

Mobility on Demand Trends in the United States

~A Case Study of Washington, D.C., Part 1~

Daisuke Miyamoto, Japan International Transport and Tourism Institute, USA

1. Introduction

The Washington, D.C. metropolitan area (population of approximately 9.8 million people^{Note1}), consisting of the U.S. national capital at its core and including the City of Baltimore, has the 4th largest population among metropolitan areas in the United States. The Washington Metropolitan Area Transit Authority (WMATA), which operates urban railroads and fixed-route buses in the city center, and the District Department of Transportation (DDOT) government agency work closely together and advance various initiatives by leading among local public transportation in introducing new technology and methods. Especially in the Washington, D.C. metropolitan area, technology introduced by WMATA is more likely to get accepted by other public transportation in the area ^{Note2}, and there is already a structure in place to help WMATA advance their efforts in the region. In addition, since public transportation is operated within each administrative district and conducted without competition, one may expect that their positive stances in advancing MOD / MaaS related projects will correlate to a strong tendency to cooperate in efforts to improve the conveniences of public transportation throughout the region.



WMATA Train Cars (Photo taken by the writer)

Although the Washington, D.C. metropolitan area has a partnership system for public transportation, MOD/MaaS related projects are still undergoing analysis and development. In addition to designing apps, various projects collaborated on with private operators have begun for first mile · last mile, paratransit, and on-demand transit outside of paratransit. However, they are still not at the point of advancing MOD / MaaS projects in urban transportation planning for the entire metropolitan area.^{Note3} In particular, for MOD / MaaS related projects, having only the cooperation of public transportation is not enough to build a system where users can receive benefits end to end. It is necessary to have partnerships with private mobility operators and IT companies.

However, even in order to promote collaborations with private sectors, TNC, such as Uber, have led to the decrease in the number of users of public transportation

and taxis in Washington, D.C., causing public transportation to be distrustful of TNC. Furthermore, a challenge exists in the lack of human resources in local communities, except for through WMATA, such as new technology implementation and people with the skills required to cooperate with private companies. Furthermore, public transportation in the Washington, D.C. metropolitan area serve low-income populations, and it is necessary for programs to be implemented for these vulnerable transportation users. However, those same people often have a digital divide issue. It will be vital to bridge the gap between public transportation and private companies when MOD/MaaS related projects based on IT technology progress from the verification to operation stage.

The following sections will describe the main MOD/MaaS related projects in the Washington, D.C. area that public transportation and government organizations in state and local communities are involved in, such as the introduction of apps, and projects related to first mile · last mile, paratransit, on-demand transit outside of paratransit, and automated driving. They will also focus on the status of partnerships of these programs, urban transportation planning, and urban planning.

2. Installation of Apps

SmarTrip¹⁾ is an IC card/system developed by WMATA, and is commonly used in downtown Washington, D.C., including frequently for payments across multiple public transportation systems. Meanwhile, WMATA has a mobile application under development that is not yet available for public use. However, due to the existing nature of cooperation among public transportation in the Washington, D.C. metropolitan area, systems developed and introduced by WMATA are likely to be accepted by other public transportation in the area, and so there is a high possibility that the app will spread widely in the region after its introduction.

SmarTrip can be used not only on downtown subways and buses, but also on 11 public transportation systems (buses and subways) operated by local communities in neighborhoods. Currently, a plan to enable billing and

payment via a smartphone application is underway, as well as to eliminate the need to carry a SmarTrip card in the future²⁾. During a company board meeting³⁾ held on December 12th, 2019, WMATA reported that they already completed installing smartphone reading functions on all railway station automatic ticket gates. On September 1st, 2020, it was also announced that payment functions using iPhones and Apple Wallet had become available when adding SmarTrip to an Apple Watch.⁴⁾

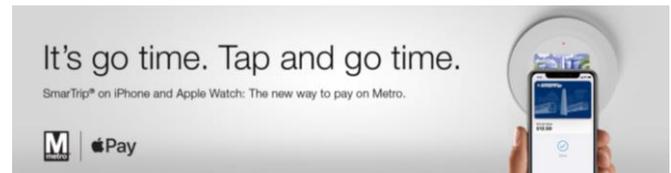


Image (From the WMATA Website)

Furthermore, nine Washington D.C. bus operators, including WMATA, road owners consisting of local governments and others, etc., will collaborate with stakeholders mainly involved in buses and road transportation systems in the area. For the Washington Area Bus Transformation Project (BTP),⁵⁾ allowing for route trip planning and payment across multiple modes of transportation on a single smartphone application was proposed.⁶⁾ According to the newest report from the WMATA board meeting held on December 12th, 2019, it is their goal to complete installation of the smartphone application by the end of 2022.⁷⁾

In addition, as announced in the action plan⁸⁾ for the project in December 2019, WMATA's one-month plan for unlimited use will be extended to operators using electronic funds on WMATA's SmarTrip system, which has already been accepted by many bus operators. Other plans are also underway at the same time, such as automatically reflecting transfer discounts between WMATA's urban railways and various buses.

The BTP is operated by an executive council chaired by Robert Puentes⁹⁾, Chief Executive Officer (CEO) of the Eno Center for Transportation, a non-profit think tank specializing in transportation policy in Washington, D.C.¹⁰⁾

In addition to a leadership group consisting of WMATA executives and a technical team comprising of participating

businesses, a strategic advisory committee made up of regional citizens' groups and local government officials has been organized to discuss community issues. The contents of the plan are reflected in the project.

On the other hand, some local governments have already introduced a payment system using a third-party vendor-developed application, paralleling WMATA's SmarTrip IC card. However, an issue has been determining how to incorporate it into the current system after the WMATA app is introduced. Specifically, prior to WMATA's app rollout, including that of the SmarTrip IC card, the Maryland Transit Agency, which is under the jurisdiction of the MDOT in Maryland, bordering Washington D.C., and the Alexandria Transit Company (also known as DASH), which is a public transportation system in Alexandria, Virginia, introduced a ticketing service using a smartphone application provided by the German Daimler company subsidiary, Moovel Group.^{Note4) 11) 12) 13)}

Regarding the handling of WMATA's applications, the challenge will be whether the metropolitan area can maintain and expand a singularly unified system and network in the future.^{Note5)}

3. First Mile • Last Mile

The representative programs for first mile • last mile in the Washington, D.C. urban area are bikesharing services. In addition, a partnership project between public transportation and car sharing operators has just started in the Baltimore metropolitan area near Washington, D.C. In urban areas of Washington, D.C., this program has been ongoing since the early 2000s. It cannot be said that it has been successful, however, as cooperating companies in the area have withdrawn from the program.

3.1 Bikesharing

The Washington, D.C. metropolitan area is relatively generous about accepting transit services offered by private companies. They have accepted ridesharing and carsharing since their early outset, and have welcomed competition among operators. Regarding bikesharing, the DDOT introduced it in 2008, the earliest city to do so in the United States.¹⁴⁾ Capital Bikeshare, run by local downtown area

governments and private companies, is still available in 2020.¹⁵⁾¹⁶⁾ Currently its operation has been delegated to Motivate International, which also manages New York's Citi Bike and Chicago's Divvy.



Capital Bikeshare (Photo taken by the writer)

3.2 Carsharing

The MDOT's Maryland Transit Agency has a partnership with Zipcar^{Note6)}, a carsharing operator. Users can rent a car from Zipcar at multiple urban/commuter railway and light rail stations, which MTA operate.¹⁷⁾¹⁸⁾¹⁹⁾ Many of the stations are located in downtown Baltimore near Washington, D.C., and also include Laurel and Odenton stations, which are located at midpoints between the two metropolitan cities and are relatively close to the state capital of Annapolis. The MTA will not only expand the range of activities for existing public transportation users, but also hope that it will be a good opportunity for users to consider using public transportation at first and last mile stations when travelers may have otherwise wished to travel by car to their destinations.

On the other hand, WMATA has had a signed contract with the carsharing company Mobility Inc. (Trade name: Flexcar) under the Car Sharing Demonstration Program since the early 2000s, and rents vehicles using the city railway station parking lots.²⁰⁾

Zipcar concluded that same contract in 2004, but after Zipcar and Flexcar merged in 2007, their contract with WMATA was renewed.²¹⁾ However, WMATA announced in 2015 that as an alternative to Zipcar, they will begin renting cars from Enterprise CarShare, which is the carsharing department of the major rental car company

Enterprise.²²⁾ Zipcar, who had been offering carsharing services at designated station parking spots owned by WMATA for the past 10 years, responded to this by securing private parking near the stations.²³⁾ During this period, Enterprise CarShare planned to place 125 vehicles in parking spaces at 45 of the total 91 WMATA railway stations, with intentions to ultimately expand to 190 cars. However, after 2 years, in 2017 Enterprise CarShare withdrew from multiple cities due to low demand, including from Washington, D.C.²⁴⁾ Thus, it can be speculated that these circumstances are the reason why WMATA's services at their stations ended. An official from WMATA spoke on this, saying that regarding cars, consumers who live in metropolitan areas think that owning their own is more convenient, as there are strong household needs, such as picking up/dropping off children and shopping.^{Note7)} Furthermore, an official from DDOT commented that the carsharing business is also a part of efforts to reduce the use of private cars, but has a lower priority than promoting the use of public transportation and bicycles,^{Notes8)} and thus can be seen as not having been a central MOD/MaaS related project.

4. Paratransit

In Washington, D.C.'s urban areas, a new paratransit service supporting traditional models has started through a partnership between taxi and TNC operators.

In September 2017, WMATA started the pilot program "Abilities-Ride" in Maryland for paratransit users utilizing taxi services.²⁵⁾

WMATA pays a part of paratransit "MetroAccess"^{Note9)} users' fares that are greater than 5 dollars and less than 20 dollars (the max contribution awarded is 15 dollars) when they are from trip transfers starting or ending in Maryland and using either of the 2 local taxi operators (Users pay for ① the first 5 dollars and ② amounts exceeding a total of 20 dollars). According to an announcement given in January 2019, the service was used 86,000 times by 2,700 users since its inception. It had provided more options to users, and has saved WMATA on paratransit operation expenses. After the success of the pilot program, WMATA expanded it in January 2019 utilizing TNC in addition to

taxi. They revealed that they will publicly seek suggestions from taxi operators from each surrounding region in order to expand their service across Washington, D.C., Virginia, and Maryland.²⁶⁾ However, as of December 2020, according to the Abilities-Ride's website, services have not changed from those originally given, and continues to limit transfers to those starting and ending in Maryland.²⁷⁾

Furthermore, the Greater Richmond Transit Company (GRTC), operating public transportation in Richmond, Virginia, which is located a little over 2 hours south from Washington, D.C. by car, had been offering their own paratransit services. The "CARE On-Demand" program partners with TNC to seek alternatives services with better cost efficiency and convenience.²⁸⁾ In the beginning, their goal was to cooperate with TNC, such as Uber and other major nationwide companies. However, as none were able to satisfy requirements of having a local call center and introducing handicap-accessible cars, they partnered with 2 local startups. The first company was UZURV2⁹⁾, a TNC specializing in customers with disabilities, that owns handicap-accessible cars, and provides training to all their drivers on suitable care for door-to-door service with awareness of necessary ADA guidelines (their partnership with the GRTC began in the summer of 2017).³⁰⁾ The second company was RoundTrip³¹⁾, which has expertise in booking of taxi services for patients with medical conditions. Although they do not own cars and or have drivers, they provide services to the elderly and people with disabilities through a partnership with the local transit service operator (the partnership with the GRTC started in January 2018).³²⁾ GRTC riders who meet ADA prerequisites use either of the 2 companies mentioned above for up to a maximum of 6 dollars (GRTC covers fares of 6 dollars to 21 dollars. When fares are 21 dollars or more, users must pay the exceeded amount).³³⁾ Furthermore, these companies account for any weaknesses they may have, such as by UZURV providing an option for users to request their favorite drivers and RoundTrip offering late night services with an additional fare.



MetroAccess Car (Photo taken by the writer)

Notes

Note1) Estimate in 2018. Statistics for the Combined Statistical Area, “Washington-Baltimore-Arlington, DC-MD-VA-WV-PA,” which the Office of Management and Budget (OMB) specifies. “specifies. nagement and pulation Change and Rankings: July 1, 2017 to July 1, 2018” U.S. Census Bureau, Population Division. Release Date: April 2019.

<https://factfinder.census.gov/bkmk/table/1.0/en/PEP/2018/PEPANNCHG.US41PR> (Accessed : 2020/3/3)

Note2) This information was provided during a hearing with the DDOT. (February 13th, 2020)

Note3) This information was provided during hearings with WMATA. (February 12th, 2020) and the DDOT. (February 13th 2020)

Note4) Started operations in 2016 after acquisition by GlobeSherpa. The headquarters is located in Portland, Oregon, where those for GlobeSharpa are located.

(<https://www.autoblog.com/2016/04/15/moovel-debut-us-mobility-daimler/> [Accessed : 2019/10/31] ;

<https://www.bizjournals.com/portland/blog/techflash/2016/04/globesherpa-to-change-name-after-merging-brands.html> [Accessed : 2020/3/6]).

Note5) This information was provided during hearings with the DDOT. (February 13th, 2020)

Note6) Established in 2000. The headquarters is in Boston. There are over 770,000 users. They have expanded to more than 20 major cities and more than 300 college campuses in 7 countries, including the United States, Canada, and the UK. In 2013, it was acquired by

the Avis Budget Group, a major rental car agency. The Washington, D.C. metropolitan area is introduced on their website as one of the major cities where Zipcar has expanded. They rent at least 165 cars in Baltimore city in addition to those at railway stations of MDOT MTA.

(<https://www.zipcar.com/>;
<https://www.zipcar.com/washington-dc> [Accessed : 2019/12/16]).

Note7) This information was provided during a hearing with WMATA. (February 12th 2020)

Note8) This information was provided during a hearing with the DDOT. (February 13th 2020)

Note9) Pick-up transportation services are operated by a shared van that will come to the user's residence (door-to-door). This transportation service is available during that area's operational business hours for WMATA's urban railways and route buses. Reservations can be made on the website during the daytime 1- 7 days in advance. The fare is double the typical price for each trip on the fastest public transport, and it is prepaid.

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Main Public Transportation Systems in the Area
(Washington-Baltimore-Arlington, DC-MD-VA-WV-PA)

Operators	Railways	Commuter rail	Light rail	Bus	Cable car	Ropeway
Washington Metropolitan Area Transit Authority (WMATA)	X			X		
Maryland Department of Transportation (Maryland DOT)	X	X	X	X		
Virginia Railway Express (VRE)		X				
Montgomery County (Ride On)				X		
Prince George's County (TheBus)				X		
Alexandria Transit Company (DASH)				X		
District Department of Transportation (DDOT)			X	X		
Fairfax County (Fairfax Connector)				X		
Charm City Circulator (CCC)				X		

Source: Created based on Christof Spieler *Trains, Buses, People: An Opinionated Atlas of US Transit* (2018)