

Standing Committee on Paratransit (AP060)
Cecelia Feeley, Chair

TRB's Paratransit Committee: A Forum for Mobility Innovation Since 1974

BUFFY ELLIS, *KFH Group, Inc.*

WILL RODMAN, *TSS Paratransit*

with contributions from

IAN DETAMORE, *Pennsylvania Department of Transportation, Bureau of Public Transportation*

PATRICK SCALISE, *Behavioral Urban Informatics, Logistics, and Transport Laboratory at New York University*

INTRODUCTION

Paratransit dates back to the 1960s and 1970s as an innovative mobility service. TRB recognized this new service with formation of a committee in 1974 to address the new mode—designated then as the “Urban Transport Service Innovations Committee.”

Renaming came five years later in 1979: the Paratransit Committee. Our Committee continues today under its 1979 name, now addressing a new landscape of innovative mobility services.

This paper traces our Committee's path over the past almost 50 years, highlighting past achievements, summarizing today's focus, and projecting forward to the future.

YESTERDAY BEGAN MANY YEARS AGO

Background

Paratransit services emerged as a distinct transportation mode in the late 1960s and 1970s. These services were implemented in a variety of communities, providing flexibly scheduled service to the general public.

Early paratransit services, typically known as *Dial-A-Ride*, were operated with small buses or vans and sometimes taxis. Schedulers and dispatchers handled trips manually, providing immediate response and advanced scheduled trips. By the early 1970s, about 25 services were known to exist in North America.

Paratransit: An Early Definition

The Federal Transit Administration's predecessor agency (Urban Mass Transportation Administration) recognized paratransit and adopted the term in the 1970s, defining it as a less common urban transportation mode that ranges in type and characteristic along a spectrum between two common modes: the private automobile and conventional fixed route.

At that time, paratransit was promised to become an essential part of the transportation environment, offering flexibly scheduled services to meet diverse needs. Using smaller vehicles and flexible schedules, planners recognized paratransit for its ability to operate in lower-density areas

not economically served by traditional transit and for its potential role as the basis for community and neighborhood transit services.

By the late 1970s and 1980s, the paratransit mode gained popularity and spread to many communities across the U.S. as a way to provide community-based public transportation service to either the general public or to older adults and people with disabilities. Dial-A-Rides became particularly popular in a number of states, including Michigan and California. Some of these early services continue to operate today.

Section 504 of the Rehabilitation Act

Paratransit gained nationwide momentum with enactment of Section 504 of the Rehabilitation Act in 1973 and DOT-implementing regulations in 1979. This law required federally assisted transportation programs to be accessible to people with disabilities, including wheelchair users. Regulations provided certain flexibility towards meeting this accessibility requirement. Some transit agencies bought accessible buses for fixed route service, some provided paratransit service only, and some provided a combination of accessible buses and paratransit. Progress in meeting Section 504 requirements was mixed, with more agencies opting to provide paratransit rather than accessible fixed route.

The Americans with Disabilities Act (ADA)

Passage of the ADA in 1990 and implementing regulations the following year put all public transit agencies in the paratransit business (except those operating only commuter rail or commuter bus service), eliminating the flexibility available under Section 504. In addition to ADA's requirement that all transit vehicles used for fixed route service be accessible to people with disabilities, the law requires *ADA complementary paratransit* for people who cannot access or use accessible fixed route service because of their disability.

However, with passage of the ADA and a focus on paratransit, many people and especially those in the transit industry erroneously equated paratransit with ADA paratransit service. Nonetheless, paratransit remains a mode with many permutations, including those introduced in subsequent years with technology innovations as discussed later in our paper.

Through the late 1990s and into the first two decades of the 2000 millennium, ADA paratransit continued to be a focus of the Committee and the transit industry, as transit agencies experienced increasing demand and cost to provide the service, given its prescriptive regulations. Agencies searched for cost-effective strategies since the federal law came without any associated funding. These strategies included, among others, changes in organizational structures (more use of private contractors); use of technology (e.g., computerized scheduling/dispatching and automated "call-outs"); promotion of accessible fixed route with travel training, fare policies, and construction of accessible bus stops and pathways; and use of taxis and other non-dedicated service providers for ADA paratransit trips.

Another strategy used by transit agencies has been a taxi-based subsidy program providing same-day, if not immediate response, service (as opposed to the required next-day service) for ADA paratransit riders, but which is not "governed" by ADA paratransit requirements. Among the objectives of this strategy was to reduce overall paratransit costs by inducing a diversion of ADA paratransit trips to a lower-subsidy mode. These on-demand programs, now called "alternative services," have evolved with technology innovations available today.

Beyond Transit Agency-Sponsored Paratransit

Our Committee is also concerned with other specialized services, such as human service transportation as well as the range of what are known as flexible services, typically provided by transit agencies and serving the general public. Among these are flex route (also called route deviation), general public demand-response, and demand-response connector (also known as feeder service). These flexible services operate in areas difficult to serve with fixed route transit because of demographics, land use patterns or street layout. They may also substitute for traditional fixed route during low-demand periods.

Committee Mission

Our Committee's official mission is to provide leadership in identifying, conducting, and disseminating research on current and emerging policy, planning, implementation, and operating factors concerned with the paratransit modes.

As described in the official mission statement, paratransit services are generally demand responsive and operate on flexible routes and/or schedules. Examples include dial-a-rides, taxis and jitneys in both general and specialized transportation uses, including ADA complementary paratransit.

A Stumble in Our Committee's History

Our Committee and its work to promote the new innovative paratransit mode were embraced by TRB through the mid-1980s. By that point, however, the luster of the transit industry's new mode had faded, and there were attempts to change, merge or dissolve the Committee. The then-Chair, Dr. Sandra Rosenbloom, led efforts to retain the Committee and, after passage of the ADA and with the efforts of her successor, Chair Roy Lave, the Committee not only remained but gained new stature. Paratransit became significantly relevant again.

Committee Accomplishments

Our Committee's accomplishments are many. They include the important sharing of information at the Annual Meeting through a variety of venues, including the Committee meeting itself, the meetings of our subcommittees, sponsored-sessions and workshops, and poster sessions. Sessions are high caliber through the diligence we apply to our paper review process. The Committee is also proud of its successful sponsorship of important research studies that have been instrumental in advancing the state-of-the-practice and the organization of well-attended national and international conferences.

Meetings

From our inception, we have met at the January TRB Annual Meetings. We have relationships with other TRB committees with which we share interests and sometimes members and friends, and often coordinate the sponsorship of research problem statements, including among others:

- Accessible Transportation and Mobility (ABE60)
- Airport Terminals and Ground Access (AV050)
- Rural Public and Intercity Bus Transportation (AP055)
- Safe Mobility of Older Persons (ANB60)

Subcommittees

A *Research Subcommittee* has led our work to identify research needs, including the crafting of Problem Statements for TRB's research programs. This work is now folded into the full

Committee’s efforts. In 2011, the Chair at that time, Buffy Ellis, spearheaded formation of a new subcommittee—the *Taxi Subcommittee*—recognizing the importance of the taxi industry for paratransit services.

Emeritus Members

The Committee has honored two members with Emeritus Status: Roy Lave, Committee Chair from 1993-1999; and Betsy Buxer, Committee Secretary/Paper Chair from 1999-2005.

Workshops

The Committee began sponsoring workshops on the Sunday of the TRB Annual Meetings, a tradition started by then-Chair Rosemary Gerty.

Promoting Research

TRB’s Transit Cooperative Research Program (TCRP) projects initiated by or conducted with participation of our Committee are too many to list. Some seminal reports resulting from our efforts include:

- Report 9: Transit Operations for Individuals with Disabilities
- Report 24: Guidebook for Attracting Paratransit Patrons to Fixed-Route Services
- Report 98: Resource Requirements for Demand-Responsive Transportation Services
- Report 105: Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged
- Report 119: Improving ADA Complementary Paratransit Demand Estimation
- Report 121: Toolkit for Integrating Non-Dedicated Vehicles in Paratransit Service
- Report 124: Guidebook for Measuring, Assessing, and Improving Performance of Demand-Response Transportation
- Report 142: Vehicle Operator Recruitment, Retention, and Performance in ADA Complementary Paratransit Operation
- Report 143: Resource Guide for Commingling ADA and Non-ADA Paratransit Riders
- Report 160: Paratransit Emergency Preparedness and Operations Handbook
- Report 163: Strategy Guide to Enable and Promote Use of Accessible Fixed Route by People with Disabilities
- Synthesis 30: ADA Paratransit Eligibility Certification Practices
- Synthesis 31: Paratransit Contracting and Service Delivery Methods

Sunday Workshops	
2003	Reviewing Research Papers
2004	Researchable Topics
2005	Paratransit Related Research
2006	International Paratransit
2007	Results of TCRP Project B-28: ADA Paratransit Demand Estimation
2008	Using Taxis Effectively in Paratransit Services
2009	Emergency Planning: Role of Paratransit
2010	Accessible Taxis
2011	Complete Bus Stops: Benefits of Accessibility Improvements
2012	Taxi Research: Priorities, Practices and Opportunities
2014	Opportunities for Accommodating New Technologies, Apps, and Data Capture in Improving and Regulating Taxis
2015	Future Taxis: The Implications of Transportation Network Providers on the Taxi Industry (Spotlight Session)
2017	Traditional and Emerging On-Demand Transportation

- Synthesis 60: Practices in No-Show and Late Cancellation Policies for ADA Paratransit
- Synthesis 74: Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand
- Synthesis 76: Integration of Paratransit and Fixed-Route Transit Services
- Synthesis 116: Practices for Establishing ADA Paratransit Eligibility Assessment Facilities
- Synthesis 119: Use of Taxis in Public Transportation for People with Disabilities and Older Adults
- Synthesis 133: Administration of ADA Paratransit Eligibility Appeal Programs
- Synthesis 135: ADA Paratransit Service Models

Conferences

Our sponsored conferences began in the 1990s and continue to this day. We had a hiatus after the 1997 conference but, with leadership from the Chair at that time, David Chia, we held a highly successful conference in 2014, with significant attendance from international colleagues, along with a follow-up conference in 2016. We are in the midst of planning another conference in Baltimore in April of 2019

TODAY TECHNOLOGY IS ENHANCING PARATRANSIT

The roots of our Committee are innovative mobility services, and we continue today with a focus on innovation as technology enhances paratransit service quality and efficiency.

Technology Innovations

The paratransit industry is making great strides in improving the rider experience as well as service and cost efficiency, both resulting from technological innovations. Paratransit riders can now book trips directly from their mobile devices and check the ETAs and map locations of the vehicles assigned for their pick-up. Riders are now able to book trips 24/7, check any conditions on their eligibility, and review the performance of their service history. These enhancements also lighten the workload of control room staff.

Advancements in Paratransit Software

Meanwhile, a new breed of software is challenging conventional approaches to booking and scheduling trips. New and innovative trip-matching, demand-balancing and scheduling algorithms are proving to increase productivity while meeting if not improving service quality standards. Advances in software are also helping optimize run structures and service mixes while making the most of non-dedicated service providers. The new software helps dispatchers become more proactive with system-generated alerts, prioritized tasks, and automatic solutions to problems. Links with Google Maps and equivalents provide more accurate solutions and ETAs. And these new software products have near-dynamic and continuous re-optimization for today's paratransit schedules, leading to further productivity improvements. The reporting and analytics are now light-years ahead of where we were as an industry even a few years ago. With these innovations, transit

Paratransit Committee Sponsored Conferences

- “Solving ADA Paratransit Problems: How to Cope with Reality,” Phoenix AZ, 1993
- “Developing and Disseminating Creative Paratransit Operations Ideas,” Monterey CA, 1997
- “Shaping the new Future of Paratransit: International Conference on Demand Responsive Transit,” Monterey CA, 2014
- “International Conference on Demand Responsive Transportation: Paratransit from Dial-a-Ride to Technology Enabled Services,” Breckenridge CO, 2016
- “International Conference on Demand Responsive and Innovative Transportation Services,” Baltimore, MD, 2019

agencies are finally turning the corner on controlling and in some cases even reversing the steady climb of unit costs in paratransit.

In addition, these software systems now have embedded (or links with) eligibility and policy enforcement functionality, centralized fare accounts, complaint management systems, and more automating functions that in the past have been very labor intensive.

Software Innovations Provide New Products

Innovations in software now include new products that support a range of what are referred to as alternative services as well as other on-demand services such as microtransit—seemingly the new kid on the block but it’s essentially a version of yesterday’s Dial-A-Ride.

Transit agencies are also experimenting with service offerings of new mobility companies, typically private entities, to serve paratransit riders (as well as the general public). Terms for these new companies are in flux: transportation network companies (TNCs), app-based or ride-hailing services, and most recently ridesourcing companies.

Yet one of the main drawbacks of these new service offerings is that they are not as prepared to handle the myriad mobility obstacles faced by paratransit riders. Most ridesourcing vehicles are not wheelchair accessible, and while the majority of paratransit riders are ambulatory, even these riders may have specific needs that require driver training and more specialized service.

However, technological solutions implemented at the end of 2018 are now smart enough to recognize the availability of microtransit services for ADA paratransit trips (assuming all other regulatory needs are met). Transit agencies are just beginning to explore the use of TNC drivers for ADA paratransit by bypassing the ridesourcing companies and using private third-party entities to recruit, certify, and broker overflow ADA paratransit trips to such drivers.

One-Call/One-Click Systems

Technology is also being harnessed at the front-end, as more and more transit agencies are fronting their paratransit software with “one-click” systems that allow transit riders—and especially ADA paratransit riders—to find a range of options for their trips, whether those are transit agency fixed routes, microtransit and/or alternative services, and even transportation services sponsored by other community providers.

These one-click systems, which also feature a call-in option (one-call/one-click) to ensure accessibility for those without computers or mobile devices, have trip planning services, a link to booking (depending on one’s eligibility), and the ability to pay for a multi-leg trip on different modes. The result has been a boon for transit agencies, as ADA paratransit riders and others are taking more trips on other, lower subsidy-per-trip modes offered by transit agencies if not other services in the community. Indeed, many transit agencies were introduced to this possibility through an NCHRP report and subsequent webinars and conference presentations sponsored by TRB.

Enhancements Facilitate Improved Transportation to Healthcare

Today transportation to healthcare is receiving attention at TRB through new research that purposefully overlaps with another of the Academies' divisions—the Health and Medicine Division (HMD). With three new research projects, TCRP reports are documenting the critical role of transportation in healthcare, including that of enhanced paratransit services in improving access to medical services. This research is demonstrating the benefits to healthcare providers and patients of paratransit innovations: hospitals and other healthcare providers can now directly schedule—and in some cases seamlessly subsidize—on-demand paratransit trips for patients, which not only tackles

the costly healthcare industry problem of patient no-shows but also helps ensure patients get to needed medical services.

New Service Models

The profound advances of the new technological solutions are also leading transit agencies to reconsider how they organize their more traditional paratransit and on-demand services. We see a trend in more centralized mobility management by transit agencies—as they consider or bring the management of ADA paratransit, alternative services, and microtransit solutions under one roof, whether this is a department within the transit agency, or a contracted call and control center contractor.

Renewed Interest in the Paratransit Committee

The focus on technologies and use of new resources bring a renewed interest in the Paratransit Committee today and a new crop of younger members. What we need to ensure is that the older members transfer their knowledge to the younger members. (Towards this end, we would be wise to consider a mentoring program for our younger members.) Innovative solutions are now the new mantra, but we should not lose the institutional knowledge that many senior committee members entering their fifth decade of work have amassed.

The Committee's attention to new technologies and innovative mobility services has also meant forging a relationship with an additional TRB committee—Emerging and Innovative Public Transport and Technologies (AP020), which is co-sponsoring our April 2019 conference.

TOMORROW PROMISES MORE INNOVATION

Continued Innovation May Blur a Distinction Between Paratransit and On-Demand Services

In a perfect world, ADA paratransit might provide same-day even real-time service for its riders, but given current regulations, offering unlimited (no denials) ADA paratransit service is not financially sustainable. This is one reason why alternative services and microtransit services have been implemented—to give ADA paratransit riders options for same-day if not immediate response service without breaking the bank. The alternative services, by definition, are provided under a separate service platform and not with transit agency operated vehicles, but we may see a “blurring” of traditional paratransit as-a-separate-mode and on-demand general public microtransit service. Service platforms may merge, as seen with a few pilots today. All of this will be possible through innovations in technology.

We also may see the use of ridesourcing TNC drivers as an ADA paratransit resource, especially if already used for microtransit service. This of course will require that the TNC drivers comply with relevant regulations, for example, drug and alcohol testing, with or without the cooperation of the ridesourcing companies. Time will tell whether or not these companies will embrace the concept of offering drivers the option to meet such regulations. If not, this will pave the way for more third-party recruiters, certifiers, and brokers.

Increasing Use of Non-Dedicated Service Providers for ADA Paratransit

Because of technological innovations, we will also see an increased use of non-dedicated service providers for ADA paratransit service and other paratransit services. Ten years ago, a TCRP report indicated that most transit agency paratransit services that did use non-dedicated providers assigned 5% to 15% of their trips to such resources. Now we are seeing service mix splits of 30%, 50%, and even 70% of trips assigned to these providers. Much of this has been jump-started by new

paratransit software systems that groups trips into productive clusters of trips for dispatching. The trend in greater use of non-dedicated providers is also attributed to the inherent cost savings associated with this resource and the advances in training that have bridged the service quality gap.

Mobility As A Service

Coordinating transportation options under one roof is also being pursued through what is called Mobility as a Service or MaaS. But it's not a roof—it's promised to be an app. And this is possible only with all the technological innovations that are also enhancing paratransit. Success with the MaaS concept has been proven in Europe, and it's widely regarded as the future of mobility, connecting individuals to a host of services with origin-to-destination solutions for their trip needs with their smartphone or other mobile device.

Autonomous Vehicles?

Will paratransit ever be delivered by autonomous vehicles (AVs) or George Jetson's skymobile, or even by "poofing" a rider from one place to another via the USS Enterprise's transporter (beam me up, Scotty!)? Maybe. We do know that the AV industry is thinking about accessibility, but more from a perspective of wheelchairs, scooters, and other mobility devices. As a Committee, we will need to ensure that the AV industry understands the service blurring referenced above but also importantly the vehicular and service needs of all people—including those with disabilities who require accessibility and special accommodations—and that these needs are reflected in the design of autonomous vehicles.

The Paratransit Committee Tomorrow

And what of the new contingent of paratransit practitioners on the Committee? Tomorrow and moving forward, they will continue to advance the practice by supporting research to further enhance paratransit services and by disseminating that to other practitioners across the field.

Tomorrow (well, a somewhat distant tomorrow) also means that our new young members will find themselves as the old guard and will be passing down their institutional knowledge to the new crop of Committee rookies, just as the first generation of paratransit practitioners did for them.

In the end, a common thread of the Paratransit Committee members—past, present and future—is easy to identify: they have participated and will in the future because needing to make a difference and needing to ensure equitable mobility are in their DNA.

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