Montgomery County Department of Transportation
**Montgomery County's Comprehensive Bus Network Study:
"Ride On Reimagined"**

INTRODUCTION

Montgomery County's Ride On bus system has been operating for over 40 years, providing a critical mobility option for people who live and work in the county. Over time, Ride On's route structure has grown in response to changing demographic and land use. As the County continues to see changes in population, demographics, employment centers, and housing, it is time for a comprehensive evaluation of the system, particularly given changes that are anticipated from the COVID-19 pandemic.

The Ride On Reimagined Study is a comprehensive forward-looking assessment of the bus network that may result in significant recommended changes to how transit operates in Montgomery County based on future and current needs. This study will take an in-depth look at Montgomery County's entire existing and planned transit system, including Metrobus services that operate within the County limits and the future Purple Line. The study would also provide an opportunity to guide the future direction of Ride On through data analysis and community engagement. The study will have a primary goal of recommending system-wide changes that address the current and future needs of the community it serves for both Ride On and Metrobus services.

The study will examine the current conditions and anticipated future of Ride On's service area, and will engage community leaders, activists, transit riders and support organizations to form a foundation of travel options. A full evaluation will be conducted to evaluate route structure, connectivity, span, and frequency of service through market research and analysis, review of land use development and anticipated technology advancements. The study will also address the County priorities to improve racial equity and prevent climate change. The image of transit services is important to attract riders; therefore, an internal and external evaluation of Ride On's brand will be examined. In conclusion, the study will set the framework for a plan with recommendations and implementation strategies that best align with the goals of our overall transportation network.

Several efforts to improve and expand services for current and future bus riders are already underway. The plan will provide standards and objectives that will evaluate

service quality by route level and service types.

1. PROJECT MANAGEMENT AND COORDINATION

The Ride On Reimagined study will require close coordination between MCDOT Transit Services, the consultant team, and the broader Project Coordination Team. There will be a Core Project Management Team, consisting of the project managers of MCDOT Transit Services and the consultant team and any necessary support staff.

There will also be a Project Coordination Team, consisting of representatives from the following:

- MCDOT Division of Transit Services
- MCDOT Director's Office
- Montgomery County Planning Department (M-NCPPC)
- WMATA

The Core Project Management Team will meet weekly to review progress, coordinate scheduling of activities, and ensure that decisions are made when necessary to meet study milestones.

The Project Coordination Team will meet quarterly to discuss draft deliverables and achieve consensus on key decision points.

2. EXISTING CONDITIONS

This study will include an evaluation of Ride On's current and pre-Covid conditions.

Spatial Database

This evaluation will include the development of a spatial database of the following data for analysis:

1. Existing and pre-pandemic route network, including location of stops and stop amenities
2. Passenger boarding and alighting data by stop by trip data from the APCs for Ride On and Metrobus, for both pre- and post-pandemic periods
3. Schedule adherence data (number of minutes varying from schedule and stop dwell time) by stop by trip from the AVL/APCs for both Ride On and Metrobus for both pre- and post-pandemic periods
4. GTFS schedule data for Ride On and Metrobus for both pre- and post-pandemic periods

5. Metro Access pick up and drop off ridership data by location for both pre- and post-pandemic periods

Analysis

The spatial database will be used to provide a detailed description of the following existing conditions:

1. Evaluate service area and route alignments within the County limits as well as those crossing into the surrounding jurisdictions, such as Prince George's County, Howard County, and the District of Columbia.
   a. Transit hubs
   b. Intermodal stations
   c. Long routes
   d. High ridership corridors/stops
2. Compile ridership data of current services from:
   a. AVL/APC data
   b. Survey data
   c. Performance data
   d. Various database files related to service performance
3. Evaluate Passenger Facilities amenities, based on existing data made available by MCDOT, to include:
   a. Bus stop
   b. Bus shelter
   c. Benches
   d. Bus station locations
   e. Park and ride lots
   f. Bus operator restrooms
   g. Accessibility and sidewalk access using the County's GIS sidewalk layer
4. Evaluate the Realtime (Trip Planner), CAD/AVL and Fareboxes.
   a. Describe the condition, usage, and viability of the services to include trips that span multiple services, i.e., Ride On to Metrorail.
5. Evaluate Origin-Destination patterns to include first/last mile connections.
   a. Utilize available transfer data from Ride On and WMATA from farebox and SmarTrip sources
   b. Evaluate overall pre- and post-pandemic travel flows across the County by all modes using Streetlight or similar mobile data source

6. Evaluate overall performance using a matrix that includes the following service standards and comparison to best industry practice (a comparison to aspirational peers will occur in Task 5):
    a. Frequency
    b. Span of Service policy to include routes that operate all day, peak period, and late nights.
    c. Route classification to include:
        • Fixed routes
        • Limited stop
        • Express service
        • BRT
        • On-demand (Flex) service
    d. Current fare structure and future proposed fare structure
    e. On-Time performance and Schedule Adherence
        • Overall on-time performance
        • Average minutes of delay
        • Dwell times and average speed to identify traffic congested corridors
    f. Missed Trips
    g. Full Buses- buses where peak load exceeds vehicle capacity.
        • Consider what capacity limit to use- seated or seated plus standees
        • Consider if post-COVID capacity limits are different
    h. Rider Complaints
    i. Vehicle Load Factor
7. Evaluate service coverage within County limits. This is an opportunity to evaluate the local and regional services holistically regardless of the provider; specifically Ride On and WMATA. Determine the applicable roles and classifications of these services:
    a. Ride On – Local service
    b. ExtRa – Limited Stop service
    c. Flash – BRT
    d. Flex – On demand service
    e. WMATA - Metrobus
    f. MTA/Commuter Bus service
    g. Shuttle UM
    h. Bethesda Circulator
    i. WMATA Metrorail (coverage)

j. Purple Line

k. WMATA Metro Access (3/4-mile radius service area)

These descriptions will be provided in technical memoranda and will be accompanied by a route profile summarizing the performance of the existing Ride On and Metrobus routes.

3. GOALS AND OUTCOMES

Based on the results of the Existing Service Assessment, the study will establish the goals for the bus network and the desired outcomes. The goals will be consistent with the priority areas of *Connecting our Communities,* MCDOT's vision for transportation. These priority areas are:

- Safety and Vision Zero
- Environment and Climate Resiliency
- Economic Development and Equitable Access

Each goal will be paired with one or more outcomes. These outcomes will be measurable so that the four bus network service concepts can be compared in their abilities to deliver each of them.

The draft goals and outcomes will be submitted in a technical memorandum and summarized in a PowerPoint presentation.

4. POLICIES AND GUIDELINES

Service Standards are the backbone of a successful outcome. The establishment of renewed policies and improved standards will set the foundation of services being evaluated in the future for budgetary and planning decisions. The Service Standards will be developed to contribute to meeting the goals and delivering the outcomes identified in Task 3.

1. Review, establish and define service guidelines to guide how the system should be structured. New guidelines can be established, or enhanced service classifications developed by WMATA with regional input that incorporate both the County's current and potential service mix, including FLASH, extRa, and Flex. Address guidelines for the following service levels, including input from all MCDOT transit planning and service divisions:
   a. High Frequency
   b. Express
   c. Coverage
   d. Microtransit

2. Establish guidelines for headways and span of service; previous headway standards did not exceed 30 minutes on any route. Determine if this policy still applies in this new environment (post-COVID).
3. Evaluate the system's span of service per route. Determine a set policy for span of service by route structure or framework.
4. Set the framework for fare policies in the future. A separate study is being conducted that evaluates four scenarios to address pandemic recovery. Evaluate the below scenarios and results for impacts on the target markets of our study and include an assessment of the impacts of transfer discounts:
   a. Zero fares system wide
   b. Zero fares during certain time of day
   c. Reduced fares ($1)
   d. Fares free or reduced for low-income population (means-based concept)
5. Establish guidelines for the level of amenities to be provided by each category of bus stops.

The draft Service Standards will be presented in a technical memorandum and summarized in a PowerPoint presentation.

5. BUS NETWORK ASSESSMENT

Over time, there have been service expansions and new route designs that have catered to demand, demographic needs, and redevelopment. A significant part of this study will focus on reimagining the service through various lenses. These major focus areas include:

Peer Review
1. The Core Project Management Team will select up to four aspirational bus transit peers based on their current efforts to meet goals similar to those identified in Task 3 and on factors including:
   a. Service area size
   b. Service area population
   c. Network route miles
   d. Annual service miles
   e. Annual service hours
   f. Annual ridership and passenger miles

      g. Mix of transit services

      h. Fleet size and vehicle types

      i. Funding structure

      j. Governance structure

2. Base comparisons of the existing Montgomery County bus network to the aspirational peers will be made using National Transit Database data. As background, MCDOT will provide information previously used to identify existing peer transit agencies through the Maryland triennial review process.

3. The Core Project Management Team will develop a questionnaire for use with the aspirational peers to obtain additional information, such as service policies, technologies utilized, and maintenance standards.

4. The results for the existing network as determined in Task 2 will be compared to those of the four aspirational peers, including:

      a. Frequency

      b. Span of Service policy to include routes that operate all day, peak period, and late nights

      c. Route classification to include:
   - Fixed routes
   - Limited stop
   - Express service
   - BRT
   - On-demand service

      d. Fare structure

      e. On-Time performance and Schedule Adherence
   - Overall on-time performance
   - Average minutes of delay
   - Dwell times and average speed to identify traffic congested corridors

      f. Missed Trips

      g. Full Buses- buses where peak load exceeds vehicle capacity.
   - Consider what capacity limit to use- seated or seated plus standees
   - Consider if post-COVID capacity limits are different

      h. Rider complaint ratio

      i. Vehicle Load Factor

      j. Stop amenities and accessibility

5. The consultant will prepare a peer review technical memorandum.

Market Analysis

1. Develop an Origin and Destination (O/D) analysis of travel patterns for Ride On and Metrobus services.
2. Identify a Transit Propensity Index (TPI) to determine the potential transit usage.
3. Review Traffic Analysis Zone (TAZ) within the service area.
4. Evaluate the overall system design to determine if the current structure meets the needs of our growing and expanding communities.
   a. Populated areas lacking service (transit deserts)
   b. Trafficked destinations without frequent or regular service
   c. Identify existing barriers to access essential services, especially medical appointments
5. Evaluate current structure and how the various services can be integrated with Bus Rapid Transit (BRT)
   a. Determine system design for local bus service (both Ride On and Metrobus) and BRT services.
6. Review previous surveys conducted.
7. Evaluate local trip generators and hubs within the service area:.
   a. Colleges
   b. Schools
   c. Recreation centers
   d. Libraries
   e. Major parks
   f. Employment centers
   g. Office developments
   h. Hospitals and health care centers
   i. Cultural and non-profit services
   j. Grocery stores
8. The Market Analysis will build on the spatial database developed in Task 2 and identify any service gaps. Results will be presented in a technical memorandum including illustrative maps and summarized in a PowerPoint presentation.

Land Use/Development/Transportation Plans

Various studies have been conducted over the past several years. It would be important

to review previous studies to ensure the Ride On Reimagined Study is synchronized with overall plans for the County. The following plans should be included in evaluations:

1. Bethesda Transitway
2. Bus Fleet Management Plan
3. Countywide Transit Corridors Functional Master Plan and related Bus Rapid Transit studies
4. WMATA Bus Transformation Study
5. Corridor Cities Transitway
6. I-495/I-270 Managed Lanes Study
7. MTA Purple Line
8. Shared Streets/Bikeways Program
   a. Evaluate and review the Shared Streets program. Determine protocol for floating bus stops and pedestrian access.
   b. Evaluate locations that are being beta-tested for Bus Priority Lanes and recommend additional locations to include TSP, queue jumps, etc. as well as its impacts to the bus network.
   c. Examine where would bus lanes have the most impact on improving the overall system in terms of quality and reliability.
9. Thrive 2050
10. Montgomery County Climate Action Plan
11. Vision Zero
12. Great Seneca Science Corridor (GSSC) Transit Network
13. Planning and Designing Streets to be Safer and More Accessible for People with Vision Disabilities
14. Master Plans
    a. Area Master Plans
    b. Sector Plans
    c. Functional Master Plans
15. Corridor Forward
16. Facility Planning Studies for various Transit Centers

The consultant will prepare a technical memorandum summarizing the previous plans and studies and identifying any key takeaways for the Ride On Reimagined study.

Infrastructure

Amenities provide an opportunity to attract new riders and retain current riders through innovative technology and investments. It's important to understand the functionality

of these programs.

1. Bus Garages
   a. Evaluate current bus garages and recommend expansion strategies to further support the plan.
   b. Identify the needs of each of the current garages to support the maintenance of zero-emissions vehicles, and if it is feasible for any of the existing garages to support both conventional buses and zero-emission buses during the transition.

2. Passenger Facilities
   The study will evaluate the current portfolio of bus passenger facilities, developing a classification system of stops and stations. Classification types will be based on the average peak volume of passengers served, the type of transit serving the stop/station, and the number of transit routes/stations serving the stop/station. Each classification type will include a recommended set of passenger amenities, ranging from a bus stop sign to shelters with real-time information. This classification system could form the basis for an eventual transit design guide that could be developed under a separate project.

   In developing the stop/station classification system, the study will consider and include the following:
   a. Evaluate the complete program of Passenger Facilities to include bus stop and bus shelter program.
   b. Become familiar and develop an understanding of the bus stop identification codes and assignments throughout the evaluation process of varying services.
   c. Evaluate and determine best practices for information as well as real-time on thebus stop signs and bus shelters.
   d. Evaluate the maintenance of the bus stops, bus shelters, bus stations, knee walls and bus operator restrooms.
   e. Evaluate current agreements for Park and Ride Lots:
      • Number of parking spaces
      • Lot ownership
      • Cost of parking
      • Resident/monthly spaces
      • Utilization
      • Transit bus access and circulation

f. Determine current functions of transit centers and transit stations built for BRT services:

- Consider the various nomenclatures that are currently used to define these transit centers. These are locations not associated with a Metrorail station and where at least three or more routes convene for transferability.
- Germantown Transit Center
- Lakeforest Transit Center
- Milestone Transit Center
- Traville Transit Center
- Westfield Montgomery Mall
- Boyds Transit Center
- White Oak Transit Center

g. Review and develop guidelines for bus stop placement as well as sidewalk access and crosswalks.

- Assess need for standards regarding near side vs. far side bus stop placement
- Address access standards for mobility-impaired (ADA) passengers

h. Evaluate and recommend best practice for communicating bus stop locations to aid with wayfinding.

i. Evaluate bus shelters with monitors/real-time information and recommend inventory of all amenities utilizing existing resources and applications:

- Bus Stop/Shelter Inventory Study
- Bus Stop Database

j. Review and develop guidelines for bicycle access improvements at bus stops.

The findings of the infrastructure review of garages and passenger facilities will be presented in a technical memorandum and summarized in a PowerPoint presentation.

Technology

There are several technology initiatives underway within the MCDOT Transit Division, and it will be important to understand the various projects and functionality. Upgrades to outdated systems, climate change, racial equity and customer information are some

notable priorities for the County.

1. Establish an understanding of the new CAD/AVL system (Clever Device) and evaluate its functionality within the system.
   a. APC data
   b. Ridecheck Plus
2. Recommend a plan to transition to zero emissions buses, e.g., electric, battery electric buses and hydrogen fuel cell buses.
3. Develop a plan to best match routes with electric vehicle capabilities and infrastructure as well as technology that speaks to charging stations while in operations.
4. Evaluate established timeline to convert to zero emissions buses and provide guidance of electric grids.
5. Review off-board fare collection at BRT stations and provide an analysis of its productivity and advantages to the network.
6. Evaluate status of real-time information.
7. Evaluate best practice for real-time information deployment and accessibility to its users.
8. Explore vehicle automation.
9. Evaluate the expansion of on-demand services, e.g., flex or ollies.

The findings of the technology review of garages and passenger facilities will be presented in a technical memorandum and summarized in a PowerPoint presentation.

Operations/Fleet
The essential elements to implementing a plan is how the service is delivered. It will be important to understand the operational structure.

1. Evaluate and recommend depot structure, operational efficiency and growth strategies especially given the move to zero-emission buses.
2. Evaluate the Standard Operating Procedures and compare to best practice in the industry.
3. Evaluate fleet types and service areas for racial equity.
4. Evaluate the functionality of the operational hierarchy and compare to industry best practices.
5. Plans are underway to evaluate Ride On's Safety and Training Program. It will be important to understand the process and review the plans when the project is completed. An assessment of the process and industry best practice should be

part of the plan.

6. Suggest and recommend new innovative strategies to attract and retain bus operators using research and industry best practice as a guide. Seek input on operational improvements and operator retention from current Ride On bus operators.

The findings of the operations and fleet evaluation will be presented in a technical memorandum and summarized in a PowerPoint presentation.

Marketing

Another essential component to increase ridership and awareness is through a clear and concise message.

1. Evaluate the current perception (including COVID safety on transit) and recommend rebranding options and guidelines

2. Evaluate current signage with recommendations for increased awareness, including Title VI and limited-English proficiency considerations:
   a. Wayfinding signage
   b. External communication to include bus stop signage

3. Evaluate maps and timetables and compare to peer groups with recommendations of further refinement.

4. Evaluate Division of Transit's webpage for the inclusion of pertinent information related to performance metrics, fares, routes, schedules, social media, and overall communication.

5. Evaluate current practices as it relates to accessibility of information.

The findings of the marketing evaluation will be presented in a technical memorandum and summarized in a PowerPoint presentation.

6. STAKEHOLDERS

It will be important to establish a vision and seek input from stakeholders throughout the study. These stakeholders would be included in the initial stage to obtain guidance and structure. Continual updates at various stages of the project will be required. This list is not meant to be conclusive, and others can be added.

1. Executive Branch Agencies
2. County Council
3. Maryland-National Capital Park and Planning Commission (MNCPPC)

4. Local municipalities
5. Bus Operators/Shop Stewards/MCGEO
6. WMATA – Metrobus
7. Transit Advocacy Groups
8. Metropolitan Washington Council of Government (MWCOG)
9. Maryland Department of Transportation (SHA/MTA)
10. MCDOT Commuter Services/TDM
11. Montgomery County Chamber of Commerce
12. Montgomery County Public Schools
13. County and State Health and Human Service Agencies
14. Hospitals and Health Care Centers
15. Housing Opportunities Commission
16. Neighborhood and Homeowners Associations
17. Montgomery County Commission on People with Disabilities
18. Washington Suburban Transit Commission
19. Montgomery County Commission on Aging

7. PUBLIC ENGAGEMENT

Transparency will play an integral part to the success of this study. It will be imperative that open communication with stakeholders remain constant and the public engagement (both virtual and in-person) process is paramount.

1. Develop a public engagement plan that will strive for collaborative discussions. The plan will identify key milestones within the Ride On Reimagined study and determine the appropriate form of public engagement at each milestone.

2. Establish basic avenues to communicate via project website, social media, pop - up meetings to meet customers where they are commuting and Open Houses.

3. Evaluate the opinions of current users through a customer satisfaction survey.

4. Establish focus groups based on geographic sub-areas centered on bus network activity hubs (for example, Silver Spring, Rockville, and Germantown) and include riders and non-riders in each group. The total number of focus groups will not exceed eight, with two meetings planned for each group. To maintain a maximum of eight groups, areas of relative geographic affinity may be grouped together (i.e., Germantown and Clarksburg). The first meeting of each focus group will include a review of the Ride On Reimagined goals and the group participating in a "connect the dots" exercise to provide input on potential bus routings based on existing ridership, identified activity centers,

and insights on future growth. The second meeting of each focus group will provide follow up on how the first meeting's results can be realized in terms of conceptual bus routings, and participants will be requested to provide input on potential headways for each route based on the number of buses that could be available in the sub-area.

5. Establish public meetings with various transit advocacy groups, civic associations, community groups, etc.
6. A project team will be engaged throughout the entire process of the study. Therefore, defined deliverables shall be determined early in the process.
7. Develop outreach materials that provide meaningful access to its services with oral and written languages assistance. Translations shall be provided for all eligible languages that constitute 5% or 1,000 persons, whichever is less, of the total population being evaluated. Translations are anticipated to include Spanish, Mandarin, Amharic, French, Russian, and Vietnamese. Examples of some materials include:
    a. Maps
    b. Media advertisements
    c. Notices for distribution
    d. Project website
    e. Meeting agendas
    f. PowerPoint presentations
    g. Display boards
    h. Visual aids with appeal and clarity to various audiences
5. Provide meeting minutes of all engagements and attendance.

8. SERVICE CONCEPTS & RECOMMENDATIONS

The evaluation of the various components of this study should set the foundation to envision the possibilities of new service designs and options. Each task should be summarized with the goal of obtaining a concept plan. The tasks should be based on data leading up to this point in the study. This comprehensive approach should include Market Analysis, Land Use Development, Infrastructure, Technology, Operations, Marketing and Public Engagement.

1. Develop a menu of service concepts and alternatives
2. Each concept should describe in detail how it meets the goals and objectives of the study
3. Describe potential impacts to existing riders, including an estimate of rider shifts

to the new services based on existing APC ridership

4. Describe potential improvements to the overall system's performance
5. Using best available market analysis, identify significantly improved trips (i.e., reduced travel times) resulting from these concepts
6. Describe financial impacts and determine if there is an opportunity for additional funding sources.
7. Title VI service equity analysis should be performed based on each recommended concept.
8. Each concept should be summarized with consistency for comparison purposes.
    a. Choice
    b. Details
    c. Outcome/Cost
9. Recommend the preferred concept and be descriptive and inclusive of all evaluation factors including both internal and external strengths and weaknesses.

9. SERVICE AND IMPLEMENTATION PLAN

The preferred service concept will be detailed into a service and implementation plan. The service and implementation plan will evaluate what level of service envisioned in the preferred service concept can be successfully delivered with the existing resources, and what additional improvements can be delivered as additional investments are made. The service and implementation plan will also identify which agencies will be responsible for operating which services within the service hierarchy. It will also include:

    a. Identify which components of improvements are required to deliver each phase of the service plan.
    b. Develop materials for public forum engagement.
    c. A timeline for implementation.
    d. A marketing plan to launch the new service plan.

The service plan will include an assessment of the infrastructure and technology capacities to determine what can be handled within the initial phase and what may have to be implemented within a subsequent phase pending additional investment. The plan will include timeframes (i.e., short-term, long-term) as part of the implementation timeline, with a focus on including truly implementable strategies in the short-term.