



# **Ride On Bus Routes and Services**

Stephanie Bryant  
Victoria (Tori) H. Hall

Office of Legislative Oversight  
Montgomery County, Maryland

# Ride On Bus Routes and Services

OLO Report 2020-10

EXECUTIVE SUMMARY

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This Office of Legislative Oversight (OLO) report responds to Council's request to better understand (1) who uses Montgomery County Department of Transportation (MCDOT) Ride On bus services, (2) how MCDOT makes changes to Ride On services, and (3) how similar jurisdictions evaluate their transit networks. This report also provides information about Ride On data collection and reporting. OLO analyzed MCDOT Ride On reports, conducted interviews with County Government staff and community stakeholders, and researched transit decision processes in ten jurisdictions. In sum, OLO found that MCDOT routinely collects and reports transit data and engages in a regular process to review bus routes and services; however, opportunities exist to define Ride On goals, strengthen performance metrics, and increase transparency of MCDOT's transit decision processes.

**Demographics of Ride On Riders.** Under Title VI of the Civil Rights Act of 1964, the federal government requires the County to survey Ride On customers at least every five years. MCDOT's 2018 Title VI on-board surveys reported the following demographics of Ride On customers:

- **Residence:** About 89% of Ride On customers were County residents.
- **Race/Ethnicity:** 78% of customers were categorized as Black, Indigenous, or People of Color (BIPOC); 36% of customers were African American.
- **Language:** 42% of customers spoke a language other than English at home. Of those speaking a language other than English, the primary language spoken was Spanish (50.9%) followed by French (16.6%).
- **Income:** 47% of customers reported an annual household income of less than \$30,000.
- **Education:** 69% of customers had a Bachelor's degree, a post-graduate degree, or some college education.
- **Age:** 29% of Ride On customers were between 35 and 54 years old.

## Ride On Routes and Services

MCDOT's Transit Services Division manages and operates the Ride On bus system, which as of 2018 was being used by 38,070 people on an average weekday. The Division also evaluates and develops the routes, plans, and schedules service, and reviews all the routes and services at least once every two years.

MCDOT provides Ride On bus services across 495 miles in the County. In 2018, the Ride On program consisted of 79 fixed routes that provided about 22 million unlinked passenger trips. Ride On operates mainly in neighborhoods as a collector and distributor to major transfer points and transit centers in the County. In 2018, 61% of customers reported using Ride On services daily (5-7 times per week).

**Ride On Goals and Objectives.** The County last updated Ride On's goals in the 2008 Strategic Transit Plan, restating them in the *Bus Fleet Management Plan for 2013 to 2020*, published in 2014. The 2008 recession delayed many of the stated goals provided below. OLO found Ride On's goals and objectives have not been updated to reflect recent County priorities and Ride On's place within the County's changing transit network.

- Double transit ridership by 2020
- Provide transit service to all areas that have an average of 3+ households or 4+ jobs per acre
- Increase peak hour frequency to every 10 minutes or better
- Increase span of service for local buses to 19-24 hours of service per day
- Target pockets of low-income areas with non-traditional services
- 25+ Park & Ride lots in the County
- 100% customer service satisfaction
- 5,500 bus stops American with Disabilities Act (ADA) compliant
- Capacity for 600 buses
- Fleet reliability: 100%
- 95% on-time performance
- Keep pace with latest technology
- Operate 100% environmentally friendly buses

For a complete copy of OLO-Report 2020-10, go to:

<http://www.montgomerycountymd.gov/OLO/Reports/CurrentOLOReports.html>

**MCDOT Ride On Data Collection and Reporting.** MCDOT collects data about Ride On vehicles, ridership, and customer satisfaction. The data enable MCDOT to monitor day-to-day operations, assess performance, and revise routes and services as needed over both the short- and long-term. MCDOT is currently improving its ability to collect, in an automated manner, real-time data on both vehicles and passenger counts and to integrate this data into its daily operations and its triannual (3X/year) service evaluations. MCDOT expects these new capabilities to improve the integrity of data collected, the speed with which MCDOT can use and share the data, and the spatial and temporal granularity of potential analysis. Improved data collection capabilities open up new opportunities for performance measures to evaluate Ride On services and to publicly report information, such as vehicle crowding.

**Data Reporting.** MCDOT must report certain transit data and performance measures to the Federal Transit Administration (FTA) and Maryland Transit Administration (MTA) under regulations set by those entities. FTA requires regular reporting to the National Transit Database, as well as regular reporting on the demographic profile of bus customers under Title VI of the Civil Rights Act of 1964. OLO found that these federal and state reporting requirements can sometimes, but do not always, link to the County's goals for Ride On, but MCDOT cannot modify federal and state requirements.

MCDOT reports certain transit data and performance measures to CountyStat and in the annual Ride On route profile, and MCDOT can modify the information reported for these purposes. OLO found that Ride On's publicly-reported data and performance measures are limited as compared to the performance measures reported regularly by other jurisdictions that recently redesigned their bus systems. Further, while MCDOT staff promptly provided OLO staff with all the reports and documents requested, not all the documents are readily available on the MCDOT website. To improve transparency, OLO recommends that MCDOT make all prior and future reports available on its website in a searchable and easily accessible format.

**How Ride On Makes Service Changes.** Ride On's 79 routes encompass 159 distinct services – counting weekday, Saturday, and Sunday service on routes separately. MCDOT formally reviews Ride On services three times per year - reviewing approximately 30 services at a time. Every Ride On service is reviewed at least once every two years. MCDOT also reviews additional services during the year based on factors like new housing, customer requests, poor performance, and requests from elected officials. Occasionally, a factor affects an interconnected group of Ride On services, such as the new FLASH bus service along Route 29. In these cases, MCDOT staff initiate a larger review of multiple routes that considers the inter-related implications across services.

MCDOT staff report that Ride On service changes are based on ridership, operational considerations, finances, equity and service coverage considerations, changing demographic and employment patterns, customer complaints, and resident requests, among other factors. MCDOT staff evaluate proposed changes on a case-by-case basis considering all these factors. The department, however, does not have a written guide outlining its decision-making process for making changes or describing how it prioritizes these factors.

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### Network Redesign

MCDOT has not conducted a comprehensive redesign of the Ride On bus network in over 20 years.

The County Executive's FY21 budget request included \$1.5 million for a Ride On Bus Route Restructuring Study. Bus ridership has declined nationally, and Ride On has experienced similar challenges. The current route structure has grown over the past four decades and will benefit from a comprehensive reevaluation to maximize service delivery. As a result of the global COVID-19 pandemic, however, the County Council adopted a same-services budget for FY21 that could not include new spending.

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**Best Practices and Transit Decision Processes in Other Jurisdictions.** OLO found that many transit agencies monitor and improve their bus system using a systematic process of performance measurement. Key findings include:

- **Goal Reassessment and Performance Monitoring.** The Transportation Research Board (TRB) found that transit agencies typically reassess their goals and objectives at least every five years. Additional best practices for monitoring and improving transit performance include defining service types and service guidelines; collecting robust data; and selecting performance metrics.
- **Established Service Guidelines.** Most case study jurisdictions explicitly define how they use goals, service guidelines, and performance measures to evaluate system and route performance. Jurisdictions use these guidelines to identify areas of high and low performance, where investment is needed, and where resources are not being used effectively. Service guidelines are updated routinely, often in combination with strategic plan updates.
- **Report Publication.** Jurisdictions regularly publish reports that provide data on performance measures, service guidelines, and decision processes. Jurisdictions set established timelines to update and review documents to ensure traceability from strategic priorities to service guidelines, and project prioritization. These practices can help ensure service decisions are objective, transparent, and align with transit goals at the system, route, and segment levels.
- **Bus Network Redesign.** The majority of transit agencies reviewed have recently undertaken multi-year revisions of their bus networks. As part of network designs, jurisdictions review existing bus service, define long-term goals, set performance metrics, realign routes, and document processes for ongoing service adjustments. Most jurisdictions hired outside consultants to lead the efforts and included community stakeholders in the multi-year process.

#### Case Study Jurisdictions

Anchorage, AK  
Arlington, VA  
Houston, TX  
Indianapolis, IN  
Jacksonville, FL  
King County, WA  
Los Angeles County, CA  
Miami-Dade County, FL  
Portland, OR  
Richmond, VA

## OLO Recommendations

**Recommendation #1:** Continue planning for a comprehensive review and update of the Ride On system and evaluate when County resources could allow for funding of a Ride On Bus Route Restructuring Study. In the interim, update the County's goals and objectives for Ride On.

- Using TRB's five-year standard, Ride On is due for a comprehensive update to its goals and objectives.
- The new FLASH service and the Purple Line represent significant changes to the transportation network that warrant examining Ride On's optimal role in that network.
- The COVID-19 pandemic has posed substantial operational challenges for transit and may permanently alter employment patterns.

In light of these changes to the context in which Ride On operates, a comprehensive review would assure the relevancy of the current goals and could offer new strategies for how the buses serve residents.

**Recommendation #2:** Publish written guidelines for how the County modifies Ride On services, including factors MCDOT considers and prioritization of those factors in MCDOT Ride On service decisions.

**Recommendation #3:** To improve transparency, make readily available Ride On reports and data on the County website.

- Request the feasibility of augmenting the annual Ride On route profile with the performance measures that MCDOT reports to FTA, MTA, and CountyStat. Explore possibilities to include historic data to compare trends over time.



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## **Chapter 1. Introduction: Authority, Scope, and Acknowledgements**

### **A. Authority**

This report is authorized by County Council Resolution 19-173, Fiscal Year 2020 Work Program of the Office of Legislative Oversight, adopted July 23, 2019.

### **B. Scope, Purpose, Organization**

This report responds to the County Council's request that the Office of Legislative Oversight (OLO) review the County's Ride On bus routes and services. This report provides information about who uses Ride On buses, describes how the County Department of Transportation makes decisions regarding Ride On bus routes and services, and offers examples of how similar jurisdictions make decisions on bus routes.

This report is organized as follows:

**Chapter 2. Options for Measuring Transit Performance**, synthesizes OLO's review of transit research to offer sample frameworks for measuring transit performance.

**Chapter 3. Summary of Key Transit Decision Processes in Other Jurisdictions**, describes bus services decision making processes in several other jurisdictions, which have recently redesigned their bus networks

**Chapter 4. Ride On Bus Service: Regional Context**, provides an overview of the public transit systems and governance in the Washington metropolitan area. This chapter is intended to provide context for how Montgomery County designs and modifies its Ride On routes and services to complement the other transit options in the region.

**Chapter 5. Demographic Profile of Ride On Customers**, summarizes the latest demographic profile of Ride On customers, based on a survey conducted to meet federal requirements under Title VI of the Civil Rights Act of 1964.

**Chapter 6. The County's Current Mission, Goals, and Objectives for Ride On**, summarizes the most recently stated vision for the Ride On program.

**Chapter 7. Ride On Data Collection**, describes the data the County currently collects about Ride On vehicles, ridership, and customer satisfaction.

**Chapter 8. MCDOT Reporting on Ride On Data and Performance**, describes how the County currently reports data and performance for the Ride On program for federal, state and county purposes. The chapter concludes with a summary of all performance measures reported.

**Chapter 9. How MCDOT Makes Changes to Ride On Services**, discusses the current process for making short- and long-term modifications to Ride On routes and services.

**Chapter 10. Findings and Recommendations**, summarizes the report’s major findings and recommendations, and offers suggestions for further discussion with the Executive Branch.

**Chapter 11. Agency Comments**, presents the written comments received from the Montgomery County Chief Administrative Officer in their entirety.

**Appendices**, include: performance metrics for select case study jurisdictions; an overview of current Ride On bus stops; and a glossary of terms and acronyms frequently used in transit planning and evaluation.

### **C. Acknowledgements**

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## Chapter 2. Options for Measuring Transit Performance

This chapter describes a framework for measuring transit performance based on a review of current transit research, including research by the Transportation Research Board (TRB)<sup>1</sup> and the Center for Urban Transportation Research<sup>2</sup> and practices by peer transit agencies. This chapter is intended to offer decision-makers ideas about additional ways that the County could assess its Ride On routes and services.

OLO found that many transit agencies monitor and improve their public bus system using a systematic process of performance measurement. Table 2-1 below offers a sample process for monitoring and improving performance. The process depicted in Table 2-1 is a synthesis based on our research intended for purposes of discussion; individual transit agencies may use different terms, more or fewer steps, and other variations.

**Table 2-1. Sample Process for Monitoring and Improving Transit Performance**

<b>Set goals and objectives</b>	Set goals and objectives for the bus system, including a schedule (e.g., every five years) for updating goals to reflect changing external factors and/or changing jurisdictional values and priorities.
<b>Define service types</b>	Define the types of bus service to be provided. Types might be defined by: <ul style="list-style-type: none"> <li>• Population served (e.g., commuter vs. student, and/or % of low-income households in census area),</li> <li>• Route design (e.g., feeder service vs. trunk service),</li> <li>• Stop frequency (e.g., local service vs. express service), or</li> <li>• Time of day (e.g., weekday peak service vs. Sunday service).</li> </ul>
<b>Establish service guidelines</b>	Define service guidelines for each service type (e.g., 'establish local bus service in any area with a density of at least three people or at least four jobs per acre,' and/or 'establish bus service in areas with higher than average number of low-income households').
<b>Collect data</b>	Collect robust data about vehicles, ridership patterns, and customer satisfaction.
<b>Select performance measures</b>	Choose performance measures to monitor the delivery of each type of bus service. The TRB offers over 400 performance measures and recommends selecting an upper limit of 20 that align with goals and objectives.
<b>Take corrective action</b>	Establish a process of review and corrective action if performance measures show that a service type does not meet minimum performance standards.

This chapter is organized as follows:

### Section A. Setting Goals and Objects

### Section B. Defining Service Types and Service Guidelines

### Section C. Selecting Performance Measures and Standards

### Section D. Taking Corrective Action

<sup>1</sup> *TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System* (Transit Cooperative Research Program, Transportation Research Board of the National Academies, 2003), p. 27.

<sup>2</sup> *Best Practices in Transit Service Planning* (Project #BD549-38), Final Report, Prepared for the Florida Department of Transportation by the Center for Urban Transportation Research (March 2009).

## **A. Setting Goals and Objectives**

Goals are long-term ends towards which programs are ultimately directed. Objectives are more intermediate ends that can be measured to assess whether progress is being made towards a goal. An example of a goal may be “Improve Convenience, Reliability and Customer Service of Transit Services.” An example of an objective based on that goal may be “Improve accessibility to major employment, recreation, educational, healthcare, retail centers, and cultural attractions.”<sup>3</sup>

According to TRB guidance, transit agencies usually reassess their goals and objectives about every five years. Such a reassessment gives a transit agency an opportunity to reconsider its priorities and reorganize its goals and objectives accordingly. A best practice is for transit performance measures and standards to link clearly and directly to goals and objectives.

Transit goals reflect the values and priorities of a jurisdiction. For example, a jurisdiction may choose to reflect its consideration of racial equity and social justice in its goals and objectives for a transit system; a transit agency may also reflect its values and priorities in its service guidelines and in the kind of data it collects. King County, Washington, offers an approach to considering equity in transit goals, planning, and evaluation (discussed in Chapter 3).

## **B. Defining Service Types and Service Guidelines**

Individual bus routes within a network typically serve different purposes. Accordingly, expectations for their performance will also differ. For example, an off-peak neighborhood feeder service will usually be held to a different expectation of ridership than an express service on a major corridor at rush-hour. Therefore, before bus routes are evaluated against performance measures and standards, a transit agency will typically categorize its routes by service type. Such a categorization might be based, for example, on the time and day, or the number of stops made along the route, or the population served by the route.

The process of defining categories of service requires the transit agency and other stakeholders to recognize that all routes will not be held to the same standards. The reasons for the difference in standards will reflect the goals and objectives for that particular type of bus service.

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<sup>3</sup> Miami-Dade County Transit Development Plan Goals and Objectives.  
[https://www.miamidade.gov/transit/library/10\\_year\\_plan/review/ch-6-mdt-tdp-goals-and-objectives-final-0007.pdf](https://www.miamidade.gov/transit/library/10_year_plan/review/ch-6-mdt-tdp-goals-and-objectives-final-0007.pdf)



**Table 2-2. Examples of Service Functions, Service Types, and Service Guidelines**

Service Function	Examples of Service Type	Examples: Service Guidelines May Vary by Service Function and Service Type	
<b>Time of Day</b>	<ul style="list-style-type: none"> <li>• Weekday Peak</li> <li>• Weekday Off-Peak</li> <li>• Saturday</li> <li>• Sunday</li> </ul>	<b>Span of Service:</b> Provide 24 hrs. service on weekdays; Provide 12 hrs. of service on weekends	<b>Coverage:</b> Provide weekday service to areas with 4+ jobs per acre
<b>Number of Stops</b>	<ul style="list-style-type: none"> <li>• Local</li> <li>• Crosstown</li> <li>• Express</li> </ul>	<b>Directness:</b> A route deviation requires at least X added riders (e.g., 5 for local; 10 for express)	<b>Frequency:</b> 10-14 minutes for express <30 minutes for local
<b>Population Served</b>	<ul style="list-style-type: none"> <li>• Commuters</li> <li>• Students</li> <li>• People in Low-Income Households</li> <li>• Attendees of Special Events</li> </ul>	<b>Ridership:</b> Commuter routes must have at least X riders per hours	<b>Coverage:</b> Provide service to areas with >x% low-income households

Source: *Best Practices in Transit Service Planning (Report #BD549-38) (CUPF, 2009).*

### C. Selecting Performance Measures and Standards

A basic reason to develop and periodically update service measures and standards for bus transit is to continuously improve service design. Transit agencies also commonly use performance measures to assess how well the system is performing financially.<sup>4</sup>

Performance measures can determine if transit goals are being met, missed, or exceeded. Transit services that do not meet service standards should be reevaluated; transit services that exceed standards may warrant expanded service frequency or span of service.<sup>5</sup> Identifying performance measures will also drive data collection – so that an agency can ensure it captures the data that will allow it to evaluate whether it is making progress towards its goals and objectives.

Research from the TRB has noted that at least four perspectives can be considered when designing and evaluating transit: (1) Customer; (2) Community; (3) Agency; (4) Driver/vehicle

Performance measures and standards that reflect all these perspectives give decision-makers a more complete picture of performance as it affects all stakeholders. TRB research has also found that stakeholders at all levels are more likely to accept measures that are easy to understand and link clearly to a transit goal. TRB guidance

<sup>4</sup> TCRP Report 88: *A Guidebook for Developing a Transit Performance-Measurement System* (Transit Cooperative Research Program, Transportation Research Board of the National Academies, 2003), Chapter 4: Developing a Performance-Measurement Program.

<sup>5</sup> TCRP Report 88, p. 26.

suggests that if a performance measure cannot be tied to a goal, then decision-makers should reassess the value of that performance measure or the relevancy of the goals – or both.<sup>6</sup>

TRB guidelines identify more than 400 potential performance measures and evaluation standards. To summarize the options, research published by TRB found that transit agencies often evaluate bus routes using measures and standards in four broad categories, described below.<sup>7</sup>

### **1. Route Design Standards.**

Standards used in designing or redesigning routes help to determine the route pathway. Route design included bus stop siting and spacing. Typical standards in this category are as follows:

- Population density
- Employment density
- Spacing between other bus routes and corridors
- Limitations on the number of deviations or branches
- Equal (geographic) coverage across the jurisdiction
- System design to enhance timed transfers
- Streamlining/reduction of routing duplications
- Network connectivity
- Service equity
- Route directness
- Proximity to residences
- Proximity to non-residential generators
- Bus stop siting requirements
- Bus stop spacing requirements
- Limitation on the number of transfers required of riders

Each of the above relates to the basic design of a transit system's network of routes. Factors such as the location of transit services, configuration of routes, and customer accessibility to transit services can all be measured by route design standards.

### **2. Schedule Design Standards**

Schedule design standards help to determine the service frequency, the scheduled interval between buses, and the span of service (the starting and ending time of service on a given day). Research has found that for many riders, frequency and span of service are the factors that largely determine and reflect their perception of service quality. Service design standards can include:

- Maximum and minimum intervals between vehicles
- Maximum number of standees on a vehicle
- Duration of standee time
- Time spent waiting at a transfer point
- Use of clock-face schedules

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<sup>6</sup> TCRP Report #88, p. 12.

<sup>7</sup> *Transit Cooperative Research Program (TCRP): Synthesis of Transit Practice 10: Bus Route Evaluation Standards*, by H. P. Benn (Barton-Aschman Associates, Inc.) pp.7-8; retrieved from [www.busadvocates.org/articles/madisonmetro/glossary.pdf](http://www.busadvocates.org/articles/madisonmetro/glossary.pdf).

### 3. Economic and Productivity Standards

Economic and productivity standards measure the ongoing performance of an established bus service. Standards can be used to monitor performance of individual bus routes relative to some predetermined standard or to compare one route against another. Standards in this category typically include:

- Passengers per hour
- Cost per passenger
- Passengers per mile
- Passengers per trip
- Passenger miles
- Subsidy per passenger
- Route level minimum variable cost recovery ratio
- Revenue per passenger per route (either in absolute dollars or as a percentage of variable cost)

### 4. Service Delivery, Reliability, and Safety Standards

Standards in this category evaluate service as it is delivered to customers. Reliability measures unexpected delays. For example, missed trips directly affect the customer experience, especially on routes with a scheduled frequency of 15 minutes or longer. On such routes, a missed trip can mean customers wait a significant amount of time and may miss planned connections. This results in a poor customer experience and contributes to lower ridership over time as customers find alternative transportation.<sup>8</sup> Standards in this category can include:

- Accident rates
- Areas where riders feel unsafe waiting for buses
- Passenger environment conditions (e.g., vehicle cleanliness, vehicle condition, missing stanchions, blank destination signs, etc.)
- Passenger complaints
- On-time performance
- Headway adherence
- Wait assessments/excess wait time
- Missed trips

The FHA considers travel time reliability a key performance measure because it quantifies operations better than simple averages. While improving average travel times may appear to be modest, travel time reliability measures can show the effect of improving the worst few days of unexpected delay.<sup>9,10,11</sup>

Wait assessment considers the customer's experience of transit reliability by monitoring the number of intervals between transit vehicles that meet a minimum standard for variance from the scheduled intervals.<sup>12</sup> A variation on this measure is Excess Wait Time (EWT), which counts the additional minutes that customers must wait for a

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<sup>8</sup> *Human Transit: How Clearer Thinking about Public Transit Can Enrich Our Communities and Our Lives*, by J. Walker, 2012), pp.98-102.

<sup>9</sup> FHWA website (updated March 2, 2020).

<sup>10</sup> *Travel Time Reliability: Making It There On Time, All The Time*, prepared by Texas Transportation Institute with Cambridge Systems, Inc. for Federal Highway Administration, USDOT (January 1, 2006); retrieved from [https://ops.fhwa.dot.gov/publications/tt\\_reliability/](https://ops.fhwa.dot.gov/publications/tt_reliability/)

<sup>11</sup> *Transportation Research Circular E-C263: Conference on Performance and Data in Transportation Decision Making* (September 15–18, 2019, Atlanta, Georgia), Organized by Transportation Research Board (TRB), Sponsored by American Association of State Highway and Transportation Officials (AASHTO) and Association of Metropolitan Planning Organizations (AMPO).

transit vehicle to arrive relative to the scheduled frequency, weighted by the number of customers affected.<sup>13</sup> Using EWT, long waits count more than short waits and excess wait time during peak rush hour counts more than an excess wait time in off-peak hours.<sup>14</sup>

In setting standards, research published by TRB has found that the importance of performance measures rests not so much on absolute values but in comparison with past performance, targeted performance, or the performance of comparable organizations. Such comparisons give more useful context to assertions that, for example, performance is “good,” “needs improvement,” or is “getting better.”<sup>15</sup>

#### **D. Taking Corrective Action**

In taking corrective action based on performance, TRB guidelines advise against policies that mandate specific actions based on a performance measure result. Rather, TRB guidelines recommend using such measures to flag under- or over-achieving routes or segments, followed by agency managers determining the corrective action on a case-by-case basis depending on the specific circumstances.<sup>16</sup> The underlying assumptions, however, are that the goals and objectives are relevant, preferably from multiple stakeholder perspectives, and that the performance measures have accurately reflected progress (or lack of progress) toward those goals.

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<sup>13</sup> *Subway Wait Assessment: Metropolitan Transit Authority-New York City Transit* (Report 2014-S-23, New York State Office of the State Comptroller, Division of State Government Accountability, April 2016); retrieved from [www.osc.state.ny.us/sites/default/files/state-audits/documents/pdf/2019-02/sga-2014-14s23.pdf](http://www.osc.state.ny.us/sites/default/files/state-audits/documents/pdf/2019-02/sga-2014-14s23.pdf).

<sup>14</sup> *To Improve Transit, Be Smart About Delays*, by M. Derksen (TransitCenter blog, May 17, 2016); retrieved from <https://transitcenter.org/improve-transit-smart-delays/>.

<sup>15</sup> *TCRP Report #141* (TRB, 2010), p. 14.

<sup>16</sup> *TCRP Report #88*, p. 15.

## **Chapter 3. Summary of Key Transit Decision Processes in Other Jurisdictions**

In order to better understand how other jurisdictions, engage in bus route design, define performance metrics, and promote decision transparency, OLO researched policies and procedures for transit agencies in 10 different jurisdictions. This chapter summarizes characteristics and common components among the jurisdictions we reviewed. Of note, while jurisdictions may share common components, each tailor services and performance reporting to the communities they serve. To write this chapter, OLO relied on publicly available documents detailing performance measures and decision processes for each of the case study jurisdictions/transit agencies. A complete list of sources used can be found on page 24 of this chapter.

This chapter is organized as follows:

### **Section A. Characteristic of Case Study Jurisdictions**

### **Section B. Identification of Priorities, Opportunities, & Challenges**

### **Section C. Evaluating Performance and Conducting Annual System Reviews**

#### **A. Characteristic of Case Study Jurisdictions**

OLO selected the case studies based on several factors, including availability of information, programming, size, service delivery, and potential similarities to the transit landscape in Montgomery County. Most of the jurisdictions OLO chose for review have conducted a comprehensive bus network redesign within the last few years. Table 3-1 on the following page presents information from the National Transit Database (NTD) for the selected jurisdictions.

**Table 3-1. Case Study Comparison Table – Select Data from the National Transit Database**

Transit Agency/ Jurisdiction	Bus Redesign Project	Service Area Density	Fare Revenue	Vehicle Revenue Hours	Vehicle Revenue Miles	Operating Expenses per Unlinked Passenger Trip	Operating Expenses per Vehicle Revenue Hour
Montgomery County, MD	No	1,963	\$21,663,817	1,051,439	13,294,018	\$5.50	\$1.46
Municipality of Anchorage (People Mover), AK	Yes	3,790	\$3,463,604	172,091	2,195,808	\$7.78	\$1.70
Los Angeles County Metropolitan Transit Authority (METRO), CA	In Progress	5,891	\$213,302,368	6,791,957	71,248,297	\$4.31	\$1.06
Miami-Dade County (Metrobus), FL	In Progress	8,158	\$62,591,364	2,066,269	26,175,164	\$7.02	\$1.15
Jacksonville Transportation Authority (JTA), FL	Yes	1,323	\$10,650,906	644,292	9,025,833	\$7.47	\$1.21
Indianapolis Public Transit Corporation (IndyGo), IN	In Progress	2,344	\$9,146,823	558,577	7,407,788	\$8.36	\$1.76
Arlington Transit (ART), VA	No*	8,704	\$3,921,970	175,417	1,758,182	\$4.89	\$2.33
Tri-County Metropolitan Transportation District (TriMet) Portland, OR	Yes	4,062	\$64,047,435	1,941,327	21,327,681	\$4.95	\$1.38
Metropolitan Transit Authority of Harris County (Metro) Houston, TX	Yes	3,105	\$29,879,388	2,886,575	35,076,925	\$5.57	\$1.19
Greater Richmond Transit Corporation (GRTC), VA	Yes	1,980	\$6,999,893	361,538	4,030,378	\$5.63	\$1.37
King County Department of Metro Transit, WA	Yes	1,000	\$142,597,278	3,123,233	34,864,942	\$5.38	\$1.11

Source: Federal Transportation Administration, National Transit Database, 2018 Transit Agency Profiles, <https://www.transit.dot.gov/ntd/transit-agency-profiles>

\*Arlington Transit completed a 10-year transportation development plan in 2016. This plan is a system wide analysis of bus service in the county and includes a 10-year plan for new, modified, or expanded service. This plan is updated annually, and a major update occurs every six years to meet State funding requirements.

Many jurisdictions are selecting consulting firms to manage bus network discussions and planning.<sup>17</sup> To carry out these network redesigns, transit agencies, local governments, and stakeholders engaged in a multi-year process to define long-term goals, set performance metrics, realign routes, and document processes for service adjustments.

**Reasons for Bus-Redesign and Goal Realignment.** Declining bus ridership and post-2008 recession economic recovery have prompted many jurisdictions to revamp their bus networks to focus on frequent, reliable service to population and employment destinations.<sup>18</sup> For many, this was the first time in decades that a systematic, network-wide review of services occurred. For example, **Houston** bus routes could be traced back to old streetcar routes in the 1900s between downtown and outlying neighborhoods. Over the years, adjustments and deviations had transformed routes from short, straight lines to twisty (spaghetti) routes. A decline in the directness of bus service offered, combined with a change in commuter patterns away from downtown destinations, resulted in a decline in bus ridership. As a result of declining ridership, fare revenues also declined, resulting in higher net costs.<sup>19</sup> Similar trends occurred in **Los Angeles, Portland, Indianapolis, Jacksonville, and Miami-Dade County**. Additionally, several jurisdictions took the opportunity presented by the implementation of new dedicated funding sources and new transit options (e.g., bus rapid transit or light rail), to build new bus networks (**King County, Indianapolis, Richmond, Los Angeles, and Houston**).

OLO found 15 interrelated factors that spurred jurisdictions to engage in a systematic evaluation of their bus networks. These factors were both the result of externalities to the transit system (e.g., changes in demographics and new destination centers) and internal bus operations (e.g., frequency of bus routes).

**Table 3-2. External and Internal Factors Contributing to Bus Redesign and Goal Realignment**

External Factors	Internal Factors
<ul style="list-style-type: none"> <li>• Economic recession</li> <li>• Population growth</li> <li>• Demographic changes</li> <li>• New commute and travel patterns</li> <li>• State reporting requirements for transit agencies</li> <li>• New public transit funding sources</li> <li>• Public advocacy for bus improvements</li> <li>• Construction of new bus rapid transit or light rail lines</li> </ul>	<ul style="list-style-type: none"> <li>• Decline in bus ridership</li> <li>• Need to reduce system costs or subsidy per rider</li> <li>• Focus on rush hour service versus mid-day or evening service</li> <li>• Few frequent bus routes (30 minutes or less)</li> <li>• Lengthy passenger wait times</li> <li>• Poor connections between bus routes</li> <li>• Duplicative bus routes and service</li> </ul>

For sources, see citations at end of chapter.

**Report Publication.** The jurisdictions reviewed typically publish reports that provide data on performance measures, service guidelines, and decision processes. These reports may be required by local laws. For

<sup>17</sup> On the recommendation of transit stakeholders in Montgomery County, OLO interviewed staff at several consulting firms who provide bus redesign and performance metric services, including Jarrett Walker + Associates and Four Square, to better understand contemporary issues in transit planning, performance metrics, and incorporation of technology.

<sup>18</sup> Daniel C. Vock, Buses, Yes Buses, Are 'the Hottest Trend in Transit, September 2017, Governing, <https://www.governing.com/topics/transportation-infrastructure/gov-big-city-bus-systems.html>

<sup>19</sup> Houston METRO, System Reimagining, Chapter 1 Existing Conditions.



example, **King County** requires the transit director to submit an annual report on services and fares.<sup>20</sup> **Arlington County** and the **City of Richmond** are required to submit a transportation development plan (TDP), along with annual updates, to the Virginia State Department of Transportation.<sup>21</sup> Jurisdictions set established timelines to update and review documents to ensure traceability from strategic priorities to service guidelines, and project prioritization. Below is a list of common reports that OLO found available online.

<b>Report</b>	<b>Description</b>
<b>Existing Condition Assessments</b>	Provide a review of transit performance, service area demographics, job and residential centers, and opportunities and challenges
<b>Strategic Transit Plans</b>	Outline decision making processes, performance metrics used to set priorities and goals; plans may be regional, county-wide, or city-based
<b>Service Guidelines</b>	Establish criteria and processes to evaluate, design and modify transit services
<b>Annual System Reviews</b>	Evaluate individual route and system performance based on performance targets, and establish project prioritization and budget allocations
<b>Bus Redesign Project Documents</b>	Include project timelines, existing system reviews, performance metrics, and new route concepts

With the process of network redesign, jurisdictions have embraced a routine, systematic way to review bus networks and route performance on a regular basis. Overall, OLO found several similarities across the case study jurisdictions, including evaluation of current services, development of performance metrics, and procedures for on-going management of transit services. The following sections describe these decision-making processes and highlight many of the best practices discussed in Chapter 2.

## **B. Identification of Priorities, Opportunities, & Challenges**

Jurisdictions focused initial steps on establishing transit priorities and reviewing existing bus system performance.

### **1. Identifying Transit Priorities**

To set the agenda for system redesign or goal realignment, jurisdictions often begin with a discussion of transit priorities. A pivotal analysis is the allocation resources, assuming a fixed-budget, between the goals of maximizing bus ridership and maximizing service coverage. A bus network that prioritizes ridership focuses on providing frequent service to areas of high demand. Comparatively, a bus network that prioritizes coverage goals focuses on providing lifeline access or equitable distribution of transit services, with less emphasis on how often the service is used.<sup>22</sup> In reality, bus networks are usually a compromise between the two, designating some routes or services as prioritizing the ridership goal, designating other routes or services as prioritizing the coverage goal, and setting the performance standards for each route or service type to reflect these goals. OLO found that this allocation decision between ridership and coverage goals varies between communities. However, most jurisdictions allocate a much larger share of funding to services that increase ridership - between

<sup>20</sup> King County METRO, 2019 System Evaluation, November 20, 2019.

<sup>21</sup> Arlington County, Arlington County 10-Year Transit Development Plan & Premium Transit Network Briefing, May 2016, Greater Richmond Transit Company, Richmond Transit Network Plan, March 8, 2017,

<sup>22</sup> Indy Go Forward Final Report, February 2015.

70 and 80 percent of funding.<sup>23</sup> Jurisdictions worked with communities to make this choice explicit by holding public meetings, conducting surveys, and offering public comment periods.

Along with reviewing their ridership versus coverage goals, jurisdictions also reviewed other policies including: providing all-day frequent service versus peak-only service; role of municipal transit operators; duplication of transit services; and land-use and development plans.<sup>24</sup> Existing system reviews incorporate these policy choices to determine:

- How has the service evolved and is transit aligned with these changes?
- Where are resources deployed currently?
- What factors drive performance?
- Where are the opportunities to drive demand?<sup>25</sup>

## **2. Evaluating Transit Demand and Existing System Performance.**

Once their transit system priorities have been defined (e.g., ridership versus coverage), jurisdictions engage in a data driven review of market demands and existing services. Market demand analysis focuses on socioeconomic, demographic, and development patterns of the service area. Data typically collected by the jurisdictions is listed in Table 3-3 below. These data assist jurisdictions with understanding changes in population and employment centers and geographic location of developments supportive of transit growth (e.g., mixed used neighborhoods, destinations like government centers and universities).<sup>26</sup>

**Table 3-3. Market Demand Data Collected by Case Study Jurisdictions.**

<b>Residential Density</b>	Total residents per square mile
<b>Employment Density</b>	Total jobs per square mile
<b>Activity Density</b>	Combine number of jobs and residences to show areas of high mixed use
<b>Walking Access</b>	Quality of access to bus stops
<b>Poverty Density</b>	Households below federal poverty level per square mile
<b>Zero-Car Ownership</b>	Households without cars per square mile
<b>Race and Ethnicity</b>	Concentration of race and ethnic groups to ensure there is not a disproportionate burden on people of color (Title VI Report)
<b>Senior Population</b>	Total number of residents over age 65 per square mile

For sources, see citations at end of chapter.

<sup>23</sup> Indygo, Service Standards, Amended October 24, 2019; [Greater Richmond Transit Company](#), Richmond Transit Network Plan, March 8, 2017; [Houston METRO](#), System Reimagining FAQ.

<sup>24</sup> Greater Richmond Transit Company, Henrico County Transit Choices Report, August 2017.

<sup>25</sup> Houston METRO, System Reimagining, Chapter 1 Existing Conditions.

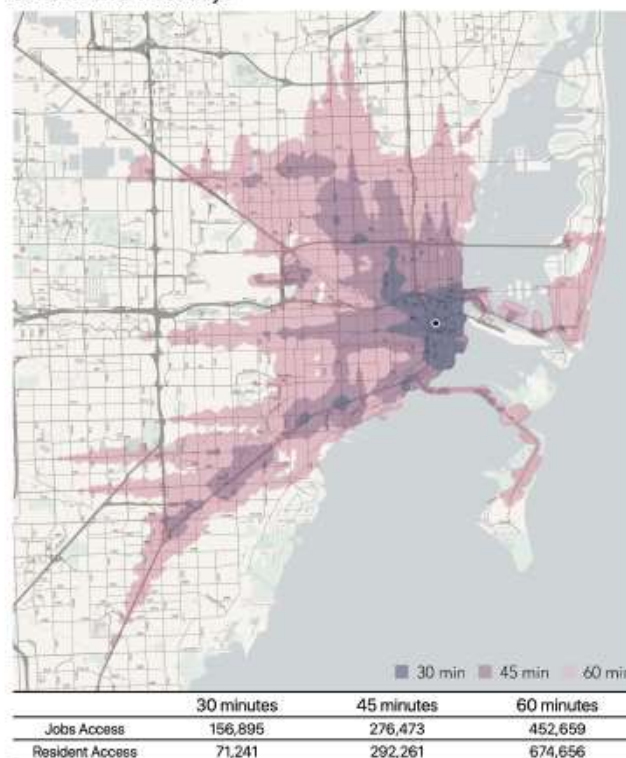
<sup>26</sup> Miami-Dade County, Better Bus Project: Transit Choices Report, July 2019; [Los Angeles County](#), NextGen Bus Study Documents, including Transit Market and Travel Demand.

**Existing System Performance.** Jurisdictions focus on a three-fold performance review of the entire system, routes/segments, and stops. Data collection efforts may include:

- Categorization of routes and number of high frequency routes during mid-day service (between 10am and 3pm)
- Percentage of jobs, residents, people of color, people in poverty, and seniors near a frequent mid-day bus service
- Ridership patterns
- Services offered by other transit partners
- Span of existing service
- On-time performance system-wide and by route
- Route productivity (ridership/cost)
- Passenger wait times
- Stop spacing

For example, **Miami-Dade County** analyzed access to services by reviewing where a person could go using public transit and walking from a location at a given time (e.g., noon on a weekday) as illustrated in the graphic to the right. The analysis specifically asked how far someone can travel in 30, 45, 60 minutes from a location at noon on a weekday. Locations analyzed included the government center, the transit terminal, and Florida International University. For each location the number of jobs accessed and residents for each time period were noted. The results were used to assess access and freedom of travel of the current bus system.<sup>27</sup>

How far can I travel in 30, 45, and 60 minutes from  
**Government Center**  
at noon on a weekday?



**Informed Processes.** Clear, explicit priorities (e.g., ridership versus coverage) and understanding existing service levels informs strategic plans and ensures goals/services comply with local, state, and federal planning and policies. For jurisdictions in the process of network redesign, these data collection efforts inform new route concepts and guide public comment periods. For jurisdictions that have established a new or have an existing network, this analytical process guides the development of performance metrics.

<sup>27</sup> Miami-Dade County, Better Bus Project: Transit Choices Report, July 2019.

## **C. Evaluating Performance and Conducting Annual System Reviews**

Jurisdictions define performance metrics and conduct annual system reviews to measure progress towards meeting transit priorities.

### **1. Performance Measurement**

Jurisdictions outline goals and performance metrics that align with transit system priorities and help address challenges and opportunities. For example, prior to the bus network redesign, **Houston's** transit goals focused on service standards, but offered little guidance to staff on how to achieve and reconcile competing goals. With the redesign, Houston redefined goals to align with policy trade-offs and serve as justification for service decisions.<sup>28</sup> Jurisdictions typically define goals, objectives, and performance measures:

- **Goals:** What the jurisdiction wants to achieve or services it intends to provide
- **Objectives:** What the jurisdiction must do to achieve the goal
- **Performance Measures:** How the jurisdiction measures success of each objective<sup>29</sup>

OLO found commonalities in performance measures across the jurisdictions reviewed, with goals often aligning with long-range transit development plans. Table 3-4 on the following page presents a sample of goals, objectives, and performance measures used by jurisdictions. Jurisdictions ranged in the number of performance measures they chose. For example, **Anchorage** set four goals, 12 objectives, and 19 performance measures. In comparison, **King County** had eight goals, 17 objectives, and 68 performance measures.<sup>30</sup> For a more detailed look at goals and metrics used by select jurisdictions, see Appendix A.

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<sup>28</sup> Houston METRO, System Reimagining, Chapter 1 Existing Conditions.

<sup>29</sup> Municipality of Anchorage Public Transportation Department, Transit of the Move 2020 Transit Plan, <https://www.muni.org/Departments/transit/PeopleMover/Pages/transitonthemove.aspx>

<sup>30</sup> Municipality of Anchorage Public Transportation Department, Transit of the Move 2020 Transit Plan, <https://www.muni.org/Departments/transit/PeopleMover/Pages/transitonthemove.aspx>; King County Metro, Strategic Plan 2011-2021, <https://kingcounty.gov/depts/transportation/metro/about/planning/strategic-plan.aspx>

**Table 3-4. Sample of Performance Measures and Standards Used by Case Study Jurisdictions**

Goals	Objectives	Measures and Standards
<b>Accessibility</b>	<ul style="list-style-type: none"> <li>• Increase access to jobs/residents</li> <li>• Meet the needs of traditionally underserved populations</li> </ul>	<ul style="list-style-type: none"> <li>• Percentage of households in minority census tracts within ¼ mile of a transit stop</li> <li>• Population within a 1/4-mile of a transit stop</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Improve security at bus stops and on busses</li> </ul>	<ul style="list-style-type: none"> <li>• Preventable accidents per million miles</li> <li>• Operator and passenger incidents and assaults</li> </ul>
<b>Environmental Sustainability</b>	<ul style="list-style-type: none"> <li>• Help reduce greenhouse gas emissions in the region.</li> </ul>	<ul style="list-style-type: none"> <li>• Particulate matter produced per mile</li> <li>• Average miles per gallon of bus fleet</li> </ul>
<b>Financial Stewardship</b>	<ul style="list-style-type: none"> <li>• Emphasize planning and delivery of productive service</li> <li>• Control costs</li> </ul>	<ul style="list-style-type: none"> <li>• Boardings per vehicle hour</li> <li>• Boardings per revenue hour</li> <li>• Farebox recovery</li> </ul>
<b>Public Engagement &amp; Transparency</b>	<ul style="list-style-type: none"> <li>• Increase customer and public access to understandable, accurate and transparent information</li> </ul>	<ul style="list-style-type: none"> <li>• Number of business partnerships</li> <li>• Public participation rates</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Decrease number of missed trips</li> </ul>	<ul style="list-style-type: none"> <li>• Percent of trips on time</li> <li>• Crowding</li> </ul>
<b>Economic Development</b>	<ul style="list-style-type: none"> <li>• Support economic development by using existing transportation infrastructure efficiently and effectively</li> </ul>	<ul style="list-style-type: none"> <li>• Transit rides per capita</li> <li>• Employer-sponsored passes and usage</li> <li>• Park and ride capacity and utilization</li> </ul>

For sources, see citations at end of chapter.

The goals and performance measures selected by jurisdictions help to inform annual evaluation of system and route performance. The following section outlines how the process of setting goals and performance measures influence service delivery decisions.<sup>31</sup>

**Establishing Service Guidelines.** Jurisdictions set service guidelines to establish criteria for services. Jurisdictions also establish processes to evaluate, design, and modify transit services. Publishing guidelines ensures service decisions are objective, transparent, and align with goals of each transit system.<sup>32</sup> These guidelines are used to identify areas of high and low performance, where investment is needed, and where resources are not being used effectively.<sup>33</sup> Jurisdictions update their service guidelines routinely, often in combination with strategic plan updates.

<sup>31</sup> King County Metro, Service Guidelines, 2015 Update, April 27, 2016, <http://metro.kingcounty.gov/planning/pdf/2011-21/2015/metro-service-guidelines-042816.pdf>

<sup>32</sup> *Ibid.*

<sup>33</sup> *Ibid.*

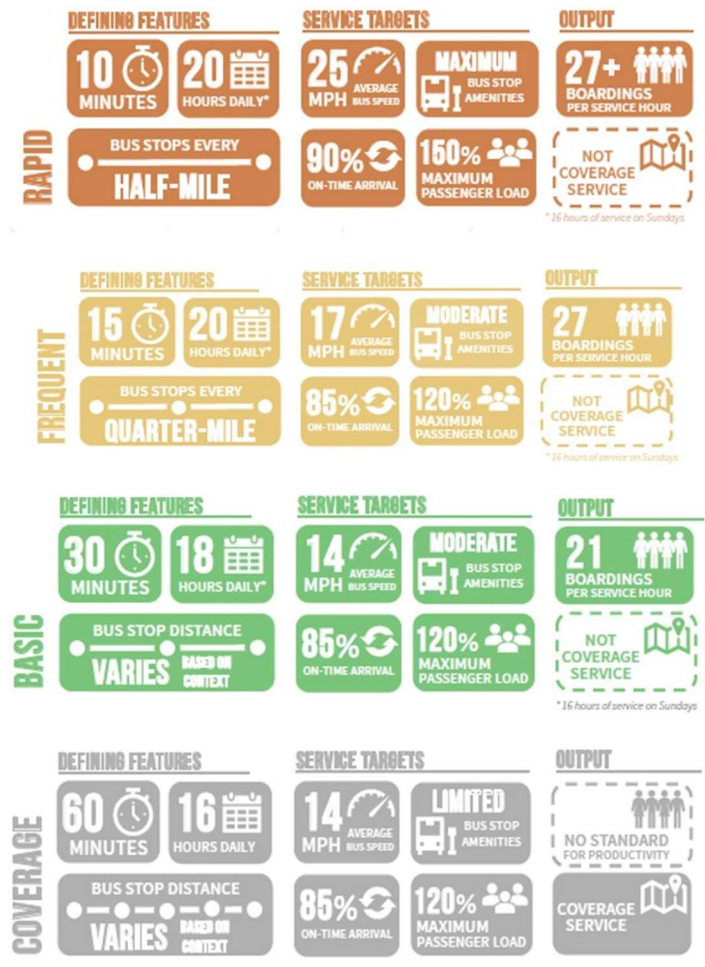
**Route Assessments.** The jurisdictions OLO reviewed set service guidelines and standards for individual routes. Each route is characterized by the type of service it provides (e.g., rapid, frequent, basic, or coverage) and its span of service.<sup>34</sup> Several jurisdictions also categorize corridors (one corridor may have multiple routes) and routes that serve urban, suburban, and dial-a-ride/community shuttles. For each route and service type jurisdictions may examine:

- Ridership
- Productivity
- Passenger loads
- Schedule reliability
- Frequency
- Minimum span of service
- Route connections
- Stop spacing
- Reliability
- Travel speed
- Headway<sup>35</sup>

Since service standards vary based on the type of route, jurisdictions measure and compare route performance only against similarly classified routes (e.g., frequent bus route to frequent bus routes). Jurisdictions do not compare differently classified routes (e.g., performance of a route designed to provide coverage to a route designed for high ridership). However, a single route may have multiple segments, each categorized by a different service type. For example, a single route may have a high-frequency segment through a downtown core, but transition to coverage-oriented service in the suburbs. In this case, like segments are compared to one another. For example, **King County** sets service guidelines with the expectation that urban routes serving employment destinations, such as

downtown Seattle, will have higher ridership, and thus set higher service targets.<sup>36</sup> The following graphic depicts the service standards by route type set by **Indianapolis**. For example, the service type categorized as ‘Rapid’ has a service standard of 27 boardings per hour, as compared to a service type categorized as ‘Coverage’ which has no standard for productivity.

#### Indianapolis Service Guidelines and Standards by Route Categorization:



Source: IndyGo, Service Standards (2019)

<sup>34</sup> Indygo, Service Standards, Amended October 24, 2019,

<sup>35</sup> Arlington County Department of Transportation, Transit Development Plan (2017-2026), Houston METRO, Metro Board of Directors, June 25, 2015 Board Meeting Amended Agenda and Supporting Documents, Los

Angeles County, 2020 Metro Transit Service Policies & Standards, TriMet, Trimet’s Service Guidelines Framework, Adopted January 14, 2015,

<sup>36</sup> King County Metro, Service Guidelines, 2015 Update, April 27, 2016.

## 2. Annual Review Processes

OLO found that the jurisdictions reviewed engage in annual review processes to evaluate efficiency and effectiveness of bus operations. As part of this process the jurisdictions publish detailed reports presenting all criteria considered. The annual process typically involves a system-wide review as well as reviewing individual route performance. The review ensures that the transit system is meeting its overarching goals and objectives.

**Process and Timeframe.** Each year the jurisdictions review draft service plans for public review and comment; determine areas of investment; and enact final service plans. For example, **Portland's** annual process includes the following nine steps:

- |   |   |
|---|---|
| 1. Budget forecast  | 6. Revise Annual Plan                     |
| 2. Annual Service Plan Development  | 7. Public Comment Round #2                |
| 3. Annual Service Plan Proposal   | 8. TriMet Board Action                    |
| 4. Title VI Review  | 9. Implement Service Change <sup>37</sup> |
| 5. Public Comment, Transit Equity Advisory Committee and Committee on Accessible Transit Review |   |

While major service changes occur only once or twice per year, transit staff will review route performance and make minor changes through the year. For example, **Portland** plans major route changes in the fall, with smaller changes made each quarter.<sup>38</sup> In comparison, **King County** conducts service changes twice per year, but also limits the types of changes that can be made without Council approval to the following:

- Any single change or cumulative changes in a service schedule which affect the established weekly service hours for a route by 25 percent or less;
- Any change in route location which does not move the location of any route stop by more than ½ mile; and
- Any changes in route numbers.<sup>39</sup>

**Route Evaluation and Service Adjustments.** For most of the jurisdictions OLO reviewed, with each review cycle, service guidelines lead transit staff on specific measures to evaluate high and lower performance, areas where investment is needed, and where resources are not being used effectively. These measures trace back to the goals, objectives, and transit priorities of the jurisdiction. Projects are ranked based on prioritization defined in the service guidelines. These jurisdictions also outline various ways services may be enhanced or reduced depending on the project. For example, the following outlines options presented in the **King County** Service Guidelines.<sup>40</sup>

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<sup>37</sup> TriMet, Washington County Coordinating Committee Meeting, November 2019.

<sup>38</sup> TriMet, TriMet's Service Guidelines Framework, Adopted January 14, 2015.

<sup>39</sup> King County Metro, Service Guidelines, 2015 Update, April 27, 2016.

<sup>40</sup> *Ibid.*



Situation	Impact	Service Options
<b>Passenger loads exceed thresholds for a route</b>	<ul style="list-style-type: none"> <li>Buses may pass up riders</li> <li>Buses may run late</li> <li>Riders may choose alternative transit services</li> </ul>	<ul style="list-style-type: none"> <li>Use larger vehicle</li> <li>Adjust spacing of trips</li> <li>Add trips</li> </ul>
<b>Poor Schedule Reliability</b>	<ul style="list-style-type: none"> <li>Providing a low-quality service for riders</li> </ul>	<ul style="list-style-type: none"> <li>Adjust run time or routing</li> <li>Invest in speed and reliability improvements</li> </ul>
<b>Service Reductions</b>	<ul style="list-style-type: none"> <li>Ensure social equity and relative impacts to all areas of the county</li> </ul>	<ul style="list-style-type: none"> <li>Maintain service levels on all-day and peak-only routes; preserve last connections to rural areas</li> </ul>

Source: King County Metro, Service Guidelines, 2015 Update, April 27, 2016.

**Public Comment and Data Transparency.** All jurisdictions reviewed incorporate public meetings, outreach events, surveys, and other opportunities for public comment into their annual review process. For example:

- **Budget Allocation.** One common feature across the jurisdictions is the explicit prioritization of goals regarding ridership versus coverage. Budget decisions, project prioritization, and service reductions are all tied to these value decisions about ridership versus coverage. Each jurisdiction worked with the public to understand these transit policies and adapted public preferences to reflect values of each community.<sup>41</sup>
- **Public Prioritization of Projects.** **Anchorage** prioritizes projects based on a scorecard system, public comments, and policy priorities. Public participants were asked to vote for their top three projects (participants could cast votes for three different projects, all for one project, or write-in additional projects). The Public Transit Advisory Board presents the top ranked project and cost estimates.<sup>42</sup>
- **Set Standards for Public Engagement.** **King County** defines public engagement goals and requirements in their service guidelines, including identifying the demographics (e.g., race, ethnicity, age, etc.) of those affected by the change and designing strategies for incorporating public comments from people who would not otherwise learn of processes through traditional communication means. King County Metro also publishes an online data dashboard for the public to track key performance metrics.<sup>43</sup>
- **Responding to Service Requests.** **Indianapolis** publishes standards for how public requests for transit services will be evaluated within the system's ridership goals. Indianapolis outlines three questions that guide the decision process: (1) Will the requested service increase productivity in the near term? (2) Will the service request increase productivity in the long term? and (3) Will the requested service increase the number of people or jobs near a service?<sup>44</sup>

<sup>41</sup> OLO found that using this framework of ridership versus coverage to clarify jurisdictional priorities is a hallmark of bus network redesigns that were implemented by the transit consulting firm Jarrett Walker + Associates.

<sup>42</sup> Municipality of Anchorage Public Transportation Department, Transit of the Move 2020 Transit Plan.

<sup>43</sup> King County Metro, Service Guidelines, 2015 Update, April 27, 2016.

<sup>44</sup> Indygo, Service Standards, Amended October 24, 2019.

**Incorporating Equity.** As described in Chapter 5, jurisdictions receiving Federal transit funds must comply with the requirements of Title VI of the Civil Rights Act of 1964. Some jurisdictions also incorporate service area demographics into reviews of existing transit networks and redesign efforts. Below are two examples of how jurisdictions are incorporating equity guidelines into day-to-day decisions and transit programming.

**King County, WA.** In 2018, the King County Council required Metro to engage in a process to create a countywide mobility framework. The Mobility Framework establishes an equity and sustainability approach to how Metro allocates transit services, invests resources, and updates existing policies. The Mobility Framework was designed by an Equity Cabinet, comprised of 23 community leaders representing: low-income communities; Black, native and communities of color; immigrants and refugees; limited-English speaking people; and people with disabilities. Metro compensated Cabinet members and provided food and childcare.<sup>45</sup> King County is in the process of enacting this framework.

**Portland, OR.** TriMet established a 16-member Transit Equity Advisory Committee (TEAC) to provide guidance to the General Manager on issues of equity, access, and inclusion. Committee members represent a diverse cross-section of community leaders. The Committee has been instrumental in developing the TriMet low-income fare program, decriminalizing the citation process, and connecting community-based organizations with TriMet's Access Transit program (low-income fare programs). The Committee also has a Youth Advisory Subcommittee. In addition, TriMet has a Language Access Committee that provides ongoing feedback reflective of the English as a Second Language communities in the service area.<sup>46</sup>

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<sup>45</sup> Travis Shofner, King County Metro, Metro takes action to address racial disparities and the climate crisis with bold direction from community, <https://kingcountymetro.blog/2019/11/01/metro-takes-action-to-address-racial-disparities-and-the-climate-crisis-with-bold-direction-from-community/>

<sup>46</sup> TriMet, Transit Equity, <https://trimet.org/equity/>

**Sources.** To write this chapter, OLO relied on publicly available documents detailing performance measures and decision process for each of the case study jurisdictions/transit agencies. The following lists the citations used to detail and summarize processes found in the 10 jurisdictions.

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## Chapter 4. Ride On Bus Service: Regional Context

Ride On is a fixed-route public bus service owned and operated by Montgomery County, Maryland, a jurisdiction of over one million residents spread over 491 square miles. Ride On was established in 1975 as a feeder to the Washington Metropolitan Area Transit Authority's (WMATA) Metrorail and complement to WMATA's Metrobus services. By 2019, Ride On had grown to be the second largest bus service in the Washington metropolitan area, the second largest bus service in Maryland, and was ranked among the 40 largest transit agencies in the U.S.<sup>47</sup>

This chapter describes the current regional context for Ride On services, organized as follows:

### Section A. Transit Governance

### Section B. Bus Service in Montgomery County

In preparing this report, OLO conducted interviews with several stakeholders who emphasized the importance of regional cooperation in short- and long-range planning for transit services to create the most efficient regional transit system and the most seamless experience for transit customers.

#### A. Transit Governance

The Montgomery County Department of Transportation (MCDOT) is the sole transit authority for Ride On bus service. MCDOT schedules and manages Ride On buses to integrate with WMATA's Metrobus and Metrorail and with the Maryland Transit Administration (MTA) Commuter Bus and commuter rail (MARC) systems.

To facilitate the coordination of public transit services across the many jurisdictions that comprise the Washington metropolitan area, local governments have long participated in regional efforts to cooperatively design and operate public transit, avoid transit redundancy, make efficient use of local transit investments, and coordinate transit planning with broader land use planning. In addition, the federal government requires regional cooperation on transportation planning and public transit as a condition of receiving federal funds. This section describes major transit authorities in the region and other transit-related entities.

#### 1. Transit authorities

A transit authority (sometimes called a "transit district") is a government agency or public-benefit corporation created to provide public transportation in a specified region.<sup>48</sup> The Washington metropolitan area has several transit authorities: some govern transit only within one jurisdiction, while others have authority over transit systems that operate across jurisdictional boundaries.

- **The Montgomery County Department of Transportation (MCDOT)** oversees five divisions: Transit Services, Highway Services, Parking Management, Traffic Engineering and Operations, and

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<sup>47</sup> 2019 Public Transportation Fact Book, American Public Transportation Association. [www.apta.com](http://www.apta.com). E.g., <https://www.apta.com/wp-content/uploads/2019-Q4-Ridership-APTA.pdf>.

<sup>48</sup> Across the U.S., western states often create a "transit district" whereas eastern states create a "transit authority," but the agency type is generally the same.

Transportation Engineering. The Transit Services Division plans, schedules, and manages the Ride On bus system and maintains the transit infrastructure supportive of Ride On, including park-and-ride lots, transit centers, bus stops, bus shelters, benches, and trash receptacles. MCDOT's Ride On service is integrated with the services of other providers, including WMATA's Metrobus and Metrorail, the MARC commuter rail, and the MTA commuter bus systems.<sup>49</sup>

- **The Washington Metropolitan Area Transit Authority (WMATA)** is the transit authority for the Metro system. WMATA operates the Metrobus system and Metrorail subway system in Washington D.C., Montgomery County, and other adjacent jurisdictions. Created in 1967, WMATA is an interstate compact agency and an instrumentality of the signatories: the District of Columbia, State of Maryland, and Commonwealth of Virginia. Each compact signatory appoints two members and two alternates to the WMATA Board.<sup>50</sup>
- **The Maryland Department of Transportation (MDOT)** includes a number of agencies responsible for different transportation modes, including the State Highway Administration (SHA) and the Maryland Transit Administration (MTA). SHA is mainly responsible for planning, designing, building, and maintaining Maryland's Interstate highways and other state-maintained roads. MTA is the public transportation arm of MDOT.
- **The Federal Transit Administration (FTA)** administers six major transit funding programs, of which the largest program is the Urbanized Area Formula Program, accounting for almost forty percent of its authorized funding.<sup>51</sup> Ride On receives federal FTA funds through the State of Maryland and has associated reporting requirements, discussed in Chapter 8.

## **2. Regional Entities Related to Transit**

- **The Washington Suburban Transit Commission (WSTC)** administers the Washington Suburban Transit District (WSTD), a bi-county district encompassing Montgomery County and Prince George's County. WSTC was created in 1965 under Maryland law (MD Chapter 870, Acts of 1965) to plan, develop, and oversee transportation systems, including mass transit facilities, on a bi-county basis. WSTC coordinates mass transit programs with the two county governments, WMATA, and the Maryland Department of Transportation. WSTC has seven commissioners appointed to three-year terms: three from Montgomery County, three from Prince George's County, and one ex officio member. The WSTC Chair alternates annually between a representative from Montgomery and Prince George's counties.<sup>52</sup>
- **The Metropolitan Washington Council of Governments (COG)** is an independent nonprofit association. In general, Councils of Government (COGs, also sometimes called "regional councils") are voluntary

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<sup>49</sup> Maryland Manual On-Line; <https://msa.maryland.gov/msa/mdmanual/36loc/mo/html/functions/motransportation.html>.

<sup>50</sup> The Washington Metropolitan Area Transit Zone encompasses the following jurisdictions: DC; the cities of Alexandria, Falls Church, Fairfax, Manassas, and Manassas Park and the counties of Arlington, Fairfax, Loudoun, and Prince William in Virginia; and the Maryland counties of Anne Arundel, Charles, Montgomery, and Prince George's.

<sup>51</sup> CRS Report R42706, p. 4.

<sup>52</sup> Maryland Manual On-Line; <https://msa.maryland.gov/msa/mdmanual/36loc/mo/html/functions/motransportation.html>.



public organizations comprised of local elected officials working across the jurisdictional silos. COGs work to develop consensus on issues best addressed in a sub-regional or regional context, including transportation and transit. COGs work to complement, not duplicate, jurisdictional activities and to unify jurisdictions and agencies on matters of mutual concern.

The Metropolitan Washington COG is a voluntary association with membership of 300 elected officials from 24 local governments, the Maryland and Virginia state legislatures, and the U.S. Congress. It has no regulatory or fiscal authority. COG regularly disseminates research findings and policy recommendations.

- **A Metropolitan Planning Organization (MPO)** is an agency created by federal law for local elected officials to provide input into the planning and implementation of federal transportation funds in larger metropolitan areas. According to the Congressional Research Service (CRS), the rationale behind the federal MPO requirements is that governmental fragmentation can make it difficult to deal with regional problems such as traffic congestion that affect regional productivity. “Metropolitan economies” can transcend local government and state boundaries. To address this, Federal law designates urbanized areas of 200,000 people or more as transportation management areas (TMAs) and requires the MPO for a TMA to include local elected officials, state officials, and officials from the public agencies that operate transit and other major modes of transportation. Federal law requires MPOs to create both long-range (20-year) transportation plans and short-term (four-year) transportation improvement programs.<sup>53</sup>

Since 1965, the **National Capital Region Transportation Planning Board (TPB)** has been the federally-designated MPO for the Washington metropolitan area. Since 1966, the TPB has been housed at and staffed by the **Metropolitan Washington Council of Governments (COG)**. This is a typical arrangement: of the over 400 MPOs across the U.S., nearly half are operating as part of a COG (or regional council).<sup>54 55</sup>

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<sup>53</sup> CRS Report R42706., p. 2.

<sup>54</sup> Website for National Association of Regional Councils, Washington, DC; <http://narc.org/about/what-is-a-cog-or-mpo/>.

<sup>55</sup> CRS Report R42706, p. 18.

## B. Bus Service in Montgomery County

In 2018, Washington Metropolitan area residents took over 164 million annual bus trips.<sup>56</sup> DC residents ranked first in ridership, accounting for 37 percent of the annual bus trips in the region. Montgomery County residents ranked second, accounting for 23 percent of annual bus trips in the region.<sup>57</sup> Across the area, more than ten separate transit agencies currently operate bus services.

Table 4-1 below lists several of the public bus systems operating in Montgomery County and the transit authority that controls each system. On a single journey, transit customers may use services from one or more agencies.

**Table 4-1. Public Bus Systems Operating in Montgomery County**

Bus System	Transit Authority	Area Served
MTA Commuter Bus	MTA, MDOT	MoCo, other MD counties, DC
Metrobus	WMATA	Washington metropolitan area
Ride On	MCDOT	MoCo
Ride On FLEX (on-demand)	MCDOT	MoCo - Wheaton + Glenmont areas
FLASH (bus rapid transit)	MCDOT	MoCo - Route 29 corridor (with more segments planned)
Bethesda Circulator <sup>58</sup>	Bethesda Urban Partnership, Inc.	MoCo - Downtown Bethesda
Friendship Heights Shuttle	Village of Friendship Heights	MoCo - Downtown Friendship Heights

Table 4-2 shows the annual ridership on the primary transit services used in Montgomery County. The following sections provide additional details.

**Table 4-2. Primary Transit Systems in Montgomery County**

Transit System	Unlinked Passenger Trips per year in Montgomery County (FY2018) <sup>59</sup>
Metrorail (WMATA)	40 million
Ride On (MCDOT)	22 million
Metrobus (WMATA)	15 million

Source. MDOT

<sup>56</sup> Data as of January 2019, *Bus System Today* (January 2019, Bus Transformation Project, Foursquare ITP) Slide 1; retrieved from [https://bustransformationproject.com/wp-content/uploads/2019/01/20190118-Bus-System-Today\\_FINAL.pdf](https://bustransformationproject.com/wp-content/uploads/2019/01/20190118-Bus-System-Today_FINAL.pdf).

<sup>57</sup> *Bus System Today* (January 2019, Bus Transformation Project, Foursquare ITP) Slide 15.

<sup>58</sup> The Bethesda Circulator began service in 1999 as Ride On Route 92 and was nicknamed the 'Bethesda 8' for its figure-eight route and eight-minute frequency of service. Source: Oren's Transit Page: <https://orenstransitpage.com/transit-photography/united-states/washington-dc/ride-on/>.

<sup>59</sup> <https://www.montgomerycountymd.gov/DOT-Transit/introduction.html>

### **1. Montgomery County Department of Transportation (MCDOT): Ride On**

MCDOT owns and operates the County's transit system which provides local, express, rapid, and on-demand bus services. Ride On is the largest component of this transit system. As of 2019, MCDOT operated Ride On bus service on 79 fixed routes. These routes operate primarily in neighborhoods and provide service to major transfer points and transit centers in the County, supplementing and coordinating with WMATA's Metrobus and Metrorail.<sup>60</sup> As compared to other jurisdictions in the Washington metropolitan area, WMATA provides a relatively small percentage of the bus services in Montgomery County. Most bus service in Montgomery County is provided by Ride On.<sup>61</sup>

### **2. WMATA: Metrobus and Metrorail**

WMATA operates the Metrobus and Metrorail systems in D.C., Maryland, and Virginia. WMATA broke ground on Metrorail in the late 1960s, with the first portion opening in 1976. Metrorail's construction prompted the creation of new local bus routes to carry riders to and from the Metro stations. In Montgomery County, Metrorail's Red Line runs between Silver Spring and Shady Grove via downtown Washington, D.C.

As of January 2019, Metrobus consisted of a fleet of more than 1,500 vehicles covering more than 250 routes across the region; 17 of these routes operate in Montgomery County. Metrobus routes often cross jurisdictional boundaries. Many current Metrobus routes began over 75 years ago as private streetcars, subsequently became private bus lines, and now operate as Metrobus routes. WMATA charges jurisdictions in Maryland and Virginia for the costs of operating Metrobus routes in each jurisdiction.<sup>62</sup>

### **3. MTA Commuter Bus and MARC**

The Maryland Transit Authority (MTA) in the Maryland Department of Transportation operates commuter bus and commuter rail services for the Washington, D.C. and Baltimore metropolitan areas, connecting suburban residents to jobs in the cities. MTA's Commuter Bus program provides limited-stop weekday service from the suburbs to the District of Columbia and Baltimore. MTA's Commuter Bus routes offer intermodal connections at four Metrorail stations along the Red Line in Montgomery County. Table 4-3 on the following page lists the MTA commuter bus routes that serve Montgomery County.

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<sup>60</sup> Montgomery County Operating Budget: Transit Services Program (County Office of Management and Budget, 2020); retrieved <https://apps.montgomerycountymd.gov/BASISOPERATING/Common/Program.aspx?ID=51V01&PROGID=P51P02>.

<sup>61</sup> Source: *Bus System Today* (Foursquare ITP, January 2019); retrieved from [https://bustransformationproject.com/wp-content/uploads/2019/01/20190118-Bus-System-Today\\_FINAL.pdf](https://bustransformationproject.com/wp-content/uploads/2019/01/20190118-Bus-System-Today_FINAL.pdf).

<sup>62</sup> Source: WMATA Metrobus Monthly Total Ridership by Line.

**Table 4-3. MTA Commuter Bus Service - Montgomery County Routes, December 2019**

<b>Line</b>	<b>Origin</b>	<b>Destination</b>
201	Gaithersburg	BWI Airport / MARC
202	Metropolitan Grove / MARC	NSA / Fort Meade
203	Columbia	Bethesda
204	Frederick	College Park
915	Columbia	Silver Spring / Washington DC
929	Columbia	Silver Spring / Washington DC
991	Hagerstown / Frederick	Shady Grove / Rock Spring Business Park

The Maryland Area Regional Commuter (MARC) rail line has eleven stations along the Brunswick Line in Montgomery County, operating between Brunswick, MD and Washington D.C.: in Silver Spring, Kensington, Garrett Park, Rockville, Washington Grove, Gaithersburg, Metropolitan Grove, Germantown, Boyds, Barnesville and Dickerson. MARC riders can connect to other transit services at eight of those stations.

## Chapter 5. Demographic Profile of Ride On Customers

This chapter summarizes the most recent demographic data available about Ride On customers. Under Title VI the Civil Rights Act of 1964, the federal government requires the County to survey Ride On customers at least every five years to determine riders' race, color, national origin, English-proficiency, language spoken at home, household income, type of fare purchased, and travel patterns.<sup>63</sup> The demographic information in this chapter is derived from on-board surveys conducted in 2018 and reported by MCDOT in *Ride On Title VI Data Report*, May 2019 (371 pages).

More details for the items noted below with an asterisk (\*) can be found in tables on the following pages.

<b>Customers</b>	<b>Roughly 38,070 people used Ride On services on an average weekday.</b>
<b>Daily use*</b>	Over 60% of customers said they used Ride On daily. (See Table 5-1.)
<b>Residence</b>	About 89% of Ride On customers were County residents.
<b>Trips</b>	58% of trip origins were home and 43% of trip destinations were work
<b>Gender</b>	Customers were about equally male and female.
<b>Race/Ethnicity*</b>	36% of Ride On customers were Black or African American. (See Tables 5-2 and 5-7.) 78% of customers were categorized as Black, Indigenous, or people of color (BIPOC). <sup>64</sup>
<b>Language*</b>	42% of customers spoke a language other than English at home. (See Table 5-3.)
<b>Income*</b>	47% of riders reported an annual household income of less than \$30,000 dollars. <sup>65</sup> (See Table 5-4.)
<b>Education*</b>	69% of the customers had a Bachelor's degree, a post-graduate degree, or some college education. (See Table 5-5.)
<b>Age*</b>	29% of Ride On customers were between 35 and 54 years old. (See Table 5-6.)
<b>Smartphones</b>	79% of customers had a smartphone.
<b>Credit Cards</b>	69% of customers owned a credit or debit card.
<b>Employment</b>	18% of survey respondents were Federal employees or contractors.
<b>Access Mode</b>	Over 58% of customers said their mode of access (getting to the bus) and egress (travel mode used after getting off the Ride On bus) was walking. Other modes in declining order: Metrorail, another Ride On bus, a Metrobus, or a car that was parked).

The next three pages include tables with more details from the Title VI survey responses.

<sup>63</sup> Ride On Title VI Data Report (May 2019), p.1.

<sup>64</sup> The Title VI surveys asked Ride On customers to select a response identifying themselves as White, American Indian or Alaskan Native, Black or African American Descent, Asian, Hawaiian or other Pacific Islander, Hispanic, Middle Eastern Descent, Two or More Races, or Rather not say. The Title VI reports appear to use the term "minority" to refer to the customers who selected a response other than White or Rather not say. This OLO report will use the term Black, Indigenous, or people of color (BIPOC) in place of "minority" when referring to that Title VI survey data.

<sup>65</sup> The median annual household income for a family of four in Montgomery County in 2018 was \$108,000. Federal Reserve Bank of St. Louis (FRED) Economic Research.

**Table 5-1. Frequency of Use**

<b>Weekly trips</b>	<b># of Survey Responses</b>	<b>%</b>
Daily (5-7 trips)	5,733	60.7%
Often (4-8 trips)	2,387	25.3%
Occasionally (1-3 trips)	1,321	14.0%
<b>Total Responses</b>	<b>9,441</b>	<b>100%</b>
No Response	1,456	
<b>Total Surveys</b>	<b>10,897</b>	

Source: Title VI Data Report (May 2019), Table 18, p.26.

**Table 5-2. Race and Ethnicity**

<b>Race/Ethnicity</b>	<b># of Survey Responses</b>	<b>% of Total</b>
Black or African American	3,828	36.0%
White	2,078	19.6%
Hispanic or Latinx	1,956	18.4%
Asian	973	9.2%
Two or More Races	622	5.9%
Rather Not Say	958	9.0%
Other categories	205	1.9%
<b>Total Responses</b>	<b>10,620</b>	<b>100%</b>
No Response	277	
<b>Total Surveys</b>	<b>10,897</b>	

Source: Title VI Data Report (May 2019), Table 7, p.12.

**Table 5-3. Predominant Language Spoken at Home**

<b>Primary Language Other Than English</b>	<b># of Survey Responses</b>	<b>% of Total</b>
Yes	4,547	42.7%
No	6,084	57.2%
Other	10	0.1%
<b>Total Responses</b>	<b>10,641</b>	<b>100%</b>
No Response	256	
<b>Total Surveys</b>	<b>10,897</b>	

Source: Title VI Data Report (May 2019), Table 8, p.13.

**Table 5-3(a) Of those speaking a language other than English at home, the primary language spoken was:**

Spanish	1,415	50.9%
French	460	16.6%
Amharic	214	7.7%
Chinese	117	4.2%
Hindi	79	2.8%
Tagalog	78	2.8%
Portuguese	38	1.4%
All Other Languages	378	13.6%
<b>Total</b>	<b>2,779</b>	<b>100%</b>

Source: Title VI Data Report (May 2019), Table 9, p.14.

**Table 5-4. Annual Household Income**

Annual Household Income	# of Survey 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%
<b>Total Responses</b>	<b>9,087</b>	<b>100.0%</b>
No Response	1,810	
<b>Total Surveys</b>	<b>10,897</b>	

Source: Title VI Data Report (May 2019), Table 13, p.19.

**Table 5-6. Age**

Age	# of Survey Responses	% of Total
Under 18	535	5.1%
18 - 24	2,406	22.7%
25 - 34	2,457	23.2%
35 - 54	3,102	29.3%
55 - 64	1,379	13.0%
65+	704	6.7%
<b>Total Responses</b>	<b>10,583</b>	<b>100%</b>
No Response	314	
<b>Total Surveys</b>	<b>10,897</b>	

Source: Title VI Data Report (May 2019), Table 11, p.17.

**Table 5-5. Education**

Education Level	# of Survey Responses	% of Total
High School	2,533	24.4%
GED	695	6.7%
Some College	3,155	30.4%
Bachelor's Degree	2,132	20.6%
Post-Graduate	1,850	17.8%
<b>Total Responses</b>	<b>10,365</b>	<b>100%</b>
No Response	532	
<b>Total Surveys</b>	<b>10,897</b>	

Source: Title VI Data Report (May 2019), Table 12, p.18.

**Table 5-7. Black, Indigenous, or People of Color Ridership by Ride On Route (Title VI Data Report, May 2019, p.38)**

Route #	# Responses	Minority	Non-Minority	Route #	# Responses	Minority	Non-Minority
73	38	97.4%	2.6%	100	328	79.6%	20.4%
98	69	92.8%	7.2%	46	419	79.2%	20.8%
41	89	92.1%	7.9%	43	127	78.0%	22.0%
20	173	91.9%	8.1%	45	217	77.4%	22.6%
21	60	91.7%	8.3%	38	118	77.1%	22.9%
39	68	91.2%	8.8%	66	65	76.9%	23.1%
15	226	89.8%	10.2%	25	68	73.5%	26.5%
28	77	89.6%	10.4%	12	159	73.0%	27.0%
97	92	89.1%	10.9%	5	224	72.3%	27.7%
16	290	88.6%	11.4%	60	43	72.1%	27.9%
10	181	88.4%	11.6%	34	159	71.7%	28.3%
78	77	88.3%	11.7%	1	127	71.7%	28.3%
58	208	87.5%	12.5%	63	75	70.7%	29.3%
75	63	87.3%	12.7%	33	80	70.0%	30.0%
67	39	87.2%	12.8%	71	53	69.8%	30.2%
83	78	87.2%	12.8%	52	32	68.8%	31.3%
301	39	87.2%	12.8%	23	118	67.8%	32.2%
26	220	86.8%	13.2%	90	149	67.8%	32.2%
17	110	86.4%	13.6%	24	52	67.3%	32.7%
64	167	86.2%	13.8%	11	85	65.9%	34.1%
31	50	86.0%	14.0%	37	72	65.3%	34.7%
2	49	85.7%	14.3%	81	51	64.7%	35.3%
57	188	85.6%	14.4%	70	110	64.5%	35.5%
55	806	84.4%	15.6%	47	117	64.1%	35.9%
59	299	84.3%	15.7%	14	85	62.4%	37.6%
48	214	84.1%	15.9%	22	79	62.0%	38.0%
56	228	83.8%	16.2%	13	60	60.0%	40.0%
18	83	83.1%	16.9%	96	78	59.0%	41.0%
74	190	82.6%	17.4%	6	69	58.0%	42.0%
65	23	82.6%	17.4%	4	65	56.9%	43.1%
51	57	82.5%	17.5%	76	104	56.7%	43.3%
101	81	81.5%	18.5%	42	89	55.1%	44.9%
8	95	81.1%	18.9%	7	61	54.1%	45.9%
79	63	81.0%	19.0%	53	82	53.7%	46.3%
61	258	80.6%	19.4%	32	79	51.9%	48.1%
54	173	80.3%	19.7%	29	61	49.2%	50.8%
44	50	80.0%	20.0%	36	58	46.6%	53.4%
49	205	80.0%	20.0%	30	36	44.4%	55.6%
9	59	79.7%	20.3%	19	37	27.0%	73.0%



## Chapter 6. The County's Current Mission, Goals, and Objectives for Ride On

This chapter describes the County's most recently published goals for providing Ride On bus service. Best practices are that transit directly link measures of performance to their goals in order to assess whether the goals are being met. Therefore, this chapter reviews the County's current mission, goals and objectives for Ride On.

**Overview.** Ride On provides bus service across 495 square miles in Montgomery County. In 2018, the Ride On program consisted of:

- 79 fixed routes
- 374 vehicles
- Nearly 5,300 bus stops
- 507 shelters and 680 benches
- An average of 38,070 people using Ride On per weekday<sup>66</sup>
- About 22 million unlinked passenger trips

In 2018, 61 percent of customers reported using Ride On services daily (5-7 times per week). Almost half of customers had an annual household income below \$30,000.<sup>67</sup>

The base fare for a Ride On trip is \$2.00.<sup>68</sup> At most times, seniors, people with disabilities, youth, and Montgomery College students may use Ride On vehicles for free. Individuals can also buy a variety of passes from the County, Metrobus, MARC, and MTA that can be used as fare for Ride On.

**Mission.** As stated in the Executive's FY21 budget request, the current mission of the MCDOT Division of Transit Services is "to provide an effective mix of public transportation services in Montgomery County." It also states that the Transit Services program "plans and schedules all transit service, evaluates and develops routes and zones, and adjusts bus schedules three times per year. Ride On operates fixed-route service primarily in neighborhoods and provides a collector and distributor service to the major transfer points and transit centers in the County."<sup>69</sup>

**Goals and Objectives.** According to MCDOT staff, the County's current goals and objectives for Ride On were most recently updated in September 2008, when Montgomery County adopted the *Strategic Transit Plan* for Ride On services (2008-2020). The 2008 *Strategic Transit Plan* updated the 2004 *Strategic Transit Plan*<sup>70</sup>, which

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<sup>66</sup> Ride On Title VI Data Report (May 2019), and NTD report

<sup>67</sup> Ride On Title VI Data Report (May 2019), p. 19.

<sup>68</sup> To protect riders and operators during the COVID-19 pandemic, the County has made Ride On fares free on all busses and required rear door boarding in most cases.

<sup>69</sup> *FY21 Operating Budget and Public Services Program FY21-26* (Montgomery County Office of Management and Budget, p. 51-10) [www.montgomerycountymd.gov/OMB/Resources/](http://www.montgomerycountymd.gov/OMB/Resources/).

<sup>70</sup> *Montgomery County Strategic Transit Plan* (March 2004) (prepared by DMJM Harris for Douglas M. Duncan, County Executive). Only the Executive Summary of this document available; according to MCDOT staff, the full report is not available.

appeared to be more comprehensive, although OLO staff were only able to obtain an executive summary of the 2004 plan.<sup>71</sup>

The 2008 Strategic Transit Plan stated the following long-range goals as its “2020 Vision”:<sup>72</sup>

- Double transit ridership by 2020.
- Provide transit service to all areas that have an average of 3+ households or 4+ jobs per acre.
- Increase peak hour frequency to every 10 minutes or better.
- Increase Span of Service for local buses to 19-24 hours of service per day.
- Target pockets of low-income areas with non-traditional services.
- 25+ Park & Ride Lots in the County.
- 100% Customer Service Satisfaction.
- 5,500 Bus Stops American with Disabilities Act (ADA) Compliant.
- Capacity for 600 buses.
- Fleet Reliability: 100%.
- 95% On-time Performance.
- Keep Pace with Latest Technology.
- Operate 100% Environmentally-Friendly Buses.

**2014 Transportation Development Plan (TDP) Reaffirms 2008 Goals.** The Maryland Transit Administration (MTA) requires that each Locally Operated Transit Systems (LOTS) in Maryland prepare a Transportation Development Plan (TDP) every five years. MTA’s published guidance states that a TDP should identify an area’s transportation goals and objectives and provide an analysis of the performance of current transit services.<sup>73</sup> In 2014, MCDOT submitted the *Bus Fleet Management Plan (BFMP) for 2013 to 2020* to MTA to satisfy its TDP requirement. That document restated the County’s goals from the *2008 Strategic Transit Plan* and noted that reaching many of the goals had been delayed due to the recession following 2008.<sup>74</sup>

#### Best Practices: Reassessment of Transit Goals

According to TRB research and guidance, a best practice is for transit performance measures and standards to link clearly and directly to goals and objectives. Transit agencies usually reassess their goals and objectives about every five years. Such a reassessment gives a transit agency an opportunity to reconsider its priorities and reorganize its goals and objectives accordingly.<sup>1</sup> By that five-year standard, Ride On is due for a comprehensive update to its goals and objectives.

<sup>71</sup> Based on its executive summary, OLO staff believe that the *2004 Strategic Transit Plan* was more comprehensive than the 2008 plan that updated the 2004 plan. However, MCDOT staff could only provide OLO staff with an executive summary of the 2004 plan.

<sup>72</sup> *Montgomery County Strategic Transit Plan* (September 2008) (Montgomery County Department of Transportation, Division of Transit Services). This document was a presentation only; according to MCDOT staff, the department did not produce a full report.

<sup>73</sup> *Locally Operated Transit System (LOTS) Program Manual* (MTA, April 2017) p. 2-1; retrieved from <https://www.mta.maryland.gov/lots>. The MTA 2017 LOTS Manual Appendix C (p. 26) provided the following definition: “TRANSPORTATION DEVELOPMENT PLAN (TDP): A plan that identifies an area’s transportation goals and objectives, the current status of its transportation services, and the proper course to implement those objectives in the short-range future, typically 3-5 years. Also may be known as a short-range transit plan, or by other similar names.”

<sup>74</sup> BFMP 2014.

## **Chapter 7. Ride On Data Collection**

This chapter provides an overview of the data that Montgomery County Government (MCG) currently collects about the Ride On program. Subsequent chapters discuss how it uses that information to measure and report on Ride On performance and to make short- and long-term changes to Ride On routes and services.

This chapter is organized as follows:

### **Section A. Data About Vehicles**

### **Section B. Data About Ridership**

### **Section C. Data About Customer Satisfaction**

Ride On collects data about vehicles, ridership, and customer satisfaction. The data enable MCDOT to monitor day-to-day Ride On operations, assess Ride On performance in meeting its goals and objectives, and revise Ride On routes and services as needed over both the short- and long-term.

MCDOT collects large volumes of detailed information about Ride On vehicles and passenger counts. Time-stamped vehicle location data are collected in real-time and allow managers and supervisors to know whether the department is providing Ride On services as intended. Daily ridership counts allow managers and supervisors to monitor vehicle capacity and to know how the services offered are being used by customers. MCDOT is in the process of substantially improving its capability to collect automated real-time data on ridership which previously could only be extracted with significant effort.<sup>75</sup> Customer satisfaction data is collected daily through the MC311 system and periodically through surveys.

The following subsections describe both the manual and automated methods that MCDOT uses to collect data about vehicles, ridership, and customer satisfaction.

#### **A. Data About Vehicles**

The transit operations center at MCDOT monitors detailed information on the location of Ride On vehicles during each service day. Real-time vehicle location data allows a transit system to know if its vehicles are adhering to the published schedules. Monitoring vehicle location is essential for dispatchers to manage delays, service interruptions, and missed trips. A missed trip is a scheduled trip that did not operate for reasons that may include: operator absence, vehicle failure, dispatch error, traffic, accident, weather event, a passenger incident, or another unforeseen reason.<sup>76</sup>

Information about vehicle time and location is communicated to MCDOT dispatchers by the vehicle operators themselves and through an automated system. All Ride On vehicles are monitored using an automated global positioning system (GPS) based real-time management system. The automated vehicle location (AVL) system used by Ride On records and updates the time-stamped location of the vehicle whenever a vehicle door is

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<sup>75</sup> *TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System* (Transit Cooperative Research Program, Transportation Research Board of the National Academies, 2003), p. 24.

<sup>76</sup> *Transit Cooperative Research Program (TCRP): Synthesis of Transit Practice 10: Bus Route Evaluation Standards* H. P. Benn (Barton-Aschman Associates, Inc.) Appendix H, Glossary of Terms, p.53; retrieved from [www.busadvocates.org/articles/madisonmetro/glossary.pdf](http://www.busadvocates.org/articles/madisonmetro/glossary.pdf).

opened (which primarily occurs at bus stops). The AVL system then reports the data in real-time to the transit operations center. As of FY20, all Ride On vehicles are equipped with GPS-enabled AVL systems.

Internally, MCDOT dispatchers use all of the above real-time location data on a daily basis to manage and modify vehicle schedules to adhere to the reported schedule. For example, dispatchers may instruct vehicle operators to speed up or slow down a trip to maintain the schedule. Dispatchers may also deploy additional vehicles (e.g., when a vehicle breakdown occurs or when more rider capacity is needed to avoid passenger overcrowding). Each day, dispatch logs are compiled and distributed to operations and maintenance managers. MCDOT managers also review these stored data records retroactively as part of the department's three times per year review of Ride On routes and services.

Externally, MCDOT makes Ride On real-time vehicle location data available to riders in three ways:

- MCG's Ride On app ("Where's My Bus – Real Time" <https://rideon.app/busmap>);
- To privately-operated software applications such as the TransitApp<sup>77</sup> used by many transit riders; and
- MC311 customer service representatives use the real-time location data to answer resident calls asking when the next Ride On bus will arrive. Resident questions about Ride On real-time arrival has consistently been one of the most frequent reasons that residents call the MC311 Customer Service Center.

## **B. Data About Ridership**

Transit ridership is most typically calculated based on Unlinked Passenger Trips (UPTs, or boardings), rather than on the number of journeys completed or the number of unique human beings using transit. To illustrate how ridership is counted based on UPTs, dense city transit often includes multiple transfers and transportation modes to complete one journey. To get to work, a passenger might take a bus trip to the underground train, ride the train for three stops, and walk from the train station to their workplace. In this example, this commuter's journey represents two unlinked passenger trips (one on bus and one on rail), and their roundtrip would represent four UPTs. To illustrate how counting "ridership" vs. "people" can produce different metrics, in FY18 Ride On totaled about 21.6 million UPTs; also in 2018, Title VI surveys found that on average about 38,070 people used Ride On services one or more times during a typical weekday.

MCDOT counts Ride On ridership (UPTs) using both automated and manual counting methods. At present, MCDOT reports Ride On ridership to the National Transit Database (NTD) using parallel systems of manual and automated counts, but it plans to report ridership based solely on automated counts once it receives approval from the Federal Transit Administration (FTA). Transit research suggests that synthesized automated real-time data can improve decision making for transit agencies at the operational and planning levels. Such data collection creates opportunities for evaluating transit system performance in real-time day-to-day operations, as well as in short- and medium-term planning.<sup>78</sup>

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<sup>77</sup> TransitApp: <https://transitapp.com/region/washington-dc#all-regions>.

<sup>78</sup> *Development Of Transit Performance Measures Using Big Data* Report, by V. Didier et al, date: June, 2017 Prepared by: Civil Engineering and Surveying Department Calle Post, Mayagüez Puerto Rico University of Puerto Rico-Mayagüez PR-108, Mayagüez, 00682, Puerto Rico; retrieved from <http://www.buffalo.edu/content/www/transinfo/Research/transportation-operations/bus-performance>

1. **Automated Passenger Counts.** MCDOT collects ridership data for Ride On using automated passenger count (APC) system and electronic farecard data, as follows:

**Automated Passenger Count (APC) System.** All Ride On vehicles are currently equipped with an automated passenger count (APC) device. The APC is triggered when anyone entering or exiting the vehicle crosses an infrared beam. APC data by time and location can be correlated with the time-stamped automatic vehicle location (AVL) data.

Currently, MCDOT does not report Ride On ridership data collected by the APC in real time for the following reasons:

- The APC system cannot transmit the ridership counts from Ride On vehicles to dispatch in real-time because of insufficient bandwidth. When the vehicle returns to the depot at the end of the service schedule, the APC data is uploaded.
- The APC system overcounts riders because it cannot differentiate between riders and operators getting on and off the vehicles, nor can it distinguish when a customer steps into the door but then realizes they are on the wrong bus and steps off again. Currently, the FTA requires Ride On to eliminate these overcounts from the APC ridership data before reporting it to the NTD.
- The APC system currently relies on each operator to log in correctly. If an operator makes an error (such as typing in the wrong route number) then the APC system attempts to reconcile the actual trip data with the wrong schedule and records the results as “uncorrelated data.” MCDOT staff must remove such records before reporting ridership data.

To remedy the lag in transmitting APC data, in the fall of 2020 Ride On plans to pilot and test the following initiatives:

- 1.) Wireless connection. MCDOT is equipping all Ride On vehicles with a wireless cellular connection to allow real-time transmission of the APC data; currently, APC data can only be transmitted at the end of the service run.
- 2.) AVL/CAD linked to APC: MCDOT is piloting a system that links the automatic passenger counter (APC) system to the automatic vehicle location (AVL) and computer-aided dispatch (CAD) systems to produce real-time ridership information by location and time. Linking these automated systems will avoid operators logging into the APC system incorrectly.

**Electronic farecard data.** As of 2018, about three-quarters of all Ride On customers used SmarTrip cards to pay their fares when boarding. A SmarTrip card records the time of boarding and the route being taken. Upon boarding, a customer taps the SmarTrip card to an electronic reader, which deducts the fare from the stored value on the card or recognizes certain passes. Ride On customers do not use a SmarTrip card to exit. Ridership data collected from SmarTrip cards has a high confidence of accuracy. SmartTrip cards are also used for Metrorail, but Metrorail riders both “tap in” when entering and “tap out” when exiting. Therefore, the ridership information collected by Metrorail from SmarTrip cards is more complete than for Ride On. WMATA can use SmarTrip farecard data to analyze origin-destination ridership on Metrorail, but MCDOT cannot use SmarTrip data to analyze origin-destination ridership for Ride On.

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[etrics/ jcr\\_content/par/download\\_17535572/file.res/Final%20Report%20Development%20of%20Transit%20Performance%20Measures%20Using%20Big%20Data.pdf](https://www.mcdot.gov/content/par/download/17535572/file/res/Final%20Report%20Development%20of%20Transit%20Performance%20Measures%20Using%20Big%20Data.pdf).

Cash and other fare transactions. As of 2018, about one quarter of all Ride On customers use a payment other than SmartTrip cards, including: cash, flash passes, or student IDs. To record fares other than SmartTrip or cash payments, a vehicle operator must record the fare by interacting with the farebox. Because ridership counts based on such farebox records relies on the operator recording the transaction appropriately every time, it has a lower confidence of accuracy than ridership counts based on SmartTrip farecard data.

### **Real-Time Passenger Counts Can Improve Service**

Recording and uploading passenger counts in real-time offers the potential to improve service:

**Overcrowding.** Currently, a Ride On operator must estimate whether a vehicle has become overcrowded. When a vehicle exceeds the number of passengers allowed, MCDOT instructs operators to stop taking new passengers and call dispatch for an additional vehicle to pick up waiting customers. Riding an overcrowded vehicle always detracts from the customer experience. Estimating rider count is always somewhat subjective for the operator. But during the COVID-19 pandemic, overcrowding takes on heightened importance. Passengers boarding at the rear of the vehicle during the pandemic makes it harder for operators to estimate when the vehicle has reached capacity. Moreover, some passengers are at greater risk than others for COVID-19, yet may have no transportation alternative, even if the vehicle has exceeded social distancing capacity. Even post-COVID-19, real-time crowding data will continue to be a valuable tool for improving services by allowing MCDOT dispatchers to deploy additional vehicles more rapidly and to make that information externally available in real-time.

**Weighting Traffic Signal Prioritization for People over Vehicles.** Currently, Ride On vehicles have traffic signal priority (TSP) along Route 355, and other corridors are under consideration for TSP. TSP is a powerful tool for keeping transit vehicles on schedule, improving reliability, and shortening transit vehicle journey time. But TSP also has implications for non-transit vehicles. Rather than treating all transit vehicles equally for TSP, real-time passenger counts could be used to weight the priority of the vehicle based on ridership; that is, if a Ride On vehicle approaching a traffic signal has only a few riders, then delaying all other vehicles at the intersection for that bus may be less warranted than if the bus has higher ridership. APC data in real-time could allow the TSP to prioritize based on people moving through the intersection rather than vehicles moving through the intersection.

## **2. Manual Passenger Counts of Ridership**

Ride On employs one checker who manually counts ridership on 500-750 randomized trips per year. The Federal Transit Administration (FTA) requires such randomized data collection, although MCDOT staff told OLO that it plans to switch to fully automated counts of Ride On ridership once it receives FTA approval to do so.

On-board customer surveys for Title VI: Pursuant to Title VI of the U.S. Civil Rights Act of 1964, FTA regulations direct transit providers to conduct rider surveys at least every five years to determine riders' race, color, national origin, English-proficiency, language spoken at home, household income, type of fare purchased, and travel patterns.<sup>79</sup> Survey data is used to develop a demographic profile about the household income of riders

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<sup>79</sup> Title VI FTA Circular 4702.1B.

and to compare minority and non-minority riders. Surveys conducted to satisfy Title VI requirements also provide transit agencies with valuable ridership data. For example, MCDOT uses Title VI survey results for its own origin-destination analysis of Ride On ridership patterns. Chapter 5 of this report describes the results of the recent Title VI customer surveys for Ride On in greater detail.

### **C. Data About Customer Satisfaction**

Customer satisfaction surveys and customer complaints and compliments help identify how public need for transit services is being met. Individual complaints and requests aggregated over time can identify trends and patterns in passenger needs and concerns about transit.<sup>80</sup>

The County currently collects customer feedback and opinions about Ride On routes and services in three main ways: County Livability surveys, MC311 service requests, and Title VI surveys. This subsection describes each of these sources of information.

#### **1. County Livability Surveys**

Montgomery County has contracted with the National Research Center, Inc. (NRC) to conduct County Livability Surveys of residents in 2019, 2017, 2009, and 2007. NRC surveys ask County residents about quality of life, public services, satisfaction with local government, and priorities for government action, including questions about mobility and transit. Key findings from the 2019 survey include:

- From 2017 to 2019, the portion of residents responding positively about ease of travel and transit service quality declined.
- The portion of County residents who responded positively (“good” or “excellent”) about overall ease of getting to the places they usually visit declined from 2017 (60 percent) to 2019 (44 percent).
- The portion of County residents who responded positively (“good” or “excellent”) about ease of travel by public transportation in Montgomery County declined from 2017 (45 percent) to 2019 (34 percent).
- The portion of County residents who responded positively (“good” or “excellent”) about the quality of bus or transit services in Montgomery County slightly declined from 2017 (62 percent) to 2019 (59 percent).
- The portion of County residents who responded that it is either “very important” or “essential” for Montgomery County to focus in the next two years on the overall ease of getting to the places they usually visit decreased slightly 2017 (89 percent) to 2019 (88 percent), although this change is within the margin of error.

The County Livability surveys gauge trends in overall resident satisfaction about mobility and transit, but the surveys are too general to use as a resource to guide strategies for improving resident satisfaction with transit services in the County.

#### **2. MC311 Service Requests, Complaints, and Compliments**

Residents may call the MC311 Customer Service Center on weekdays from 7:00AM to 7:00PM to inquire about Ride On services, request changes to Ride On services, file complaints, and/or record compliments. In addition, the MC311 Web Portal is available to residents 24/7. All resident service requests about Ride On made via the

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<sup>80</sup> *TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System* (Transit Cooperative Research Program, Transportation Research Board of the National Academies, 2003), p. 24.



MC311 system are tracked to monitor departmental performance in fulfilling the requests.<sup>81</sup> According to MCDOT staff, these MC311 service requests are the primary way that residents communicate with MCDOT about their desire for specific changes to Ride On routes and services, MC311 receives approximately 350-400 such requests a year. MCDOT incorporates consideration of the customer service requests into its scheduled three-times-per-year review of Ride on routes and services (discussed in Chapter 9).

### **3. Title VI Customer Surveys**

As discussed in Chapter 5, in accordance with Title VI of the U.S. Civil Rights Act of 1964, FTA requires certain transit providers receiving Federal assistance to demonstrate that they distribute transit amenities in an equal and nondiscriminatory manner. FTA directs transit providers to survey customers at least every five years.<sup>82</sup> The most recent Title VI survey was conducted on board the Ride On buses during the period September through December 2018 - 10,897 surveys were completed on all 79 Ride On routes. Title VI surveys provide the most comprehensive demographic snapshot available of Ride On users, and Chapter 5 of this report provides a customer profile based on the most recent survey. Title VI surveys also ask riders about several components of customer satisfaction, including on-time performance, bus conditions, and capacity/seating.<sup>83</sup>

In summary, MCDOT currently collects detailed data on Ride On vehicles and riders sufficient to analyze the routes and services system-wide, at the route level, at the route segment level, and at the bus stop level. MCDOT told OLO it is in the process of augmenting its data collection with real-time reporting of its automated passenger counts and integrating that APC data with vehicle data in real-time. These new capabilities will improve the integrity of data collected, the speed with which MCDOT can use and share the data, and the spatial and temporal granularity of potential analysis. Moreover, this improved capability will collect sufficient data to generate route-specific report cards, real-time overcrowding reports, and other innovations adopted by some peer transit agencies, should the County choose to pursue such options. The improved data collection capabilities for Ride On create new opportunities for performance measures to evaluate Ride On routes and services.

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<sup>81</sup> For a full discussion of the MC311 system and how the County uses it to track resident inquiries and requests across departments, please see prior OLO reports: Report 2019-15, *Measuring MC311 System Performance* (10/15/2019); Report 2016-8, *MC311 Performance and Data*, (7/12/2016); and Report 2014-5, *An Examination of MC311 Calls by Preferred Language*, (3/4/2014), retrievable from [www.montgomerycountymd.gov/OLO/Reports/CurrentOLOReports.html](http://www.montgomerycountymd.gov/OLO/Reports/CurrentOLOReports.html).

<sup>82</sup> Title VI FTA Circular 4702.1B.

<sup>83</sup> For example, see Section 2.15. Customer Satisfaction of the *Title VI Data Report* (May 2019), pp. 28-31.



## **Chapter 8. MCDOT Reporting on Ride On Data and Performance**

This chapter reviews the primary ways that MCDOT reports on the data it collects, and the performance measures it tracks about the Ride On program. Some reporting is required by federal and state government, while other reporting has been developed by the County to assess the performance of the Ride On program. This chapter is organized as follows:

### **Section A. Federal Reporting Requirements**

### **Section B. State Reporting Requirements**

### **Section C. County Performance Reporting**

Table 8-5 on page 56 at the end of this chapter summarizes the performance measures that Ride On reports across all these report products.

While MCDOT prepares reports for different purposes and schedules, all such reporting includes information that can be useful to County decision makers in planning and evaluating the Ride On program. MCDOT staff told OLO that preparing periodic reports can require significant staff time and/or require hiring an outside consultant to complete. As a result, MCDOT looks for opportunities to use required reporting to satisfy multiple purposes.

MCDOT staff promptly provided OLO staff with all the reports and documents requested. Not all the documents are readily available on the MCDOT website, however. To improve transparency, OLO recommends that MCDOT make all prior and future reports available on its website in a searchable and easily accessible format.

### **A. Federal Reporting Requirements**

#### **1. The National Transit Database**

The Federal Transit Administration (FTA) collects and publishes data on public transit systems across the U.S. using the National Transit Database (NTD). All transit entities that receive Urbanized Area (UZA) Formula Grants from FTA must report financial data and non-financial operating statistics to the NTD program. Ride On operates within the urbanized area (UZA) of "Washington, DC-VA-MD". Within this larger UZA, Ride On's service area is Montgomery County which encompasses about 495 square miles.<sup>84</sup>

The NTD is the primary source of statistics on U.S. transit systems. The NTD's standardized format facilitates comparisons among transit systems. Many other sources of transit data use information originally derived from the NTD.

In addition to monthly and annual NTD updates, FTA also publishes a National Transit Summaries and Trends (NTST) report covering the NTD for the prior decade. For example, from 2008 thru 2017 public use of transit increased overall. Within that period, however, other confounding trends emerged, and from 2014 to 2017,

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<sup>84</sup> The U.S. Census Bureau defines urbanized areas (UZAs). Based on the 2010 Census, the U.S. has 498 UZAs. UZAs comprise 2.5 percent of the U.S. land area and 71.5 percent of the U.S. population.

national ridership declined from 10.6 to 10.1 billion trips.<sup>85</sup> Such NTD reviews and the data provide an opportunity to gauge Ride On trends relative to national and regional trends. Such context is important as some factors affecting ridership -- such as fuel prices, sub-prime car loans, online commerce, telework, ride-splitting in private car sharing, and the suburbanization of poverty -- are broad trends that nevertheless affect specific jurisdictions and transit agencies.<sup>86</sup>

The NTD covers many modes of public transit. Under the category of bus transit, FTA identifies four bus modes: fixed-route buses, commuter buses, on-demand bus services, and bus rapid transit.<sup>87</sup> The NTD presents transit data for each mode in four categories: (1) services consumed, (2) services supplied, (3) resources, and (4) performance measures. For example, Table 8-1 on the following page shows the NTD 2018 Annual Agency Profile for Ride On. (The specific measures depicted in the NTD are also summarized in Table 8-5 at the conclusion of this chapter.)

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<sup>85</sup> The NTST adjusts all exhibits involving dollar amounts to constant-dollar values.

<sup>86</sup> *Understanding Recent Ridership Changes: Trends and Adaptations* (American Public Transportation Association, April 2018).

<sup>87</sup>

Bus transit modes as categorized in the National Transit Database:

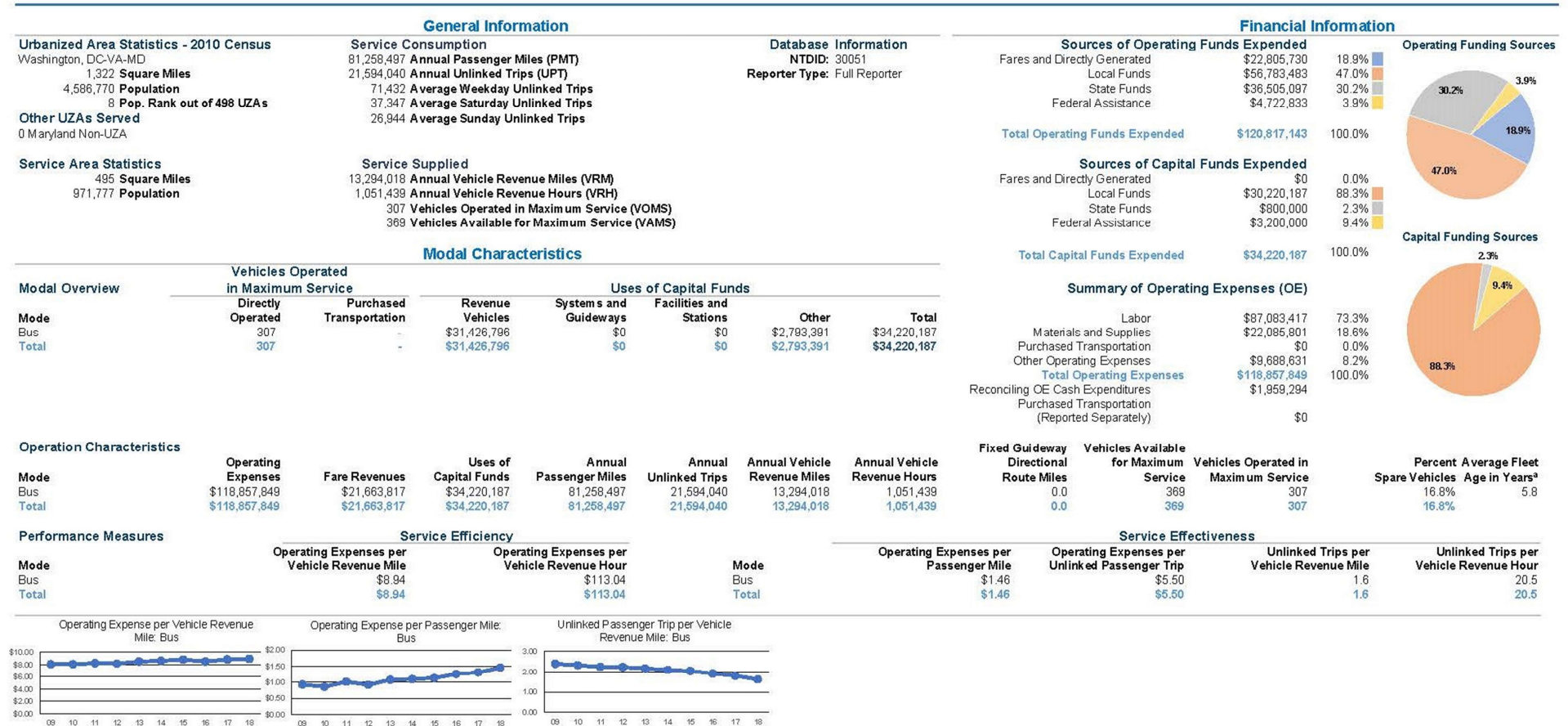
Bus (MB)	Mode includes a variety of rubber-tired passenger vehicles operating on fixed routes and schedules over roadways. Fixed route bus systems like Ride On and Metrobus are the most common form of public transit in the U.S.
Commuter Bus (CB)	A fixed-route bus mode that primarily connects outlying areas with a central city through bus service that goes at least five miles of closed-door service. Commuter buses tend to provide fewer trips over a longer distance as compared to conventional city buses (MB) and bus rapid transit (RB).
Demand Response (DR)	Mode includes automobiles, vans, or small buses dispatched by request to pick up and transport passengers.
Bus Rapid Transit (RB):	A fixed-route bus mode that operates frequent service (short headways), has at least 50 percent of its route on exclusive guideways, and includes features that emulate rail transit.

Table 8-1. 2018 Annual Agency Profile, Ride On, Montgomery County Transit, National Transit Database (NTD)

<http://www.montgomerycountymd.gov/>

101 Monroe Street  
5th Floor  
Rockville, MD 20850

Montgomery County, Maryland dba Ride On, Montgomery County Transit  
2018 Annual Agency Profile



Notes:

\*Demand Response - Taxi (DT) and non-dedicated fleets do not report fleet age data.

*Ridership based on Unlinked Passenger Trips (UPT).* Ridership is fundamental to all transit agencies, and therefore how ridership is counted is also fundamental. The NTD counts transit ridership based on Unlinked Passenger Trips (UPT, or boardings). Dense city transit often includes multiple transfers and modes on one journey. To get to work, for example, a passenger might take a bus trip to the underground train, ride the train for three stops, and walk from the train station to their workplace. In this example, the commuter's journey represents two unlinked passenger trips (one on bus and one on rail). According to FTA, ridership (UPT) peaked nationally around 2014 and then declined over the 2014-2018 period.<sup>88</sup>

*Efficiency vs. Effectiveness.* FTA considers cost efficiency as the relationship between service inputs and service outputs. Service output is the quantity of transit service produced, expressed as vehicle revenue hours. Nationally, operating expenses per vehicle revenue hour (OE per VRH) increased 6.7 percent over the period 2009-2018.<sup>89</sup> FTA noted that while UZAs over one million had a slightly lower cost per trip (OE per UPT) than UZAs under 1 million, larger UZAs also tended to have a higher average cost per hour (OE per VRH) because intensive urban transit requires more workers, equipment, and space. Additionally, prices as reflected in wages, property costs, and supply prices are typically higher in dense cities.

In contrast to efficiency, FTA considers cost effectiveness as the relationship between operating costs and service consumption. Service consumption is the amount of service used by the public, expressed as unlinked passenger trips. Using 2018 constant dollars, operating expense per unlinked passenger trip (OE per UPT) increased nationally by 21 percent over the period 2009-2018.<sup>90</sup> In UZAs with a population over one million, the operating cost per passenger trip (OE per UPT) ranged from \$3.27 to \$9.31 per trip for 2018; Ride On's average cost per trip (OE per UPT) was \$5.50.

As an example, Table 8-2 on the following page shows the measures of efficiency and effectiveness for Ride On and Metrobus as published in the NTD for FY 2018.

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<sup>88</sup> National Transit Summaries & Trends 2018: Appendix, Unlinked Passenger Trips (FTA) p. 21.

<sup>89</sup> National Transit Summaries & Trends 2018: Appendix, Cost and Service (FTA) p. 26.

<sup>90</sup> National Transit Summaries & Trends 2018: Appendix, Cost and Service (FTA) p. 25.

**Table 8-2. NTD Performance Measures: Service Efficiency and Service Effectiveness, FY 2018**

	Service Efficiency			Service Effectiveness			
	Operating Expenses (OE) per Vehicle Revenue Mile (VRM)	Operating Expenses (OE) per Vehicle Revenue Hour (VRH)	Operating Expenses (OE) per Passenger Miles Traveled (PMT)	Operating Expenses (OE) per Unlinked Passenger Trip (UPT)	Unlinked Passenger Trips (UPT) per Vehicle Revenue Mile (VRM)	Unlinked Passenger Trips (UPT) per Vehicle Revenue Hour (VRH)	Avg. fare per Unlinked Passenger Trip (UPT)
Ride On (Montgomery County Transit)	\$8.94	\$113.04	\$1.46	\$5.50	1.6	20.5	\$1.00
Metrobus (WMATA)	\$18.28	\$179.88	\$1.85	\$5.66	3.2	31.8	\$1.03

Source: 2018 Annual Agency Profile, National Transit Database, Federal Transit Administration.

## 2. Reporting for Title VI of the Civil Rights Act of 1964

Under Title VI of the Civil Rights Act of 1964, the FTA requires that transit agencies like Ride On conduct detailed customer surveys at least every five years to demonstrate they are distributing transit amenities in an equal and nondiscriminatory manner. Chapter 5 of this report describes the demographic profile of Ride On customers from the most recent Title VI survey in 2018.

FTA regulations further require that at least every three years transit agencies provide an update on how they are implementing their transit program in a way that ensures that federal and state dollars are used in a non-discriminatory manner. The various reports prepared by MCDOT for Title VI are as follows:

- Title VI 2021-2023 Implementation Plan – DRAFT (expected Fall 2020)
- Title VI Data Report – May 2019 (based on survey conducted in 2018)
- Title VI 2018-2020 Implementation Plan – September 19, 2017 (based on 2014 survey)
- Title VI Language Assistance Plan – September 2017
- Title VI Compliance Monitoring Report – August 2017
- Title VI 2015-2017 Implementation Plan – April 15, 2015 (based on 2014 survey)

## B. State Reporting Requirements

The Maryland Transit Administration (MTA) requires that each Locally Operated Transit Systems (LOTS) in Maryland prepare a Transportation Development Plan (TDP) every five years that includes an analysis of the performance of current transit services.<sup>91</sup> MTA allows jurisdictions to submit a reports produced for other purposes as a Transportation Development Plan.

In 2014, MCDOT submitted to MTA a *Bus Fleet Management Plan (BFMP) for 2013 to 2020* to satisfy Ride On's TDP requirement. In addition, tri-annually (once every three years) MTA reviews Locally Operated Transit Systems for compliance with federal and state laws and regulations.<sup>92</sup>

The *BFMP 2013-2020* (June 2014) categorized Ride On routes using the following service types:

- Local
- Limited
- Loop
- Shuttle
- Express

The *BFMP 2013-2020* assessed Ride On bus services based on the following measures:<sup>93</sup>

- Platform hours (total scheduled time bus spends from pull-out to pull-in at the division)
- Ridership (unlinked passenger trips / boardings)
- Boardings per day
- Boardings per platform hour
- Revenue hours (defined as platform hours minus non-revenue generating deadhead and layover time)
- Boardings per revenue vehicle hour
- Platform hours per capita
- Boardings per capita

Platform hours include a route's non-revenue generating time, such as deadheads and layovers between schedules. Therefore, boardings per platform hour will always be lower than boardings per revenue vehicle hour for the same route data.

*Productivity of Ride On Routes.* The BFMP identified 16 Ride On services as low productivity (defined as having less than 20 boardings per revenue hour) and 19 as high productivity (defined as having over 40 average weekday boardings per revenue hour).<sup>94</sup> Together the 19 high productivity routes carried almost half of Ride On's average weekday ridership, and many were significantly overcrowded during peak periods. The BFMP

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<sup>91</sup> *Locally Operated Transit System (LOTS) Program Manual* (MTA, April 2017) p. 2-1; retrieved from <https://www.mta.maryland.gov/lots>.

<sup>92</sup> *Maryland LOTS Compliance Monitoring Review Report, Transportation Provider: Montgomery County, Montgomery County Ride On*, Date: 3/21/2019; *Maryland LOTS Compliance Monitoring Review Report, Transportation Provider: Montgomery County, Montgomery County Ride On*, Date: 5/8/2015.

<sup>93</sup> *Ride On Bus Fleet Management Plan 2013 to 2020 (BFMP)* (published June 30, 2014) pp. 25 and 31-34.

<sup>94</sup> The BFMP noted: "Route 70 Germantown to Bethesda, while averaging less than 40 boardings per revenue hour was added to the list because it experiences significant passenger overloads in the peak direction."

recommended increasing frequency and using larger vehicles to increase capacity on ten high productivity routes with over 1,000 daily boardings. The BFMP recommendation was based on an analysis of: daily boardings, peak frequency, and boardings per revenue hour.

*Comparison with Area and Peer Transit Systems.* The BFMP compared Ride On to several transit systems in the Washington, D.C. area and to some peer transit systems across the U.S. using data from the National Transit Database. The BFMP made these comparisons based on revenue vehicle hours and vehicles operated in maximum service (VOMS). The BFMP also used unlinked passenger trips per revenue vehicle hour (UPT per VRH) to compare productivity. The BFMP stated, “Considering its service design with a high number of neighborhood oriented routes, Ride On has a high number of unlinked passenger trips per revenue vehicle hour.”<sup>95</sup>

*Missed trips and service interruptions.* The BFMP analyzed Ride On dispatch logs for insights into the extent and cause of missed trips. It found that of the 117,254 scheduled Ride On trips in June 2013, 529 (0.5%) were missed. The BFMP found that missed trips could often be minimized through investments in maintenance facilities, staffing, and vehicles.<sup>96</sup>

### C. County Performance Reporting

**Ride On Performance Measures Reported by CountyStat.** The FY21 operating budget for Montgomery County reported three Program Performance Measures for the Transit Services provided by Montgomery County government, as show in Table 8-3 below:

**Table 8-3. CountyStat Program Performance Measures: Transit Service, MCDOT**

	Actual FY17	Actual FY18	Actual FY19
Passengers transported (millions)	23.0	21.6	20.6
Scheduled Ride On roundtrip circuits missed, in whole or in part, per 1,000 roundtrip circuits	N/A	4.3	7.0
On time performance for Ride On buses	88.5%	88.2%	87.5%

Source: FY21 Operating Budget and Public Services Program FY21-26 (County OMB, p. 51-10)

<sup>95</sup> BFMP for 2013 to 2020, p. 64.

<sup>96</sup> BFMP for 2013 to 2020, Table 4-10.

**Ride On Route Profiles.** MCDOT provides an annual Ride On route profile to the Council as part of the budget review process. For example, Table 8-4 on pages 53-55 shows the Ride On Route Profile for FY19. The annual route profile categorizes Ride On routes into three service types based on day of week:

- Weekday
- Saturday
- Sunday

The route profile lists four measures for each Ride On service type:

- Average daily riders
- Annual riders
- Annual platform hours
- Riders per platform hour (annual riders per annual platform hours)

MCDOT staff told OLO that the department does not automatically modify a Ride On service based on low total ridership or low ridership per platform hour because it weighs those factors against other factors, such as equity and service coverage in the County. MCDOT's evaluation of those other factors, however, is not reflected in the measures provided in the annual route profile.

In summary, Table 8-5 on page 56 at the end of this chapter lists the performance measures that MCDOT reports for the Ride On program across all the products described above. OLO found that these reports all provide valuable insights about aspects of the Ride On program. However, because they are produced at different times and in different formats and many are not readily available on the MCDOT website, there may be an opportunity to consolidate and make more accessible the data and performance measures already being tracked and used by MCDOT to assess Ride On's progress in meeting its goals and objectives.



Table 8-4. FY19 Ride On Route Profile

Source: G. Orlin staff analysis packet for Council review of annual Operating Budget-Transportation. This FY19 profile was presented for the FY20 proposed budget.

FY19 Ride On Route Profile

Route	Ser	Route Description	Avg Daily Riders	Annual Riders	Annual Platform Hours	Riders Per Platform Hour
55	Wkdy	GTC-Milestone-MC, G-Lakeforest-Shady Grove-MC, R-Rockville	5,453	1,390,409	45,186	30.8
15	Wkdy	Langley Park-Wayne Ave.-Silver Spring	2,657	677,556	23,817	28.4
9	Wkdy	Wheaton-Four Corners-Silver Spring	1,530	390,065	14,535	26.8
15	Sat	Langley Park-Wayne Ave.-Silver Spring	2,116	112,152	4,240	26.5
48	Sat	Wheaton-Bauer Dr.-Rockville	1,290	68,383	2,671	25.6
49	Wkdy	Glenmont-Layhill-Rockville	1,691	431,078	17,034	25.3
61	Wkdy	GTC-Lakeforest-Shady Grove	2,208	562,998	22,466	25.1
57	Wkdy	Lakeforest-Washington Grove-Shady Grove	1,486	378,994	15,173	25.0
55	Sat	GTC-Milestone-Lakeforest-Shady Grove-Rockville	3,686	195,376	7,828	25.0
46	Wkdy	Montgomery College-Rockville Pike-Medical Center	2,947	751,528	31,136	24.1
49	Sat	Glenmont-Layhill-Rockville	958	50,783	2,104	24.1
59	Wkdy	Montgomery Village-Lakeforest-Shady Grove-Rockville	2,723	694,301	29,121	23.8
15	Sun	Langley Park-Wayne Ave.-Silver Spring	1,276	72,746	3,061	23.8
59	Sat	Montgomery Village-Lakeforest-Shady Grove-Rockville	1,922	101,888	4,293	23.7
11	Wkdy	Silver Spring-East/West Hwy-Friendship Heights	619	157,760	6,681	23.6
48	Wkdy	Wheaton-Bauer Dr.-Rockville	1,796	457,959	19,406	23.6
10	Wkdy	Twinbrook-Glenmont-White Oak-Hillandale	2,229	568,438	24,149	23.5
100	Sat	GTC-Shady Grove	650	34,463	1,479	23.3
20	Wkdy	Hillandale-Northwest Park-Silver Spring	2,534	646,043	28,152	22.9
100	Wkdy	GTC-Shady Grove	1,974	503,476	22,313	22.6
34	Wkdy	Aspen Hill-Wheaton-Bethesda-Friendship Heights	2,254	574,664	25,704	22.4
61	Sat	GTC-Lakeforest-Shady Grove	1,495	79,257	3,562	22.3
24	Wkdy	Hillandale-Northwest Park-Takoma	271	69,126	3,137	22.0
20	Sat	Hillandale-Northwest Park-Silver Spring	1,836	97,312	4,426	22.0
2	Sat	Lyttonsville-Silver Spring (detour includes 2A only)	378	20,052	928	21.6
34	Sat	Wheaton-Bethesda-Friendship Heights	1,249	66,188	3,085	21.5
63	Wkdy	Shady Grove-Galther Road-Picard Dr.-Rockville	796	202,959	9,461	21.5
10	Sun	Twinbrook-Glenmont-White Oak-Hillandale	1,337	76,200	3,580	21.3
64	Wkdy	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	1,223	311,886	14,739	21.2
61	Sun	GTC-Lakeforest-Shady Grove	1,396	79,586	3,762	21.2
59	Sun	Montgomery Village-Lakeforest-Shady Grove-Rockville	1,721	98,088	4,765	20.6
26	Wkdy	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	2,685	684,760	33,431	20.5
78	Wkdy	Kingsview-Richter Farm-Shady Grove	299	76,245	3,774	20.2
1	Sun	Silver Spring - Friendship Heights	762	43,410	2,177	19.9
55	Sun	GTC-Milestone-Lakeforest-Shady Grove	2,282	130,060	6,623	19.6
2	Wkdy	Lyttonsville-Silver Spring (detour includes 2A & 2B)	585	149,175	7,599	19.6
12	Wkdy	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	1,225	312,439	15,938	19.6
46	Sat	Montgomery College-Rockville Pike-Medical Center	1,711	90,692	4,749	19.1
17	Wkdy	Langley Park-Maple Ave.-Silver Spring	986	251,430	13,184	19.1
54	Wkdy	Lakeforest-Washingtonian Blvd-Rockville	1,508	384,434	20,171	19.1
19	Wkdy	Northwood-Four Corners-Silver Spring	186	47,515	2,499	19.0
58	Wkdy	Lakeforest-Montgomery Village-East Village-Shady Grove, Watkins Mill & MD355	1,206	307,551	16,269	18.9
34	Sun	Wheaton-Bethesda-Friendship Heights	1,120	63,816	3,386	18.8
57	Sat	Lakeforest-Washington Grove-Shady Grove	923	48,932	2,597	18.8
56	Wkdy	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	1,663	424,086	22,593	18.8
16	Wkdy	Takoma-Langley Park-Silver Spring	2,289	583,738	31,161	18.7
71	Wkdy	Kingsview-Dawson Farm-Shady Grove	298	75,863	4,055	18.7
1	Wkdy	Silver Spring-Leland St.-Friendship Heights	1,129	287,874	15,402	18.7
16	Sat	Takoma-Langley Park-Silver Spring	2,115	112,086	6,090	18.4
57	Sun	Lakeforest-Washington Grove-Shady Grove	763	43,491	2,371	18.3
58	Sat	Lakeforest-Montgomery Village-East Village-Shady Grove	768	40,726	2,237	18.2
20	Sun	Hillandale-Northwest Park-Silver Spring	1,323	75,383	4,167	18.1

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FY19 Ride On Route Profile

Route	Ser	Route Description	Avg Daily Riders	Annual Riders	Annual Platform Hours	Riders Per Platform Hour
5	Wkdy	Twinbrook-Kensington-Silver Spring	1,655	422,110	23,333	18.1
79	Wkdy	Clarksburg-Skylark-Scenery-Shady Grove	322	82,004	4,565	18.0
L8	Sat	Grand Pre-Bel Pre, Connecticut, Friendship Hts Station	1,045	55,389	3,122	17.7
49	Sun	Glenmont-Lay hill-Rockville	678	38,637	2,212	17.5
60	Wkdy	Montgomery Village-Flower Hill-Shady Grove	246	62,751	3,596	17.5
54	Sun	Lakeforest-Washingtonian Boulevard-Rockville	871	49,671	2,850	17.4
47	Wkdy	Rockville-Montgomery Mall-Bethesda	1,330	339,065	19,533	17.4
74	Wkdy	GTC-Great Seneca Hwy.-Shady Grove	958	244,205	14,076	17.3
65	Wkdy	Montgomery Village-Shady Grove	178	45,326	2,627	17.3
14	Wkdy	Takoma-Piney Branch Road-Franklin Ave.-Silver Spring	719	183,281	10,863	16.9
97	Wkdy	GTC, Germantown MARC, Waring Station, GTC	580	147,985	8,874	16.7
48	Sun	Wheaton-Bauer Dr.-Rockville	686	39,088	2,348	16.6
26	Sat	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	1,641	86,995	5,242	16.6
38	Wkdy	Wheaton-White Flint	726	185,066	11,271	16.4
12	Sat	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	725	38,416	2,343	16.4
1	Sat	Silver Spring-Leland St.-Friendship Heights	668	35,422	2,189	16.2
22	Wkdy	Hillandale-White Oak-FDA-Silver Spring	485	123,760	7,727	16.0
9	Sun	Wheaton-Four Corners-Silver Spring	609	34,699	2,172	16.0
64	Sat	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	719	38,085	2,412	15.8
28	Wkdy	Silver Spring Downtown (VanGo)	650	165,750	10,506	15.8
58	Sun	Lakeforest-Montgomery Village-East Village-Shady Grove	629	35,848	2,291	15.6
26	Sun	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	1,553	88,493	5,666	15.6
41	Sat	Aspen Hill-Weller Rd.-Glenmont	485	25,718	1,659	15.5
25	Wkdy	Langley Park-Washington Adventist Hosp-Maple Ave-Takoma	409	104,231	6,732	15.5
56	Sat	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	1,032	54,709	3,540	15.5
23	Wkdy	Sibley Hospital-Brookmont-Sangamore Road-Friendship Heights	592	150,981	9,971	15.1
54	Sat	Lakeforest-Washingtonian Boulevard-Rockville	791	41,919	2,798	15.0
L8	Sun	Grand Pre-Bel Pre, Connecticut, Friendship Hts Station	684	38,960	2,605	15.0
10	Sat	Twinbrook-Glenmont-White Oak-Hillandale	1,075	56,953	3,853	14.8
17	Sat	Langley Park-Maple Ave.-Silver Spring	605	32,083	2,173	14.8
66	Wkdy	Shady Grove-Piccard Drive-Shady Grove Hospital-Traville TC	108	27,434	1,862	14.7
46	Sun	Montgomery College-Rockville Pike-Medical Center	1,212	69,070	4,703	14.7
2	Sun	Lyttonville-Silver Spring (detour includes 2A only)	225	12,844	884	14.5
16	Sun	Takoma-Langley Park-Silver Spring	1,497	85,305	6,014	14.2
51	Wkdy	Norbeck P&R-Hewitt Ave.-Glenmont	240	61,115	4,335	14.1
43	Wkdy	Traville TC-Shady Grove-Hospital-Shady Grove	629	160,480	11,450	14.0
38	Sat	Wheaton-White Flint	462	24,504	1,754	14.0
9	Sat	Wheaton-Four Corners-Silver Spring	542	28,748	2,062	13.9
41	Wkdy	Aspen Hill-Weller Rd.-Glenmont	516	131,665	9,486	13.9
97	Sat	GTC, Gunner's Lake, GTC	269	14,253	1,034	13.8
101	Wkdy	EXTRA-Lakeforest-Medical Center	1,664	424,413	30,855	13.8
14	Sat	Takoma-Piney Branch Road-Franklin Ave.-Silver Spring	461	24,451	1,791	13.6
56	Sun	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	816	46,526	3,454	13.5
74	Sat	GTC-Great Seneca Hwy.-Shady Grove	644	34,114	2,576	13.2
76	Wkdy	Poolesville-Kentlands-Shady Grove	648	165,325	12,495	13.2
29	Wkdy	Bethesda-Glen Echo-Friendship Heights	574	146,264	11,348	12.9
17	Sun	Langley Park-Maple Ave.-Silver Spring	487	27,759	2,189	12.7
39	Wkdy	Briggs Chaney-Glenmont	258	65,875	5,279	12.5
21	Wkdy	Briggs Chaney-Tamarack-Dumont Oaks-Silver Spring	293	74,694	5,993	12.5
8	Wkdy	Wheaton-Forest Glen-Silver Spring	618	157,484	12,725	12.4
5	Sat	Twinbrook-Kensington-Silver Spring	804	42,616	3,456	12.3
13	Wkdy	Takoma-Manchester Rd.-Three Oaks Dr.-Silver Spring	175	44,604	3,647	12.2
45	Wkdy	Fallsgrove-Rockville Senior Center-Rockville-Twinbrook	870	221,723	18,131	12.2
38	Sun	Wheaton-White Flint	377	21,499	1,784	12.1
12	Sun	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	512	29,203	2,428	12.0
4	Wkdy	Kensington-Silver Spring	249	63,516	5,406	11.7

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Route	Ser	Route Description	Avg Daily Riders	Annual Riders	Annual Platform Hours	Riders Per Platform Hour
30	Wkdy	Medical Center-Pooks Hill-Bethesda	559	142,439	12,266	11.6
75	Wkdy	Clarksburg-Correctional Facility-Milestone-GTC	515	131,219	11,373	11.5
70	Wkdy	Milestone-Medical Center-Bethesda Express	645	164,518	14,510	11.3
18	Wkdy	Langley Park-Takoma-Silver Spring	552	140,654	12,495	11.3
T2	Sat	Friendship Hts, River Rd, Falls Rd, Rockville W.	557	29,534	2,645	11.2
47	Sat	Rockville-Montgomery Mall-Bethesda	707	37,493	3,445	10.9
43	Sat	Traville TC-Shady Grove-Hospital-Shady Grove	355	18,828	1,744	10.8
32	Wkdy	Naval Ship R&D-Cabin John-Bethesda	198	50,511	4,692	10.8
41	Sun	Aspen Hill-Weller Rd.-Glenmont	226	12,901	1,231	10.5
64	Sun	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	442	25,194	2,423	10.4
47	Sun	Rockville-Montgomery Mall-Bethesda	599	34,153	3,300	10.3
T2	Sun	Friendship Hts, River Rd, Falls Rd, Rockville W.	508	28,928	2,799	10.3
73	Wkdy	Clarksburg-Old Baltimore-Shady Grove	326	83,194	8,058	10.3
76	Sat	Kentlands-Shady Grove	275	14,575	1,458	10.0
90	Wkdy	Milestone-Damascus-Woodfield Rd- Airpark Shady Grove	695	177,225	17,723	10.0
43	Sun	Traville TC-Shady Grove-Hospital-Shady Grove	307	17,499	1,756	10.0
23	Sat	Sibley Hospital-Brookmont-Sangamore Road-Friendship Heights	294	15,569	1,579	9.9
33	Wkdy	Glenmont-Kensington-Medical Center	283	72,101	7,344	9.8
100	Sun	GTC-Shady Grove	398	22,662	2,383	9.5
97	Sun	GTC, Gunner's Lake, GTC	154	8,764	946	9.3
44	Wkdy	Twinbrook-Hungerford-Rockville	125	31,981	3,596	8.9
18	Sat	Langley Park-Takoma-Silver Spring	334	17,724	1,993	8.9
98	Wkdy	GTC, Kingsview, GCC, Cinnamon Woods	415	105,889	12,291	8.6
28	Sat	Silver Spring Downtown (VanGo)	399	21,125	2,465	8.6
29	Sun	Glen Echo-Friendship Heights	126	7,192	878	8.2
67	Wkdy	Traville TC-North Potomac-Shady Grove	84	21,293	2,627	8.1
5	Sun	Twinbrook-Kensington-Silver Spring	638	36,352	4,492	8.1
45	Sat	Fallsgrove-Rockville-Twinbrook	375	19,875	2,465	8.1
42	Wkdy	White Flint-Montgomery Mall	380	96,879	12,036	8.0
36	Wkdy	Potomac-Bradley Blvd.-Bethesda	296	75,501	9,435	8.0
37	Wkdy	Potomac-Tuckerman La.-Grosvenor-Wheaton	173	44,158	5,610	7.9
8	Sat	Wheaton-Forest Glen-Silver Spring	312	16,514	2,141	7.7
7	Wkdy	Forest Glen-Wheaton	57	14,450	1,913	7.6
75	Sat	Clarksburg-Correctional Facility-Milestone-GTC	320	16,973	2,263	7.5
6	Wkdy	Grosvenor-Parkside-Montgomery Mall Loop	226	57,694	7,727	7.5
81	Wkdy	Rockville-Tower Oaks-White Flint	129	32,916	4,437	7.4
29	Sat	Bethesda-Glen Echo-Friendship Heights	129	6,824	922	7.4
75	Sun	Clarksburg-Correctional Facility-Milestone-GTC	245	13,984	2,001	7.0
96	Wkdy	Montgomery Mall-Rock Spring-Grosvenor	205	52,360	7,574	6.9
18	Sun	Langley Park-Takoma	197	11,201	1,625	6.9
53	Wkdy	Shady Grove-MGH-Olney-Glenmont	255	64,983	9,894	6.6
52	Wkdy	MGH-Olney-Rockville	120	30,643	4,794	6.4
83	Sat	GTC-Waters Landing-Milestone	183	9,717	1,595	6.1
31	Wkdy	Glenmont-Kemp Mill Rd.-Wheaton	95	24,204	4,029	6.0
83	Wkdy	Germantown MARC-GTC-Waters Landing-Milestone-Holy Cross	374	95,391	16,397	5.8
129	Wkdy	Limited Stop US29 Burtonsville-Silver Spring	341	86,955	15,275	5.7
98	Sat	GTC, Kingsview, Soccerplex	195	10,344	1,850	5.6
42	Sat	White Flint-Montgomery Mall	190	10,048	1,929	5.2
301	Wkdy	Tobytown-Rockville	67	17,000	4,004	4.2
301	Sat	Tobytown-Rockville	28	1,484	832	1.8
301	Sun	Tobytown-Rockville	18	1,026	895	1.1

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**Table 8-5. Summary of Data and Performance Measures for Ride On Reported by MCDOT**

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**National Transit Database**

**Transit Services Consumed**

Passenger Miles Traveled  
 Unlinked Passenger Trips (UPT) / boardings  
 Average Weekday UPT  
 Average Saturday UPT  
 Average Sunday UPT  
 Average Trip Length

**Transit Services Supplied**

Vehicle Revenue Miles  
 Vehicle Revenue Hours  
 Vehicles Operated in Maximum Service  
 Vehicles Available for Maximum Services (VAMS).

**Transit Service Resources**

Operating Expenses  
 Fare Revenues  
 Average Fleet Age in Years

**Transit Service Resources**

Operating Expenses  
 Fare Revenues  
 Percent Spare Vehicles  
 Average Fleet Age in Years

**Performance Measures of Efficiency and Effectiveness:**

**Service Efficiency**

Operating Expenses per Vehicle Revenue Mile  
 Operating Expenses per Vehicle Revenue Hour

**Service Effectiveness**

Operating Expenses per Passenger Mile  
 Operating Expenses per UPT  
 UPT per Vehicle Revenue Mile  
 UPT per Vehicle Revenue Hour

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**Title VI of the Civil Rights Act of 1964**

Routes meeting standard for Vehicle Load Factor (measures crowding)  
 Routes meeting standard for Vehicle Headway (measures # of minutes between vehicles on a route)  
 Routes meeting standard for On-Time Performance  
 Service Accessibility

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**Maryland Transit Administration**

Platform hours = total scheduled time bus spends from pull-out to pull-in at the division  
 Ridership  
 Boardings per day  
 Boardings per revenue vehicle hour  
 Platform hours per capita (based on census data)

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**CountyStat**

Passengers transported (millions)  
 Scheduled Ride On roundtrip circuits missed, in whole or in part, per 1,000 roundtrip circuits  
 On-Time Performance for Ride On buses

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**Ride On Route Profiles**

Average daily riders (by service type)  
 Annual riders (millions)  
 Annual platform hours (millions)  
 Riders per platform hour (annual riders/annual platform hours)

## **Chapter 9. How MCDOT Makes Changes to Ride On Services**

This chapter describes the current process used by the MCDOT Division of Transit Services for reviewing and revising Ride On routes and services. Ride On service modifications can vary significantly in type, scope, and complexity. This chapter is organized as follows:

### **Section A. Scope and Timing of Ride On Service Changes**

### **Section B. Factors Triggering a Review of Ride On Services**

### **Section C. Ride On Service Changes Over Time**

As described in Chapter 6, the County has not revised Ride On's goals and objectives since 2008. OLO found that MCDOT does not publish a written set of service guidelines or a consolidated list of the performance measures that it uses to evaluate and guide changes to Ride On services. MCDOT representatives report that Ride On service changes are based on ridership, operational considerations, finances, equity and service coverage considerations, changing demographic and employment patterns, customer complaints, and resident requests, among other factors. MCDOT staff evaluate proposed changes on a case-by-case basis considering all these factors. The Department, however, does not have a written guide that outlines its decision-making process for making changes or describing how it prioritizes these factors. Consequently, this chapter describes when MCDOT reviews Ride On services and the types of changes that it makes daily, annually, or otherwise, but cannot include information on why specific change is adopted or rejected.

### **A. Scope and Timing of Ride On Service Changes**

#### **1. Daily Operational Changes**

To respond to unforeseen events such as traffic, weather, or mechanical failure, Ride On managers, supervisors and dispatchers adjust Ride On services on a daily and even hourly basis. These ongoing operational modifications do not permanently alter the established schedules or pathways for the Ride On routes, but when such modifications are needed repeatedly, management uses them to inform their review of potential permanent changes.

As described in Chapter 7, MCDOT's growing technical capabilities for collecting real-time vehicle location data, integrated with real-time passenger counts on all vehicles, is creating the opportunity for more precise and effective operational service changes.

## 1. Permanent Route and Service Changes

Three times per year, MCDOT staff formally review the performance of Ride On services and consider local route restructuring. As described in Chapter 8, MCDOT categorizes its Ride On bus services by day of week in its annual Ride On route profile (Table 8-4). Thus, a single Ride On route can encompass three services for review: weekday service, Saturday service, and Sunday service. Across Ride On's 79 routes, all 79 provide weekday service, 45 provide Saturday service, and 35 provide Sunday service. Counting each as an individual "service," Ride On bus routes encompass 159 bus services.

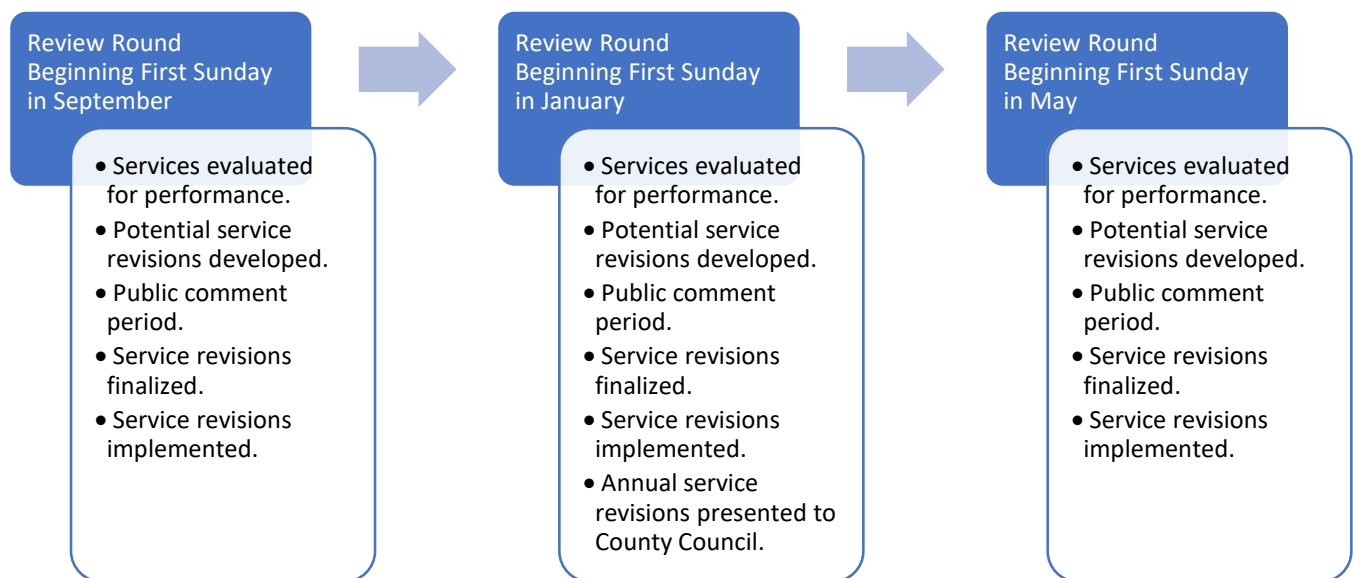
MCDOT staff review all Ride On services individually at least once every two years – examining about 80 per year as a matter of routine review plus another 10-15 services per year based on factors such as new housing, new job attractors, customer complaints, or requests. Each review period examines about 30 Ride On services.

MCDOT staff review some Ride On services more often than once every two years based on poor performance outcomes, customer complaints, or a request for change of service from customers or elected officials. Examples of such requested service changes can include adding or deleting Saturday or Sunday services, changing the frequency of services, lengthening or shortening span of service, or redrawing route pathways.

Occasionally, MCDOT will consider major segment changes when a factor affects an interconnected group of Ride On services, such as the new FLASH bus service along Route 29, the construction of the new overpass at Watkins Mill, or other major developments that simultaneously impact multiple Ride On services. In these cases, MCDOT staff will initiate a larger review of multiple Ride On routes and services that considers the inter-related implications across these services. Depending on the scale of the potential service changes, the proposed changes may be reviewed as part of the route reviews done three times per year, or they may be reviewed in a separate additional process.

Figure 9-1 below depicts the typical annual calendar for MCDOT's three-times-per-year review of Ride On services.

**Figure 9-1. Schedule of MCDOT's Triannual (3X/Year) Review of Ride On Services**



### 3. System-Wide Network Redesign

The third category of service change carried out by many transit agencies is a wholesale review and redesign of the entire bus network, including route schedules and pathways – as described in Chapter 3. Sometimes a transit agency will opt to conduct a comprehensive redesign when a factor prompting the review of multiple routes becomes significant enough to warrant a complete reevaluation. MCDOT has not conducted a system-wide review or redesign of the Ride On network in over 20 years.

### 2. Factors Triggering a Review of Ride On Services

MCDOT officials routinely revise Ride On services in response to factors arising from within and from outside County boundaries. Some factors directly trigger a proposed service change, while other factors have a more indirect effect on services over time. Table 9-1 below offers a summary of some of the most common factors that can lead to a Ride On service modification.

**Table 9-1. Factors that Can Trigger Revision to a Ride On Service**

	<b>Factors Directly Affecting Transit</b>	<b>Factors Indirectly Affecting Transit</b>
<b>Internal to County</b>	<ul style="list-style-type: none"> <li>• Poor performance for a service, based on measures such as:               <ul style="list-style-type: none"> <li>○ Low ridership.</li> <li>○ Poor on-time performance.</li> </ul> </li> <li>• New alternative transit options (e.g., FLASH, Purple Line).</li> <li>• Budget constraints.</li> <li>• Resident complaints.</li> <li>• Resident requests.</li> <li>• Requests from elected officials.</li> </ul>	<ul style="list-style-type: none"> <li>• Changing County goals for planning and development.</li> <li>• Changes to County population.</li> <li>• Changes in demographic profile of County, such as median income.</li> <li>• Changing employment patterns, such as new job centers and more teleworking.</li> <li>• Increasing traffic congestion.</li> <li>• New housing units in County.</li> </ul>
<b>External to County</b>	<ul style="list-style-type: none"> <li>• WMATA changes to Metrobus and/or Metrorail services.</li> <li>• Changing transportation options, such as bike sharing, ride-sharing, and smartphone enabled ride hailing.</li> </ul>	<ul style="list-style-type: none"> <li>• New employment patterns in adjacent jurisdictions.</li> <li>• Housing availability in adjacent jurisdictions.</li> <li>• New commercial construction in adjacent jurisdictions.</li> </ul>

A standing workgroup staffed by Montgomery County Park and Planning and MCDOT monitors external factors that have important effects on transit use and design. This work group meets monthly to discuss upcoming projects and other planning-related issues that can impact transit. In addition, the County's subdivision review process gives MCDOT an early warning to begin planning Ride On service related to new housing, schools, and roadways.

### 3. Ride On Service Changes Over Time

Although the Ride On network has not been comprehensively redesigned in many years, the Ride On bus network is not static. MCDOT relies on its annual service reviews to constantly modify Ride On routes and services over time. Cumulatively, these route-specific service revisions have resulted in significant changes to the Ride On network since its creation in 1975. Table 9-2 highlights some of the major service modifications from 1975 to 2020.

**Table 9-2. Timeline of Selected Major Ride On Service Modifications, 1975-2020**

Year	Modification
1975	Ride On begins providing fixed-route service.
1980s	Service Planning model developed to allow for coverage complementary to Metrorail and Metrobus.
1980s	Ride On service is expanded to Gaithersburg and Germantown.
1993	Opening of Lakeforest Transit Center to facilitate customer transfers.
1998	Opening of Glenmont Station, the final Red Line Metrorail Station in Montgomery County.
2002	Significant route restructuring due to Federal facility restrictions related to 9/11.
2003	Opening of Germantown Transit Center to facilitate customer transfers.
2004	Ride On Strategic Transit Plan is published.
2004	Opening of Travilah Transit Center to facilitate customer transfers.
2005	Significant route restructuring in Germantown; introduction of timed transfers.
2013	Significant route restructure project in White Flint & Olney.
2014	Publish <i>Bus Fleet Management Plan (BFMP) for 2013 to 2020</i> , satisfying MTA's TDP requirement.
2014	Complete initial Title VI survey (due every 5 years), submitted to the Federal Transit Administration.
2014	Begin expansion and restructuring of fixed-route service to Clarksburg-funding partnership with State.
2014	Opening of Silver Spring Transit Center; significant route restructuring to support Transit Center.
2016	Opening of Takoma Langley Transit Center; restructuring of routes to support Transit Center.
2016	Opening of Montgomery Mall Transit Center; restructuring of routes to support Transit Center.
2017	Introduce limited-stop Ride On extRa along MD355 between Lakeforest Transit Center and Medical Center Metro Station; restructure Ride On fixed routes to support extRa.
2018	Introduce Executive Connector; enhance service in North Bethesda.
2018	Complete Title VI survey required by FTA.
2019	Pilot Demand Response vanpool service begins in Rockville and Wheaton/Glenmont.
2020	FLASH Bus Rapid Transit (BRT) introduced on US 29; restructure Ride On services to support FLASH.

Note: This table highlights some of the major service changes over time but is not meant to be an exhaustive list.



## **Chapter 10. Findings and Recommendations**

This report responds to the County Council’s request that the Office of Legislative Oversight (OLO) review the County’s Ride On bus routes and services, managed by the Montgomery County Department of Transportation’s (MCDOT) Transit Services division. This report provides information about who uses Ride On services, describes how MCDOT makes decisions regarding Ride On bus routes and services, and offers examples of how similar jurisdictions evaluate their transit systems and make decisions about bus route design.

Transit planning has evolved considerably since the County’s Ride On service was established in 1975. Over this same time, Montgomery County itself has changed dramatically in terms of land use, population, demographic profile, and employment patterns. The County’s Ride On bus system has also changed considerably over this period. Some transit advocates and Executive branch officials believe that a comprehensive review of the entire Ride On route network is now warranted. This report provides information about several peer transit systems around the country that have redesigned and reevaluated their bus networks. This report also provides information about how Ride On operates in the context of regional transit and the advances that Ride On is making in its data collection and reporting.

This chapter is organized as follow:

### **Section A. Findings**

### **Section B. Recommendations**

#### **A. Findings**

**Finding # 1. The Montgomery County Department of Transportation’s Division of Transit Services manages and operates the County’s Ride On bus system, which as of 2018 was being used by about 38,070 people on an average weekday.**

Ride On provides bus service across 495 square miles in Montgomery County. As stated in the Executive’s FY21 budget request, the current mission of the MCDOT Division of Transit Services is “to provide an effective mix of public transportation services in Montgomery County.” MCDOT’s Transit Services division “plans and schedules all transit service, evaluates and develops routes and zones, and adjusts bus schedules three times per year. Ride On operates fixed-route service primarily in neighborhoods and provides a collector and distributor service to the major transfer points and transit centers in the County.”

In 2018, the Ride On program consisted of:

- 79 fixed routes
- 374 vehicles
- Nearly 5,300 bus stops
- 507 shelters and 680 benches
- An average of 38,070 people using Ride On per weekday
- About 22 million unlinked passenger trips (UPTs) per year

In 2018, 61 percent of customers reported using Ride On services daily (5-7 times per week).

**Finding # 2. Best practices in transit management recommend that transit agencies reassess their overarching goals and objectives at least every five years. The Montgomery County Department of Transportation last updated the goals and objectives for the County's Ride On service in 2008.**

OLO's review of guidance from the Transportation Research Board (TRB) found that transit agencies typically reassess their goals and objectives at least every five years.<sup>97</sup> The County last updated its goals for Ride On in the *2008 Strategic Transit Plan*, restating them in the *Bus Fleet Management Plan for 2013 to 2020*, published in 2014. MCDOT routinely reexamines Ride On routes and operations based on evaluations of ridership, operational considerations, equity and service coverage considerations, and changing demographic and employment patterns, among other things. The County's underlying goals and objectives for Ride On, however, have not been updated to reflect more recent County priorities and Ride On's place within the County's changing transit network.

**Finding # 3. Several transit agencies around the Country have recently undertaken multi-year, system-wide reviews and revisions of their transit services. Jurisdictions typically engage consultants for this purpose and include community stakeholders in the processes.**

Declining bus ridership and the process of economic recovery following the 2008 recession have prompted many jurisdictions to revamp their bus networks. For many, this was the first time in decades that the jurisdiction had engaged in a systematic, network-wide review of their bus services. OLO found 15 interrelated factors that spurred jurisdictions to reevaluate their bus networks. These factors were both the result of factors external to the transit system (e.g., changes in demographics and new employment centers) and factors internal to bus operations (e.g., new transit options like bus rapid transit).

OLO's review of best practices found that transit agency goals should reflect multiple stakeholder perspectives (customers, community, agency, and drivers) and be linked directly to goals and objectives. As part of network redesigns, jurisdictions review existing bus service, define long-term goals, set performance metrics, realign routes, and document processes for service adjustments. OLO notes that the majority of jurisdictions hire outside consultants to lead network redesign efforts, which generally is a multi-year undertaking. MCDOT has not conducted a system-wide review or redesign of the Ride On network in over 20 years.

In his FY21 budget request, the County Executive included \$1.5 million for a Ride On Bus Route Restructuring Study.<sup>98</sup> The Executive's budget stated that "Transit is facing a period of industry disruption that requires thoughtful study and a strategic response. Bus ridership has declined nationally, and Ride On has experienced similar challenges. The current route structure has grown over the past four decades and will benefit from a comprehensive reevaluation to maximize service delivery." As a result of the global COVID-19 pandemic, however, the County Council adopted a same-services budget for FY21 that could not include new spending.

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<sup>97</sup> *TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System* (Transit Cooperative Research Program, Transportation Research Board of the National Academies, 2003), Chapter 4, p. 71.

<sup>98</sup> FY21-26 Recommended CIP/March Budget Amendments, Ride On Bus Route Restructuring Study (P502107), \$1.5M (spread over two years).

**Finding # 4. Based on federal and state laws and regulations, MCDOT routinely collects and reports transit data to the Federal Transit Administration (FTA) and the Maryland Transit Administration (MTA). MCDOT also reports Ride On data regularly to CountyStat and the County Council.**

MCDOT must report certain transit data and performance measures to the FTA and MTA under regulations set by those entities. For example, FTA requires regular reporting to the National Transit Database of a variety of standardized performance measures reported by transit agencies across the country. FTA also requires regular reporting on the demographic data of bus ridership in adherence with Title VI of the Civil Rights Act of 1964. OLO found that these federal and state reporting requirements can sometimes, but do not always, link to the County's goals for Ride On, but these federal and state reporting requirements cannot be modified by MCDOT. MCDOT reports certain transit data and performance measures to CountyStat and to the Council in the annual Ride On route profile, and the information reported for these purposes can be modified by the County. OLO found that Ride On's publicly-reported data and performance measures are limited as compared to the performance measures reported regularly by many peer transit agencies that have recently redesigned their transit networks.

**Finding # 5. MCDOT is in the process of enhancing its ability to collect automated, real-time data for Ride On vehicles and passengers to enhance its ability to make day-to-day decisions and to measure performance in the system more broadly.**

MCDOT is now significantly improving its ability to collect in an automated manner real-time data on both vehicles and passenger counts and to integrate this data into its daily operations and its periodic route and service evaluations. MCDOT expects these new capabilities to improve the integrity of data collected, the speed with which MCDOT can use and share the data, and the spatial and temporal granularity of potential analysis. MCDOT also reports that improved data collection capabilities for Ride On open up new opportunities for performance measures to evaluate Ride On routes and services. For example, MCDOT staff are considering how real-time passenger counts could be used in traffic signal prioritization to weight bus priority through an intersection based the number of passengers.

**Finding # 6. MCDOT formally reviews Ride On services three times a year – reviewing approximately 30 services each time. Every Ride On service is reviewed at least once every two years.**

Across Ride On's 79 routes, all 79 routes provide weekday service, 45 of the routes provide Saturday service, and 35 of the routes provide Sunday service. Thus, Ride On's 79 routes encompass 159 distinct services. MCDOT reviews all Ride On services individually at least once every two years – examining approximately 80 per year as a matter of routine review. In addition, MCDOT reviews another 10-15 services per year based on factors like new housing, customer requests, poor performance, and requests from elected officials. Occasionally, a factor affects an interconnected group of Ride On services, such as the new FLASH bus service along Route 29, that simultaneously impact multiple Ride On services. In these cases, MCDOT staff will initiate a larger review of multiple Ride On routes and services that considers the inter-related implications across these services. Depending on the scale of the potential service changes, the proposed changes may be reviewed as part of the service reviews done three times per year, or they may be reviewed in a separate additional process.

**Finding # 7. MCDOT does not publish guidelines for how it revises Ride On routes and services or how it evaluates proposed changes to those services.**

MCDOT representatives report that the department makes changes to Ride On services based on ridership, operational considerations, finances, equity and service coverage considerations, changing demographic and employment patterns, customer complaints, and resident requests, among other factors. The department, however, does not have a written guide that outlines its decision-making process for making changes or describing how it prioritizes these factors.

In contrast, OLO found that the other jurisdictions reviewed make more explicit how they use goals, service guidelines, and performance measures to evaluate the bus system and route performance. For example, these jurisdictions publish service guidelines by service type, making clear why one service is held to a different standard than another service based on the goals for that service category. These jurisdictions use these published guidelines to identify areas of high and low performance, where investment is needed, and where resources are not being used effectively. Many of these jurisdictions update their service guidelines routinely, often in combination with strategic plan updates. Publishing such guidelines can help ensure service decisions are objective, transparent, and align with transit goals at the system, route, and segment levels.

**B. Recommendations**

OLO presents three recommendations for Council action.

**Recommendation # 1. The Council should ask the County Executive and the Department of Transportation to continue planning for a comprehensive review and update of the Ride On system and evaluate when County resources could allow for funding of a Ride On Bus Route Restructuring Study. In the interim, the Council should ask the County Executive and the Department of Transportation to update the County's goals and objectives for Ride On.**

As discussed in Finding #1, using the Transportation Research Board's five-year standard, Ride On is due for a comprehensive update to its goals and objectives.

As discussed in Finding #3, the County Executive's FY21 budget request included funding for a Ride On Bus Route Restructuring Study, but as a result of the global COVID-19 pandemic the County Council adopted a same-services budget for FY21 that could not include new spending.

Moving forward, OLO recommends that the Council consider the future feasibility of a comprehensive review of the County's goals for Ride On and a potential network redesign. The opening of the FLASH service and construction of the Purple Line represent significant changes to the transportation network that warrant examining Ride On's optimal role within that network. Moreover, the COVID-19 pandemic has presented transit agencies with substantial operational challenges and has the potential to permanently alter employment patterns. In light of these substantial changes to the context in which Ride On operates, a comprehensive review would assure the continued relevancy of the current goals and could offer new strategies for the public bus network to serve County residents.

**Recommendation # 2.      The Council should ask the County Executive to direct the Department of Transportation to publish written guidelines for how it makes changes to the Ride On system, including the factors it considers and how it prioritizes those factors.**

**Recommendation # 3.      The Council should ask the County Executive to make Ride On reports and data publicly available on the County website.**

MCDOT staff promptly provided OLO staff with all requested reports and documents, but not all of these documents are readily available on the MCDOT website. To improve transparency, OLO recommends that the Council ask the County Executive that as a matter of routine policy, MCDOT make all prior and future reports and related documents available on the County website in an easily searchable and accessible format.

While the data and performance measures that MCDOT must provide to the federal and state governments do not necessarily link directly to the goals that the County sets for Ride On, these required reports do provide useful information which augments the performance measures the County tracks for Ride On. Incorporating into one document the results of all the transit performance measures that MCDOT tracks might offer decision makers a more complete picture of the Ride On program.

OLO suggests that Council ask the Executive branch about the feasibility of augmenting the annual Ride On route profile with the performance measures that MCDOT reports to the NTD and to CountyStat to establish one document with both route-specific and system-wide performance measures. OLO further suggests that Council ask about the feasibility of including both historic and current results so that performance trends can be compared over time.

## **Chapter 11. Agency Comments**

The Office of Legislative Oversight (OLO) shared final drafts of this report with staff from Montgomery County Government. OLO appreciates the time taken by agency staff to review the draft report and to provide technical feedback. This final report incorporates technical corrections and feedback received from agency staff.

The written comments received from the Montgomery County Chief Administrative Officer are attached in their entirety on the following pages.



OFFICE OF THE COUNTY EXECUTIVE

Marc Elrich  
*County Executive*

Richard S. Madaleno  
*Acting Chief Administrative Officer*

MEMORANDUM

September 22, 2020

TO: Chris Cihlar, Director  
Office of Legislative Oversight

FROM: Richard S. Madaleno, Acting Chief Administrative Officer *RSM*

SUBJECT: Draft OLO Report 2020-X: Ride on Bus Routes and Services

Thank you for the opportunity to comment on the Office of Legislative Oversight's (OLO) Draft Report – 2020-X "Ride On Bus Routes and Services". The draft report included the following recommendations:

**Recommendation #1:** The Council should ask the County Executive and the Department of Transportation to continue planning for a comprehensive review and update of the Ride On system and evaluate when County resources could allow for funding of a Ride On Bus Route Restructuring Study. In the interim, the Council should ask the County Executive and the Department of Transportation to update the County's goals and objectives for Ride On.

**CAO Response:**

The County Executive is committed to improving transit services in the county.

We agree with the recommendation and will work towards developing a comprehensive review and update of the Ride On system. In the interim MCDOT will update the County Council on the efforts to provide transits services in the county.

**Recommendation #2:** The Council should ask the County Executive to direct the Department of Transportation to publish written guidelines for how it makes changes to the Ride On system, including the factors it considers and how it prioritizes those factors.

Draft OLO Report 2020-X: Ride on Bus Routes and Services  
September 22, 2020  
Page 2 of 2

**CAO Response:**

We concur with the recommendation. The Department of Transportation and will publish the written guidelines on how it makes changes to the system on its website.

**Recommendation #3:** The Council should ask the County Executive to make Ride On reports and data publicly available on the County website.

**CAO Response:**

We concur with the recommendation. The Department of Transportation will make Ride On reports and data publicly available on the MCDOT website.

We look forward to discussing the recommendations at the Council session and working together to ensure our Ride On transit system provide safe, secure and reliable transit services to our residents.

cc: Fariba Kassiri, Deputy Chief Administrative Officer  
Adriana Hochberg, Assistant Chief Administrative Officer  
Chris Conklin, Director, Department of Transportation  
Dan Hibbert, Division Chief Transit Operations, Department of Transportation



### List of Appendices

Appendix	Title	Begins at
<b>A</b>	<p><b>Performance Metrics.</b> This appendix includes a selection of performance used by other jurisdictions in evaluating bus network performance.</p> <ul style="list-style-type: none"> <li>• Municipality of Anchorage Public Transit (Anchorage, Alaska) Transit of the Move 2020, Transit Plan</li> <li>• Greater Richmond Transit Company (Richmond, Virginia) Enhanced Transit Development Plan, FY2018-FY2022</li> <li>• King County Metro (Seattle, Washington) Strategic Plan 2011-2021, Chapter 3: Plan Performance Monitoring</li> </ul>	70
<b>B</b>	<p><b>Overview of Ride On Bus Stops.</b> This appendix describes the current bus stop amenities and how Ride On reviews the equity of bus stop amenities under Title VI of the Civil Rights Act of 1964.</p>	87
<b>C</b>	<p><b>Glossary of Terms.</b> This appendix provides a list of key transit terms used in this OLO report.</p>	89
<b>D</b>	<p><b>Acronyms.</b> This appendix provides a list of acronyms used in this OLO report.</p>	96

## Appendix A. Municipality of Anchorage Public Transit (Anchorage, Alaska) Transit of the Move 2020, Transit Plan

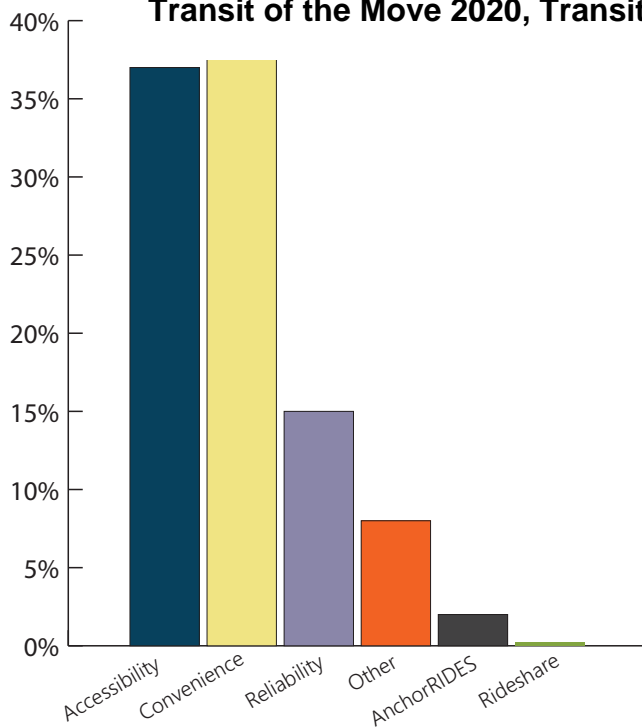


Figure 21: Public Event Series #1  
Comments by PTD Goal

## PERFORMANCE-BASED PLANNING MATRIX

Performance-based planning focuses on connecting the vision and goals of a plan to the desired outcomes.

Comments from PES1 helped shape the performance measures and targets of this plan. Four hundred and thirty eight of the 651 individual ideas expressed were goal-oriented and applied to the performance-based planning matrix revisions. The remaining 213 ideas were general comments or project proposals and were recorded and saved for project development in PES2.

In total, there are **4** goals, **12** objectives, **19** performance measures, and **20** performance targets for the plan. The complete list of system improvements will help guide planning processes for coordinated planning efforts, such as the “Metropolitan Transportation Plan”

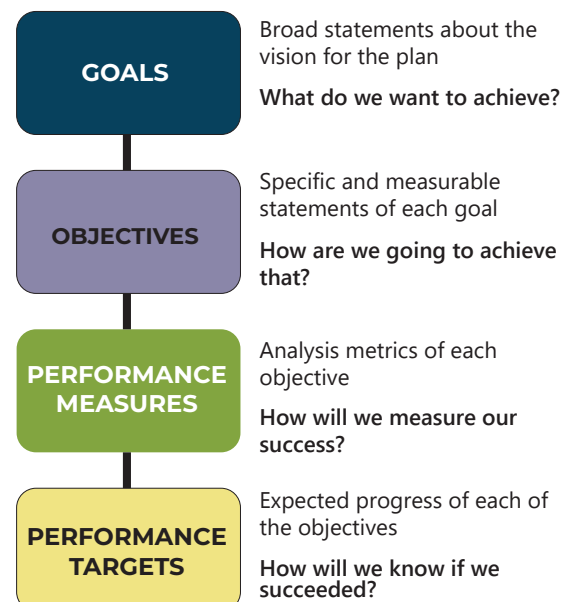


Figure 22: Public Event Series #1  
Comment Categories

(MTP).

The Public Transit Advisory Board (PTAB) recommended approval of the performance-based planning matrix as presented in Tables 4, 5, and 6 at their May 9, 2019 [meeting](#).

### PERFORMANCE-BASED PLANNING



# GOAL: ACCESSIBILITY

Is the service where I need it? Can I afford it?  
Do I know about all of my options?



People Mover  
*fixed route*  
service



AnchorRIDES  
*paratransit*  
service



RideShare  
*vanpool*  
service










OBJECTIVES		PERFORMANCE MEASURES	TARGETS		SERVICE
Geographic	Increase access to jobs / residents	Percent of jobs / residents within 1/4 mile of bus stops	A-1:	Increase the number of jobs by 5% & residents by 10% within 1/4 mile of bus stops	
	Increase seasonal accessibility of bus stops	Bus stop seasonal maintenance plan	A-2:	Complete a bus stop analysis to assess how we can implement best practices for bus stop seasonal maintenance & coordinate with MOA/DOT street & sidewalk maintenance	
Economic	Evaluate the cost of public transit	Fare structure	A-3:	Complete a fare analysis study	  
Informational	Increase our reach	Number of business partnerships	A-4:	Add one new business partnership annually	 
		Number of marketing campaigns / web hits / mailings / social media reach / public meetings / technology upgrades	A-5:	Add three new marketing campaigns & increase our reach through all methods of communication by 5%	 

Table 4: Performance Based Planning Matrix - Accessibility

# GOAL: CONVENIENCE

Is the service there when I need it?  
Is it easy to use?
















People Mover  
fixed route  
service



AnchorRIDES  
paratransit  
service



RideShare  
vanpool  
service

OBJECTIVES	PERFORMANCE MEASURES	TARGETS		SERVICE
Decrease wait time	Frequency of routes	C-1:	All fixed routes $\leq 30$ minutes peak frequency	
	Minutes between transfers	C-2:	Synchronize 80% of fixed route transfers to $\leq 8$ minutes at key locations	
	Wait time buffer for scheduled trips	C-3:	Decrease wait to 10 minutes on either side of a trip	
	Flexibility when scheduling appointments	C-4:	Provide same day scheduling	
Expand service	Weekday Vehicle Revenue Hours (VRH)	C-5:	Increase VRH by 5% by adding trips or expanding span of service	 
	Weekend Vehicle Revenue Hours (VRH)	C-6:	Increase VRH by 5% by adding trips or expanding span of service	 
	Holiday service schedule	C-7:	Restore service to the 5 holidays cut in 2016: (Martin Luther King Jr. Day, President's Day, Seward's Day, Veteran's Day, Day After Thanksgiving)	 
Travel time	Transit / Single Occupancy Vehicle (SOV) travel time ratio	C-8:	Transit / SOV travel time ratio to be $\leq 1.5$	
	Trip time	C-9:	95% of trips $\leq 5$ miles are completed in $\leq 50$ minutes	
Increase amenities at bus stops	Percent of bus stops that meet amenities distribution guidelines	C-10:	Increase compliance by 10%	

WHERE

Table 5: Performance Based Planning Matrix - Convenience

# GOALS: RELIABILITY & SAFETY

Is the service performing as expected?  
Do I feel comfortable using the service?



People Mover  
*fixed route*  
service



AnchorRIDES  
*paratransit*  
service



RideShare  
*vanpool*  
service






OBJECTIVES	PERFORMANCE MEASURES	TARGETS		SERVICE
Increase vanpool participants	Number of vanpool participants	R-1:	Increase vanpool participants by 5%	
Improve on-time performance	Percent of trips that are on-time	R-2:	All fixed routes to be on-time $\geq 90\%$ of the time	
		R-3:	$\leq 5\%$ of trips to be late or early	
Decrease number of missed trips	Percent of missed trips	R-4:	Decrease the number of missed trips by 20%	
Improve security at bus stops and on buses	Percent of preventable security related incidents	S-1:	Decrease preventable security incidents by 15%	

Table 6: Performance Based Planning Matrix - Reliability & Safety

## PROJECT LIST

Using the data displayed in the system report card, the plan aims to understand the impacts of the system change in 2017 on the users of each of the public transportation services. Feedback from PES1 helped to establish a list of project proposals.

Projects are identified for each of the performance targets and are designed to help PTD achieve those targets.

## PUBLIC EVENT SERIES #2

In May and June 2019, PTD conducted Public Event Series #2 (PES2). Draft project proposals were presented for review, comment, and a vote.

Project proposals that added coverage to the system or realigned existing service were displayed on maps. Three maps presented projects for the Anchorage Bowl, and one map displayed projects for the Chugiak/Eagle River area. Twenty-two projects in total were displayed.

## CHAPTER 2: GOALS, OBJECTIVES, AND SERVICE DESIGN STANDARDS

Establishing agreed upon goals, objectives, and service design standards creates a framework for transit agencies to establish managerial direction and outline how to pursue and measure progress. GRTC goals and objectives have evolved over the years to reflect new initiatives and agency priorities that encompass much more than just the deployment of services. The goals and objectives reflect areas such as achieving organizational excellence, enhancing mobility choice, projecting a positive public image, providing responsible stewardship of resources, and integrating with regional plans and processes.

During the preparation of this TDP, the Greater RVA Transit Vision Plan and Richmond's MPO 'Plan 2040' were consulted to further ensure the strategic goals of the regional plans are incorporated in the TDP.

Overall, the TDP goals and objectives are in line with Richmond's regional plans, particularly in the areas of environmental efficiency, system reliability and operational efficiency, and safety and security. The comprehensive focus of the regional plans emphasizes a broader view that touches upon GRTC's overall mission and role in congestion mitigation, access to employment, and multimodal connectivity. While GRTC seeks to address these regional priorities through their operations, their goals and objectives naturally are more focused for decision-makers and partners to concentrate on internal operations and service efficiency.

While goals generally define a longer-term purpose toward which an endeavor is directed, objectives provide additional details, or targets for how the goal will be achieved and in what intermediate timeframe. The goals and objectives presented in this chapter represent an iterative process with GRTC staff in balancing operations objectives representing near-term, relatively low-cost operations strategies that provide immediate improvements to the transportation system and longer-term improvement objectives that may require time to fully achieve. Goals and objectives are revisited on an annual basis, and historically have a strong emphasis on the implementation and status of projects to advance outcomes.

### 2.1 Current Goals and Objectives

Through the annual TDP update process, GRTC has established eight current goals and associated objectives that reflect various projects and initiatives. During the current TDP study, additional collaboration occurred among GRTC staff on identifying specific and measurable performance targets that would result from pursuing the strategies represented by specific projects. The specific measures and targets have been applied to each objective to facilitate the tracking of progress.

#### 2.1.1 Goal 1 – Improve Employee Experience

**Objective 1.1:** Provide opportunities for improving and maintaining health, to include health fairs, wellness programs, and walking programs.

MEASURE	TARGET	STRATEGY
Number of flu shots distributed at annual health fair.	3% increase from previous year.	Health Fair expansion beyond Temporary Transfer Plaza.
Employee participation in the walking program.	33% of all full and part-time employees by 2022.	Annual Monument Avenue 10K.

**Objective 1.2:** Provide opportunities for operator input on schedules, through a designated liaison between operators and the Planning and Scheduling Department.

MEASURE	TARGET	STRATEGY
Number of scheduling issues identified; number of times needed to revisit/adjust bookings due to schedule adherence.	Less than 20% of all trips per route incur missed /reduced layover time.	Provide liaison for operators to communicate with the Planning & Scheduling Department.

**Objective 1.3:** Position GRTC as an employer of choice that provides recognition, identifies non-traditional benefits, maintains competitive salary, and keeps employees better informed throughout the organization.

MEASURE	TARGET	STRATEGY
Number of volunteer/community service hours logged by employees and interns.	Achieve community service equivalent of 8 hours per year per full-time employee by 2024.	Volunteer program to reimburse employees for up to 4 hours of service. Summer program for high school interns.
Turnover and absenteeism rates.	Achieve rates less than the Virginia transit system average by 2020.	HR and Marketing outreach to employees on benefits in comparison to other transit companies. Review and adjust salary/pay bands.

### 2.1.2 Goal 2 – Promote Safety First, Service Always

**Objective 2.1:** Minimize all preventable vehicle accidents.

MEASURE	TARGET	STRATEGY
Preventable bus accident rate per month.	Less than 20 per month.	Continued monitoring/reporting by the Risk Management Department.  Refresher-training as needed and identified.
Preventable bus accident rate per 100,000 miles.	Less than 5 per 100,000 miles.	Continue to recognize operators through the Safety Rewards Program.  Conduct Quarterly Safety Meeting.
Preventable bus accidents		Pursue DRPT and other grant resources to implement advanced and connected vehicle technologies such as pedestrian detection systems and incorporate them into existing or new vehicles where possible.

**Objective 2.2:** Minimize injuries to employees and passengers.

MEASURE	TARGET	STRATEGY
Passenger and employee injury rates	Passengers - Less than 3 per 1 million trips. Employees - Less than 3 per 100 FTE per year.	Physical improvements, changes in workplace practice, awareness campaigns.

**Objective 2.3:** Improve security for customers and employees, through the creation of a consolidated System Security Program

MEASURE	TARGET	STRATEGY
Average number of monthly systemwide NTD Reportable Crimes.	NTD Part 1 (serious) crimes – Less than 0.40 per 100,000 riders.  NTD Part 2 (petty) crimes – Less than 1.75 per 100,000 riders.	Update and maintain System Security Program.
Percent of vehicles and facilities under video surveillance.	100%	Ongoing facility improvements.

### 2.1.3 Goal 3 – Improve Operational Efficiency

**Objective 3.1:** Implement an internal performance monitoring program by route.

MEASURE	TARGET	STRATEGY
Route metrics compiled for passengers per hour, passengers per mile, net revenue per passenger, farebox recovery and passengers per trip.	Conduct service adjustments for routes 50% below route type average of metric over two consecutive bookings.	Monitor route performance by route and category of service type (i.e. core, arterial, etc.).

**Objective 3.2:** Review and assess system performance on a monthly basis, utilizing CAD/AVL to the greatest extent possible to assess schedule and time point adherence.

MEASURE	TARGET	STRATEGY
On-time arrival for all fixed route services.	Achieve and maintain monthly 80% on-time arrival	Utilize supervisors and CleverCAD to monitor schedules along with soliciting feedback from operators. Improve bus stop spacing.

**Objective 3.3:** Strategically adjust the size of the fleet to align with service demand.

MEASURE	TARGET	STRATEGY
Revenue vehicle spare ratio – calculated as maximum required vehicles to operate current/planned service divided by total revenue fleet.	Not to exceed 20% (annually)	Continue to implement the BusReplacement Program.  Continue to add mini buses to the fleet.

**Objective 3.4:** Implement a more efficient route and schedule structure.

MEASURE	TARGET	STRATEGY
Operating expense per revenue mile.		Continue to explore clockface scheduling.



### 2.1.4 Goal 4 – Improve Paratransit Operations

**Objective 4.1:** Utilize technology to operate more efficiently.

MEASURE	TARGET	STRATEGY
Vehicle dwell time.	Reduce and maintain average dwell time for vehicles during the pick-up window.	Continued CleverCAD upgrades to improve efficiency in collecting data. Continued pursuit of a comprehensive, intraoperative and fully integrated “system of ITS technologies.”
Productivity	Minimum of 2 passenger trips per revenue hour	

**Objective 4.2:** Utilize technology to enhance customer experience.

MEASURE	TARGET	STRATEGY
Vehicle dwell time.	Reduce and maintain average dwell time for vehicles during the pick-up window.	Information Systems to continue to refine the mobile app and address needed improvements.
Average hold time	2 minutes or less.	

**Objective 4.3:** Implement strategies to avoid capacity constraints.

MEASURE	TARGET	STRATEGY
Operator vacancies.		Hold regular meetings with contractor staff to review how runs are structured and to discuss problems that have been encountered with operator feedback to facilitate closer working relationship between scheduling and contract operations.

**Objective 4.4:** Explore opportunities to present fixed-route service as a viable mobility option through travel training and fare-free programs.

MEASURE	TARGET	STRATEGY
Client participation in travel training.	Increase by 10% by 2020.	Offer free local fixed route service to paratransit customers. Continued utilization of certified travel training instructor

### 2.1.5 Goal 5 – Promote Environmental Efficiency

**Objective 5.1:** Continue to pursue Green building and practices that reduce the consumption of non-renewable resources, and continues the transition of the revenue and support vehicle fleets to alternative-fuel sources.

MEASURE	TARGET	STRATEGY
Percent of revenue fleet that utilizes CNG.	75% by 2020.	Continue transitioning to an all CNG fleet. Continue to move the requisition process to a paperless system.

### 2.1.6 *Goal 6 – Improve Financial Efficiency*

**Objective 6.1:** Contain operating costs by reducing redundancy in facilities, reducing overtime labor, and exploring cost savings measures.

MEASURE	TARGET	STRATEGY
Systemwide cost per revenue mile.	Maximum cost per revenue mile not to exceed 3 percent growth per year.	Dispose excess property, expand bus storage capacity adjacent to the operations center, monitor staffing to control overtime expenditures.
Systemwide cost per revenue hour.	Maximum cost per revenue hour not to exceed 3 percent growth per year.	
Overtime percentage.	6% overtime goal.	

**Objective 6.2:** Explore and secure new revenue sources through research into and application for new grant funding opportunities and expansion of fare sales outlets.

MEASURE	TARGET	STRATEGY
Number of grant applications	Maintain or increase number of new grant applications on an annual basis.	Increased grant research. Conduct outreach to local retailers and development of a potential vendor purchase incentive program.

**Objective 6.3:** Ensure contract compliance in administration and controls.

MEASURE	TARGET	STRATEGY
Findings from FTA Triennial Review	Zero findings in the area of contract compliance.	Ensure all invoices are correct and reviewed properly.

**Objective 6.4:** Benchmark GRTC's financial efficiency against peers.

MEASURE	TARGET	STRATEGY
Benchmark against Finance Department peer analysis.	Rank above median in all performance areas with respect to peers.	Track the following metrics: unlinked passenger trips per revenue mile, net operating loss per unlinked passenger trip and net operating loss per unlinked passenger trip.

### 2.1.7 *Goal 7 – Improve Public Image*

**Objective 7.1:** Increase awareness of GRTC's strengths and the quality of services provided through public outreach, promotions, branding, and strategic partnering.

MEASURE	TARGET	STRATEGY
Number of community/stakeholder outreach events per major service change.	Conduct a minimum of two public outreach events for community/stakeholder per month.	Continued video productions, marketing campaigns ("GRTC: Did you know?"), and support outreach to ease transition to new services such as Pulse and new Network Plan, route designations, timing, etc.
Number of social media endorsements.	Achieve quarterly increase in number of social media endorsements.	

**Objective 7.1: Expand outreach to the Hispanic community.**

MEASURE	TARGET	STRATEGY
Number of Spanish language format outreach events per year.	Conduct a minimum of six public outreach events for Hispanic population groups per year.	Continued partnership with the City of Richmond's Office of Multicultural Affairs (OMA). Update and expand Spanish-translated documents printed and online.

**2.1.8 Goal 8 – Improve Customer Satisfaction**
**Objective 8.1: Provide more comfortable, more efficient, and safer operation to include a focus on security, cleanliness, efficient customer service and improved service frequency.**

MEASURE	TARGET	STRATEGY
Number of customer complaints per 100,000 boardings by mode.	Less than 20 complaints.	Continued Quality Control Inspection Program for shop foremen to ensure that vehicle cleaning, fueling and repairs on each shift are completed in a timely fashion, correctly and to a high standard

**Objective 8.2: Improve bus stop amenities through redesign of bus stop shelters.**

MEASURE	TARGET	STRATEGY
Identification of non-motorized access deficiencies at all transit stops.	100% all hubs, Pulse stops and major bus stops (more than one route) are ADA compliant.	Continued to inventory and analyze each bus stop to identify any improvements that are needed in all jurisdictions.

**Objective 8.3: Improve communication with customers via technology applications, website enhancements, social media presence and call center information dissemination.**

MEASURE	TARGET	STRATEGY
Uptime of website, smartphone applications. Call center wait time.	99.9% website uptime. Call wait time – 30 seconds.	Monitor applications, refresh content of website daily, push out service alerts via the App, BusTracker and Twitter.

**Objective 8.4: Diversify fare purchase and payment options.**

MEASURE	TARGET	STRATEGY
Percentage of fare purchases not from the fare-box or point of sale location (i.e. online, other).		Implementation of a new Specialized Transportation fare collection system that moves from paper ticket system to a smartcard based system.

**Objective 8.5: Explore customer rewards program.**

MEASURE	TARGET	STRATEGY
Number of participating merchants.		"RIDE GRTC REWARDS" program

## 2.2 Summary of Changes from Prior TDPs

A historic review of GRTC's Goals and Objectives revealed that numerous changes occurred with the introduction of new executive leadership in 2015. This is an opportune time for new leadership to reassess organizational goals and priorities to inform employees where the direction and plans to achieve even greater success at the organization. Other changes noted include the changing of objectives as specific projects completed their implementation phases. Table 2-1 below also illustrates the order of goals was adjusted in 2015 to reflect a change in emphasis.

Table 2-1 GRTC Objectives, 2015

Current FY 2016 Goals	2015 Change in Order from Last TDP	New/Modified Objectives (year)
Goal 1 – Improve Employee Experience	+7	<b>Objective 1.3:</b> Position GRTC as an employer of choice (2015) – newly added to focus upon employee satisfaction, recognition, and non-traditional benefits for employees.
Goal 2 – Promote Safety First, Service Always	No Change	<b>Objective 2.1:</b> Minimize all preventable vehicle accidents (2017) – Consolidated two separate vehicle accident rate objectives. <b>Objective 2.2:</b> Minimize injuries to employees and passengers (2017) –added to also include non-vehicle related accidents. <b>Objective 2.3:</b> Improve security for customers and employees (2015) – newly added to focus on facility security and consolidate security documents into one System Security Program.
Goal 3 – Improve Operational Efficiency	+1	<b>Objective 3.4:</b> Strategically align fleet to service demand (2014) – modified to include intent to implement a more efficient route and schedule structure. Also removed emphasis on providing coach buses on long-haul express routes.
Goal 4 – Improve Paratransit Operations	+4	<b>Objective 4.2:</b> Utilize technology to enhance customer experience (2015) – added to address role of technology in reducing hold times through a call-back feature. <b>Objective 4.3:</b> Implement strategies to ensure capacity constraints are not encountered (2015, 2016) – added to address technological and operational issues with the service provider.
Goal 5 – Promote Environmental Efficiency	-4	No changes
Goal 6 – Improve Financial Efficiency	-1	<b>Objective 6.1:</b> Contain operating costs (2015) – modified to replace “reduce costs” with “contain costs”. Added emphasis on tracking overtime expenditures. <b>Objective 6.2:</b> Explore and secure new revenue sources (2015) – modified to emphasize grant pursuits and fare sale outlets. <b>Objective 6.3:</b> Ensure contract compliance (2015) – newly added with emphasis on oversight of contracts and invoice accuracy. <b>Objective 6.4:</b> Benchmark GRTC's financial efficiency against peers (2015) – newly added to have the Finance Department review the most recently published NTD data from other transit agencies and compare to GRTC, identifying strengths and areas where the company can improve.

## CHAPTER 3: PLAN PERFORMANCE MONITORING

Metro's strategic plan is a blueprint for Metro to improve its public transportation products and services in meaningful and measurable ways. Performance monitoring will help Metro evaluate its progress, plan and budget for the future, and improve agency practices. By making performance reports readily available, Metro can make its progress transparent to internal and external audiences. This section gives an overview of how Metro and its stakeholders can measure the progress and impacts of the strategic plan.



### SECTION 3.1

#### How Metro measures performance

Metro measures the performance of individual routes, of the Metro system as a whole, and of various products and services. Metro reports various measures in the Federal Transit Administration's National Transit Database, in monthly and annual management reports (see sidebar), and in project-specific performance reports. These reports serve a number of purposes: They comply with federal and state reporting requirements, give public transportation managers the data they need, assess progress towards goals and objectives, inform management and policy decisions, and give the public a way to assess Metro's performance.

#### Measuring strategic plan progress

Reporting for this strategic plan will focus primarily on objectives and strategies. Metro will use some of the measures already used for other reporting purposes, augmented by measures specific to the strategic plan. Reporting for this plan will support and enhance Metro's ongoing measurement and use of performance data.

This plan provides for performance measurement at three levels:

- **Objectives**
- **Strategies**
- **Peer comparison.**

The following pages describe these measurement levels and associated measures. Metro will report on strategic plan measures annually, and will update this section of the plan as necessary to improve performance measurement.

After January 1, 2012, prior to proposing any budget that includes a change in the system greater than 10 percent of the system hours during the next two-year period, Metro will report on strategic plan measures if a report has not been delivered within the last 12 months.

#### Metro performance measurement information

Metro launched an online "Monthly Performance Indicators" website to give the public current information about Metro's performance.

On this site, people can find graphs and data showing trends in ridership, service quality, safety and security, finances, and service effectiveness.

Find this site and links to other Metro reports at [www.metro.kingcounty.gov/metro/accountability](http://www.metro.kingcounty.gov/metro/accountability)

## Measuring objectives

Each objective in the plan has an intended outcome that relates to an aspect of Metro's vision. Metro will measure progress toward these broad outcomes at the systemwide level using metrics and measurement methods that incorporate many factors. The combined results will give an indication of Metro's overall progress toward achieving its vision. Objectives could be measured in a variety of different ways, and techniques for measurement may change over time. Table 2 shows each objective and its related outcome. These outcomes will be reported in a variety of ways, including maps, graphs and text.

TABLE 2: **Objectives and related outcomes**

GOAL	OBJECTIVE	OUTCOME
1	Keep people safe and secure.	Metro's services and facilities are safe and secure.
2	Provide public transportation products and services that add value throughout King County and that facilitate access to jobs, education and other destinations.	More people throughout King County have access to public transportation products and services.
3	Support a strong, diverse, sustainable economy.	Public transportation products and services are available throughout King County and are well-utilized in centers and areas of concentrated economic activity.
	Address the growing need for transportation services and facilities throughout the county.	More people have access to and regularly use public transportation products and services in King County.
	Support compact, healthy communities.	More people regularly use public transportation products and services along corridors with compact development.
	Support economic development by using existing transportation infrastructure efficiently and effectively.	Regional investments in major highway capacity projects and parking requirements are complemented by high transit service levels in congested corridors and centers.
4	Help reduce greenhouse gas emissions in the region.	People drive single-occupant vehicles less.
	Minimize Metro's environmental footprint.	Metro's environmental footprint is reduced (normalized against service growth).
5	Improve satisfaction with Metro's products and services and the way they are delivered.	People are more satisfied with Metro products and services.
	Improve public awareness of Metro products and services.	People understand how to use Metro's products and services and use them more often.
6	Emphasize planning and delivery of productive service.	Service productivity improves.
	Control costs.	Metro costs grow at or below the rate of inflation.
	Seek to establish a sustainable funding structure to support short- and long-term public transportation needs.	Adequate funding to support King County's short- and long-term public transportation needs.
7	Empower people to play an active role in shaping Metro's products and services.	The public plays a role and is engaged in the development of public transportation.
	Increase customer and public access to understandable, accurate and transparent information.	Metro provides information that people use to access and comment on the planning process and reports.
8	Attract and recruit quality employees.	Metro is satisfied with the quality of its workforce.
	Empower and retain efficient, effective, and productive employees.	Metro employees are satisfied with their jobs and feel their work contributes to an improved quality of life in King County.



## Measuring strategies

The strategies in the plan support the objectives. Strategies will be assessed using discrete, quantifiable metrics to determine if they are being successfully implemented and are having the intended impact. Strategies could be assessed in a variety of ways and measurement techniques may change over time. The performance measures for assessing strategies are listed in Table 3. These measures focus on different aspects of the public transportation system, including transit use, productivity, cost, social equity and geographic value. Specific thresholds and targets for these measures will be established in Metro's business plans.

TABLE 3: **Strategy performance measures**

GOAL 1: SAFETY	
1	Preventable accidents per million miles
2	Operator and passenger incidents and assaults
3	Customer satisfaction regarding safety and security
4	Effectiveness of emergency responses
GOAL 2: HUMAN POTENTIAL	
1	Population within a ¼-mile walk to a transit stop
2	Number of jobs within a ¼-mile walk to a transit stop
3	Number of students at universities and community colleges that are within a ¼-mile walk to a transit stop
4	Percentage of households in low-income census tracts within a ¼-mile walk to a transit stop
5	Percentage of households in minority census tracts within a ¼-mile walk to a transit stop
6	Population within ½ mile of stops with frequent service
7	Number of jobs within ½ mile of stops with frequent service
8	Households within specific ranges of distance from frequent service
9	Average number of jobs and households accessible within 30 minutes countywide (total population, low-income population, minority population)
10	Average number of jobs and households accessible within 30 minutes from regional growth centers, manufacturing/ industrial centers, and transit activity centers
11	Vanpool boardings
12	Transit mode share by market
13	Student and reduced-fare (youth, seniors, people with disabilities) and low-income fare permits and usage
14	Accessible bus stops
15	Access registrants
16	Access boardings/number of trips provided by the Community Access Transportation (CAT) program
17	Requested Access trips compared to those provided
18	Access applicants who undertake fixed-route travel training

GOAL 3: ECONOMIC GROWTH AND BUILT ENVIRONMENT	
1	All public transportation ridership in King County
2	Transit rides per capita
3	Ridership in population/business centers
4	Employees at CTR sites sharing non-drive-alone transportation modes during peak commute hours
5	Employer-sponsored passes and usage
6	Park-and-ride capacity and utilization (individually and systemwide); capacity and utilization of park-and-ride lots with frequent service
7	HOV lane passenger miles
8	Bike locker capacity and utilization (including number of locations with bike lockers)
GOAL 4: ENVIRONMENTAL SUSTAINABILITY	
1	Average miles per gallon of Metro's bus fleet
2	Vehicle energy use (diesel, gasoline, kWh) normalized by miles
3	Vehicle fuel use (diesel, gasoline, kWh) normalized by boardings
4	Total facility energy use
5	Energy use at Metro facilities: kWh and natural gas used in facilities, normalized by area and temperature
6	Per-capita vehicle miles traveled (VMT)
7	Transit mode share
GOAL 5: SERVICE EXCELLENCE	
1	Customer satisfaction
2	Customer complaints per boarding
3	On-time performance by time of day
4	Crowding
5	Use of Metro's web tools and alerts
GOAL 6: FINANCIAL STEWARDSHIP	
1	Service hours operated
2	Service hours and service hour change per route
3	Boardings per vehicle hour
4	Boardings per revenue hour
5	Ridership and ridership change per route
6	Passenger miles per vehicle mile
7	Passenger miles per revenue mile
8	Cost per hour
9	Cost per vehicle mile
10	Cost per boarding
11	Cost per passenger mile
12	Cost per vanpool boarding
13	Cost per Access boarding
14	Fare revenues
15	Farebox recovery



GOAL 6: FINANCIAL STEWARDSHIP CONTINUED	
16	ORCA use
17	Asset condition assessment
18	For new or nontraditional alternative services, cost per boarding, ride or user, as appropriate (Note: different performance measures may be used to evaluate different types of services.)
GOAL 7: PUBLIC ENGAGEMENT AND TRANSPARENCY	
1	Public participation rates
2	Customer satisfaction regarding Metro's communications and reporting
3	Social media indicators
4	Conformance with King County policy on communications accessibility and translation to other languages
GOAL 8: QUALITY WORKFORCE	
1	Demographics of Metro employees
2	Employee job satisfaction
3	Promotion rate
4	Probationary pass rate

## Peer comparison

Comparisons with peer transit agencies provide an additional benchmark for measuring Metro's performance.

Peer comparisons provide a general sense of whether Metro is improving, maintaining or falling behind in comparison to national trends. These comparisons often raise questions about why Metro is improving or not. Answering these questions typically requires further analysis, which Metro does by examining its relevant business processes or conducting in-depth research on peer agencies that are making the greatest improvements on the measure in question.

Strategic plan reporting will compare Metro with other large bus agencies in the U.S. in three key areas of performance: effectiveness, efficiency and cost-effectiveness. The specific indicators for each will be calculated using the Federal Transit Administration's annual National Transit Database reports.

TABLE 4: Peer comparison—key areas of performance

EFFECTIVENESS	EFFICIENCY	COST EFFECTIVENESS
1) Percent change in boardings per capita	1) Percent change in cost per vehicle hour	1) Percent change in cost per boarding
2) Percent change in boardings per vehicle hour	2) Percent change in cost per vehicle mile	2) Percent change in cost per passenger mile
3) Percent change in passenger miles per vehicle mile		

## ■ SECTION 3.2

### Route performance

Metro uses service guidelines to evaluate the performance of individual routes in the fixed-route system. Performance management guidelines are applied to individual routes to identify high and low performance, areas where investment is needed, and areas where resources are not being used efficiently and effectively. Both productivity and service quality are measured.

Metro may adjust routes to improve the performance of the individual route as well as the performance of the entire Metro fixed-route system. Metro revises service two times a year. Significant changes to routes generally have a large public outreach process and are subject to approval by the King County Council. Minor changes, as defined by the King County Code, may be made administratively. More information is available in the service guidelines.

## Appendix B. Ride On Bus Stops

**Current Inventory.** Table A-1 below shows the proportion of Ride On bus stops that have a bench or shelter, as of July 2020. According to MCDOT staff, placement of bus stop amenities and improvements is determined primarily by ridership characteristics at that location, such as average daily ridership and the proximity of schools, retail, multifamily residences, libraries, community centers, etc. Benches and shelters are also placed based on community requests. MCDOT installs real-time signage on bus stops based solely on ridership at that location.

**Table A-1. Ride On Bus Stops (as of July 2020)**

	Count	% of total
1. Total number of active Ride On bus stops	5,384	
2. Number of Ride On stops that have benches	1,402	26%
3. Number of Ride On bus stops that have shelters	864	16%

*Source: MCDOT Division of Transit Services, July 2020.*

MCDOT provides lighting at bus stops either through bus shelters or by street lighting. MCDOT staff told OLO that the department attempts to site bus stops as close as practically possible to any existing lighting.

Ride On bus stops are inspected by the field team, primarily to address an MC311 service request, but also with drive-by “windshield” surveys. These inspections primarily assess bus stop conditions to ensure signage is secured properly and the bus stop surroundings are pedestrian-friendly.

**MC311 Service Requests.** The MC311 system records resident service requests related to bus stops. Table A-2 below shows the MC311 service requests in FY20 related to bus stops.

**Table A-2. FY20 MC311 Service Requests Related to Ride On Bus Stops**

Service Requests	Count
Report a Maintenance Issue at a Ride-On Bus Stop	205
Report Trash at a Ride-On Bus Stop	80
Request For New Ride-On Bus Stop or Shelter	69
Ride On Bus Stop Park and Ride Lots	21
Ride On Temporary Bus Stop Location Changes around Silver Spring Transit Center	14
<b>Grand Total</b>	<b>389</b>

**Amenity Equity Analysis.** MCDOT monitors its provision of Ride On services and amenities to comply with Title VI of the Civil Rights Act of 1964. In its *Title VI Compliance Monitoring Report* (August 2017), MCDOT described its methodology for determining a disparity as follows:

Transit amenities will be mapped on GIS mapping for minority and low income populations and the number of shelters and benches will be counted in each area. The number of shelters and the number of benches will be calculated for the minority / non-minority areas and the low income areas based upon the percentage of households in poverty. Rates of shelters and benches per 1,000 households will

be calculated. If the rate of shelters or benches in minority / low income areas is 20 percent less than in non-minority / non-low income areas a disparity will exist. (p. 7)

Based on that methodology, MCDOT's monitoring of transit amenities found no disparity. The MCDOT analysis found that the rate of shelters per 1,000 households is higher for census block groups that have minority concentrations greater than the County average, while the rate of benches per 1,000 households is higher for census block groups with minority concentrations below the County average, but the differences were less than 20 percent. The MCDOT analysis also found that the rate of transit amenities per 1,000 households is highest in the areas with the highest percentage of low income households.

## **Appendix C. Glossary of Terms**

Alighting - A single passenger getting off a transit vehicle.

Average Passenger Load - The average number of passengers aboard a vehicle at any one time for its entire time in revenue service, including late night and off-peak hour service as well as peak rush hour service.<sup>1</sup>

Average Speed – The average speed of a transit vehicle is the miles it is operated in revenue service divided by the hours it is operated in revenue service.

Average Trip Length - The average distance ridden for an unlinked passenger trip; computed as passenger miles divided by unlinked passenger trips.

Base Fare -- The price charged to one adult for one transit ride; excludes transfer charges, zone charges, express service charges, peak period surcharges, and reduced fares.<sup>2</sup>

Base Period – The period between the morning and evening peak periods when transit service is generally scheduled on a constant interval. Also known as “off-peak period.”<sup>3</sup>

Boarding – A single passenger getting on a transit vehicle. Also see: “Unlinked Passenger Trips.”

Bus – A rubber-tired, self-propelled, manually-steered vehicle with fuel supply carried on board the vehicle.<sup>4</sup> When limited to a small geographic area or to short-distance trips, local bus service is often called circulator, feeder, neighborhood, trolley, or shuttle service. Other types of bus service are: express service, limited-stop service, and bus rapid transit (BRT).

Bus, Circulator – A bus serving an area confined to a specific locale, such as a downtown area or suburban neighborhood with connections to major traffic corridors.<sup>5</sup>

Bus, Feeder – A bus service that picks up and delivers passengers to a rail rapid transit station or express bus stop or terminal.<sup>6</sup>

Bus, Transit – A transit bus is a bus with front and center doors, normally with a rear-mounted engine, low-back seating, and without luggage compartments or restrooms facilities for use in frequent-stop service.<sup>7</sup>

Corridor – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways, and transit route alignments.<sup>8</sup>

Crosstown – Non-radial bus or rail service which does not enter the Central Business District (CBD).<sup>9</sup>

Customer Journey Time Performance – CJTP is the percentage of customers whose trips are completed within five minutes of the scheduled time. CJTP considers both how long customers wait at the bus stop beyond what they would have if their bus arrived on time, as well as how long customers spend on the bus beyond what they would have if the bus completed its trip in the time allotted in the schedule.<sup>10</sup>

Deadhead Time - The scheduled time spent driving to and from the base or between trips on different routes. Passengers may be conveyed on deadheading trips.<sup>11</sup>

Demand Responsive Service – Non-fixed-route service using vans or buses with passengers boarding and alighting at pre-arranged times at any location within the systems’ service area.<sup>12</sup>

Dwell Time – The scheduled time a vehicle or train is allowed to discharge and take on passengers at a stop, including opening and closing doors.<sup>13</sup>

Fare Box Recovery Ratio – Measure of the proportion of operating expenses covered by passenger fares; found by dividing fare box revenue by total operating expenses for each mode and/or systemwide.<sup>14</sup>

Fixed Route – Service provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations; each fixed-route trip serves the same origins and destinations, unlike demand responsive and taxicabs.<sup>15</sup>

Frequency - The number of bus trips in the same direction of travel within a specified time period. Frequency is usually expressed as the number of trips per hour. Frequency is also sometimes expressed in minutes, when referring to a single trip within a specified time period.<sup>16</sup>

Headway – Time interval between vehicles moving in the same direction on a particular route.<sup>17</sup> The amount of time between consecutive trips in the same direction of travel. Headway is usually expressed in minutes. On routes with uneven headways (i.e. variation in times between buses), this measure is expressed as an “average headway.”<sup>18</sup> Clock-face headways refer to a schedule with intervals that divide evenly into 60 (10, 12, 15, 20, 30, 60) to help passengers better predict arrival times.<sup>19</sup>

Interlining – Bus interlining combines two or more routes that arrive and depart from a common terminal. A bus can arrive at a downtown terminal as one route and after a brief layover, leave as a different route. (See explanatory video here: <https://www.tripspark.com/blog/save-money-and-get-better-otp-with-bus-interlining>.)

Intermodal – Those issues or activities which involve or affect more than one mode of transportation, including transportation connections, choices, cooperation, and coordination of various modes. Also known as “multimodal.”<sup>20</sup>

Lifeline service – Key transit routes that serve low-income communities and connect them to essential destinations like hospitals, jobs, schools, and grocery stores.

Linked Trip - A trip from origin to destination on the transit system. Even if a passenger must make several transfers during a journey, the journey is counted as one ‘linked trip’ on that transit system.<sup>21</sup>

Load Factor – The ratio of passengers actually carried versus the total passenger capacity of a vehicle.<sup>22</sup>

Low-density service – Service to areas with low population density, often provided as “lifeline service” even when the low population density makes the routes a less efficient route in the system.

Metro – WMATA’s Metrorail system serving the Washington, D.C. metropolitan area.

Metrobus – A bus system serving the Washington, D.C. metropolitan area administered by WMATA.

Metrorail – A rail system serving the Washington D.C. metropolitan area administered by WMATA. Also called “Metro.”

Modal Split – A term which describes how many people use alternative forms of transportation. Frequently used to describe the percentage of people using private automobiles as opposed to the percentage using public transportation.<sup>23</sup>

Park-and-Ride - A facility where transit passengers may park their automobile and catch a bus, vanpool or carpool to reach their final destination. Sometimes co-located with transit centers to provide many route options.

Passenger Flow - The number of passengers who pass a given location in a specified direction during a given period.

Passenger Load – The number of people on the bus at once. More specifically, passenger load is the number of passengers divided by the number of seats on the bus. Passenger load is expressed a ratio and is measured at points along the route. Transit planners and managers are interested in the maximum passenger load and where along a route it occurs. A maximum passenger load above 1.0 indicates that sometime in the bus trip at least one passenger is standing.<sup>24</sup>

Passenger Miles – The cumulative sum of miles traveled by each passenger on transit vehicles; determined by multiplying the number of unlinked passenger trips times the average length of their trips.<sup>25</sup>

Peak Period – Morning and afternoon time periods when transit riding is heaviest.<sup>26</sup>

Peak/Base Ratio – The number of vehicles operated in passenger service during the peak period divided by the number operated during the base period.<sup>27</sup>

Performance Standards - Transit agencies routinely collect a variety of performance measures categorized as: (1) system-level data collected and compiled at the aggregate level, and (2) route-level performance data.<sup>28</sup>

Relative Performance Measures are performance measures in which the performance of a route is measured against the performance of other routes.

Platform hours – See Vehicle Hours.

Queue Jumping - A queue jump lane is a short stretch of bus lane used in combination with traffic signal prioritization. The idea is to enable buses to by-pass waiting queues of traffic and to cut out in front by getting an early green signal.<sup>29</sup>

Rapid transit – Rapid transit (alternatively: mass rapid transit, heavy rail, metro, or subway) is a type of high-capacity public transport generally found in urban areas. Unlike buses or trams, rapid transit systems generally operate on an exclusive right-of-way that cannot be accessed by pedestrians or other vehicles of any sort.

Revenue Vehicle - a vehicle in the transit fleet that is available to operate in revenue service carrying passengers, including spares and vehicles temporarily out of service for routine maintenance and minor repairs. Revenue vehicles do not include service vehicles such as tow trucks, repair vehicles, or automobiles used to transport employees.

Ride - A single passenger using a single transit vehicle for a segment of their trip (or journey). One passenger trip may include several rides.<sup>30</sup>

Ridership, daily – The average daily number of unlinked passenger boardings. “Unlinked” means that one person may be counted more than once in a day if, for example, they make a round trip over the course of the day.

Ridership, by stop – The number of people boarding and alighting at a stop.

Route – Travel path.

Service – A transit agency may categorize its transit routes by type of service. For example, MCDOT categorizes Ride On routes by Weekday service, Saturday service, and Sunday service. Thus, one route may have multiple services. In some jurisdictions, different service types may be held to a different service standard or level of expected performance.

Service standards - A set of guidelines used to design, evaluate, and modify transit service. Such standards provide guidelines for the service evaluation and service change process. For example:<sup>31</sup>

- A standard for *service coverage* might be that a certain percentage of the population is within ¼ mile of a transit stop.
- A standard for *service frequency* might be minimum service frequencies (or headways) by service type, such as that a core route in the system must have a 30-minute headway or better during peak hours.
- A standard for *service directness* may be used to maximize average speed, minimize travel time, and/or minimize the number of transfers.
- A standard for *span of service* (also sometimes called *service duration*) relates to the hours per day of service, such as 7:00AM to 7:00 PM.
- A standard for *service delivery* may include such aspects as on-time performance, passenger shelters and other amenities, customer service, and safety issues.<sup>32</sup>
- A standard for *service equity* refers to how services are distributed for all population groups. For example, reporting for Title VI of the Civil Rights Act of 1964 governs service equity.

Signal Priority - Traffic signal priority gives special treatment to transit vehicles at signalized intersections. Forms of signal prioritization can be categorized as follows:<sup>33</sup>

- *Passive priority* can take the form of timing coordinated signals at the average bus speed instead of the average vehicle speed to favor transit vehicles.
- *Active priority* involves detecting the presence of a transit vehicle and, depending on the system logic and the real-time traffic situation, giving the transit vehicle special treatment. For example, vehicles equipped with traffic light preemption are able to, either automatically by sensors or through operator action, adjust traffic lights to provide the vehicle a green light sooner.
- *Queue jumpers* is also a form of transit prioritization.

SmarTrip - The SmarTrip® card is a permanent, rechargeable farecard. SmarTrip is a contactless stored-value smart card payment system managed by WMATA. The Maryland Transit Administration (MTA) uses a compatible payment system called CharmCard. A reciprocity agreement between the MTA and WMATA allows either card to be used for travel on any of the participating transit systems in the Baltimore-Washington metropolitan area. Unlike traditional paper farecards or bus passes, SmarTrip/CharmCard is designed to be permanent and reloadable.

Span of Service - The amount of time each day in which the route is operating. Span of Service can be expressed generally in terms of hours per day or more specifically by stating the time of the first and last trips of the day. For example, route A has a span of service of 18 hours between the first trip at 5:00 AM and the last trip at 11:00 PM.<sup>34</sup>

Traffic Light Preemption – Vehicles equipped with this are able to, either automatically by sensors or through operator action, adjust traffic lights to provide priority or a green light. See: Signal Priority.



Transfer – A transfer allows the rider of a public transportation vehicle who pays for a single-trip fare to continue the trip on another bus or train. Depending on the network, there may or may not be an additional fee for the transfer.

Transit Center - A facility where numerous bus routes converge to provide a convenient and safe location for transferring. Bus schedules are often coordinated at transit centers to minimize transfer times between certain routes.<sup>35</sup>

Unlinked Passenger Trips - Also called “boardings.” To count ridership based on UPT, passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination and regardless of whether they pay a fare, use a pass or transfer, or ride for free.

Vehicle Hours – Also called Platform Hours. The total hours a transit vehicle travels, from the time it pulls out from its garage to go into revenue service to the time it pulls in from revenue service, including “deadhead” miles without passengers or returning to the garage. Thus, it includes both revenue time and deadhead time.

Vehicle Revenue Hours are the hours traveled when the vehicle is in revenue service (i.e., the time when a vehicle is available to the general public and there is an expectation of carrying passengers). Vehicles operated in fare-free service are considered in revenue service. Revenue service excludes school bus service and charter service.

Vehicle Miles – The total miles a vehicle travels from the time it pulls out from its garage to go into revenue service to the time it pulls in from revenue service, including “deadhead” miles without passengers to the starting points of routes or returning to the garage. Thus, it includes both revenue miles and deadhead miles.

Vehicle Revenue Miles are the miles traveled when the vehicle is in revenue service (i.e., the time when a vehicle is available to the general public and there is an expectation of carrying passengers). Vehicles operated in fare-free service are considered in revenue service. Revenue service excludes school bus service and charter service.

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<sup>1</sup> *Fact Book Glossary*, American Public Transit Association; retrieved from <https://www.apta.com/research-technical-resources/transit-statistics/public-transportation-fact-book/fact-book-glossary/#7>.

<sup>2</sup> *Best Practices in Transit Service Planning*, Project #BD549-38 (2009), report prepared for the Florida Department of Transportation Research Center by the Center for Urban Transportation Research (CUTR), Univ. of South Florida; retrieved from <https://www.nctr.usf.edu/pdf/77720.pdf>.

<sup>3</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 4.

<sup>4</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 4.

<sup>5</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 5.

<sup>6</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 5.

<sup>7</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 6.

<sup>8</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 9.

<sup>9</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 9.

<sup>10</sup> "How to Read a Route Profile", Brooklyn Bus Network Redesign: Existing Conditions Report (p. 164).

<sup>11</sup> *Transit Service Planning Glossary*, King County, Washington; retrieved from [www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

<sup>12</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 10.

<sup>13</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 11.

<sup>14</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 12.

<sup>15</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 13.

<sup>16</sup> *Transit Service Planning Glossary*, King County, Washington; retrieved from [www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

<sup>17</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 14.

<sup>18</sup> *Transit Service Planning Glossary*, King County, Washington; retrieved from [www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

<sup>19</sup> *Best Practices in Transit Service Planning*, Project #BD549-38 (2009), report prepared for the Florida Department of Transportation Research Center by the Center for Urban Transportation Research (CUTR), Univ. of South Florida, p. 79; retrieved from <https://www.nctr.usf.edu/pdf/77720.pdf>.

<sup>20</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 15.

<sup>21</sup> *Best Practices in Transit Service Planning*, Project #BD549-38 (2009), report prepared for the Florida Department of Transportation Research Center by the Center for Urban Transportation Research (CUTR), Univ. of South Florida, p. 102; retrieved from <https://www.nctr.usf.edu/pdf/77720.pdf>.

<sup>22</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 17.

<sup>23</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 18.

<sup>24</sup> *Transit Service Planning Glossary*, King County, Washington; retrieved from [www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

<sup>25</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 21.

<sup>26</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 22.

<sup>27</sup> *Glossary of Transit Terminology*, American Public Transit Association (APTA, 1994), p. 22.

<sup>28</sup> *Best Practices in Transit Service Planning*, Project #BD549-38 (2009), report prepared for the Florida Department of Transportation Research Center by the Center for Urban Transportation Research (CUTR), Univ. of South Florida, p. 87; retrieved from <https://www.nctr.usf.edu/pdf/77720.pdf>.

<sup>29</sup> "Signal Priority" webpage on the website for Federal Transit Administration (updated 2016); retrieved from [www.transit.dot.gov/research-innovation/signal-priority](http://www.transit.dot.gov/research-innovation/signal-priority).

<sup>30</sup> *Transit Service Planning Glossary*, King County, Washington; retrieved from [www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

<sup>31</sup> *Best Practices in Transit Service Planning*, Project #BD549-38 (2009), report prepared for the Florida Department of Transportation Research Center by the Center for Urban Transportation Research (CUTR), Univ. of South Florida; retrieved from <https://www.nctr.usf.edu/pdf/77720.pdf>.

<sup>32</sup> Service Standards and Performance Measures (Sound Transit, Central Puget Sound Regional Transit Authority, Seattle Metropolitan Area, 2014 Edition) p. 11; retrieved from

[www.soundtransit.org/sites/default/files/documents/pdf/rider\\_news/2014\\_service\\_standards.pdf](http://www.soundtransit.org/sites/default/files/documents/pdf/rider_news/2014_service_standards.pdf)

<sup>33</sup> “Signal Priority” webpage on the website for Federal Transit Administration (updated 2016); retrieved from [www.transit.dot.gov/research-innovation/signal-priority](http://www.transit.dot.gov/research-innovation/signal-priority).

<sup>34</sup> Transit Service Planning Glossary, King County, Washington; retrieved from

[www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

<sup>35</sup> Transit Service Planning Glossary, King County, Washington; retrieved from

[www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx](http://www.kingcounty.gov/transportation/~media/transportation/kcdot/MetroTransit/HaveASay/Glossary.ashx).

## **Appendix D. Acronyms**

<b>APTA</b>	American Public Transportation Association
<b>BRT</b>	Bus Rapid Transit
<b>COG</b>	A council of government (generally) or the Metropolitan Washington Council of Governments
<b>DOT</b>	U.S. Department of Transportation
<b>FTA</b>	Federal Transit Administration (an agency within the U.S. Department of Transportation)
<b>MCDOT</b>	Montgomery County Department of Transportation
<b>MDOT</b>	Maryland Department of Transportation
<b>MPO</b>	Metropolitan planning organization.
<b>MTA</b>	Maryland Transit Administration (within the Maryland Department of Transportation)
<b>NTD</b>	National Transit Database
<b>WMATA</b>	Washington Metropolitan Area Transit Authority