

Mobility on Demand Trends in the United States

~A Case Study of New York, Part 1~

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1. Overview

Although the New York metropolitan area, which is the largest in the U.S. (approximately 23.5 million¹ in population) with extremely high rates of public transportation utilization, has not yet launched MOD/MaaS related projects engaged in urban transportation planning, various verification projects have been started which have great potential for realizing MOD in the future, as shown below. The Metropolitan Transportation Authority (MTA), which operates urban rail, city buses, and parts of commuter rail routes, is involved in these verification projects, and is leading efforts to realize MOD/MaaS in New York. In particular, OMNY (discussed below), the new payment system that the MTA is developing, is under consideration for installation by other public transportation systems in the same urban area. Thus, there is high interest in MTA's next action.

Furthermore, as New York can be said to be the largest market in the U.S., private mobility operators (TNC and bike sharing operators) have a keen interest in getting into that market, which has resulted in the creation of stiff competition between them and rival up-and-coming operators, public transportation, and existing operators. It is becoming a characteristic^{Note2)} of New York that these private mobility operators are slowly actualizing their visions to establish MaaS on their own platforms.^{Note1)} In this manner, public transportation and private mobility operators compete in conducting various activities in New York urban areas, with little cooperation between operators, which is necessary in order to establish a seamless and multimodal transportation system from users' perspectives. Although there are some successful cases, the city as a

whole has not set common goals and isn't trying to work together.

Below, major MOD/MaaS related initiatives in New York involving public transportation and state/local government agencies, including the installation of apps, first mile/last mile, paratransit, on-demand transportation other than paratransit, and autonomous driving, will be reviewed, as well as the status of cooperation between these initiatives and urban transportation planning and city planning (up to first mile/last mile). For supplemental information to help understand these cases, Table 1 will give an outline of representative public transportation (including governmental agencies) related to MOD/MaaS and the main public transportation system in the same area.

2. An Introduction of Apps

In the New York metropolitan area, public transportation and private mobility operators independently develop and provide smartphone applications. Consequently, transit service users can search and gather data on their routes (schedule, expected arrival time, etc.) by using these smartphone apps.^{Note3)} If users want, they can plan their route along multiple transit operators' services using a third party application, such as Transit App^{Note4)} (headquartered in California). The MTA also operates the MYmta app, which enables users to search for other transportations' services at the same time. However, despite the development of these transit operators' applications, a majority of residents in New York's urban areas are using Google Maps to plan for their route, according to the survey conducted by the NYC DOT. From this result, it's clear that popularizing applications

developed by transit operators is difficult.

On the other hand, regarding payment systems, the MTA is promoting OMNY, which accepts contactless payments, such as by smartphone and credit card. There is a possibility that other public transportation and mobility operators will introduce similar systems in the future. Furthermore, OMNY is expected to develop a smartphone app that will include payment functions, and the plans for incorporating both route planning and payment capabilities will be made clear in the future.

The MTA's recent efforts in advancing route planning and payment applications will be explained in the next paragraphs.

2.1 Route Planning

The MTA announced the new smartphone application²⁾ and website³⁾ for MYmta on July 2018.⁴⁾ Up until that time, the MTA offered individual apps for city buses, urban railway, commuter railway, bridges, and tunnels that they operated, that users could use to check expected arrival times, etc.^{Note5)} MYmta consolidates the material that used to be on individual applications, enabling users to check information at one glance, and also has the newly added function to conduct route planning. As of February 2020, users can even plan their routes using other public transportation near New York (NJ Transit, PATH rail system, bus systems close by, Staten Island Ferry, Hudson River and East River ferries, etc.)^{Note6)} Also, this application allows users to book rides through the paratransit Access-A-Ride (AAR) program that the MTA operates (will be explained separately).⁵⁾ This function is connected to third party applications, displaying the location and map information of Google Maps on web browsers and Android. Users can download the smartphone application through Google Play and the iTunes Store. As of March 4th 2020, the MYmta application, which users can download at Google Play, has the following functions:^{Note7)}

- Personalized route planning
- Information about planned or unplanned operation service changes
- Expected arrival time and operation

schedules in real time

- Search function for the nearest stations and bus stops
- A tracking feature for buses
- A saving feature to favorite stations and bus stops routes
- A setting to modify notifications by SNS and email

The MYmta smartphone application and website were originally published as beta versions, with the idea of whether to remove the old website and individual applications to be decided later based on user feedback. As of February 2020, they remain as beta versions, and the old website⁶⁾ and the individual applications still exist. According to an article published on July 2nd, 2018 from the Wall Street Journal about this application, they were planning to consolidate the fare payment system from the beginning of 2019.⁷⁾ However, this has not yet been done as of March 4th, 2020. (Regarding the MTA's payment application, eTix, users activate other apps by pressing the other smartphone application buttons.⁸⁾ However, the new payment system, OMNY, which will be detailed later, is expected to introduce a smartphone app, although it is still uncertain how it will be consolidated with MYmta.

2.2 Payment

Metro-North Railroad and Long Island Rail Road are MTA commuter railways that have utilized the fare payment system eTix since 2016, in addition to the existing fare ticket and pass options.⁹⁾ Masabi (Headquartered in the UK) developed eTix, and was also the company that produced electronic mobile fare payment systems for Boston's MBTA Commuter Rail, NICE Bus in Long Island, and Metrolink in Los Angeles.¹⁰⁾ On the other hand, MTA's urban railways and buses still use MetroCard¹¹⁾, a magnetic card made of paper. Their urban railways and buses have flat fares, with users charging their cards for the utilized amount (or set it to connect to a credit/debit card with charges calculated for usage during a certain period of time), after which they can swipe the cards at a reader at bus entrances or automatic ticket gates at railway

stations (ticket swipes are not required for getting off buses). However, since 2019, the touch-type payment system OMNY has been piloted on urban railways and buses within the MTA network.¹²⁾

Already, fare collection machines and automatic ticketing gates with functions allowing for contactless payment through credit cards and smartphones/smart watches have been introduced on all buses and at certain urban railway stations, and plans have been made for use on commuter trains at the beginning of 2021. In the future, there are plans to introduce IC cards (tentatively named “OMNY Card”) that can be charged with cash, along with a newly developed smartphone application, and implementation of the OMNY cards is expected to be completed in 2023. During this period of transition, users can still use the current MetroCard and eTix. Introduction of OMNY has been delegated to the transit service department of Cubic Corporation^{Note8)}, a private company operating MetroCard.¹³⁾ By implementing OMNY, a shared payment system for urban railways, buses, and commuter railways will be available for use, and convenience and efficiency are expected to improve.

For the three largest public transportation systems in the New York metropolitan area, PATH will release a plan to update the fare payment system by 2022, including introducing the MTA’s OMNY system.¹⁴⁾ In conjunction with offering OMNY, PATH is also aiming for contactless payment via smartphones and credit cards for users as they pass through ticket gates. On the other hand, NJ Transit is avoiding introducing OMNY immediately, and is instead observing trends of next generation payment systems, including contactless payment methods.^{Note9)}

2.3 Reference: A MaaS Platform for Commuting to School

An example of cooperation in local government, excluding transit authorities and TNC, is the New York City Department of Education’s (NYCDOE) partnership with Via, a ride sharing company, in August 2019, announcing that they will launch the platform “Via for Schools”.¹⁵⁾ The “Via For Schools” platform enables dynamic school bus routing, resulting in real-time tracking through a mobile

app. In cases of scheduling changes, the revisions are reflected automatically. This platform can work with the various needs of students (in addition to standard commutes to schools, it may help such students as those needing special education and those who live in temporary housing). Through this partnership, NYCDOE is trying to operate safer and more reliable school buses.¹⁶⁾

3. First Mile/ Last Mile

According to the newest “Citywide Mobility Survey” from the “New York City Mobility Report,” which was published by the NYC DOT in August 2019, over 90% of New York City residents arrive on foot to take public transportation.¹⁷⁾ Although a substantial majority of people in the New York metropolitan area come by this method, there have been multiple attempts to introduce and promote bicycles for short-distance travel. For example, Citi Bike¹⁸⁾, a bike share with fixed docking stations, was started in May 2013. While the NYC DOT initiated promotions, operations were started with funds that were mainly provided by private companies from the same urban area, such as Citi Bank and Mastercard (both headquartered in New York). Operations were conducted by Alta Bicycle Share^{Note10)} (and by its subsidiary, New York City Bike Share). In October 2014, Bikeshare Holdings LLC, a newly established venture capital in New York, acquired Alta Bicycle Share. At the start of 2015, Alta Bicycle Share changed its name to Motivate International, and moved their headquarters to Portland, Oregon from New York.¹⁹⁾ Then in November 2018, a TNC, Lyft, announced that they were taking over Motivate International.²⁰⁾ (As of February 2020, Motivate International operates a bike share with fixed dock stations with local governments in multiple cities of North America, including the 3 cities which we surveyed for this report.^{Note11)} Since its establishment, operations of Citi Bike have been delegated to private companies. This example of business consolidation clearly shows how uncertain bike share is as an emerging industry. There have been some comments from public transportation and administrative agencies about the difficulty of cooperating with companies whose leadership are replaced often.^{Note12)} On the other

hand, it is true that new funds for Citi Bike became available and its business expanded as a result of acquiring operation agencies in 2014 and 2018.²¹⁾ Lyft acquired Motivate International, which enabled people to be able to search and book Citi Bike's bicycles through their platform.^{Note13)} We can also say that Lyft gained know-how for partnering with government agencies at the same time.^{Note14)} For example, as of February 2020, Lyft users can look for Citi Bike docks nearby by using the bike menu on the Lyft smartphone app. Initially, Citi Bike bicycles may be used without creating a new account. (In this case, \$3 for one time use + overtime charge [over 30 min] will be charged to a debit/credit card registered on a user's Lyft account.²²⁾ Regarding Citi Bike members who pay the annual fee, by connecting with a Lyft account, users can set up to pay for Citi Bike through their membership fee even if they use it through the Lyft app.

Citi Bike is the largest share bike service in the U.S., already achieving usage of 14 million times annually, and 50 million times in 2016²³⁾ (There were over 143,000 members in 2018). According to the NYC DOT "Citywide Mobility Survey" mentioned above, only 4% of New York residents use Citi Bike.^{Note15)} Use by the poorest segment of the population remains especially low, with the fee being expensive given as their reason for not using it. In response, in accordance with policies from the NYC government, funds from Healthfirst, a local medical insurance agency, have been used for discounts (a monthly member fee of \$5 instead of the annual \$169) to people who live in NYC public housing and those who receive aid from the Supplemental Nutrition Assistance Program (SNAP) from October 2018.²⁴⁾

**Table 1 Main Public Transportation Systems in the NY Metropolitan Area
(New York Newark, NY-NJ-CT-PA)**

	Railroad	Commuter Rail	Light Rail	Bus	Cable Car	Ropeway
Operators						
Metropolitan Transportation Authority (MTA)	X	X		X		
Port Authority Trans-Hudson (PATH)	X					
New Jersey Transit (NJ Transit)	X			X		
Connecticut Transit (CTtransit)		X		X		
Nassau Inter-County Express (NICE)				X		
Bee-Line Bus System (Bee-Line)				X		
Roosevelt Island Operating Corporation (RIOC)						X

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

Table 2 Specification by Modes of First Mile/Last Mile Trips (Number Surveyed : 1,995)

Mode	Connections to Public Transportations	Connections from Public Transportations
Walk	96.0%	94.1%
Car	1.3%	1.0%
For-hire vehicle	0.6%	0.8%
Bicycle	0.2%	0.2%

Source : NYC DOT 「New York City Mobility Report (August 2019)」

Note

Note1) Trends were referred to during the following hearings: SUMC (February 7th, 2020), APTA (February 12th, 2020), and Eno Center for Transportation (February 12th, 2020)

Note2) The information was provided during a hearing between NYC DOT and PANYNJ (February 11th 2020). For example, bike share, TNC, and public transportation routes in the NY urban area can be found and compared through the Lyft smartphone app, which they acquired from Motivate International in November 2018, a bike share operator.

Note3) The information was provided during hearings with NJ Transit (February 10th 2020), and NYC DOT and PANYNJ (February 11th 2020).

Note4) Transit App was established in Montreal, Canada, in 2012. Currently it's available mainly in North America, Europe, Australia, and Argentina. In addition to the companion function, which supports route planning, estimates arrival time, and deboarding timing, users can purchase public transportation tickets through the app in multiple North American cities (the surveyed cities in this report are not included). Users can save time from registering for an account for each city by entering their payment information on this application.

<https://transitapp.com/region/new-york/>;

<https://www.bloomberg.com/profile/company/1440383D:US>;

<https://transitapp.com/region/>;

<https://help.transit.app/article/117-buy-transit-tickets>

(Accessed : 2020/3/6)。

Note5) On Via applications MTA Subway Time and MTA Bus Time, users can track information about the location of trains and estimate arrival time. Users can also search bus stops and nearby stations based on their own location. In addition to these functions, commuter applications LIRR Train Time and MTA Metro-North Time have route planning and saving functions. Furthermore, users can check the average speed of cars passing through tunnels, and the time required for transit with the MTA Bridges and Tunnels Drive Time apps.

(<http://web.mta.info/nyct/service/BusTimeApp-June2015.htm>;

<http://subwaytime.mta.info/>;

http://traveltime.mta.info/traveltime/index_pc.html;

<http://web.mta.info/lirr/traintimeapp/>;

<http://web.mta.info/mnr/html/traintimeapp.htm>

(Accessed : 2020/3/4)。

Note6) Confirmed with the web version. (<https://new.mta.info/> (Accessed : 2020/3/4)。

Note7)

https://play.google.com/store/apps/details?id=info.mta.my_mta&hl=en (Accessed : 2019/11/19) ; <https://www.metro-magazine.com/technology/news/730379/ny-mta-testing-new-system-wide-app-launches-responsive-website>

(Accessed : 2019/11/19) ; The application's development company is unknown from the published information.

Note8) Cubic Corporation was established in San Diego, California in 1951. Currently, they operate three businesses, including Cubic Transportation Systems, in addition to offering defense related technology solutions. Cubic Transportation Systems has developed transit applications and provided payment solutions for European, Australian, and Hong Kong public transportation customers, as well as highway management operators since the 1970s. Major examples are Washington D.C.'s SmarTrip, Chicago's Ventra, and London's Oyster Card, which are described in this report.

(<https://www.cubic.com/about/>;

<https://www.cubic.com/solutions/transportation/>;

https://www.cubic.com/sites/default/files/Cubic_CTS_Overview_Brochure.pdf (Accessed : 2019/12/16)。

Note9) This information was provided during a hearing with NJ Transit. (February 10th 2020)

Note10) It is a docking-style bike share operation company under Alta Planning + Design. Alta Planning + Design was established in Portland, Oregon in 1996. It is an engineering consulting firm specializing in pedestrian travel, bicycle infrastructure, and boardwalks, as well as the planning, designing, and installation of parks. They still continue to have consultation services for planning and

designing of bike sharing.

(<https://altaplanning.com/services/bike-share/> [Accessed : 2020/3/4]).

Note11) It has been developing in New York, Washington D.C., Chicago, San Francisco, Boston, and Portland.

(<https://www.motivateco.com/> [Accessed : 2019/12/16]).

Note12) The information was provided during hearings with the NYC DOT and the PANYNJ. (February 11th 2020).

Note13) The services became available in May 2019.

(<https://www.citibikenyc.com/about> [Accessed : 2020/3/4])

Note14) The information was provided during a hearing with the Chicago Metropolitan Agency for Planning.(CM : Chicago's MPO)(February 6th 2020).

Note15)P50-52

<https://www1.nyc.gov/html/dot/downloads/pdf/nycdot-citywide-mobility-survey-report-2018.pdf> (Accessed : 2020/3/4)

References

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

2)

<https://apps.apple.com/us/app/mymta/id1297605670?ls=1>;
https://play.google.com/store/apps/details?id=info.mta.my_mta (Accessed : 2020/3/4)

3) <https://new.mta.info/> (Accessed : 2020/3/4)

4) https://www.wsj.com/articles/mta-launches-new-app-for-riders-to-plan-transit-in-real-time-1530562748?mod=article_inline (Accessed : 2019/11/19) ; Official Press Release
<http://www.mta.info/press-release/mta-headquarters/mta-launches-test-version-system-wide-mymta-app-and-new-responsive>;
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http://www.mta.info/sites/default/files/17mtah196_landing_page_r7_english.pdf (Accessed : 2020/3/4)

5) <https://new.mta.info/accessibility/paratransit/newsletter-and-announcements/Mymta-app-for-Access-A-Ride> (Accessed : 2020/3/4)

6) <http://www.mta.info/> (Accessed : 2020/3/4)

7) https://www.wsj.com/articles/mta-launches-new-app-for-riders-to-plan-transit-in-real-time-1530562748?mod=article_inline (Accessed : 2019/11/19)

8) <http://www.mta.info/mta-eTix-promo> (Accessed : 2020/3/4)

9) <https://www.governor.ny.gov/news/governor-cuomo-announces-75-state-art-mta-buses-hit-streets-queens> (Accessed : 2019/11/19) ;

<https://www.governor.ny.gov/news/governor-cuomo-announces-accelerated-rollout-mta-etix-mobile-ticketing-app> (Accessed : 2019/11/19) ; <http://www.mta.info/mta-eTix-promo> (Accessed : 2019/11/19)

10) <http://www.masabi.com/> (Accessed : 2019/11/19)

11) <https://new.mta.info/fares-and-tolls/subway-bus-and-staten-island-railway/about-metrocard> (Accessed : 2020/1/7)

12) <https://omny.info/> (Accessed : 2020/1/7)

13) <https://www.amny.com/transit/metrocard-replacement-omny-1-29297988/> (Accessed : 2020/1/7)

14) Referred to 「New Fare Payment System: 2022」
<https://www.panynj.gov/path/en/modernizing-path.html> (Accessed : 2020/3/11)

15) <https://www.schools.nyc.gov/about-us/news/announcements/contentdetails/2019/08/21/chance-llor-carranza-announces-partnerships-with-via-to-launch-via-for-schools-gps-and-parent-app-for-all-school-buses> (Accessed : 2019/11/19)

16) <https://ridewithvia.com/2019/08/via-selected-to-power-new-york-citys-school-bus-system/> (Accessed : 2019/11/19)

;
<https://learn.sharedusemobilitycenter.org/overview/nycdot-and-via-partner-for-via-for-schools-new-york-new-york-2019/> (Accessed : 2019/11/19)

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<https://www1.nyc.gov/html/dot/downloads/pdf/mobility-report-2019-singlepage.pdf> (Accessed : 2019/11/19) ;

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<https://www.citibikenyc.com/pricing/reducedfare>
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