



Committee: T&E
Committee Review: At a future date
Staff: Glenn Orlin, Senior Analyst
Purpose: To introduce agenda item – no vote expected
Keywords: #crowd sourcing, Ride On

AGENDA ITEM #51
October 5, 2021
Introduction

SUBJECT

Supplemental appropriation to develop a crowd-sourcing system for Ride On, \$720,300
(Funding sources: Federal aid: \$450,000; Mass Transit Fund: \$270,300)

EXPECTED ATTENDEES

None

COUNCIL DECISION POINTS & COMMITTEE RECOMMENDATION

A public hearing is scheduled for October 19, 2021 at 1:30 pm.

SUMMARY OF KEY DISCUSSION POINTS

This appropriation would fund a contractor to develop Ride On crowd sourcing system software and a smartphone mobile application. The crowd sourcing software would be deployed to a subset of transit routes. The software would receive passenger loading information from automatic passenger counters. The smartphone application would interface with the software to display passenger loading information. Transit passengers riding these routes may use the smartphone application to review real-time passenger loading/crowding data. The real-time data would assist passengers to maintain proper social distancing on busy transit routes. Real-time passenger loading/crowding data would be sent to transit central dispatch. Central dispatch may decide to dispatch a strategic bus to an overcrowded route prior to the next scheduled service for that route. As the strategic bus is deployed, the mobile application would inform transit riders when the next available bus will arrive before a scheduled arrival time. After the pandemic, the crowd sourcing notification system may be implemented system wide to provide more efficient and effective transit service delivery. This research and demonstration project would also provide recommendations, so that other transit agencies that have Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL) systems and/or automatic passenger counters and cellular communications may provide similar real-time crowd sourcing information to their ridership.

This report contains:

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OFFICE OF THE COUNTY EXECUTIVE

Marc Elrich
County Executive

MEMORANDUM

September 29, 2021

TO: Tom Hucker, President
County Council

FROM: Marc Elrich, County Executive 

SUBJECT: Supplemental Appropriation to the FY22 Operating Budget
Montgomery County Government, Department of Transportation
COVID-19 Research Demonstration Grant \$450,000 and Mass Transit Fund \$270,300

I am recommending a supplemental appropriation to the FY22 Operating Budget in the amount of \$720,300. The Montgomery County Division of Transit Services has been awarded a Federal Transit Administration, COVID-19 Research Demonstration Grant. The research demonstration grant provides \$450,000 to develop transit software and a smartphone mobile application that will provide real time data about bus passenger capacity. The grant will be matched with \$270,300 of Mass Transit funds, including \$108,550 of in-kind match.

This increase is needed to fund a contract to develop Ride On crowd sourcing system software and a smartphone mobile application that will be deployed to a subset of transit routes. The software will receive passenger loading information from automatic passenger counters, and the smartphone application will interface with the software to display passenger loading information. Transit passengers riding these routes may use the smartphone application to review real-time passenger loading/crowding data, which will facilitate proper social distancing on busy transit routes. Furthermore, real-time passenger loading/crowding data will be sent to transit central dispatch, aiding the decision to dispatch a strategic bus to an overcrowded route prior to the next scheduled service for that route. As a strategic bus is deployed, the mobile application will inform transit riders when the next available bus will arrive before a scheduled arrival time.

After the pandemic, the crowd sourcing notification system may be implemented system wide to provide more effective and efficient transit service delivery. The demonstration project will also provide recommendations, so that other transit agencies that have Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL) systems and/or automatic passenger counters and cellular communications may provide similar real-time crowd sourcing information to their ridership.

I recommend that the County Council approve this supplemental appropriation in the amount of \$720,300 and specify the sources of funds as Federal: COVID-19 Research Demonstration Grant, \$450,000 and Mass Transit Fund, \$270,300.

Tom Hucker, President, County Council
Supplemental Appropriation – COVID-19 Research Demonstration Grant
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September 29, 2021

I appreciate your prompt consideration of this action.

Attachment: Supplemental Appropriation #22-9
Racial Equity and Social Justice Analysis

Cc: Christopher R. Conklin, Director, Department of Transportation
Jennifer R. Bryant, Director, Office of Management and Budget
Tiffany Ward, Director, Office of Racial Equity & Social Justice

Resolution No: _____
Introduced: _____
Adopted: _____

COUNTY COUNCIL
FOR MONTGOMERY COUNTY, MARYLAND

By: Council President at the Request of the County Executive

SUBJECT: Supplemental Appropriation #22-9 to the FY22 Operating Budget
Montgomery County Government, Department of Transportation
COVID-19 Research Demonstration Grant \$450,000 and Mass Transit Fund
\$270,300

Background

1. Section 307 of the Montgomery County Charter provides that any supplemental appropriation shall be recommended by the County Executive who shall specify the source of funds to finance it. The Council shall hold a public hearing on each proposed supplemental appropriation after at least one week's notice. A supplemental appropriation that would comply with, avail the County of, or put into effect a grant or a Federal, State or County law or regulation, or one that is approved after January 1 of any fiscal year, requires an affirmative vote of five Councilmembers. A supplemental appropriation for any other purpose that is approved before January 1 of any fiscal year requires an affirmative vote of six Councilmembers. The Council may, in a single action, approve more than one supplemental appropriation. The Executive may disapprove or reduce a supplemental appropriation, and the Council may reapprove the appropriation, as if it were an item in the annual budget.
2. The County Executive has requested the following FY22 Operating Budget appropriation increases for the Department of Transportation:

<u>Personnel Services</u>	<u>Operating Expenses</u>	<u>Capital Outlay</u>	<u>Total</u>	<u>Source of Funds</u>
\$0	\$450,000	\$0	\$450,000	Federal: COVID-19 Research Demonstration Grant
\$108,550	\$161,750	\$0	\$270,300	Mass Transit Fund
<hr/>				
Total: \$108,550	\$611,750	\$0	\$720,300	

3. This increase is needed to fund a contractor to develop Ride On crowd sourcing system software and a smartphone mobile application. The crowd sourcing software will be deployed to a subset of transit routes. The software will receive passenger loading information from automatic passenger counters. The smartphone application will interface with the software to display passenger loading information. Transit passengers riding these routes may use the smartphone application to review real-time passenger loading/crowding data. The real-time data will assist passengers to maintain proper social distancing on busy transit routes. Real-time passenger loading/crowding data will be sent to transit central dispatch. Central dispatch may decide to dispatch a strategic bus to an overcrowded route prior to the next scheduled service for that route. As the strategic bus is deployed, the mobile application will inform transit riders when the next available bus will arrive before a scheduled arrival time. After the pandemic, the crowd sourcing notification system may be implemented system wide to provide more efficient and effective transit service delivery. This research and demonstration project will also provide recommendations, so that other transit agencies that have Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL) systems and/or automatic passenger counters and cellular communications may provide similar real-time crowd sourcing information to their ridership.
4. The County Executive recommends a supplemental appropriation to the FY22 Operating Budget in the amount of \$720,300 and specify the source of funds as Federal: COVID-19 Research Demonstration Grant, \$450,000 and Mass Transit Fund, \$270,300.
5. Notice of public hearing was given, and a public hearing was held.

Action

The County Council for Montgomery County, Maryland, approves the following action:

A supplemental appropriation to the FY22 Operating Budget of the Department of Transportation is approved as follows:

<u>Personnel Services</u>	<u>Operating Expenses</u>	<u>Capital Outlay</u>	<u>Total</u>	<u>Source of Funds</u>
\$0	\$450,000	\$0	\$450,000	Federal: COVID-19 Research Demonstration Grant
\$108,550	\$161,750	\$0	\$270,300	Mass Transit Fund
<hr/>				
Total: \$108,550	\$611,750	\$0	\$720,300	

This is a correct copy of Council action.

Selena Mendy Singleton, Esq.
Clerk of the Council



OFFICE OF THE COUNTY EXECUTIVE


Marc Elrich
County Executive

Tiffany Ward, Director
Office of Racial Equity and Social Justice

MEMORANDUM

September 15, 2021

To: Jennifer Bryant, Director
Office of Management and Budget

From: Tiffany Ward, Director
Office of Racial Equity and Social Justice 

Re: Supplemental Appropriation: COVID-19 Department of Transportation
Research Demonstration Grant #22-9

- I. **FINDING:** The Office of Racial Equity and Social Justice (ORESJ) finds that there is insufficient evidence to determine whether racial inequities would be maintained or addressed by proposed Ride On Crowd Sourcing System. Based on what is known about promoting transportation equity in the US, systems that make public transit more robust and efficient for those who rely on it most, have the potential to advance racial equity and social justice. However, advancing racial equity and social justice cannot be achieved without deep engagement with transit passengers and community members. Such engagement provides needed context and nuance to decision makers about the choices, tradeoffs, preferences, and needs of passengers, including the ways employment and housing inequities limit the flexibility of low-income passengers and passengers of color when using public transit. Having limited flexibility as a result of employment or other responsibilities means that even with data about bus-crowding, communities of color and low-income residents are unlikely to be able to afford delaying or changing their transit route, thus diminishing the intended social-distancing effects of the proposed Ride On Crowd Sourcing System. It is unclear to what extent the Department of Transportation (DOT) engaged directly with community members in the formulation of this proposal and for these reasons ORESJ cannot conclude whether this proposed supplemental will advance racial equity and social justice in the County.
- II. **BACKGROUND:** Supplemental Appropriation #22-9 to FY22 operating budget will fund a US Department of Transportation, Federal Transit Administration, Covid-19

research demonstration grant. The purpose of the research grant is to develop a crowdsourcing system software and smartphone application for the Montgomery County Ride On bus service. The Ride On Crowd Sourcing System (ROCSS) is intended to provide both bus operators and bus riders with real-time information about crowding levels on the bus so that social distancing can more effectively and efficiently be maintained.

During the pandemic, concerns about crowding on public transportation became more critical. Jurisdictions implemented a range of measures to mitigate against the spread of Covid-19 on public transportation and keep transit operators and passengers safe. Montgomery County Ride On implemented the following measures:

- Extra deep cleaning of buses;
- insuring implementation of Federal mask transit requirement and providing masks for customers;
- rear boarding of buses;
- installing bus operator protective shields systemwide;
- deploying additional buses on heavily used transit routes;
- providing a Ride on bus shuttle between the Shady Grove Metro and Montgomery College Germantown vaccination site

Taking these steps was particularly important for passengers at greatest risk for Covid-19, those without alternative transportation options, and those in essential industries unable to work from home. Research suggests that even as overall transit use fell across the US during the pandemic, it increased among black and brown riders¹. In Montgomery County, this dynamic is likely also the case given that before the pandemic, Ride On passengers were more likely to be residents of color and low-income residents as well as experience disparities in access to private vehicle transportation. *See data section for demographic characteristics of Ride On Passengers and relevant disparity data.*

The demographic and income characteristics of Ride On passengers in Montgomery County is similar to the transit user characteristics in other parts of the Country. Research conducted by Pew Research Center explains that “Americans who are lower-income, black or Hispanic, immigrants or under 50 are especially likely to use public transportation on a regular basis.”² High rates of public transit utilization among communities of color is related to a number of factors, including structural inequities in access to affordable housing and proximity of housing to employment. People with disabilities are often transit dependent, as they are twice as likely as adults without

¹ TransitCenter. *A Transit Agenda for the Covid-19 Emergency*. October 2020. Available at: https://transitcenter.org/wp-content/uploads/2020/10/TC_Covid_FINAL_Pages-1.pdf.

² Monica Anderson. Pew Research Center. “Who relies on public transit in the U.S.” April 2016. Available at: <https://www.pewresearch.org/fact-tank/2016/04/07/who-relies-on-public-transit-in-the-u-s/>

disabilities to have inadequate transportation³. Access to high-quality, reliable public transportation is therefore not only an economic development (and increasingly a climate protection) imperative but also a matter of racial equity and social justice.

Researchers and advocates around the country offer a number of frameworks and tools to support transit agencies in considering whether proposed projects or processes will widen or shrink gaps in transit access. Urban Institute offers the following definition of Transit Equity, which it developed in collaboration with four transit agency partners participating in their research:

Transportation equity means that transportation decisions are made with deep and meaningful community input that leads to transportation networks and land use structures that support health and well-being, environmental sustainability, and equitable access to resources and opportunities⁴

The TransitCenter offers a similar definition and number of case studies and practice recommendations for agencies interested in developing policies, programs, and processes that center racial equity and social justice. See below excerpt from *Inclusive Transit: Advancing Equity Through Improved Access & Opportunity⁵*.

Question	Related practices
Who decides?	Fair representation among decision-makers; inclusive outreach; cultivating trust in government
Who pays?	Identifying progressive transit funding sources; equitable funding priorities; making transit fares affordable
Who benefits?	Targeting investments in underserved communities to improve access; focusing attention on buses; maximizing housing and transportation affordability; supporting high-quality employment
Who suffers?	Minimizing public health impacts; climate change impacts; reducing crash incidence; reducing police interactions on transit and inequitable, punitive enforcement

Applying these considerations to the research demonstration grant and ROCSS project provides a promising opportunity for MCDOT to deepen its analysis of the structural issues affecting riders, including the kinds of tools and services that can address those

³ The Urban Institute. *The Unequal Commute: Examining inequities in four metro areas' transportation systems*. October 2020. Available at: <https://www.urban.org/features/unequal-commute>.

⁴ Christina Stacy, Yipeng Su, Eleanor Noble, Alena Stern, Kristin Blagg, Macy Rainer, Richard Ezike. Urban Institute. *Access to Opportunity through Equitable Transportation: Lessons from Four Metropolitan Regions*. October 2020. Available at: https://www.urban.org/sites/default/files/publication/102992/access-to-opportunity-through-equitable-transportation_0.pdf.

⁵ TransitCenter. *Inclusive Transit: Advancing Equity Through Improved Access & Opportunity*. July 2018. Available at: <https://transitcenter.org/wp-content/uploads/2018/07/Inclusive-1-1.pdf>

issues. Of particular note are the role sustained community engagement and increased transparency can play in enhancing the responsiveness of transit agencies to customer needs.

For example, a scan of the FTA Covid-19 research demonstration grant project summaries⁶ shows that of 37 projects, 13 mentioned restoring or strengthening public confidence in their local transit system. To this end, about a third of transit agencies participating in peer-exchange sessions, conducted a survey to understand transit system workers and riders concerns during the pandemic. It is unclear whether a similar survey of Ride On passengers or workers was conducted in Montgomery County for this specific project, but DOT reports that, “Customer feedback is important to transit staff and that Ride On receives comments/complaints/compliments through a variety of medium, including the 311 system, emails, public forums, etc. There are open depot forums where bus operators may discuss issues of concern. Both customer feedback and worker suggestions have been considered as Ride On has implemented its pandemic responses.” In the Ride On Montgomery County Public Participation Plan from July 2020, the Division of Transit Services outlines a range of ongoing public participation methods⁷. While the diversity of methods and considerations involved with these approaches is a strong baseline, available information does not indicate the kinds of feedback the agency received, from whom, or how that information was considered within its decision-making processes for this particular project⁸. This plan would need to consider the following in order to advance racial equity and make a meaningful difference in the lives of Ride On passengers who are disproportionately people of color.

In addition to the guidance provided by the TransitCenter framework discussed above, advocates suggest that transit officials can advance procedural equity by “reporting on what they heard from community members, instead of just what they decided to do”⁹. Taking these steps demonstrates to the public that their input was useful and encourages accountability and transparency. A 2020 Office of Legislative Oversight (OLO) report offers a related finding stating, “MCDOT does not publish guidelines for how it revises

⁶ Federal Transit Administration. Public Transportation Covid-19 Research Demonstration Grant Program Selected Projects. Available at: <https://www.transit.dot.gov/research-innovation/public-transportation-covid-19-research-demonstration-grant-program-selected>.

⁷ Montgomery County Department of Transportation Division of Transit Services. Ride On Montgomery County Transit. *Public Participation Plan*. July 2020. Available at: <https://www.montgomerycountymd.gov/DOT-Transit/Resources/Files/Public%20Participation%20Plan%202020%20Draft%207-23-20.pdf>.

⁸ Mary Buchanan and Natalee Rivera. Rice | Kinder Institute for Urban Research. “What transit agencies get wrong about equity, and how to get it right”. August 2020. Available at: <https://kinder.rice.edu/urbanedre/2020/08/31/what-transit-agencies-get-wrong-about-equity-and-how-get-it-right>.

⁹ Mary Buchanan and Natalee Rivera.

Ride On routes and services or how it evaluates proposed changes to those services.”¹⁰ Increased transparency is particularly important for communities of color and low-income residents who for a variety of reasons may not feel welcomed in public forum or trust that their local government will act in their interest. There is also evidence that similar engagement with transit workers strengthens the quality and reliability of service¹¹.

Further, public engagement activities generate qualitative data about individual’s experiences and what they value and can help to contextualize more traditional transit performance metrics. These insights can also help transit agencies understand with greater nuance and clarity the kinds of considerations passengers make in their use of public transportation, which can help them understand the kinds of tools and services they would most value. For example, the ROCSS system allows passengers to plan their trip in ways that take bus-crowding and social distancing into consideration. It’s important to recognize, however, that not all passengers will have the flexibility necessary to use this information to change their travel plans if they discover their route is crowded. In fact, given what is known about the types of industries and occupations people of color are disproportionately employed in—and the limited benefits and scheduling flexibility available in those jobs—it is possible that knowing another bus has been deployed to a busy route (and the estimated time of arrival) is more valuable to a passenger than knowing the crowding level on a bus.

Based on this logic, it is possible that one of the most valuable benefits of the ROCSS system is that it would provide real-time passenger/loading crowding data to central dispatch which would increase efficiency of strategic bus deployment on busy routes and minimize the need for bus operators to manually monitor bus capacity¹².

While similar ROCSS systems have been piloted in other parts of the country, most notably Chicago¹³, it will be important to understand the extent to which the public was effectively engaged in the design process and what the results have been. As the equity frameworks recommend, design assumptions and the results of quantitative analysis

¹⁰ Stephanie Bryant Victoria (Tori) H. Hall. Montgomery County Office of Legislative Oversight. *Ride On Bus Routes and Services*. October 2020. Finding #7, pg. 64. Available at: <https://www.montgomerycountymd.gov/OLO/Resources/Files/2020%20Reports/OLORReport2020-10.pdf>

¹¹ See MTA In-Reach Program. <https://transitcenter.org/baltimore-mtas-in-reach-program-is-meeting-operators-where-they-are/>.

¹² According to *OLO Report 2020-10: Ride On Bus Routes and Services* “Real-Time Passenger Counts Can Improve Service”, estimating and monitoring rider count, which is always somewhat subjective, was increasingly difficult during the pandemic with passengers boarding at the rear of the vehicle. See <https://www.montgomerycountymd.gov/OLO/Resources/Files/2020%20Reports/OLORReport2020-10.pdf> pg 42.

¹³ Chicago Transit Authority. Ridership Dashboards. May 2021. Available at: <https://www.transitchicago.com/coronavirus/dashboard/>.

should be validated with passengers and community members who are most likely to be affected by the distribution of a new tool.

III. **DATA ANALYSIS:** The screenshots below, from the July 2020 Ride On Public Participation Plan¹⁴, indicate that Ride On passengers are more likely to be residents of color and have household incomes below the 2020 Area Median Income which was \$126,000 for a family of four (as of July 1, 2020)¹⁵.

Ride On Public Participation Plan July 2020		
Table 3: Ride On Ridership Ethnic Background		
Ethnic Background	# of Responses	% of Responses
White	2,078	19.6%
American Indian or Alaskan Native	88	0.8%
Black or African American Descent	3,828	36.0%
Asian	973	9.2%
Hawaiian or other Pacific Islander	39	0.4%
Hispanic	1,956	18.4%
Middle Eastern Descent	78	0.7%
Two or More Races	622	5.9%
Rather not say	958	9.0%
Total Responses	10,620	100.0%
No response	277	
Source: Ride On On-board Survey – December 2018		

¹⁴ Montgomery County Department of Transportation Division of Transit Services.

¹⁵ Montgomery County Department of Housing and Community Affairs - 2020 Rent and Income Limits. Available at: [https://montgomerycountymd.gov/DHCA/Resources/Files/housing/multifamily/compliance/rent income limits current.pdf](https://montgomerycountymd.gov/DHCA/Resources/Files/housing/multifamily/compliance/rent%20income%20limits%20current.pdf)

Table 4: Ride On Ridership Household Income

Household Income	# of Responses	% of Responses
Less than \$20,000	2,483	27.3%
\$20,00 to \$29,999	1,760	19.4%
\$30,000 to \$49,999	1,755	19.3%
\$50,000 to \$74,999	1,052	11.6%
\$75,000 to \$99,999	687	7.6%
\$100,000 to \$149,999	701	7.7%
\$150,000 to \$199,999	400	4.4%
\$200,000 or more	249	2.7%
Total Responses	9,087	100.0%
No response	1,810	

Source: Ride On On-board Survey – December 2018

In addition to the demographic and income characteristics of Ride On passengers, the following are key data points about transportation disparities in the County in 2017. In these data, it is important to note that because Latinos are an ethnicity rather than a race, Latinos are included in multiple racial groups. Black residents were more likely than any other group to take public transportation to work and not have a vehicle.

Racial/Ethnic Group	% who take public transportation to work	% who do not have a vehicle
Asian	11.7%	6.0%
Black	19.8%	12.8%
Latino	12.8%	4.1%
White	13.6%	5.5%
Other	12.1%	6.4%

Source: Montgomery County Racial Equity Profile. Poverty Rates 2010, 2017. Pg. 50-51. Available at:

<https://www.montgomerycountymd.gov/OLO/Resources/Files/2019%20Reports/RevisedOLO2019-7.pdf>

Looking at mean travel time to work (in minutes), Black, Latino, and Asian residents were more likely than white residents to have a longer average commute to work.

Racial/Ethnic Group	Mean Travel Time to Work
Asian	36.2
Black	36.0
Latino	35.5
White	33.8
Other	35.6

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Source: Montgomery County Racial Equity Profile. Poverty Rates 2010, 2017. Pg. 52.
Available at:

<https://www.montgomerycountymd.gov/OLO/Resources/Files/2019%20Reports/RevisedOLO2019-7.pdf>

cc: Chris Conklin, Director, Department of Transportation
Ken Hartman, Director, Strategic Partnerships, Office of the County Executive