Small agencies and ride providers often have difficulty in understanding the broad picture.
		- Local needs must be assessed to ensure that the solution fits.
		- Community engagement is important for defining the public needs.
		- Buy-in and messaging is necessary, recognizing that messaging is the prerequisite and must be focused on public need. Define the structure and emphasize openness to innovation and new players through provision of a common communications platform with standard data formats.
		- Cheaper, flexible, and achievable (meets needs) is what sells.

**Technology**

* + - Define structure, emphasize openness to innovation and new players – but stress the need for a common communications platform with standard data formats.
		- Technology is the easy part. People who understand the product and interoperability are needed.
		- Enable agencies to purchase technology using standardized data specifications through a consortium.

**Funding**

* Identify potential funders within the U.S. Department of Transportation (USDOT), DHHS and other CCAM member agencies
* Identify potential funders in the private sector
* Mandate that funding agency reporting requirements for ride subsidy programs be vetted by and in compliance with a standard set by the Federal Transit Administration (FTA)
* Do we need a “Sandbox” model for 3-year pilot programs?

**Procurement**

* + - Avoid the potential downward spiral caused by institutional barriers, costs, and lack of trust of vendors. Start with a small protype. For example, a rural, two-vehicle Arizona volunteer ride provider uses Outlook and Excel. Google Sheets are shareable and might be a small site solution with programmed routines using a standardized data format enabling partners to push data onto the spreadsheet. Developers created such a template in five hours for this small Arizona agency – a quick, cheap and relatively easy solution to which new partners can be added. An advantage of this approach is that Google Sheets is agnostic of transit vendors.
		- DRT technology procurements should include standard language regarding Transactional Data Specifications for Demand-Responsive Transportation.
1. **Who are the partners locally, regionally and nationally to host and advance interoperability?**
	* + Transit systems
		+ Health providers
		+ Health and human service agencies
		+ Metropolitan Planning Organizations (MPOs) and Regional Planning Organizations (RPOs)
		+ State Departments of Transportation
		+ Mobility on Demand Sandbox grant recipients
		+ University Transportation Research Center (UTRC) Consortiums
		+ State and Regional Transportation Procurement Consortiums
		+ Employers
		+ FTA
		+ FTA’s mobility partners including the National Aging and Disability Transportation Center (NADTC), the National Rural Transit Assistance Program (NRTAP), the National Center for Mobility Management (NCMM), and the Shared Use Mobility Center (SUMC)
		+ National and State Transit Associations
		+ Managed Care Organizations
		+ AARP and other organizations supporting community inclusion of older adults, people with disabilities, or low-income Americans
		+ A MOD sandbox approach will recruit partners at the top, middle and bottom levels – a multiple strategy approach to move the effort forward. Grants are a great incentive for participation.
		+ The data standard is just one piece – an operations concept is also required for pilot projects. The MOD Sandbox is great for small-scale tests. State DOTs can put together consortiums of small neighboring agencies to develop, test and replicate within a defined data standard format. Software developers will respond to contract procurements.
		+ The On-Ramp project is also a model; 18-months old with 5 communities selected competitively to bring in potential partners and resources. Four are launching soon, and one is revising their concept. In contrast to MOD, which was charged with operating inside of a year, On-Ramp is to provide technical assistance to plan the demo with a business plan (no implementation funds).
		+ NADTC works with tiny projects, providing coaching and advice to reconfigure. Projects based on a common vision and goals could succeed.
		+ Developing and maintaining partnerships is time-consuming. MPOs are consultants in this process but often don’t have the technical capacity or the personnel to devote to the effort.
		+ A guaranteed supply of funding is needed to transition successful MOD Sandbox pilot projects to a mobility ecosystem.
		+ Another approach is to emulate the University Transportation Research Center consortiums to develop, test and replicate projects.
		+ The medical model (NEMT providers) is a great partner.
		+ Transit managers interact and want to emulate successes. State transit conventions are a great opportunity to network.
		+ Transportation Planning for All was a tiered grant structure – could that be applied to a community that is ready, willing and ripe?
		+ Implementing a data standard without federal leadership can be done if agencies include standard paragraphs in Requests for Proposals (RFPs). The major vendors will adjust as necessary to bid on those specifications. Interoperability (the objective of the data standards) has already been demonstrated.
		+ Perhaps a small software as a service operator could offer to be a demonstration site?
		+ Portland, Oregon’s 2005 inception with Google’s General Transit Specification Feed (GTFS) was replicated in other cities – but they didn’t have the impediment of legacy systems. Marketing played a big role – GTFS provided a very progressive image.
		+ Interoperability and service integration is happening in several cities. Los Angeles built upon their legacy Cubic system to add bikeshare and microtransit. Denver’s RTD brought in Uber as a partner.
		+ A major missing factor is participation by the human service side, though this is being tested in Vermont (flex-GTFS) and in a rural California project, though without this standard data format specification. Packaging a pilot for this purpose needs to be a focus. It would be good to involve a service area with progressive human service transportation program.
		+ Rural America is falling behind in mobility resources. Rural areas need to be included from the start as pilot programs are developed.
		+ The FTA has the resources and runway to try different solutions. The FTA has the ability to sponsor big and small approaches simultaneously.
		+ APTA can recruit large systems in the next big procurements to include this standard data format specification. Access in Pittsburgh is in a position as a potential model to emulate FlexDanmark.
		+ The 86 Veterans Transportation Community Living Initiatives (VTCLI) projects (rural, urban, large and small) could be a model, although their few successes were built upon prior work.
		+ Vendors of proprietary technology are a potential threat.
2. **What needs to happen to translate the data specification to a national data standard?**
	* + Simultaneous success on both large and small-scale pilot projects, to include human service transportation.
		+ Success in an urban/suburban and rural environment
		+ Pilot projects need to include all willing participants and the ability to include latecomers.
		+ Offer a common vision, objectives, and technical support
		+ Engage the potential stakeholders including agencies and vendors
		+ How hard is it for a software vendor to implement? Not hard, but not free.
		+ A critical mass is needed, involving at least two independent agencies and technologies, to show that this can be an industrial standard.
		+ Question: How can this TCRP report translate into the APTA standards development process which is vetted by practices?
			- A standards body committee would vet the report. Agency and vendor engagement are necessary, with both technical and policy perspectives.
			- The One Bus Away (open Transit Software Foundation) and General Transit Feed (Mobility Data Project) efforts offer standards and governance. Governance will be needed on an on-going basis.
			- Not sure how long the APTA process would take, but many organizations who would benefit are not APTA members – such as RoundTrip and their competitors. Is APTA interested in leading the process?
3. **What are the immediate next steps (90-120 days)?**
	* + Advocates can multitask by working with large and small agencies; work on standards development and adoption. There is plenty of room for leadership.
		+ Educate CCAM member agency staff
		+ The Inclusive Coordination Transportation (ICT) Partnership Project funded by ACL is entering the third year (Fiscal Year 2020) with $1,000,000 available. This could be a great funding source for a pilot.
		+ The Rural Transit Assistance Program (RTAP) can bring in rural agencies using FTA funds on a pilot project.
		+ Foundation funding is possible and available to leverage Federal funds. Grantmakers in Aging can broker conversations.
		+ The PennDot model with Ecolane offers a test site to enable rides crossing county lines.
		+ The Clean Mobility Options Program through the California Air Resources Board is focused on reduction of carbon dioxide in transportation-disadvantaged communities. A $20,000,000 grant program ($1,000,000 maximum per project) starts in February. Projects must be supported by a government or transit agency, possibly through a non-profit. Ecolane already supports three DRT systems in rural California. AARP California should be included in these conversations.
		+ We can build upon or supplement existing projects
		+ SUMC will pull in supportive case studies.
		+ Who will take the lead in highlighting the institutional barriers among the 11 federal agencies, 130+ programs as an educational project?
		+ Abstracts are open for presentations at both APTA Mobility and the Rural/Intercity Public Transit Conferences, which would provide an excellent opportunity to involve more people and organizations in this effort by informing them of the TCRP Report 120 and of the proposed efforts inspired by this Roundtable event.
		+ Vince Valdes’ Research and Innovation Program at FTA will have another funding round and may be open to applications using data standards.
		+ NADTC committed to more conversations around the country on this effort.
		+ Dianne Schwager stressed the importance of the TCRP process which generated TCRP Report 210. Implementing research is so important – but implementation is outside the mission of the National Academy of Sciences. Consequently, TRB is very appreciative of this workshop and roundtable.
		+ Jana Lynott promised to keep the effort going – both in and outside of AARP and thanked the NADTC and TRB partners for helping to structure today’s discussions.

Notetaker – Steve Yaffe on behalf of NADTC