EXECUTIVE SUMMARY
ARLINGTON COUNTY TRANSIT DEVELOPMENT PLAN

The Arlington County Transit Development Plan (TDP) is an effort to evaluate and assess the performance, connectivity, efficiency and effectiveness of both Arlington Transit (ART) bus service and the Washington Metropolitan Area Transit Authority’s (WMATA) Metrobus service. The study, which began in the Spring of 2015, provides a comprehensive vision for transit operations and capital improvements for the ten-year period of FY2017 through FY2026.

The TDP presents an in-depth and comprehensive evaluation of ART and Metrobus service and costs. This document represents the results of more than a year of data collection, operational analysis, public outreach, and stakeholder meetings, all of which were important steps in the creation of this TDP. Key elements that have been addressed include:

- An overview of ART, Metrobus, STAR and MetroAccess’ history, governance, and organizational structure;
- An overview of the existing services, fleet, facilities, policies, and public outreach processes;
- A historical analysis of service and financial characteristics and a comparison to peer agencies;
- Development of goals, objectives and performance standards to guide future development of ART and Arlington County Metrobus services;
- A detailed evaluation of existing service characteristics, with identification of system strengths and weaknesses, as well as a summary of current and future land use, population, and employment trends for the service area;
- A summary of four phases of public outreach that included, but was not limited to, multiple surveys, public, stakeholder and staff meetings, and focus groups;
- Recommended service improvements and a vehicle expansion and rehabilitation plan, with improvements identified by year;
- Funding requirements and potential funding sources for recommended service improvements and vehicle purchases; and
- A fiscally-constrained six-year operating and capital financial plan.

The TDP summarizing ART and Metrobus challenges and opportunities and establishes clear and measurable performance standards. It provides a framework that will help guide day-to-day decisions as the County implements the recommended service improvements.

The most expansive recommendation brought forth through this TDP is implementation of a Premium Transit Network along Columbia Pike and through Crystal City and Pentagon City. The Premium Transit Network will provide fast, reliable and easy to use bus service with limited-stop routes into Washington, D.C. and local service that supports economic growth and development in the corridors. Capital investments in transit stations, off-vehicle fare collection, real-time passenger information and other passenger amenities will support the network and improve the overall rider experience.

The TDP will also improve north-south connections within the County; enhance service to multimodal facilities; increase frequency and implement much needed weekend service on selected routes; improve cost efficiency as ART takes over operating responsibility of two Metrobus routes; eliminate duplicative services; and implement a new flexible service model that will help realize additional operational efficiencies while maintaining service coverage.
Plan Goals and Objectives
The TDP goals, objectives, and performance measures reflect Arlington’s efforts to implement the vision set out in the County’s Master Transportation Plan (MTP). They include:

- **Accessibility** – Expand multimodal access and connectivity to destinations both within and outside of the County;
- **Mobility** – Improve mobility for all users of the transportation system in Arlington County;
- **Safety and Security** – Provide transportation infrastructure and an integrated transportation network that is safe and secure for all users and all modes of travel;
- **Manage Effectively and Efficiently** – Construct and manage the transportation system, infrastructure and operations effectively, efficiently and transparently; and
- **Environment, Energy, Health and Economy** – Enrich the quality of life in Arlington County through sustainable transportation improvements and infrastructure.

Methodology
Understanding the Service Area
To develop strategies and recommendations that will allow the County to meet these goals, the project team embarked on a three-pronged technical analysis. First, the team assessed the service area – striving to understand the transit market, including current and future demand and likely trip patterns. In addition to reviewing a variety of County and regional plans and projects, the team reviewed current and forecasted population and employment levels and analyzed over 50 demographic factors to determine geographic areas of high transit need. As an example, the following table illustrates the top work-related trip patterns identified through the technical analysis.

### Top Work Related Trip Patterns

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<thead>
<tr>
<th>From:</th>
<th>To:</th>
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<tbody>
<tr>
<td><strong>North Arlington</strong></td>
<td>• Westover Village / Western Washington Boulevard corridor</td>
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<td>• Ballston / Virginia Square</td>
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<td></td>
<td>• Downtown Washington</td>
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<td><strong>Clarendon / Courthouse</strong></td>
<td>• Buckingham</td>
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<td>• Western Columbia Pike</td>
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<td>• Lyon Village area</td>
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<td><strong>Lyon Village area</strong></td>
<td>• Downtown Washington</td>
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<td><strong>Eastern Columbia Pike corridor</strong></td>
<td>• Downtown Washington</td>
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<tr>
<td><strong>Aurora Highlands</strong></td>
<td>• Pentagon City / Crystal City</td>
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<td><strong>Pentagon City/Crystal City</strong></td>
<td>• Alexandria</td>
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System Assessment

Second, the TDP provided an opportunity to scrutinize the existing fixed route bus services that operate throughout the County, including the 16 routes operated by ART and the 22 Metrobus lines operated by WMATA. Key indicators were evaluated to (1) assess the productivity of bus service at the route, trip, and stop levels, (2) measure ART and Metrobus’ ability to meet the published levels of service, and (3) evaluate the cost effectiveness of each route and the system as a whole. ART and Metrobus routes were assessed independently and jointly in an effort to understand each system’s individual achievements, as well as the transit performance throughout the County as a whole.

Between FY2011 and FY2015, Arlington County experienced a four percent increase in fixed route bus utilization. Independently, ART ridership increased by 25 percent, which is vastly a result of increasing service by 34 percent with new routes (ART 43) and extending services hours on a multitude of other ART routes, while Metrobus ridership remained steady. Of the ART services, Route 41 (Columbia Pike-Ballston-Court House) had the highest overall annual ridership with more than 950,000 passengers, while Routes 42 (Ballston-Pentagon), 45 (Columbia Pike-DHS-Sequoia-Rosslyn), and 87 (Pentagon Metro-Army Navy Drive-Shirlington) each carried more than 250,000 riders. The highest ridership Metrobus lines during FY2015 included the 16 A/B/E/J/P (Columbia Pike) with over 1,180,000 riders, and the 1 A/B/E/Z (Arlington Boulevard) and 16 G/H/K (Columbia Pike), both which achieved over 1,150,000 riders.
ART and Metrobus were also evaluated by stop, illustrating that the highest concentrations of passenger boardings were in four locations:

- The Rosslyn-Ballston corridor;
- The Glebe Road corridor between Ballston and Route 50;
- The Columbia Pike corridor, particularly west of Glebe Road; and
- The Blue/Yellow Metrorail corridor (Crystal City, Pentagon City, and Pentagon).

Additional transit assessments included a passenger load and vehicle capacity analysis, a schedule adherence and on-time performance analysis, and route productivity assessments, such as passengers per hour and passengers per mile.

The cost and subsidy per trip and the cost recovery ratio were also explored in an effort to understand the system’s cost effectiveness. In FY2015, the average the cost per passenger trip for ART was $3.08, while Metrobus had a consistently higher cost per passenger trip of $4.99.

Service Evaluation

Finally, the TDP reviewed ART and Metrobus service to identify gaps in transit connections. The Arlington County transit system has excellent transit coverage overall, with several high frequency bus corridors, two heavy-rail transit corridors, and commuter rail service. Some gaps do exist, though, including a few peak and off-peak service deficiencies, such as:

- No service to Marymount University/Donaldson Run;
- Infrequent service to Columbia Forest;
- Circuitous bus service between Rosslyn and Shirlington;
- No direct connection between Clarendon and Potomac Yard; and
- In Nauck, service is not offered outside of peak, weekday periods.
Public Outreach and Response

An equally important input into a service planning effort like the TDP is the qualitative feedback provided by transit riders, as well as members of Arlington’s residential and business communities. For the Arlington County TDP, a multi-phased approach was employed in order to gain targeted opinions during several sequential steps of the TDP process. The response helped direct the planning efforts that followed and ultimately guided the recommendations to not only meet expected performance measures, but also the needs of the general public.

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<td><strong>Approach:</strong></td>
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<td>• Intercept survey</td>
<td>• Four public workshops</td>
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<td>• Online feedback form</td>
<td>• Five focus group meetings</td>
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<td><strong>What was Asked:</strong></td>
<td>• Online feedback form</td>
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<td>• Transit usage</td>
<td><strong>What was Asked:</strong></td>
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<td>• Desired system and route improvements</td>
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<tr>
<td><strong>Reach:</strong> ~3,400 respondents</td>
<td>• Confirmation of project goals and objectives</td>
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<td><strong>What was Heard:</strong></td>
<td>• Review, confirm, and comment on existing conditions findings</td>
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<td>• Increase peak and off-peak frequency of service</td>
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<td>• Increase weekend frequency and span of service</td>
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<td>• Better connections to area activity centers within and in proximity to the County</td>
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<td><strong>Feedback Impacts to TDP:</strong></td>
<td>• Missing or desired transit connections</td>
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<td>• Directed transit improvement strategies</td>
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<td>• Guided service planning efforts</td>
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<td>• Assisted with defining the approach to service on Columbia Pike and within Crystal City / Potomac Yard</td>
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<td><strong>Feedback Impacts to TDP:</strong></td>
<td><strong>Reach:</strong> ~400 respondents</td>
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<td>• Informed modification of existing service</td>
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<td>• Informed development of new routes</td>
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<td><strong>What was Heard:</strong></td>
<td><strong>What was Heard:</strong></td>
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<tr>
<td><strong>Reach:</strong> ~400 respondents</td>
<td>• Opposition to changes to ART 52 and 63</td>
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<td><strong>What was Asked:</strong></td>
<td>• Support for added weekend service</td>
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<tr>
<td><strong>Reach:</strong> ~1,000 respondents</td>
<td>• Support for new direct connections throughout the County</td>
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<tr>
<td><strong>What was Heard:</strong></td>
<td>• Desire for premium level transit service at all Columbia Pike transit stations</td>
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<tr>
<td>• Validation of existing conditions findings</td>
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<td>• Increase connections to:</td>
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<td><strong>Feedback Impacts to TDP:</strong></td>
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<tr>
<td>• Re-evaluated and revised route recommendations</td>
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<td>• Revised Columbia Pike service concept</td>
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Transit Development Plan Recommendations

Based on the detailed technical analysis and significant public input, a variety of recommendations are proposed in the TDP to maximize accessibility to local and regional activity centers, increase transportation options, and ensure fiscal stewardship in the provision of ART and Metrobus service.

By Summer 2017

- Improvements to ART Routes:
  - 53 – Connect to Dominion Hills
  - 77 – Create north-south connection between Rosslyn and Shirlington
  - 92 – Becomes a circulator connecting Crystal City, Boeing and US Marshals Service Building
- Improvements to Metrobus Routes:
  - 1A/B/E/Z – Increase frequency and streamline
  - 23A/B/T – Enhanced frequencies on Glebe Road
  - 10A/E/R/S – Reconfigured to supplement discontinued service
- Eliminate duplicative Metrobus 9A

By Summer 2018

- Implementation of Columbia Pike Premium Transit Network:
  - Consolidate the Metrobus 16A/B/E/J/P Line
  - Create Metrobus 16M to replace 16G/H/K and provide high frequency service connecting Skyline, Columbia Pike, Pentagon City and Crystal City
  - Frequency improvements on limited-stop Metrobus 16X
  - Enhanced neighborhood connections via ART 41, 45 and 74
- Frequency improvements on Metrobus 2A
- Convert Metrobus 22A/B/C to ART service to improve efficiency

By Summer 2020

- Improvements to ART Routes:
  - 51 – Provide new connection between Buckingham and DHS
  - 77 – Increase frequency between Shirlington and Rosslyn
  - 93 – Create a new connection between Crystal City, National Airport and Shirlington
- Enhance service with limited-stop Metrobus 10B service on Glebe Rd
- Convert Metrobus 4B to ART and improve frequency of service
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By Summer 2021

- Improvements to ART Routes:
  o 51 – Extend service to Crystal City
  o 55 – Increase frequency
- Improvements to Metrobus Routes:
  o 7C – Increase peak frequency
  o 7Y – Increase peak frequency
  o 16X – Peak and select off-peak trips originating or terminating at the Pentagon to be replaced by new 16Z route
  o 16Z – Implement new route between Culmore and Navy Yard
- Eliminate Metrobus 7H and 7P

By Summer 2022

- Improvements to ART Routes:
  o 43 – Increase Friday span of service and implement weekend service between 7AM and 10PM
- Improvements to Metrobus Routes:
  o 1A – Increase peak frequency in the peak direction
  o 3Y – Increase peak frequency

On-demand Service Proposal

Additional recommendations have been proposed for FY2023 through FY2026, including on-demand service options that would allow for additional system and route efficiencies. The on-demand service would consist of four service areas, they will include the following neighborhoods: Rock Spring, Dominion Hills, Chain Bridge Forest, Rivercrest, Bellevue Forest, Gulf Branch, Stafford-Albermarle-Glebe, Old Glebe, Douglas Park, Nauck, and Arlington Village. In the initial implementation, the service would operate between 9:00 AM and 3:00 PM for those not within walking distance of a bus route providing service during those hours. This service will connect these areas to the closest Metrorail station or could, alternatively, serve a destination or two agreed upon by the affected areas community associations, respectively. Each trip must either originate or end at that chosen destination. This service will use smaller vehicles that may not be operated by or under the banner of ART and could include a separate fare system. Rides would be grouped and provided on a demand responsive basis.

Following implementation, the on-demand service will be evaluated for potential expansion to peak hour service, as well.
Premium Transit Network

In addition to the Primary Transit Network (PTN) and Secondary Transit Network (STN) identified in the County’s Master Transportation Plan, a new Premium Transit Network will be introduced in early 2018 along Columbia Pike that will provide:

- Increased transit capacity;
- An investment in transit that supports growth and economic development;
- Improved connectivity to key activity centers; and
- Premium transit service that is fast, frequent, reliable, & easy to use.

The Premium Transit Network will offer increased weekday and weekend service, new high frequency routes, a one-seat ride from Skyline in Fairfax County to Pentagon City and Crystal City, new connections to Washington, D.C.’s Navy Yard and Metrorail’s Green/Yellow line, and limited-stop service to the Pentagon and Washington, D.C. The Premium Transit Network will feature three different types of service to meet the needs of different riders in the Columbia Pike and Crystal City-Pentagon City corridors. A new, branded Metrobus route will connect Skyline and Crystal City, serving every transit station and offering a direct connection to office and retail in each corridor. Simplified and consolidated Metrobus service will provide easy-to-understand service from Fairfax to the Pentagon and points in D.C. This limited-stop service will provide commuters with frequent, faster trips. Finally, ART will link nearby neighborhoods to Columbia Pike and Crystal City and improve connections to the Rosslyn-Ballston corridor. The figure on the following page illustrates how the Premium Transit Network will operate along Columbia Pike.

All of the transit service along the Premium Transit Network will benefit from passenger amenities aimed at creating a system that is fast, frequent and easy to understand. These amenities will be phased in between 2018 and 2021 and include:

- High quality transit stations to provide a comfortable passenger experience;
- Near-level boarding and off-vehicle fare collection to reduce dwell times at stops;
- Real-time passenger information to make the system easier to use;
- Branded vehicles and information to make transit easy to identify and understand; and
- Transit signal priority to speed travel times in the corridor.

The Premium Transit Network service is designed to accommodate the projected ridership demand along Columbia Pike with 40-foot (standard) buses if the transit mode share remains constant at 25 percent and passengers spread out across the different types of services as anticipated. One objective of the Premium Network, however, is to attract additional riders and see an increase in transit mode share to 33 percent – the goal defined in the Master Transportation Plan's Transit Element. With a higher transit mode share and population and employment growing as projected, additional capacity will be needed along Columbia Pike by 2026. Replacing 40-foot buses with articulated buses on the "Connector" and some of the "Limited Stop" routes will provide enough supply to meet this demand.

Because anticipated population, employment and ridership growth are based on linear development projections, it is difficult to predict when higher capacity vehicles will be needed on Columbia Pike to meet the overall demand. The TDP recommends reevaluating the need for articulated buses during annual updates to the TDP and beginning coordination with WMATA immediately to resolve some of the challenges of operating articulated buses along Columbia Pike (e.g., lack of a storage and maintenance facility that can accommodate articulated buses in Northern Virginia).
Executive Summary

Premium Transit Network Stop by Stop Description

Local - ART Bus

- Every 10 Minutes (to Courthouse)
- Every 15 Minutes (to Ballston)
- Every 15 Minutes (to Rosslyn)
- Every 25 Minutes Peak Direction (Arlington View)

Limited Stop - Metrobus

- Every 30 Minutes (continues to Falls Church North)
- Every 10 Minutes (continues to Falls Church North)
- Every 7.5 Minutes (16X to Federal Triangle)
- Every 30 Minutes Begins FY 2021 (16Z to Navy Yard)

Connector - Metrobus

- Every 6 Minutes (16M)
Operating Costs and Funding

The cost of the ART recommendations will be largely funded by operational savings realized from ART taking over the Metrobus 22A/B/C Line and 4B service, as ART’s operating cost allows for more bus service for the same cost. The other funding sources will be a mix of fare revenues, state operating assistance and the County’s general fund.

Unlike the expansion of ART, which is largely funded through savings on the Metrobus 22 Line and 4B services, the expansion of Metrobus service will require additional local funding. By FY2026, $7 million of additional funding will be needed to cover the cost of the increased Metrobus service for the Premium Transit Network along Columbia Pike, which will be implemented in early 2018. The County funds Metrobus subsidy using a mix of General Fund, state aid, and gas tax revenues.

As the recommendations are implemented, County staff must also grow to oversee the new service. Based on industry standards and current staffing needs, the TDP assumes that an additional two FTEs will be needed by FY 2018 and a total of four new FTEs will be required for implementation of the 10-year plan.

Capital Improvements

ART’s bus fleet will expand by over 20 vehicles over the ten year TDP period to operate the additional recommended service. The County will also be responsible for vehicle rehabilitation and replacement of its current fleet. The County will be constructing a new heavy maintenance facility to store and maintain the expanded fleet. Capital improvements will also be made to five Arlington Metrorail stations, as well as to the Shirlington Bus Station. Bus stop improvements will be made around the County to improve passenger experience and ensure ADA compliance. Capital investments in the Premium Transit Network will include high-quality Transit Stations along Columbia Pike with near-level boarding, off-vehicle fare collection, and transit signal priority.