

Chapter 6

Transit Plan

INTRODUCTION TO THE TRANSIT PLAN

This chapter presents the overall plan for locally-provided transit in the central Maryland region, including the area served by the RTA. It is divided into sections addressing the Operations Plan, Capital Plan (including the vehicle fleet and other capital needs), and Organizational Plan.

Operations Plan

Following the development of the service alternatives described in the previous chapter, a series of public meetings were held in the region to solicit public input on the proposals. The proposed routes were posted on the project website, accessible through the RTA website and from the individual county websites. Based on feedback at the meetings, through web response, and through county staff, the following changes were recommended in the proposed alternatives.

Howard County

- Route 401 - No change from proposed alternative
- Route 402 - No change from proposed alternative
- Route 403 - No change from proposed alternative
- Route 404 - No change from proposed alternative
- Route 405 - No change from proposed alternative
- Route 406 - No change from proposed alternative
- Route 407 - No change from proposed alternative
- Route 408 - No change from proposed alternative
- Route 409 A & B - No change from proposed alternative
- Route 410 - No change from proposed alternative
- Route 411 - Recommended change in wording to reflect ongoing development rather than completion of development
- Route 412 - No change from proposed alternative
- Route 413 - Revise route name to include “Turf Valley-Waverly Woods”
- Route 414 - Revise route name to include “via Applied Physics Laboratory (APL)-Maple Lawn”. Consider revising alternative to include two buses to serve an extension of the route to Laurel MARC station and Towne Centre. Eliminate service on Cedar Lane.

- Route 501 - Revise title of route to “Columbia to Arundel Mills” to reflect future role in which 505 provides a more express trip from Columbia to BWI Airport. Change text to include relationship in the plan between the 501 and 505.
- Route 503 - No change from proposed alternative
- Route 504 – Add weekend service for the Call-N-Ride to residents along the corridor with services and shopping in Odenton, Piney Orchard, Waugh Chapel, and Crofton and MARC service in Odenton.
- 505 - No change from proposed alternative
- Add concept map for potential service on U.S.40 to connection with MTA at Catonsville (potential recommendation for MTA service)

Mobility Services

This TDP does not make specific recommendations regarding mobility services. As documented in Chapters 4 and 5 the cost of paratransit services is unsustainable in the long term especially as demand is projected to increase. Chapter 5 includes several options designed to ensure that ADA and GPT services continue to be available for riders that need it most.

While these options were presented at the public meeting held on the TDP, there was insufficient time for the detailed engagement with the public that is necessary to fully assess the pros and cons of each of the options, and make more specific recommendations. A prerequisite for incentivizing paratransit riders to use fixed route service is having better fixed route service. Therefore, Howard County proposes to begin to implement improvements to the fixed route service while it engages with stakeholders on the paratransit service options.

Anne Arundel

Input from the meeting held at Arundel Mills and input from county staff included the following suggested revisions in the alternatives:

- Route 201 - Add later evening service to match last trips on the MTA light rail service (12:30 a.m.)
- Route 202 - Consider revising route to go from Meade Village east on MD 174, left on New Disney, right on Carriage, left on Severn, and then right on Ridge Road resuming the current routing. Check on potential for eliminating any overlap in coverage with the recently implemented 504 to avoid duplication.
- Anne Arundel Community College to Fort Meade - Consider adding extension to National Business Park, revising to reduce mileage driving around perimeter of Fort Meade.

- Crofton-Annapolis Mall - Consider revision if Crofton Park and Ride closes-Waugh Chapel to Annapolis. Evaluate if any MTA service offers an option of traveling from Crofton to Annapolis (there is no service making this link)
- Riviera Beach Call N Ride - No change from proposed alternative
- Bowie Town Center to Cromwell LRS - Low priority, but include in plan for out years
- Crofton Call N Ride - Add a loop (triangle) routing to provide coverage along MD 424 and 450
- Gold Route - Consider breaking route into two routes connecting at Annapolis Town Center, or making Edgewater end into a Call N Ride zone, or doubling the frequency to hourly service
- Patapsco Call N Rides - No change from proposed alternative
- Glen Burnie Call N Rides - No change from proposed alternative
- Glen Burnie District Court to Patapsco LRS - Add Sunday service
- Annapolis to BWI/Arundel Mills - Evaluate proposed frequency
- Consider public transit options for South County

Prince George's County

County staff input suggested the following revisions:

- Route 301 – Maintain proposed service to Konterra and West Laurel but reinstate segment from Laurel Towne Centre to south Laurel instead of going to Russett Green/Maryland City. Russett Green/Maryland City to Laurel Towne Centre to be served by Route 502, avoiding duplication of service.
- Route 302 - No change from proposed alternative. However, the service may be reduced by 50% in the near future.
- Route 502 - Will provide service on Route 198 to Baltimore-Washington Parkway, service into Fort Meade, and continuing past Arundel Mills to BWI Airport as proposed. Service into Fort Meade will be contingent on the transit bus being able to access the base with general public riders onboard.

These comments and proposed revisions were evaluated and the resulting changes have been incorporated into the individual route descriptions in the following section.

Planned Routes

The service plan includes a map of each proposed route showing the existing route and proposed changes, a Service Description, a graphic depicting the Service Days and Service Span (hours of service for each route) , a table showing Service Frequency by period and day of the week, and Number of Peak Vehicles.

This is followed by a Service Characteristics table displaying the number of buses required by time of day, estimated daily revenue hours, an adjustment factor for deadhead and report and clear time, number of annual days of service, estimated annual service hours, projected hourly costs, and estimated operating costs for the route as proposed in terms of frequency, service hours and days of service.

Following the description of the individual routes are summary tables that present the plan county by county, reflecting preferred phasing of implementation. A summary for the region is also included. It is assumed that the current RTA MOU cost allocation methodology would apply for regional services, with the exact allocation of costs based on revenue hours by jurisdiction. The cost allocation is not included in this plan, as these concepts may well be modified in response to budget constraints or public input prior to implementation.

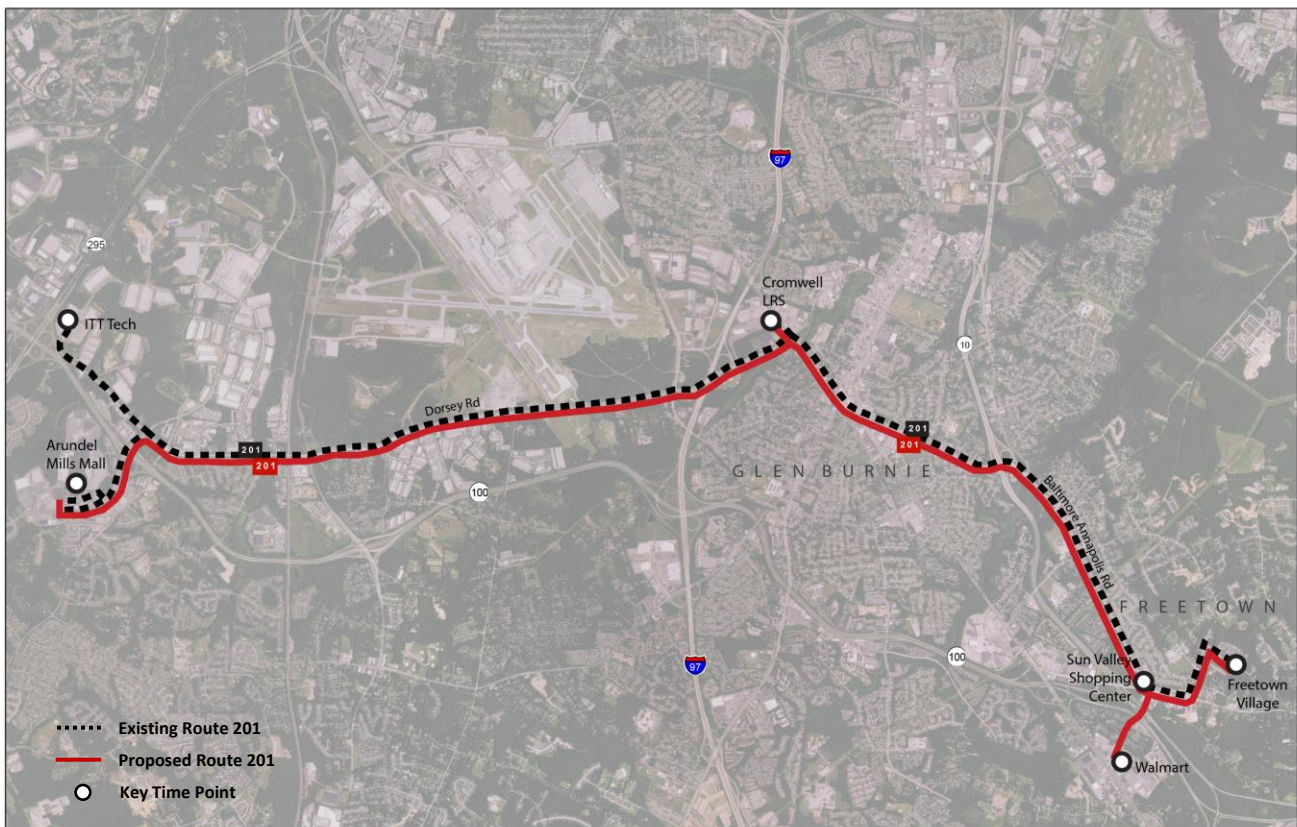
The individual routes are presented in numerical sequence from the 200 series through the 500 series.

ANNE ARUNDEL COUNTY

Route 201 – Arundel Mills Mall to Freetown Village

Service Description

- Service to ITT will be discontinued.
- Service to be extended to the Walmart in Freetown.
- Ride time from Arundel Mills to Freetown Village will be approximately 40 minutes.



Service Days



Service Span

AM													PM																						
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
													Monday - Friday																						
													Saturday																						
													Sunday																						

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 30 minutes
Midday & Evening	every 45 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 90 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 90 minutes

Number of Peak Vehicles



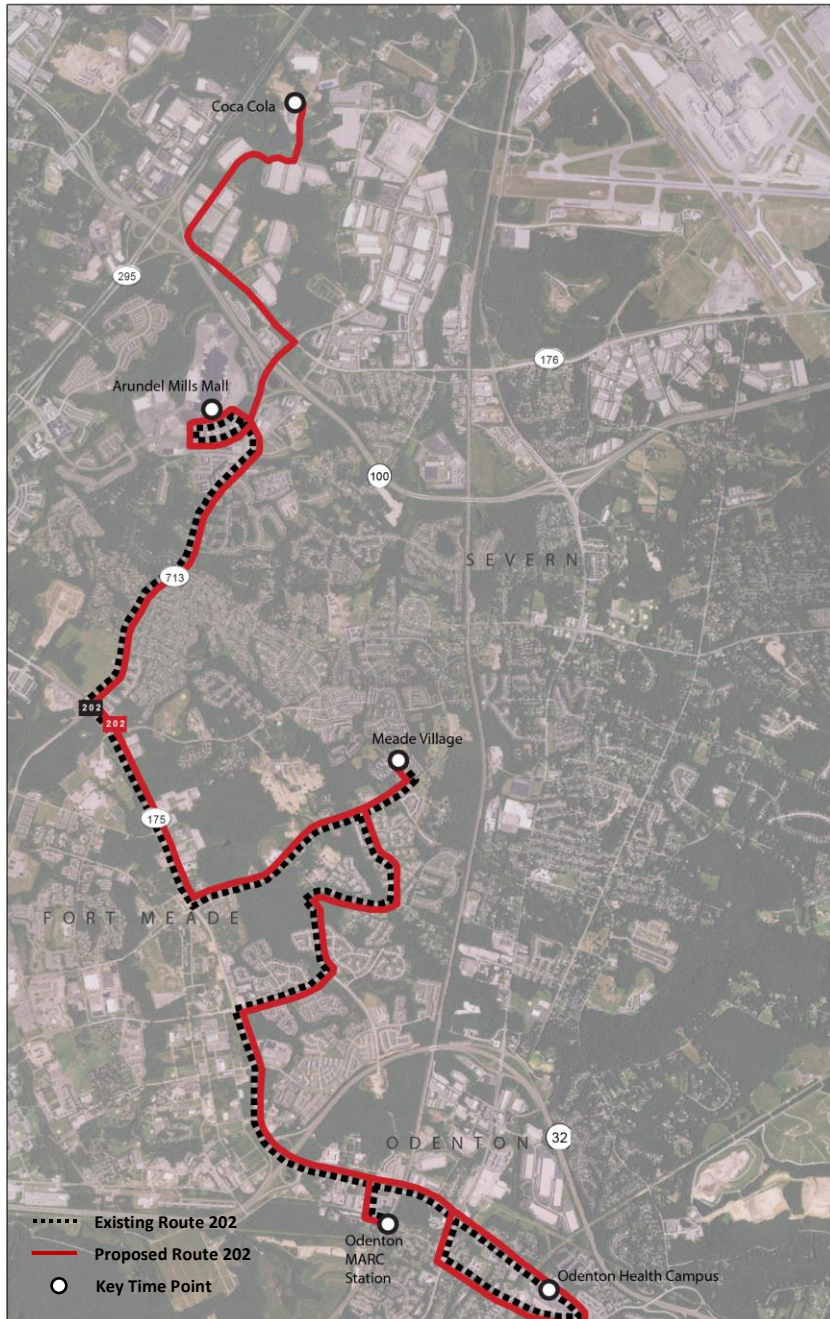
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Arundel Mills Mall- Freetown Village	Cromwell LRS, Walmart	3	6:00	0:30	18.5	2.2	20.72	255	12,852
Saturday									
Arundel Mills Mall- Freetown Village	Cromwell LRS, Walmart	2	8:30	0:30	15.0	1.8	16.80	52	1,485
Sunday									
Arundel Mills Mall- Freetown Village	Cromwell LRS, Walmart	2	8:30	19:30	10.0	1.2	11.20	55	1,140
Route 201 Total									15,477

Route 202 – Odenton to Coca Cola

Service Description

- Service to be extended to Coca Cola facility.
- Odenton MARC station will be served on every day of the week (Monday-Sunday).
- Ride time between Odenton MARC station and the Coca Cola facility will be approximately 50 minutes.



Service Days



Service Span

AM													PM																						
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
													Monday - Friday																						
						Saturday																													
						Sunday																													

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 35 minutes
Midday & Evening	every 45 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



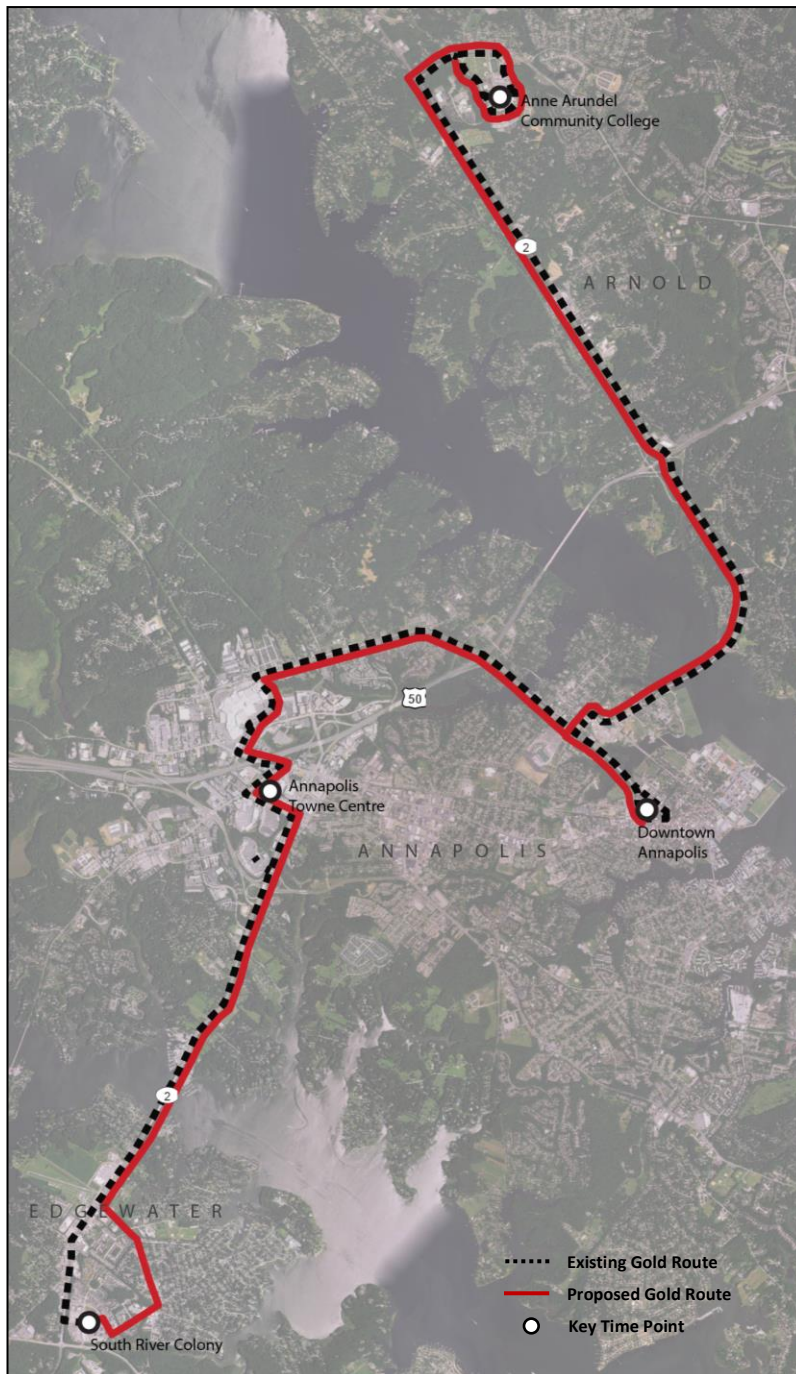
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Odenton - Coca Cola	Odenton MARC, Fort Mead, Arundel Mills	4	6:15	23:15	17.00	2.04	19.04	255	17,493
Saturday									
Odenton - Coca Cola	Odenton MARC, Fort Mead, Arundel Mills	2	8:00	23:00	15	1.80	16.80	52	1,747
Sunday									
Odenton - Coca Cola	Odenton MARC, Fort Mead, Arundel Mills	2	9:00	21:45	12.75	1.53	14.28	55	1,571
Route 202 Total									20,811

Gold Route – Edgewater to Arnold/Anne Arundel Community College

Service Description

- Service in Edgewater is at South River Colony.
- Service is currently operated through a contract with Annapolis Transit.
- Ride time from AACC to South River Colony is approximately 50 minutes.



Service Days



Service Span

AM													PM																												
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00						

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 120 minutes
Evening	every 120 minutes

Number of Peak Vehicles



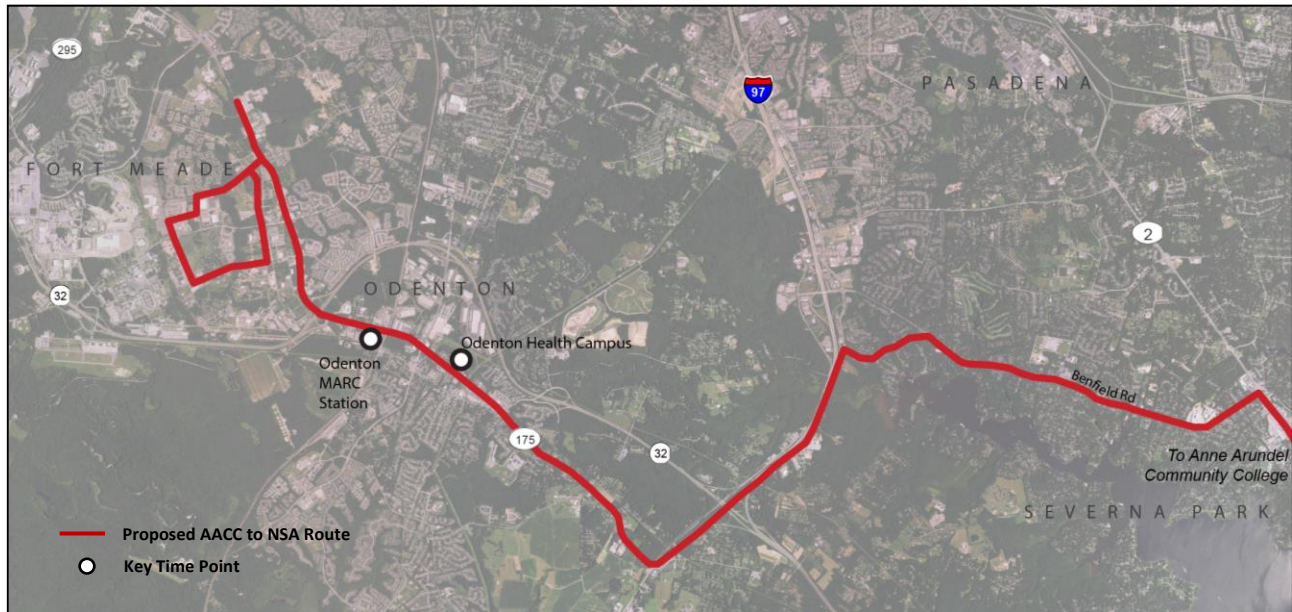
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Edgewater- Arnold/Anne Arundel Community College	Parole, Annapolis Mall, Church Circle	3	6:00	20:00	14	1.68	15.68	255	11,995
Saturday									
Edgewater- Arnold/Anne Arundel Community College	Parole, Annapolis Mall, Church Circle	3	6:00	20:00	14	1.68	15.68	52	2,446
Sunday									
Edgewater- Arnold/Anne Arundel Community College	Parole, Annapolis Mall, Church Circle	2	8:00	20:00	12	1.44	13.44	55	1,478
Gold Route Total									15,920

Anne Arundel Community College to Fort Meade/NSA

Service Description

- Connects with the Odenton Health Campus and Odenton MARC station.
- Ride time from AACC to Fort Meade is approximately 70 minutes.



Service Days



Service Span

AM											PM																												
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	-
Evening	-
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



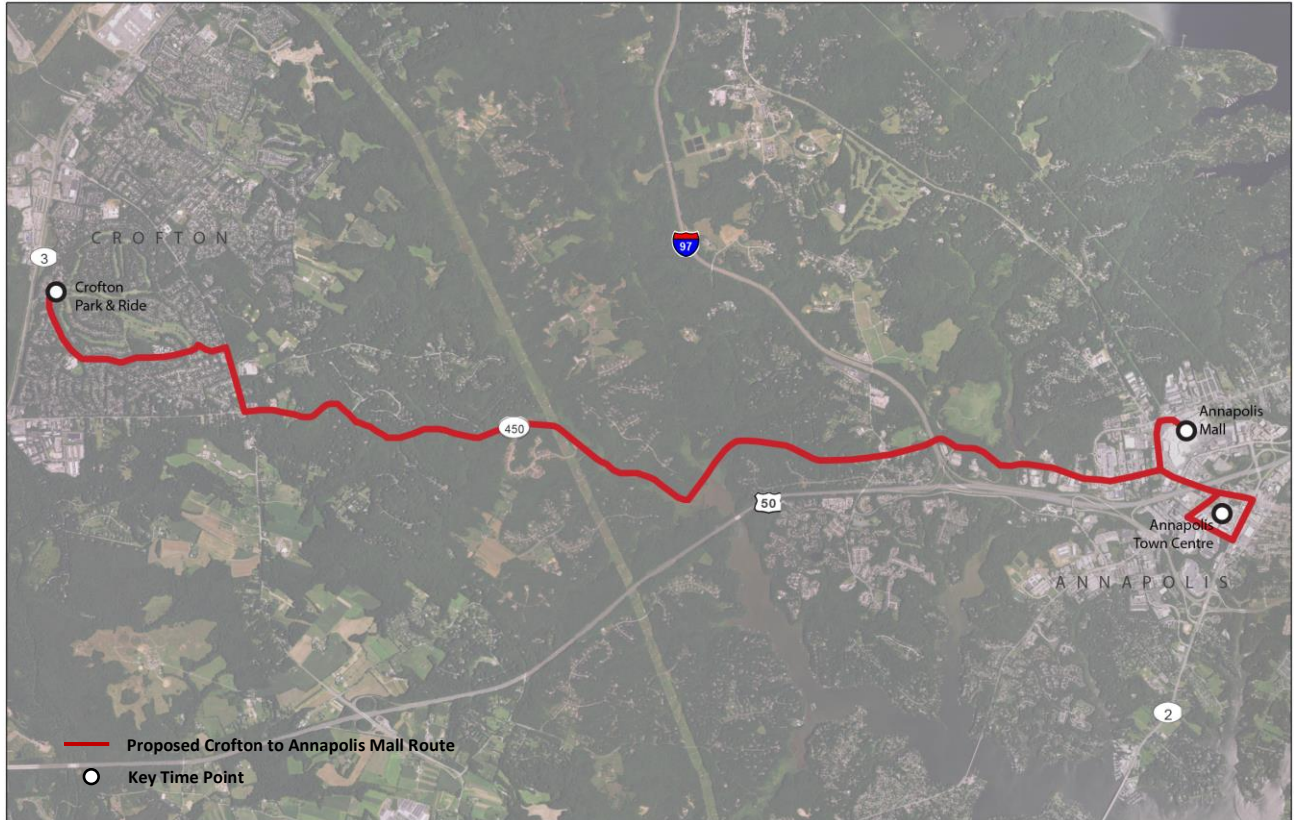
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Anne Arundel Community College- Fort Meade/NSA	Severn, Millersville, Odenton MARC	3	6:00	19:00	13	1.56	14.56	255	11,138
Anne Arundel Community College- Fort Meade/NSA Route Total									11,138

Crofton Park and Ride to Annapolis Town Center

Service Description

- Direct connection between Crofton and Annapolis.
- Ride time from Crofton to Annapolis Mall is approximately 50 minutes.



Service Days



Service Span

AM													PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Crofton Park and Ride- Annapolis Town Center	Annapolis Mall	4	6:00	19:00	13	1.56	14.56	255	10,853
Saturday									
Crofton Park and Ride- Annapolis Town Center	Annapolis Mall	2	8:00	19:00	11	1.32	12.32	52	1,281
Crofton Park and Ride to Annapolis Mall Route Total									12,134

Crofton Call N Ride

Service Description

- Deviations within the Call N Ride zone are provided upon request.
- Requests must be made in advance.



Service Days



Service Span

AM													PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				
																			Monday - Friday																				
																			Saturday																				
																			Sunday																				

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 30 minutes
Midday	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



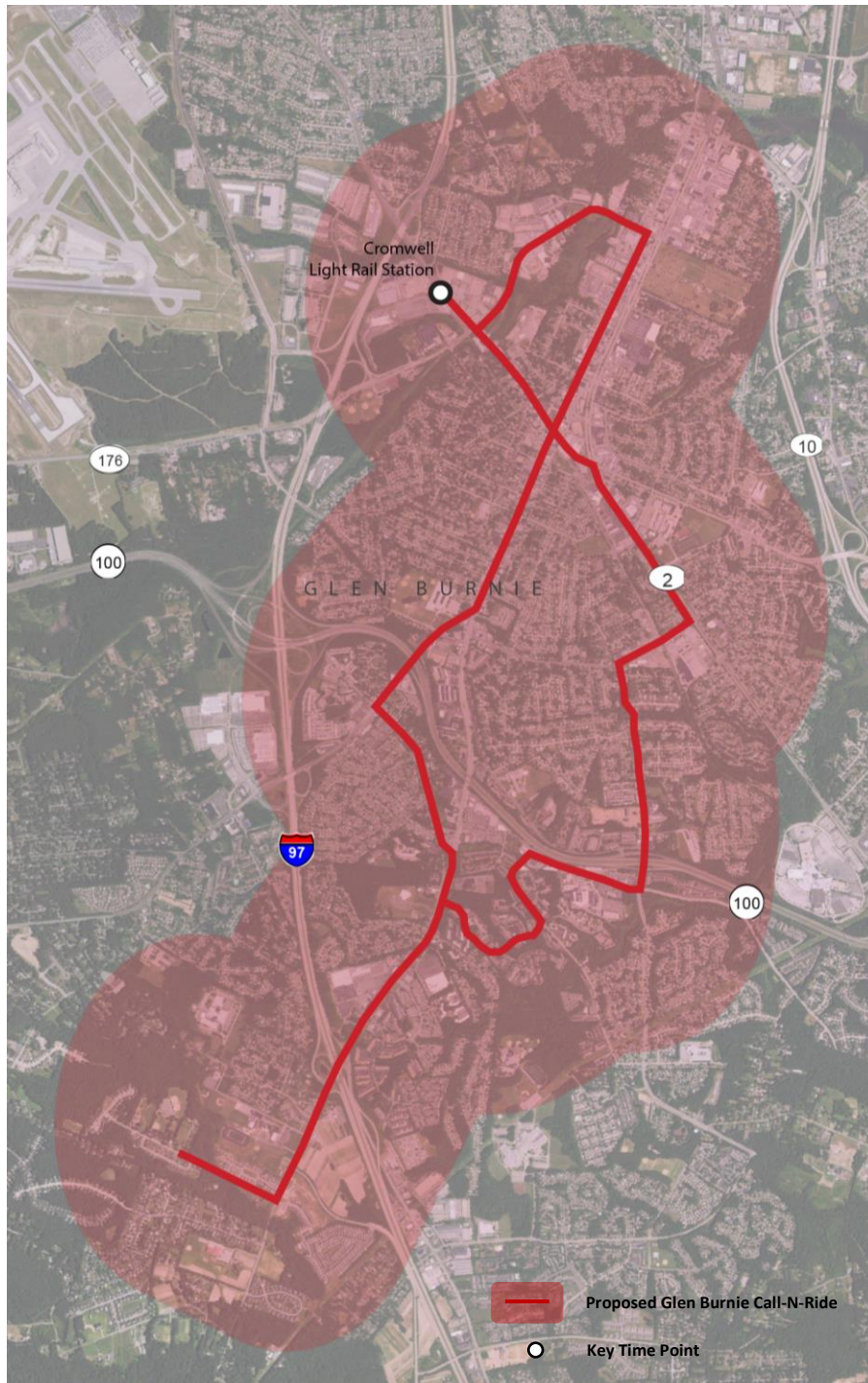
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Village at Waugh Chapel- Crofton Park and Ride	Crofton	2	6:00	19:00	13	1.56	14.56	255	7,426
Total Monday-Friday					13		14.56		7,426
Saturday									
Village at Waugh Chapel- Crofton Park and Ride	Crofton	2	8:00	19:00	11	1.32	12.32	52	1,281
Total Saturday					11		12.32		1,281
Crofton Call N'Ride Service Alternative Total									8,707

Glen Burnie to Cromwell LRS Call N Ride

Service Description

- Deviations within the Call N Ride zone are provided upon request.
- Requests must be made in advance.



Service Days



Service Span

AM														PM																								
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00			

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 45 minutes
Midday & Evening	every 45 minutes
Saturday	
Daytime	every 45 minutes
Evening	every 45 minutes
Sunday	
Daytime	every 45 minutes
Evening	every 45 minutes

Number of Peak Vehicles



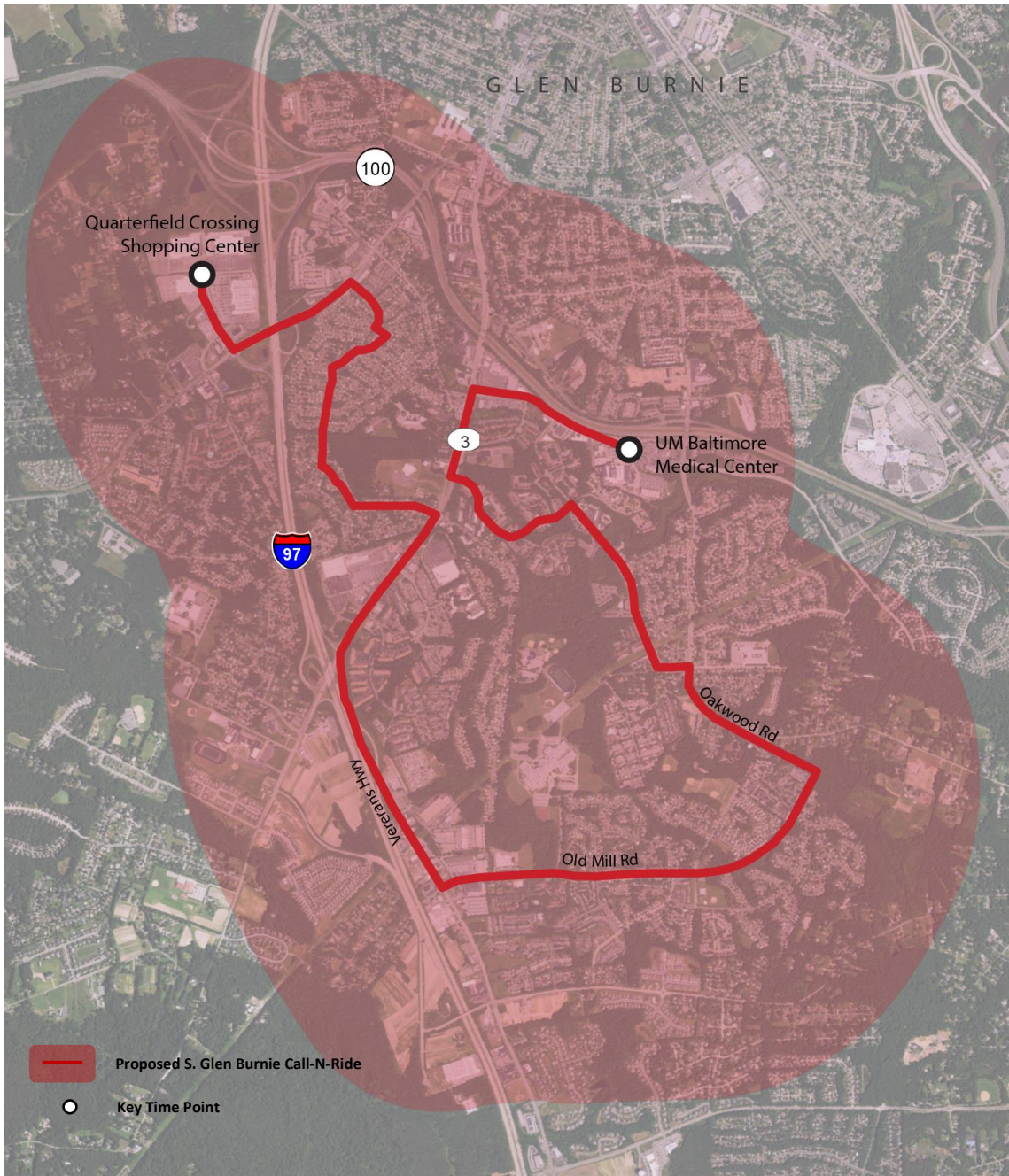
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Glen Burnie - Cromwell LRS	Glen Burnie, Glen Burnie Business Center, BW Medical Center	2	6:00	19:00	13	1.56	14.56	255	7,426
Saturday									
Glen Burnie - Cromwell LRS	Glen Burnie, Glen Burnie Business Center, BW Medical Center	2	8:00	19:00	11	1.32	12.32	52	1,281
Sunday									
Glen Burnie - Cromwell LRS	Glen Burnie, Glen Burnie Business Center, BW Medical Center	2	10:00	19:00	9	1.08	10.08	55	1,109
Glen Burnie Call N Ride Service Total									9,816

South Glen Burnie to UMBW Medical Center Call N Ride

Service Description

- Deviations within the Call N Ride zone are provided upon request.
- Requests must be made in advance.



Service Days



Service Span

AM														PM																					
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
														Monday - Friday																					
														Saturday																					
														Sunday																					

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 45 minutes
Midday & Evening	every 45 minutes
Saturday	
Daytime	every 45 minutes
Evening	every 45 minutes
Sunday	
Daytime	every 45 minutes
Evening	every 45 minutes

Number of Peak Vehicles



Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
South Glen Burnie Shuttle Quarterfield Crossing - BW Medical Center	Glen Burnie Park, Rol-Park Village, Northway Shopping Center, Shetland Square	2	6:00	19:00	13	1.56	14.56	255	7,426
Saturday									
South Glen Burnie Shuttle Quarterfield Crossing - BW Medical Center	Glen Burnie Park, Rol-Park Village, Northway Shopping Center, Shetland Square	2	8:00	19:00	11	1.32	12.32	52	1,281
Sunday									
South Glen Burnie Shuttle Quarterfield Crossing - BW Medical Center	Glen Burnie Park, Rol-Park Village, Northway Shopping Center, Shetland Square	2	10:00	19:00	9	1.08	10.08	55	1,109
South Glen Burnie Call N'Ride Total									9,816

Riviera Beach to UMBW Medical Center Call N Ride

Service Description

- Provides connection to Marley Station Mall.
- Deviations within the Call N Ride zone are provided upon request.
- Requests must be made in advance.
- Ride time from Riviera Beach to the University of Maryland Baltimore Washington Medical Center will be approximately 45 minutes.



Service Days



Service Span

AM												PM																													
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00						

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



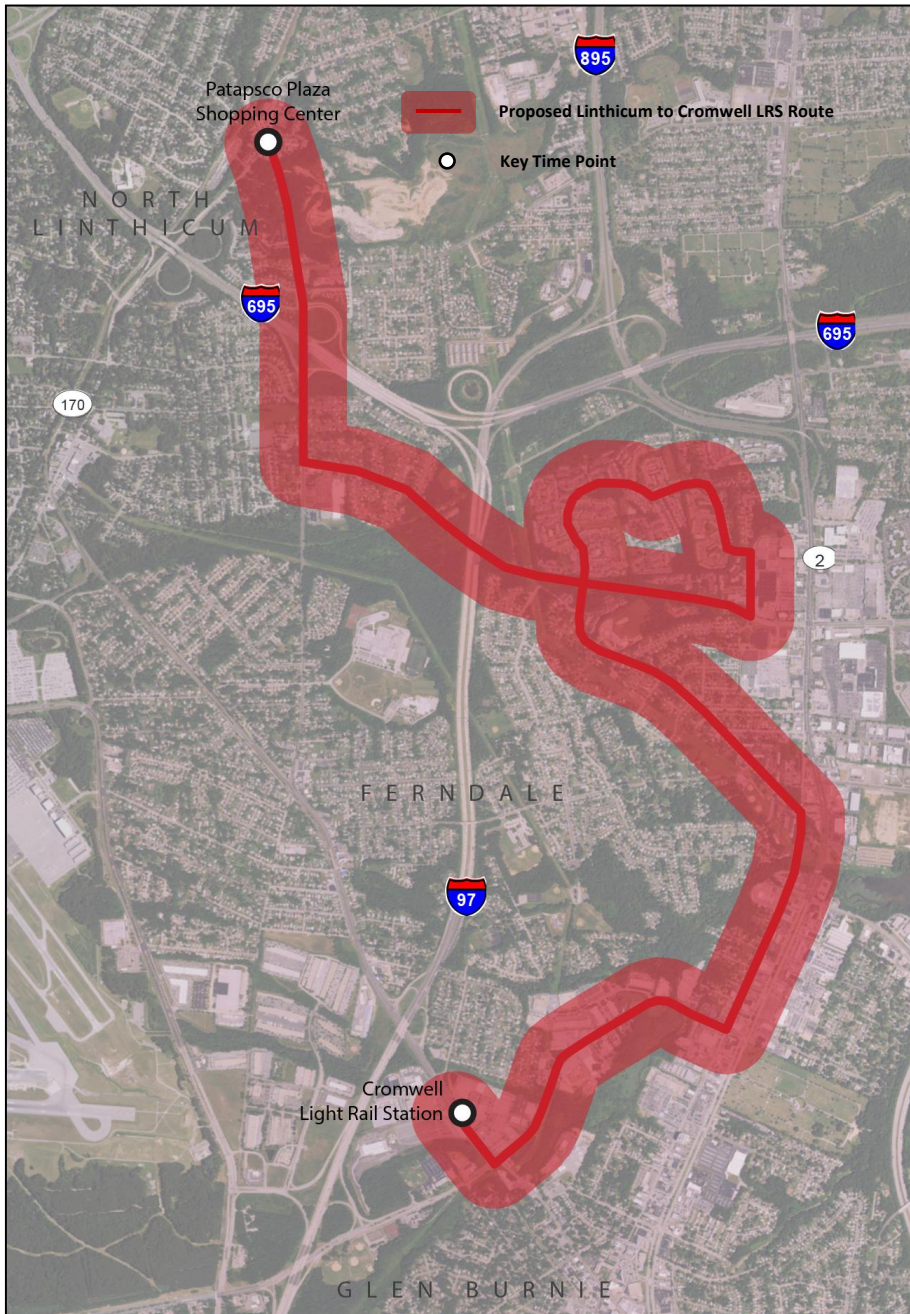
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Time Period	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday										
Riviera Beach- BW Medical Center	Pasadena, Harper's Choice, Marley Station Mall	2	All day	6:00	19:00	13	1.56	14.56	255	7,426
Saturday										
Riviera Beach- BW Medical Center	Pasadena, Harper's Choice, Marley Station Mall	2	All day	8:00	19:00	11	1.32	12.32	52	1,281
Riviera Beach Call N'Ride Total										8,707

Patapsco Plaza to Cromwell LRS Call N Ride

Service Description

- Provides service through North Linthicum and Ferndale.
- Deviations within the Call N Ride zone are provided upon request.
- Requests must be made in advance.
- Ride time between Cromwell LRS and Patapsco Plaza will be approximately 30 minutes.



Service Days



Service Span

AM														PM																														
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00									
																			Monday - Friday																									
																			Saturday																									
																			Sunday																									

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 30 minutes
Midday & Evening	every 30 minutes
Saturday	
Daytime	every 30 minutes
Evening	every 30 minutes
Sunday	
Daytime	every 30 minutes
Evening	every 30 minutes

Number of Peak Vehicles



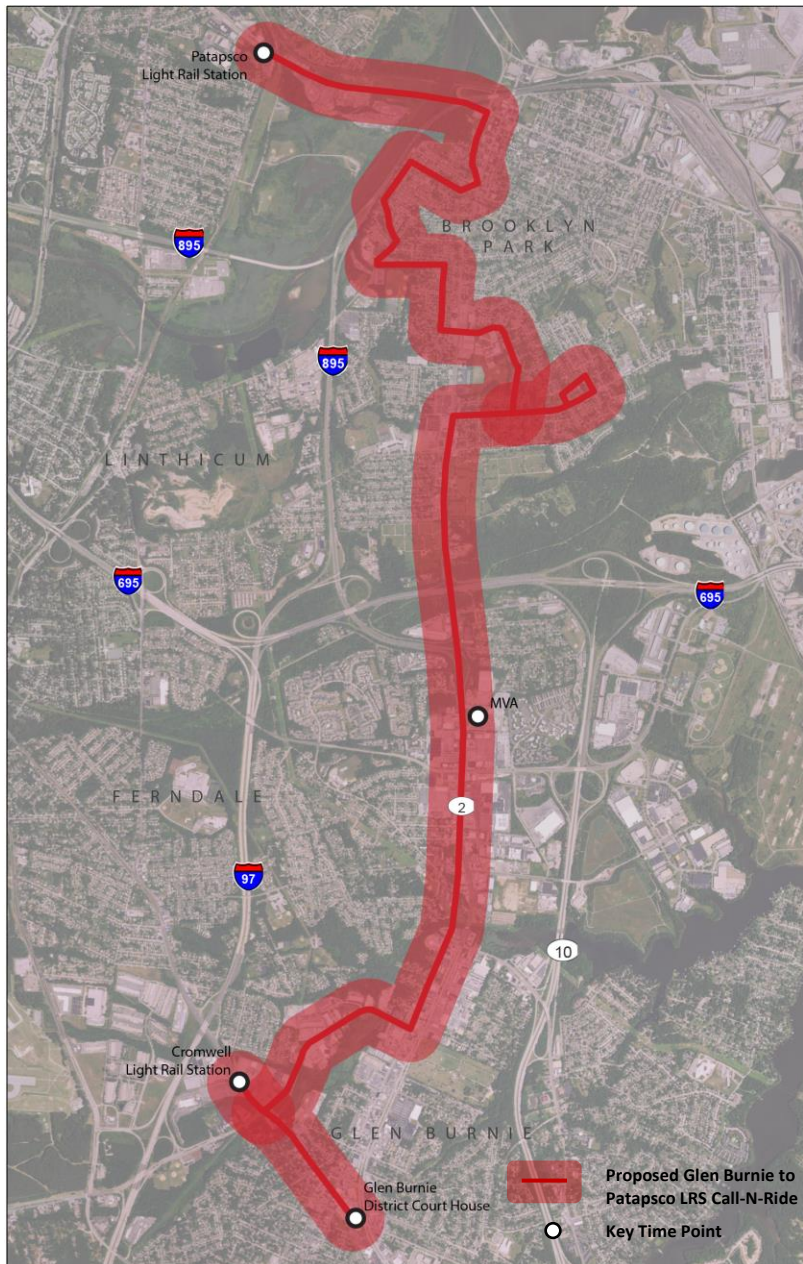
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Patapsco Plaza - Cromwell LRS	North Linthicum, Ferndale	2	6:00	19:00	13	1.56	14.56	255	7,426
Saturday									
Patapsco Plaza - Cromwell LRS	North Linthicum, Ferndale	2	8:00	19:00	11	1.32	12.32	52	1,281
Sunday									
Patapsco Plaza - Cromwell LRS	North Linthicum, Ferndale	2	10:00	19:00	9	1.08	10.08	55	1,109
Patapsco Plaza to Cromwell LRS Call N'Ride Total									9,816

Glen Burnie District Court to Patapsco LRS Call N Ride

Service Description

- Serves Ferndale and Brooklyn Park.
- Connects with the MVA in Ferndale.
- Deviations within the Call N Ride zone are provided upon request.
- Requests must be made in advance.
- Ride time from Brooklyn Park to Glen Burnie will be approximately 45 minutes.



Service Days



Service Span

AM														PM																									
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



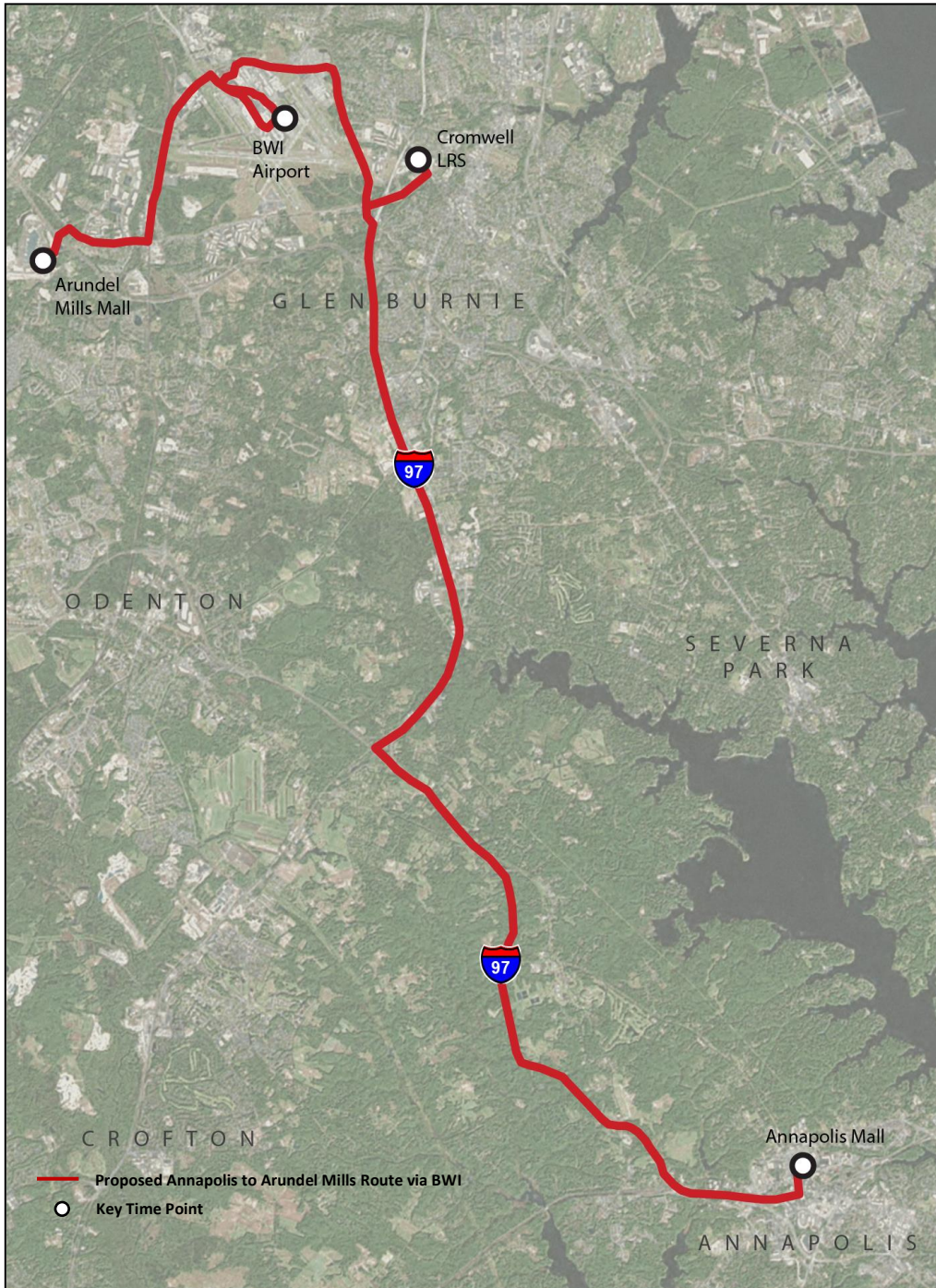
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Patapsco LRS- Glen Burnie District Court	Brooklyn Park, Ferndale MVA, Cromwell LRS, Glen Burnie	2	6:00	19:00	13	1.56	14.56	255	7,426
Saturday									
Patapsco LRS- Glen Burnie District Court	Brooklyn Park, Ferndale MVA, Cromwell LRS, Glen Burnie	2	8:00	19:00	11	1.32	12.32	52	1,281
Glen Burnie District Court - Patapsco LRS Call N'Ride Total									8,707

Annapolis to Arundel Mills Mall/BWI Airport

Service Description

- Will also connect with Cromwell LRS and Baltimore Washington International Airport.
- Ride time from Annapolis to BWI will be approximately 80 minutes.



Service Days



Service Span

AM														PM																					
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
														Monday - Friday																					
														Saturday																					
														Sunday																					

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



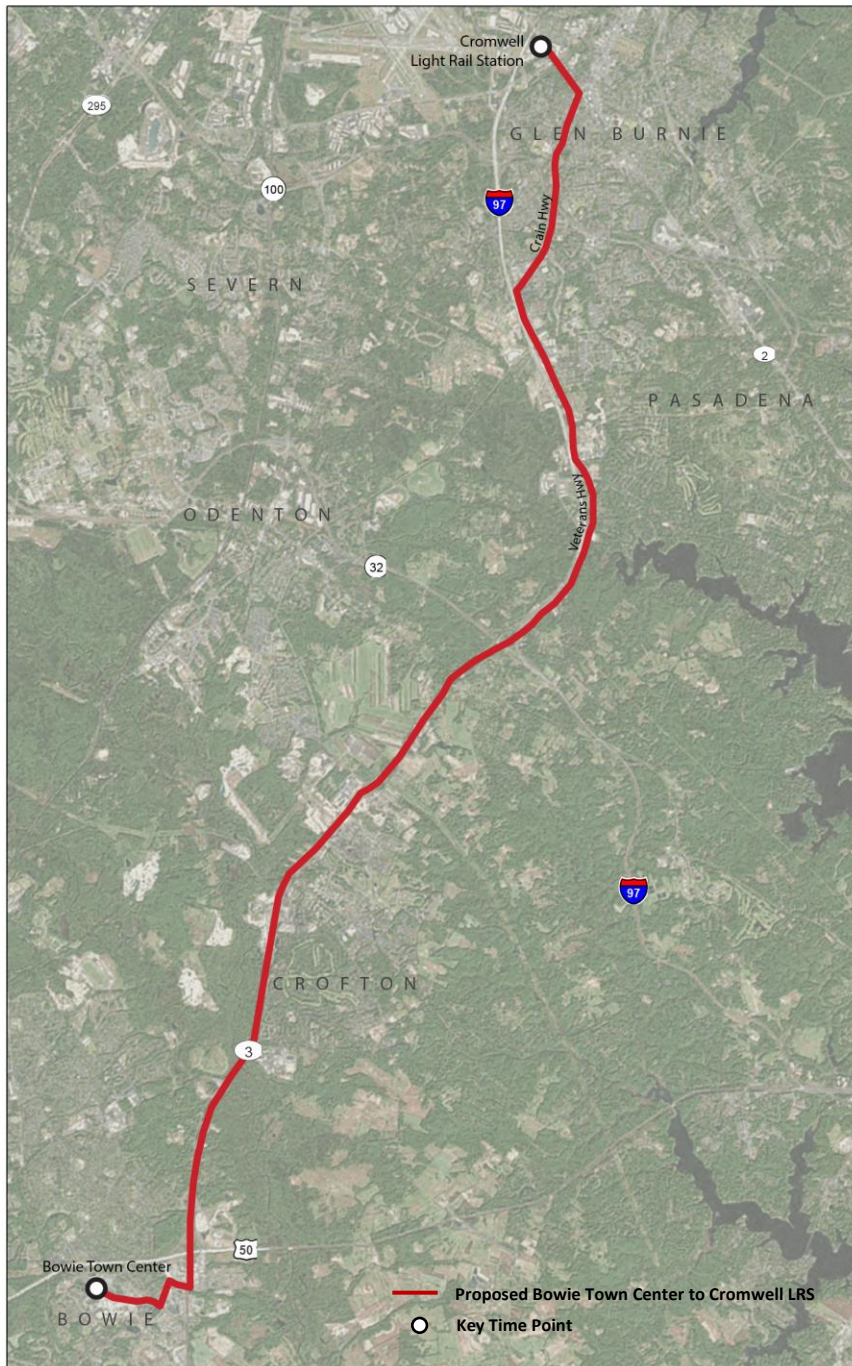
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Annapolis- Arundel Mills Mall/ BWI Airport	Anne Arundel Medical Center, Annapolis Mall, Cromwell LRS, BWI Airport	3	6:00	0:30	18.5	2.22	20.72	255	15,851
Saturday									
Annapolis- Arundel Mills Mall/ BWI Airport	Anne Arundel Medical Center, Annapolis Mall, Cromwell LRS, BWI Airport	3	8:00	0:30	16.5	1.98	18.48	52	2,883
Sunday									
Annapolis- Arundel Mills Mall/ BWI Airport	Anne Arundel Medical Center, Annapolis Mall, Cromwell LRS, BWI Airport	3	8:00	19:00	11	1.32	12.32	55	2,033
Annapolis-Arundel Mills Mall/BWI Airport Route Total									20,766

Bowie Town Center to Cromwell LRS

Service Description

- Connects with proposed local routes in Crofton, Pasadena, Odenton, and Glen Burnie.
- Ride time from Bowie Town Center to Cromwell LRS will be approximately 80 minutes.



Service Days



Service Span

AM													PM																									
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00			

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



Service Characteristics

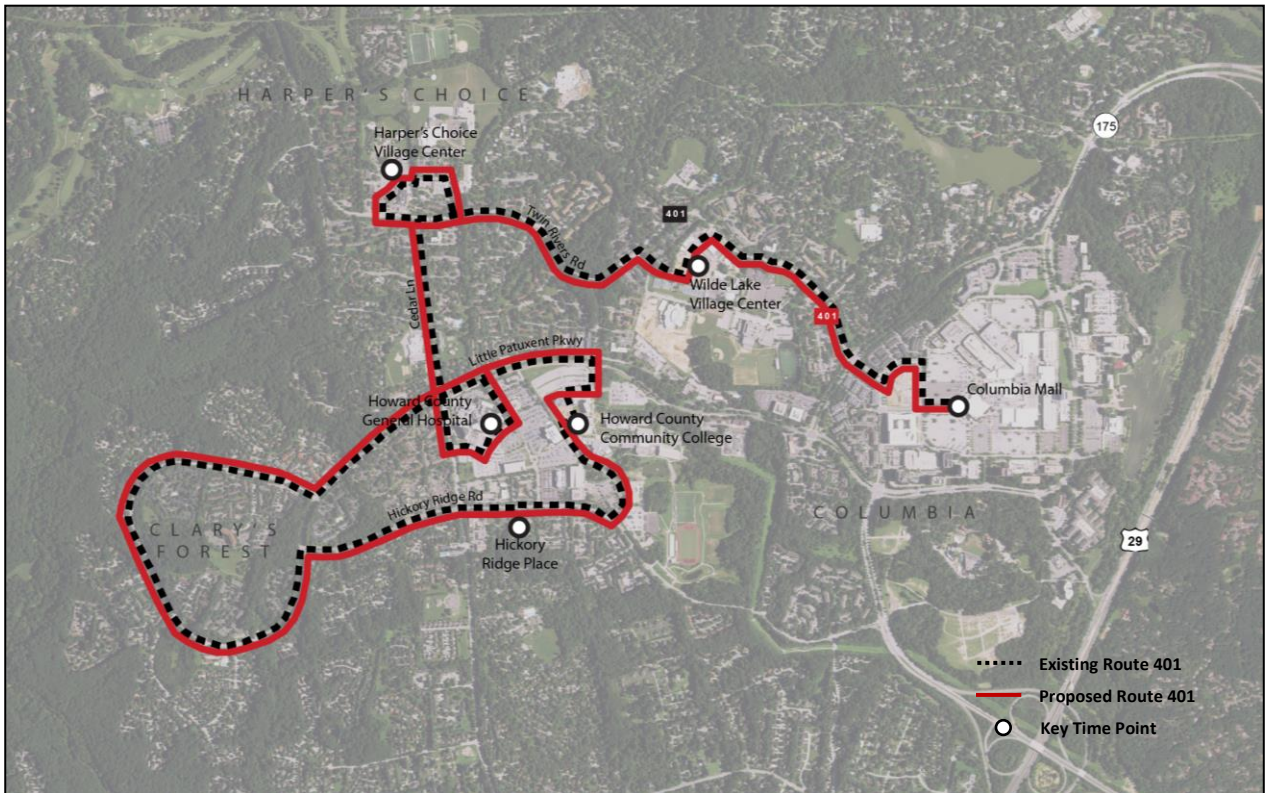
Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Bowie Town Center - Cromwell LRS	Bowie Retail at 301, Crofton, Villages at Waugh Chapel, Millersville, Dorrs Corner, Benfield Boulevard, Rol- Park Village	3	6:00	19:00	13	1.56	14.56	255	11,138
Saturday									
Bowie Town Center - Cromwell LRS	Bowie Retail at 301, Crofton, Villages at Waugh Chapel, Millersville, Dorrs Corner, Benfield Boulevard, Rol- Park Village	3	8:00	19:00	11	1.32	12.32	52	1,922
Sunday									
Bowie Town Center - Cromwell LRS	Bowie Retail at 301, Crofton, Villages at Waugh Chapel, Millersville, Dorrs Corner, Benfield Boulevard, Rol- Park Village	3	10:00	19:00	9	1.08	10.08	55	1,663
Bowie Town Center to Cromwell Light Rail Station Total									14,724

HOWARD COUNTY

Route 401 – Columbia Mall to Clary’s Forest

Service Description

- Frequency increases to every 30 minutes during the day on weekdays.
- Ride time from Columbia Mall to Howard Community College (HCC) will be approximately 20 minutes.



Service Days



Service Span

AM											PM																								
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
											Monday - Friday																								
											Saturday																								
											Sunday																								

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 30 minutes
Midday	every 30 minutes
Evening	every 60 minutes
Saturday	
Daytime	every 30 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Clary's Forest	Wilde Lake, Harper's Choice, Howard County Hospital, Howard Community College	2	5:25	23:10	29.67	3.56	33.23	255	8,473
Saturday									
Columbia Mall- Clary's Forest	Wilde Lake, Harper's Choice, Howard County Hospital, Howard Community College	2	5:25	23:10	27.67	3.32	30.99	52	1,611
Sunday									
Columbia Mall- Clary's Forest	Wilde Lake, Harper's Choice, Howard County Hospital, Howard Community College	1	7:25	20:35	13.17	1.58	14.75	55	811
Phase 1: Route 401 Total									10,895

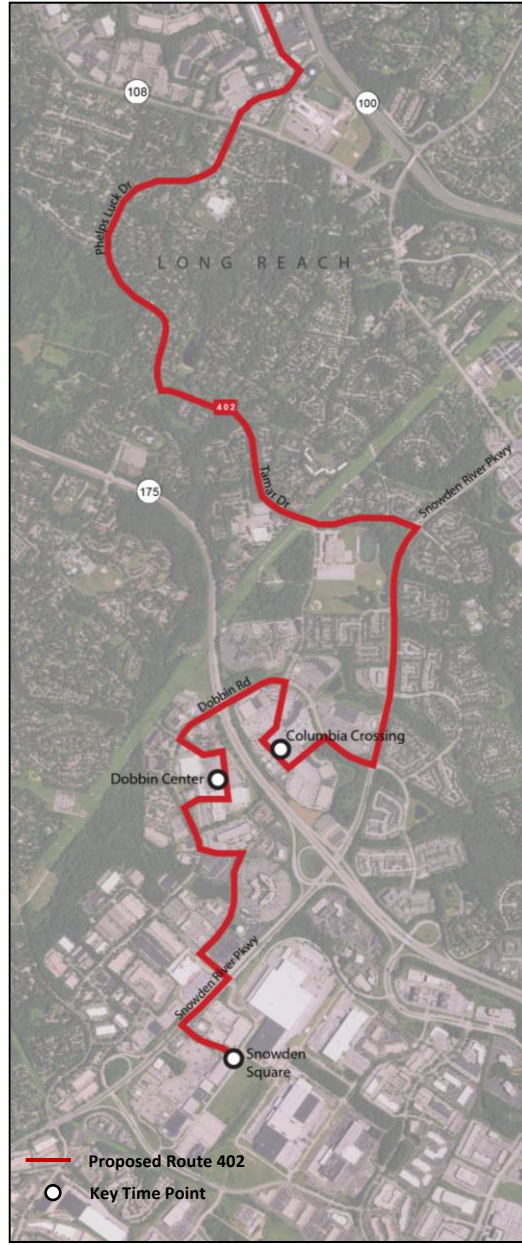
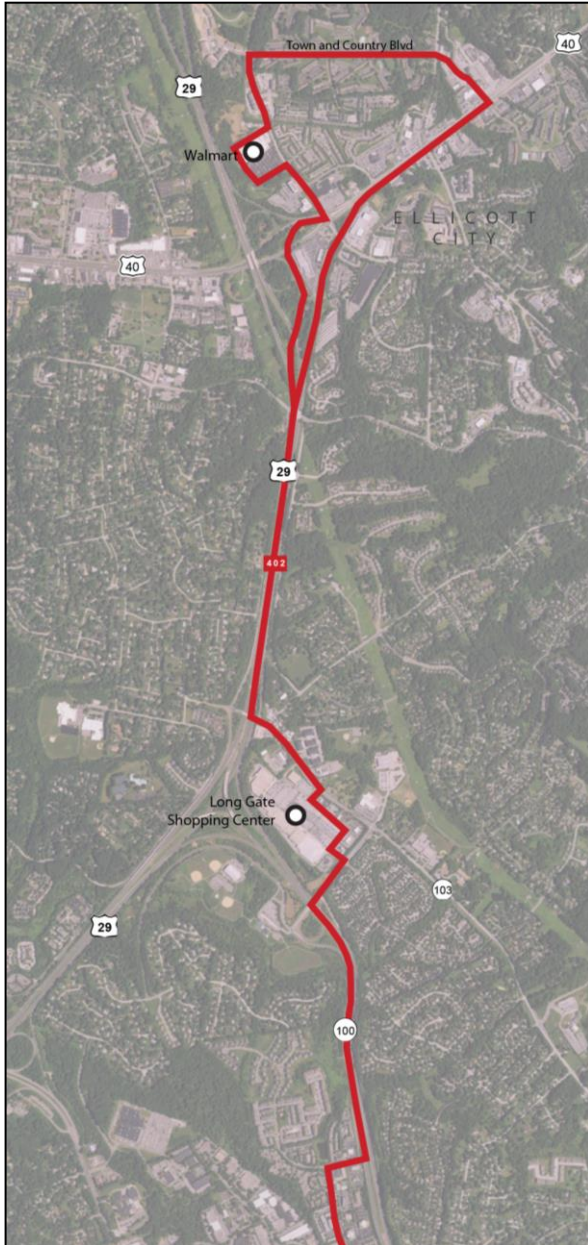
PHASE 2

Monday-Friday									
Columbia Mall- Clary's Forest	Harper's Choice, Howard County Hospital, Howard Community College	2	5:25	23:10	30.25	3.63	33.88	255	8,639
Saturday									
Columbia Mall- Clary's Forest	Wilde Lake, Harper's Choice, Howard County Hospital, Howard Community College	2	5:25	23:10	28.25	3.39	31.64	52	1,645
Sunday									
Columbia Mall- Clary's Forest	Wilde Lake, Harper's Choice, Howard County Hospital, Howard Community College	1	7:25	20:35	13.17	1.58	14.75	55	811
Phase 2: Route 401 Total									11,096

Route 402 – Ellicott City to Snowden Square

Route Description

- Provides a connection to Long Gate Shopping Center, Columbia Crossing, and Dobbin Center.
- Ride time from the Walmart in Ellicott City to Snowden Square will be approximately 45 minutes.



Service Days



Service Span

AM														PM																					
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
Monday - Friday														Phase 1							Phase 2														
Saturday														Phase 1 & 2																					
Sunday														Phase 1 & 2																					

Service Frequency

	Phase 1	Phase 2
Monday - Friday		
AM Peak & PM Peak	every 60 minutes	every 60 minutes
Midday	every 60 minutes	every 60 minutes
Evening	-	every 120 minutes
Saturday		
Daytime	every 60 minutes	every 60 minutes
Evening	every 60 minutes	every 60 minutes
Sunday		
Daytime	every 120 minutes	every 120 minutes
Evening	every 120 minutes	every 120 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Ellicott City- Snowden Square	Walmart, Long Gate Shopping Center, Columbia Crossing, Dobbin Center	2	6:20	19:25	25.83	3.1	28.93	255	7,378
Saturday									
Ellicott City- Snowden Square	Walmart, Long Gate Shopping Center, Columbia Crossing, Dobbin Center	2	8:20	19:25	21.83	2.62	24.45	52	1,272
Sunday									
Ellicott City- Snowden Square	Walmart, Long Gate Shopping Center, Columbia Crossing, Dobbin Center	1	9:20	19:25	10.08	1.21	11.29	55	621
Phase 1: Route 402 TOTAL									9,271

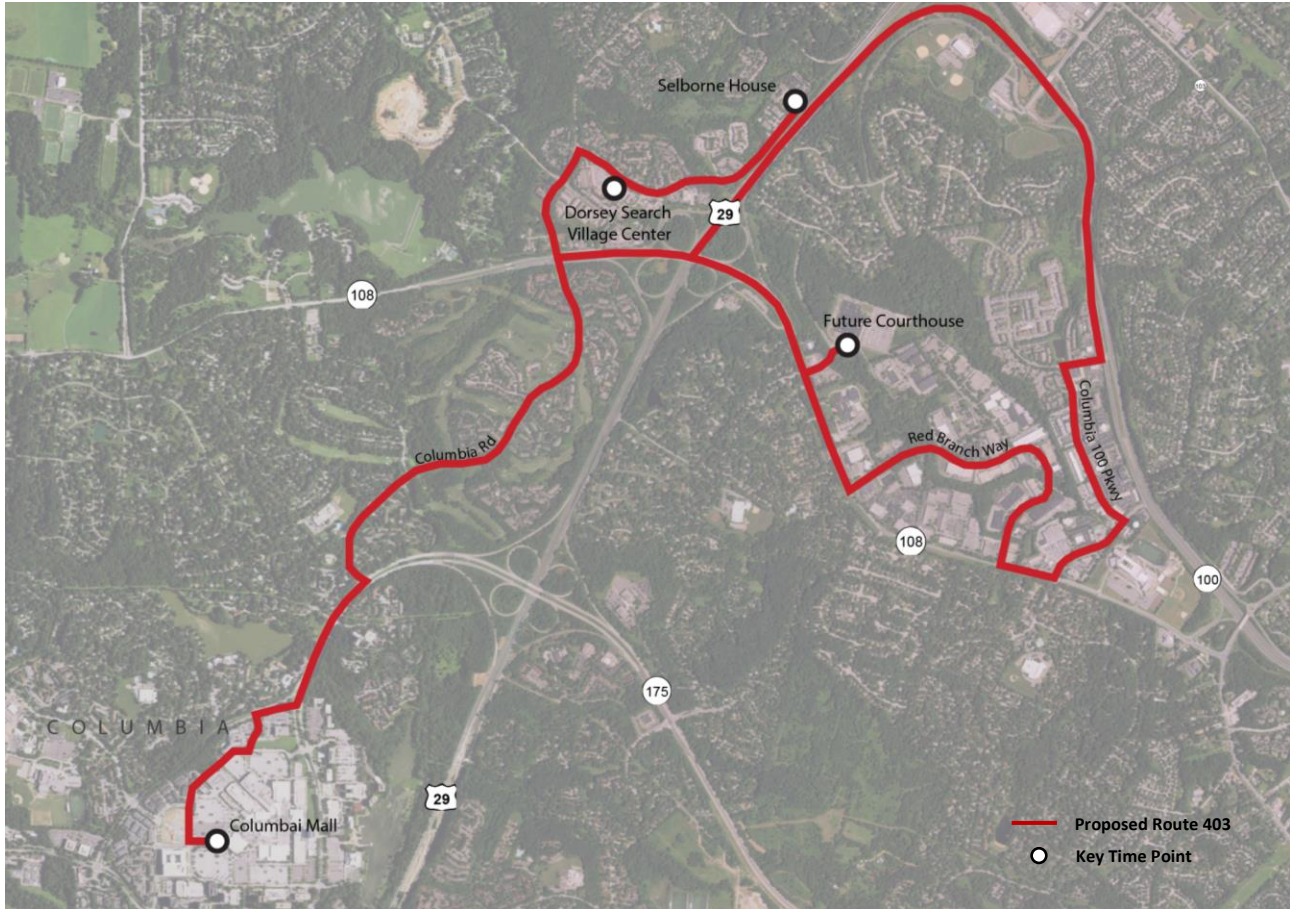
PHASE 2

Monday-Friday									
Ellicott City- Snowden Square	Walmart, Long Gate Shopping Center, Columbia Crossing, Dobbin Center	2	6:20	23:20	28.83	3.46	32.29	255	8,235
Saturday									
Ellicott City- Snowden Square	Walmart, Long Gate Shopping Center, Columbia Crossing, Dobbin Center	2	8:20	19:25	20.92	2.51	23.43	52	1,218
Sunday									
Ellicott City- Snowden Square	Walmart, Long Gate Shopping Center, Columbia Crossing, Dobbin Center	1	9:20	19:25	10.08	1.21	11.29	55	621
Phase 2: Route 402 TOTAL									10,074

Route 403 – Columbia Mall to Dorsey Search Village Center

Service Description

- Route will serve the future courthouse on Bendix Road.
- Will connect Dorsey Search Village Center with Selborne House and Red Branch Way.
- Ride time between Columbia Mall and Red Branch Way will be approximately 30 minutes.



Service Days



Service Span

AM											PM																								
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
Monday - Friday											Phase 1 & 2																								
Saturday											Phase 1 & 2																								
Sunday											Phase 1																								

Service Frequency

	Phase 1	Phase 2
Monday - Friday		
AM Peak & PM Peak	every 60 minutes	every 60 minutes
Midday	every 60 minutes	every 60 minutes
Evening	every 120 minutes	every 60 minutes
Saturday		
Daytime	every 60 minutes	every 60 minutes
Evening	every 120 minutes	every 60 minutes
Sunday		
Daytime	every 120 minutes	-
Evening	every 120 minutes	-

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Dorsey Search Village Center <i>(Evenings interlined with 404)</i>	Selborne House, Red Branch Way	1	5:35	21:10	15.17	1.82	16.99	255	4,332
Saturday									
Columbia Mall- Dorsey Search Village Center <i>(Evenings interlined with 404)</i>	Selborne House, Red Branch Way	1	7:35	21:10	12.17	1.46	13.63	52	709
Sunday									
Columbia Mall- Dorsey Search Village Center <i>(Interlined with 404)</i>	Selbourne House, Red Branch Way	1	7:35	19:10	11:35	1:23	12.97	55	357
Phase 1: Route 403 Total									5,397

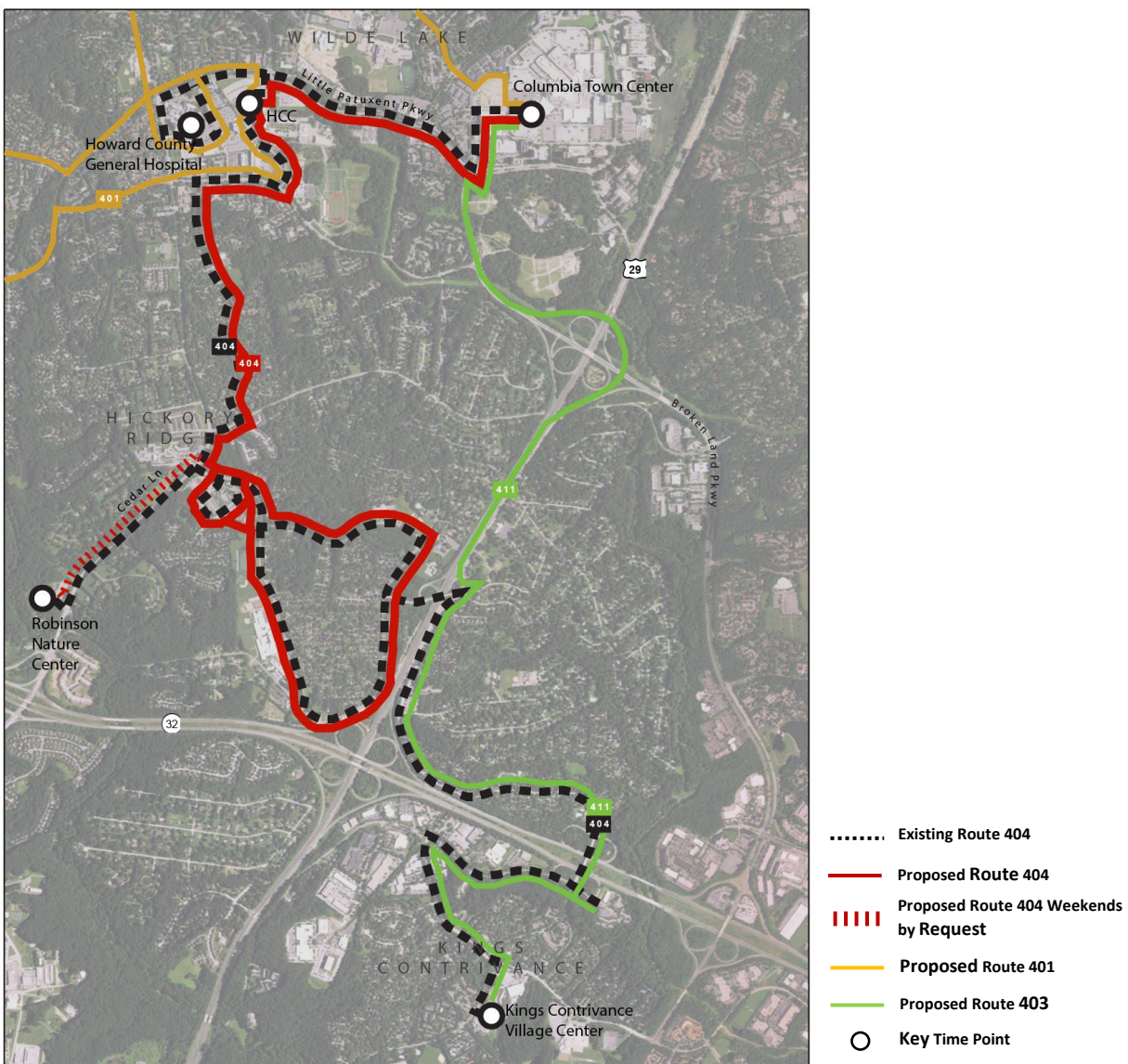
PHASE 2

Monday-Friday									
Columbia Mall- Dorsey Search Village Center	Selborne House, Red Branch Way	1	5:35	23:10	17.58	2.11	19.69	255	5,022
Saturday									
Columbia Mall- Dorsey Search Village Center	Selborne House, Red Branch Way	1	7:35	21:10	13.58	1.63	15.21	52	791
Sunday									
Columbia Mall- Dorsey Search Village Center	Selborne House, Red Branch Way	-	-	-	-	-	-	-	-
Phase 2: Route 403 Total									5,813

Route 404 – Columbia Mall to Hickory Ridge

Service Description

- Route is streamlined to reduce ride time for riders.
- Service to the Robinson Nature Center will be on weekends and by requests.
- Service to Kings Contrivance will be served by Route 411, providing faster and more direct service to Columbia Town Center.
- Howard County Hospital will be served on Route 401.
- Ride time between Columbia Town Center and Hickory Ridge Village Center will be approximately 30 minutes.



Service Days



Service Span

AM													PM																						
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
Monday - Friday													Phase 1 & 2																						
Phase 2			Saturday										Phase 1						Phase 2																
Sunday					Phase 1															Phase 2															

Service Frequency

	Phase 1	Phase 2
Monday - Friday		
AM Peak & PM Peak	every 60 minutes	every 30 minutes
Midday	every 60 minutes	every 30 minutes
Evening	every 120 minutes	every 60 minutes
Saturday		
Daytime	every 60 minutes	every 60 minutes
Evening	every 120 minutes	every 60 minutes
Sunday		
Daytime	every 120 minutes	every 60 minutes
Evening	every 120 minutes	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Hickory Ridge <i>(Evenings interlined with 403)</i>	Howard Community College	1	6:00	21:10	14.42	1.73	16.15	255	4,117
Saturday									
Columbia Mall- Hickory Ridge <i>(Evenings interlined with 403)</i>	Howard Community College	1	8:00	21:10	11.42	1.37	12.79	52	665
Sunday									
Columbia Mall- Hickory Ridge <i>(Interlined with 403)</i>	Howard Community College	1	7:35	19:10	11:35	1:23	12.97	55	357
Phase 1: Route 404 Total									5,139

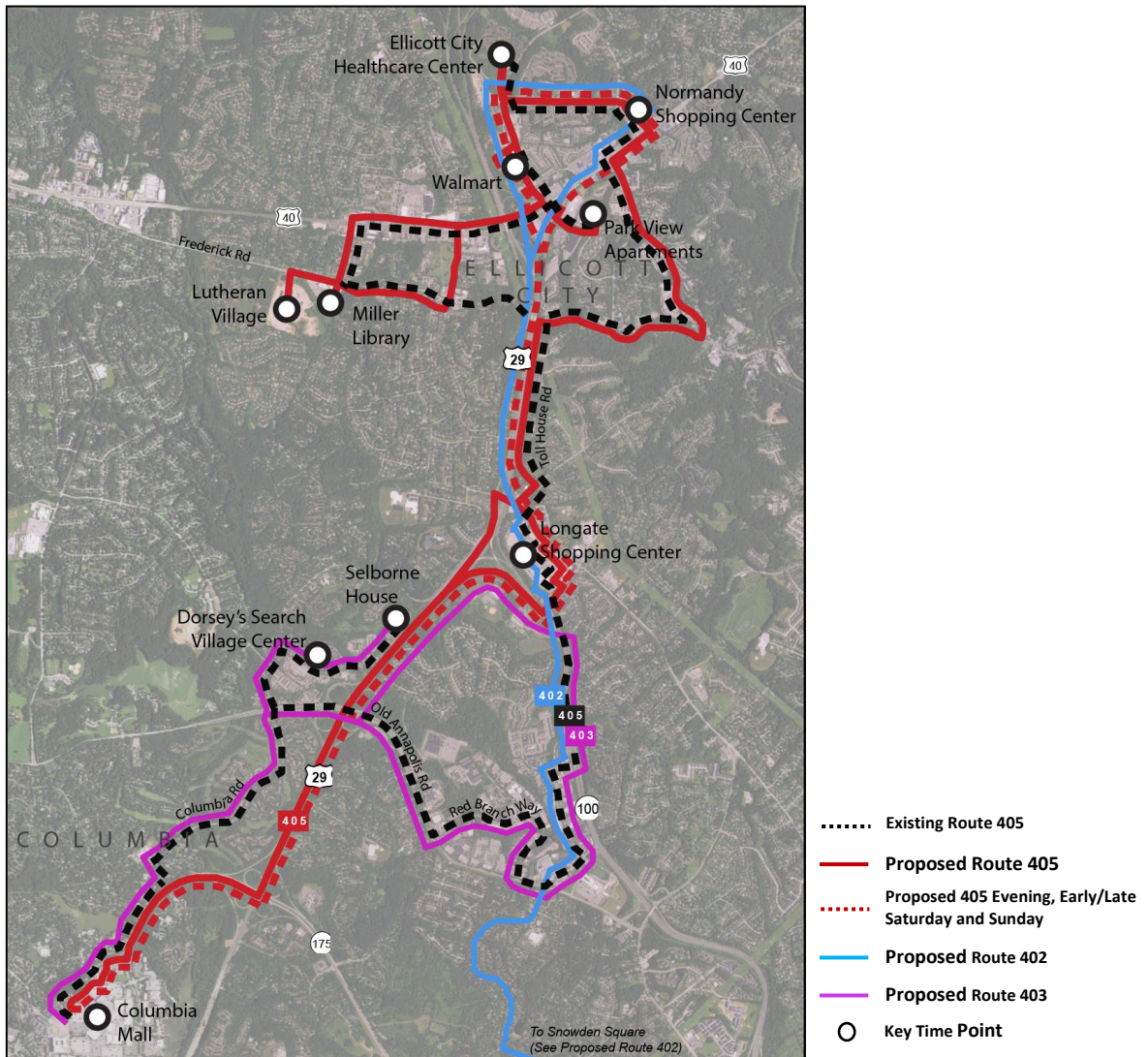
PHASE 2

Monday-Friday									
Columbia Mall- Hickory Ridge	Howard Community College	2	6:00	22:50	27.67	3.32	30.99	255	7,902
Saturday									
Columbia Mall- Hickory Ridge	Howard Community College	1	6:00	22:50	16.83	2.02	18.85	52	980
Sunday									
Columbia Mall- Hickory Ridge	Howard Community College	1	8:00	19:50	11.83	1.42	13.25	55	729
Phase 2: Route 404 Total									9,611

Route 405 – Columbia Mall to Ellicott City

Service Description

- Route is streamlined to reduce the ride time for riders traveling between Columbia and Ellicott City.
- Serves the Ellicott City Walmart, Long Gate Shopping Center, Normandy Shopping Center, Ellicott City Healthcare Center, Park View Apts., Lutheran Village and Miller Library.
- Dorsey Search Village Center, Selborne House, Executive Park Drive and Red Branch Way will be served by Route 403.
- Evenings, Saturday (early and late), and Sunday will have a shorter routing. The Ellicott City Healthcare Center, Lutheran Village, and Miller Library, will not be served with the shorter routing.
- Ride time from Columbia Mall to the Ellicott City Walmart will be approximately 35 minutes.



Days of Service



Service Span

AM														PM																					
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
														Monday - Friday																					
														Saturday																					
														Sunday																					

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Middy & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Ellicott City	Walmart, Long Gate Shopping Center, Dorsey Search, Red Branch Way	2	6:00	22:50	29.17	3.50	32.67	255	8,330
Saturday									
Columbia Mall- Ellicott City	Walmart, Long Gate Shopping Center, Dorsey Search, Red Branch Way	2	6:00	22:50	27.75	3.33	31.08	52	1,616
Sunday									
Columbia Mall- Ellicott City	Walmart, Long Gate Shopping Center, Dorsey Search, Red Branch Way	1	8:00	19:50	11.83	1.42	13.25	55	729
Phase 1: Route 405 Total									10,675

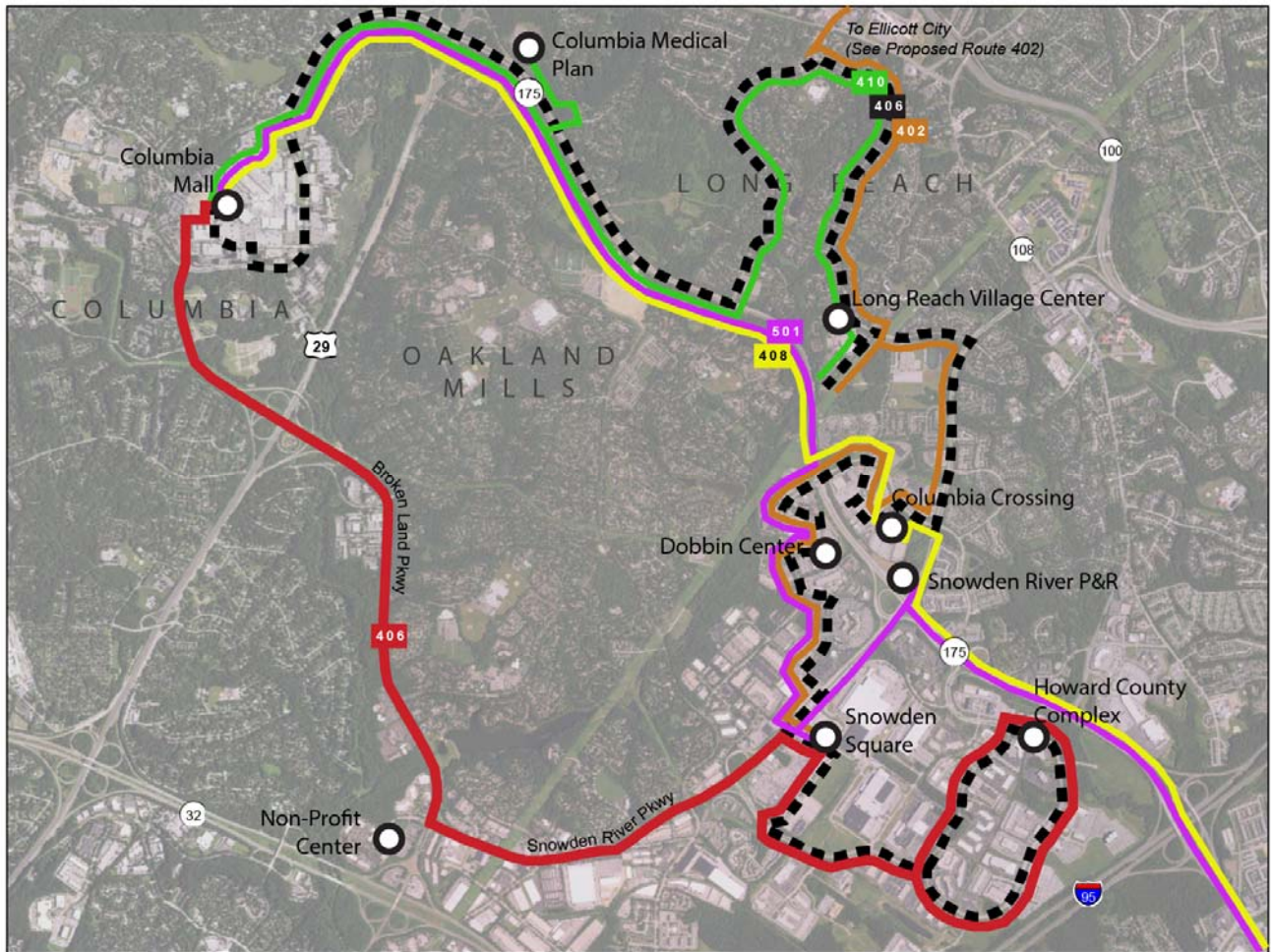
PHASE 2

Monday-Friday									
Columbia Mall- Ellicott City	Walmart, Long Gate Shopping Center, Dorsey Search, Red Branch Way	2	6:00	22:50	29.83	3.58	33.41	255	8,520
Saturday									
Columbia Mall- Ellicott City	Walmart, Long Gate Shopping Center, Dorsey Search, Red Branch Way	2	6:00	20:50	26.42	3.17	29.59	52	1,539
Sunday									
Columbia Mall- Ellicott City	Walmart, Long Gate Shopping Center, Dorsey Search, Red Branch Way	1	8:00	19:50	11.83	1.42	13.25	55	729
Phase 2: Route 405 Total									10,788

Route 406 – Columbia Mall to Columbia Gateway

Route Description

- Provides a more direct connection between Columbia Mall and Gateway.
- Service through Long Reach, Columbia Crossing, Dobbin Center, and Snowden Square will be served by Routes 402, 408, 410, and 501.
- No Sunday service.
- Ride time from Columbia Mall to the Howard County Complex will be approximately 25 minutes.



- Existing Route 406
- Proposed Route 406
- Proposed Route 402
- Proposed Route 408
- Proposed Route 410
- Proposed Route 501
- Key Time Point

Days of Service



Service Span

	AM											PM																														
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00							
Phase 2							Monday - Friday											Phase 1																								
							Saturday												Phase 1 & 2																							
							Sunday												Phase 1 & 2																							

Service Frequency

	Phase 1	Phase 2
Monday - Friday		
AM Peak & PM Peak	every 60 minutes	every 60 minutes
Midday	every 60 minutes	every 60 minutes
Saturday		
Daytime	every 120 minutes	every 60 minutes
Evening	-	-
Sunday		
Daytime	every 120 minutes	every 120 minutes
Evening	-	-

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall - Columbia Gateway	Snowden Square	1	6:30	18:00	11.50	1.38	12.88	255	3,284
Saturday									
Columbia Mall - Columbia Gateway <i>(Interlined with 411)</i>	Snowden Square	1	8:00	17:50	9.83	1.18	11.01	52	286
Sunday									
Columbia Mall - Columbia Gateway <i>(Interlined with 411)</i>	Snowden Square	1	8:00	17:50	9.83	1.18	11.01	55	303
Phase 1: Route 406 Total									3,873

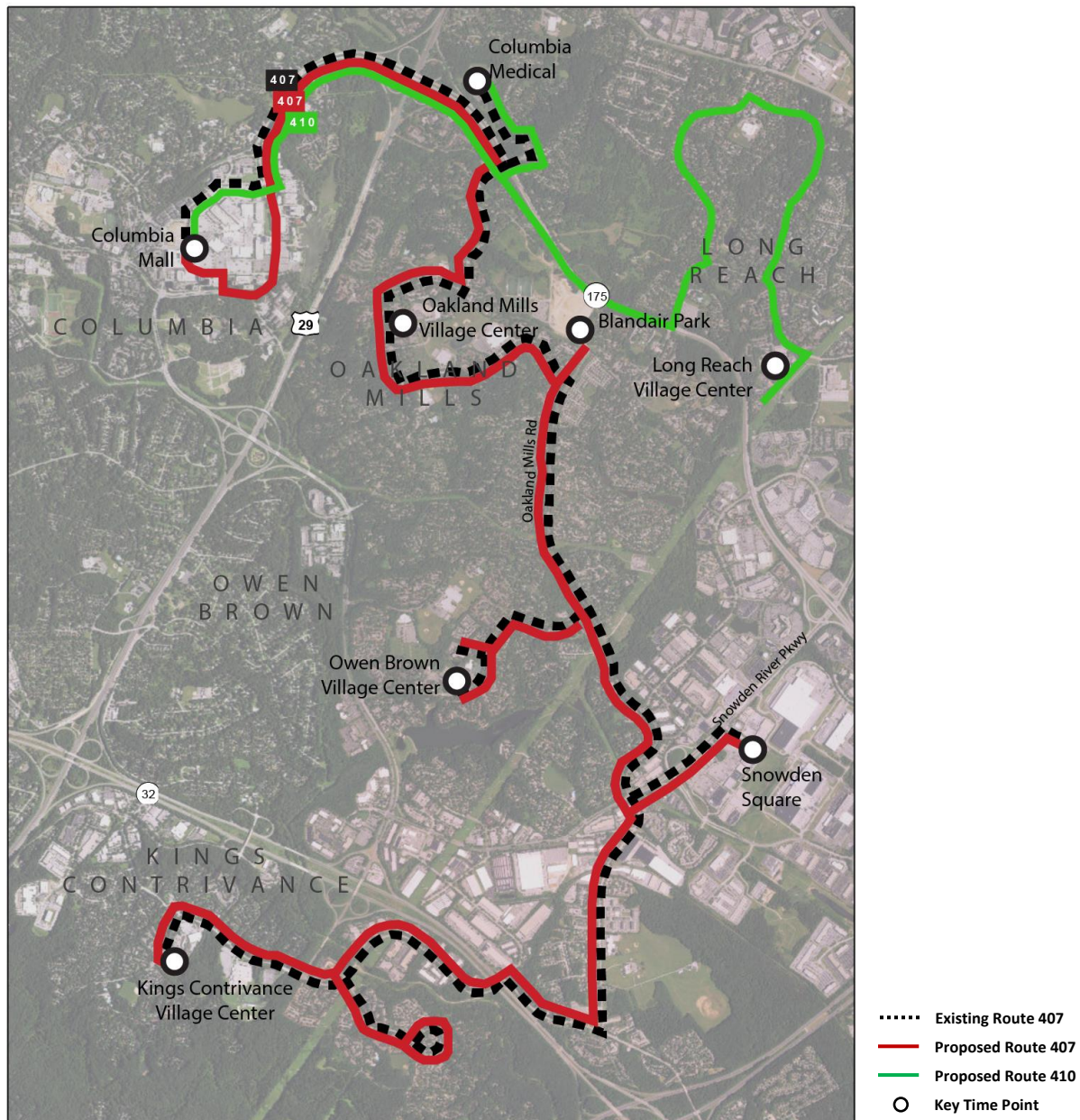
PHASE 2

Monday-Friday									
Columbia Mall - Columbia Gateway	Snowden Square	1	6:05	18:20	12.25	1.47	13.72	255	3,499
Saturday									
Columbia Mall - Columbia Gateway	Snowden Square	1	8:05	18:20	10.25	1.23	11.48	52	597
Sunday									
Columbia Mall - Columbia Gateway <i>(Interlined with 411)</i>	Snowden Square	1	8:05	18:20	10.25	1.23	11.48	55	316
Phase 2: Route 406 Total									4,411

Route 407 – Columbia Mall to Kings Contrivance Village Center

Service Description

- Route will no longer serve Columbia Medical Plan. Columbia Medical Plan will be served by Route 410.
- Not every bus will continue on to Snowden Square and Kings Contrivance. Buses will turn around at the Owen Brown Village Center on every other run.
- Ride time from Columbia Mall to Kings Contrivance Village Center will be approximately 52 minutes.



Days of Services



Service Span

AM													PM																						
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
													Monday - Friday																						
													Saturday																						
													Sunday																						

Service Frequency

	Phase 1		Phase 2
	Columbia Mall – Owen Brown	Owen Brown – Kings Contrivance	Entire Route
Monday - Friday			
AM Peak & PM Peak	every 30 minutes	every 60 minutes	every 30 minutes
Middy	every 30 minutes	every 60 minutes	every 30 minutes
Evening	every 60 minutes	every 120 minutes	every 60 minutes
Saturday			
Daytime	every 30 minutes	every 60 minutes	every 30 minutes
Evening	every 60 minutes	every 120 minutes	every 60 minutes
Sunday			
Daytime	every 60 minutes	every 120 minutes	every 60 minutes
Evening	every 60 minutes	every 120 minutes	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall-Kings Contrivance Village Center <i>(Interlined with 501)</i>	Columbia Mall-Kings Contrivance Village Center	3	5:30	22:50	43.79	5.26	49.05	255	12,507
Saturday									
Columbia Mall-Kings Contrivance Village Center <i>(Interlined with 501)</i>	Columbia Mall-Kings Contrivance Village Center	3	5:30	22:50	41.79	5.02	46.81	52	2,434
Sunday									
Columbia Mall-Kings Contrivance Village Center <i>(Interlined with 501)</i>	Columbia Mall-Kings Contrivance Village Center	1	7:00	20:50	19.79	2.38	22.17	55	1,219
Phase 1: Route 407 Total									16,160

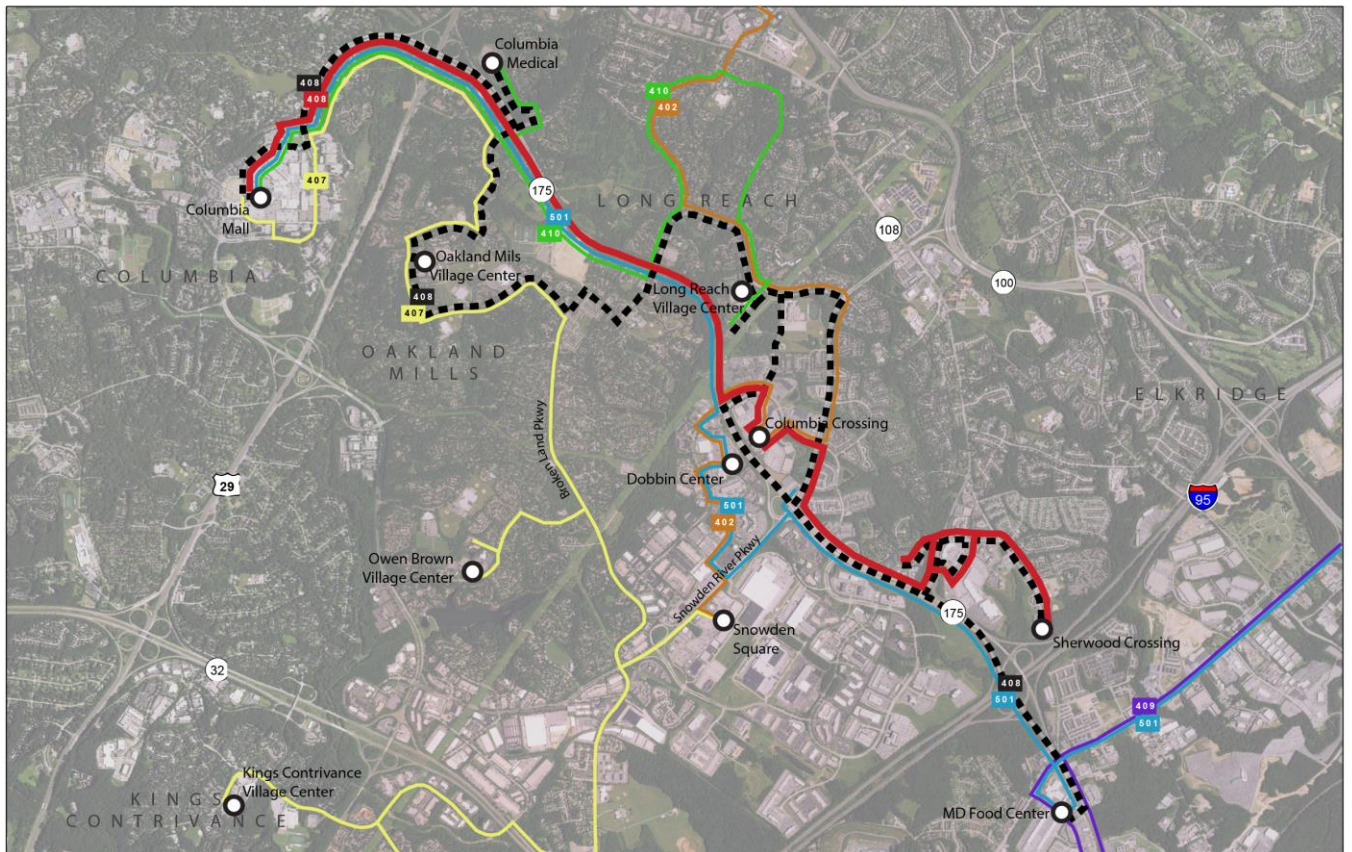
PHASE 2

Monday-Friday									
Columbia Mall-Kings Contrivance Village Center	Oakland Mills, Owen Brown Snowden Square	4	5:30	23:25	58.42	7.01	65.43	255	16,684
Saturday									
Columbia Mall-Kings Contrivance Village Center	Oakland Mills, Owen Brown Snowden Square	4	5:30	23:25	54.42	6.53	60.95	52	3,169
Sunday									
Columbia Mall-Kings Contrivance Village Center	Oakland Mills, Owen Brown Snowden Square	2	7:00	20:50	25.67	3.08	28.75	55	1,581
Phase 2: Route 407 Total									21,434

Route 408 – Columbia Mall to Sherwood Crossing

Service Description

- Service will be expanded to Sunday.
- Columbia Crossing will continue to be served on the route; Snowden Park and Ride will not be served.
- Service through Long Reach will be provided by Routes 402 and 410.
- Service through Oakland Mills will be provided by Route 407.
- Service to the MD Food Center will be provided by Routes 409 and 501.
- Ride time from Columbia Mall to Sherwood Crossing will be approximately 25 minutes.



- Existing Route 408
- Proposed Route 408
- Proposed Route 402
- Proposed Route 407
- Proposed Route 409
- Proposed Route 410
- Proposed Route 501
- Key Time Point

Service Days



Service Span

AM											PM																																					
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00													
																					Monday - Friday																											
																					Saturday																											
																					Sunday																											

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Sherwood Crossing	Columbia Crossing	1	6:00	22:50	16.83	2.02	18.85	255	4,808
Saturday									
Columbia Mall- Sherwood Crossing	Columbia Crossing	1	6:00	22:50	16.83	2.02	18.85	52	980
Sunday									
Columbia Mall- Sherwood Crossing	Columbia Crossing	1	8:00	19:50	11.83	1.42	13.25	55	729
Phase 1: Route 408 Total									6,517

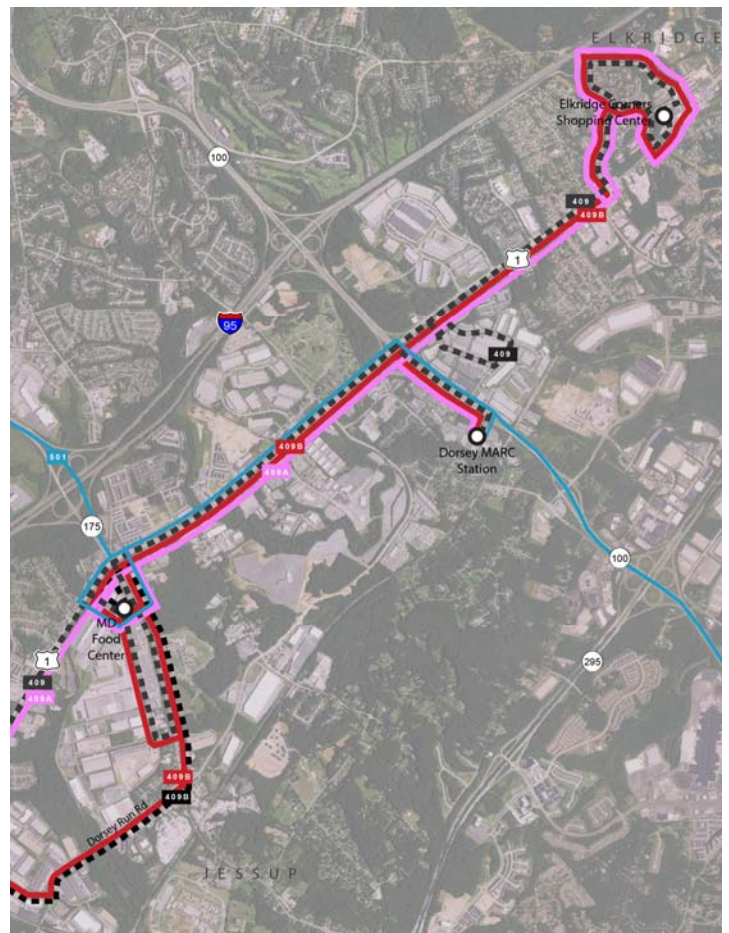
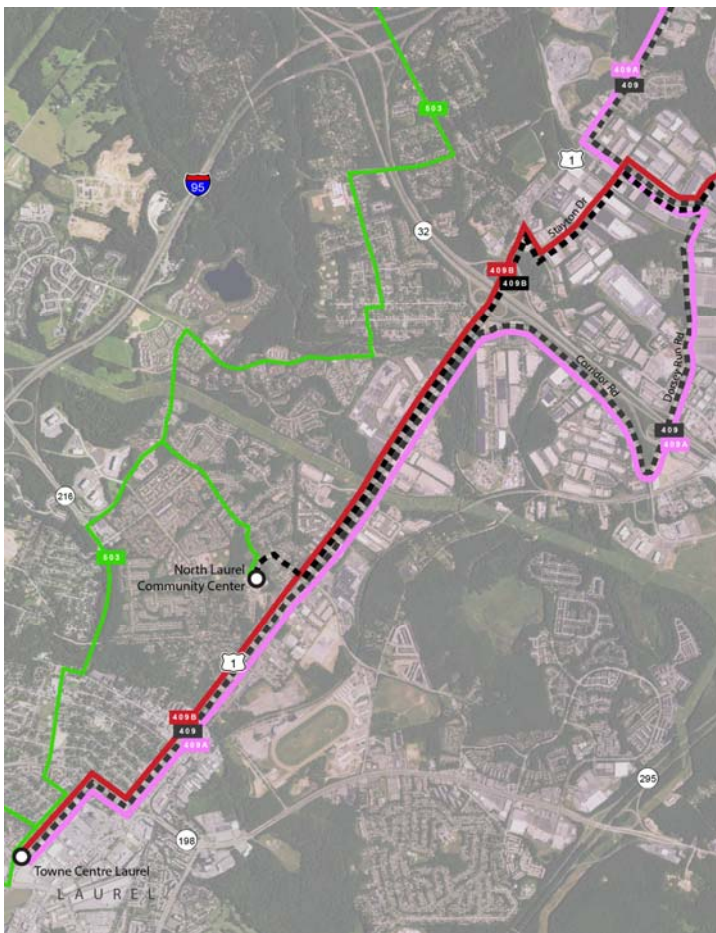
PHASE 2

Monday-Friday									
Columbia Mall- Sherwood Crossing	Columbia Crossing	1	6:00	22:50	16.83	2.02	18.85	255	4,808
Saturday									
Columbia Mall- Sherwood Crossing	Columbia Crossing	1	6:00	22:50	16.83	2.02	18.85	52	980
Sunday									
Columbia Mall- Sherwood Crossing	Columbia Crossing	1	8:00	19:50	11.83	1.42	13.25	55	729
Phase 2: Route 408 Total									6,517

Route 409 (409A and 409B) – Towne Centre Laurel to Elkridge Shopping Center

Service Description

- Route 409 will be renamed 409A and will no longer serve Route 100 Industrial Park.
- Route 409B will be extended to the Towne Centre Laurel and Elkridge Shopping Center.
- North Laurel Community Center will be served by Route 503.
- Ride time on Route 409B from the Towne Centre Laurel to Elkridge Shopping Center will be approximately 50 minutes.



- Existing Route 409 (effective 10/1/2017)
- Existing Route 409B (effective 10/1/2017)
- Proposed Route 409A
- Proposed Route 409B
- Route 501
- Route 503
- Key Time Point

Service Days



Service Span

AM												PM																											
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

	Phase 2	
	409A and 409B Stops NOT Served by Both Routes	409A and 409B Stops Served by Both Routes
Monday - Friday		
AM Peak & PM Peak	every 60 minutes	every 30 minutes
Midday	every 60 minutes	every 30 minutes
Evening	every 60 minutes	every 60 minutes
Saturday		
Daytime	every 60 minutes	every 30 minutes
Evening	every 60 minutes	every 60 minutes
Sunday		
Daytime	-	-
Evening	-	-

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Towne Centre Laurel-Elkridge Shopping Center	MD Food Center, Dorsey MARC Station	3	6:00	21:55	39.75	4.77	44.52	255	11,353
Saturday									
Towne Centre Laurel-Elkridge Shopping Center	MD Food Center, Dorsey MARC Station	3	8:00	20:50	32.50	3.90	36.40	52	1,893
Sunday									
Towne Centre Laurel-Elkridge Shopping Center	MD Food Center, Dorsey MARC Station	-	-	-	-	-	-	-	-
Phase 1: Route 409 Total									13,245

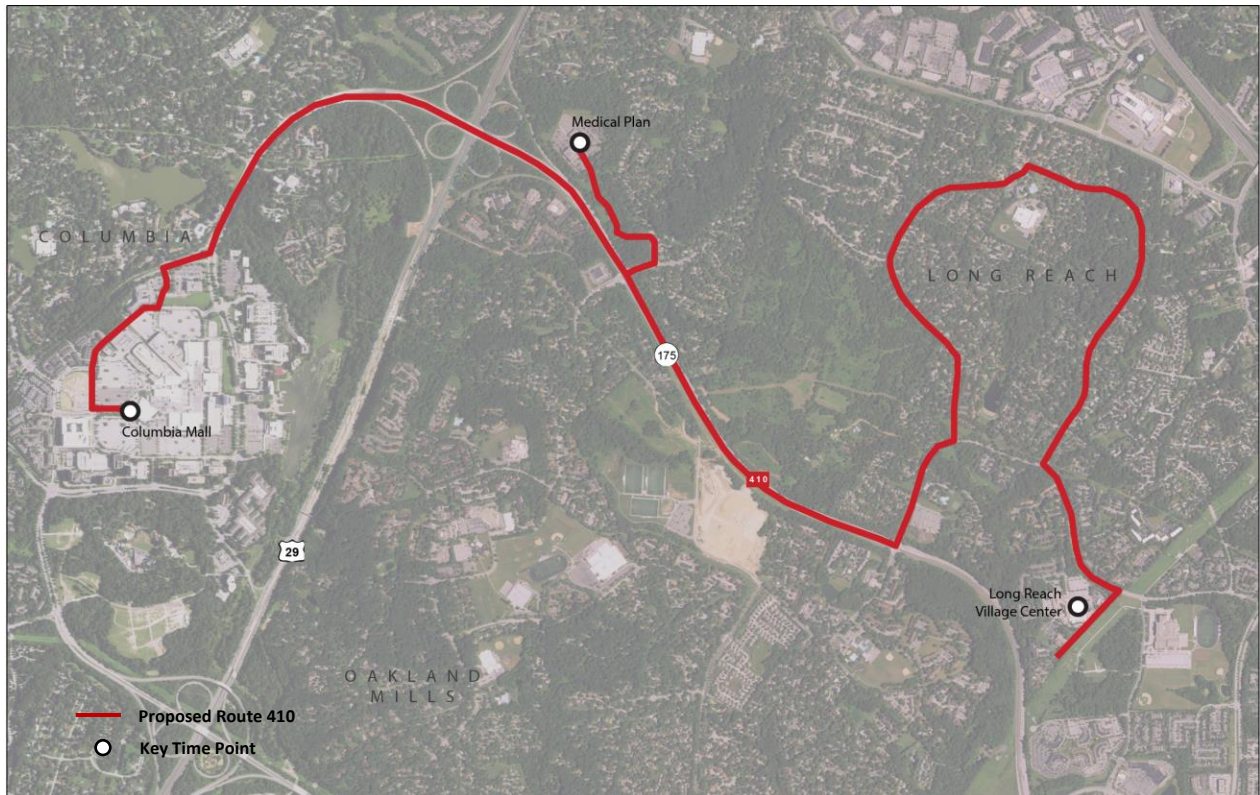
PHASE 2

Monday-Friday									
Towne Centre Laurel-Elkridge Shopping Center	MD Food Center, Dorsey MARC	4	6:00	22:55	57.67	6.92	64.59	255	16,470
Saturday									
Towne Centre Laurel-Elkridge Shopping Center	MD Food Center, Dorsey MARC	4	6:00	22:55	53.67	6.44	60.11	52	3,126
Sunday									
Towne Centre Laurel-Elkridge Shopping Center	MD Food Center, Dorsey MARC Station	-	-	-	-	-	-	-	-
Phase 2: Route 409 Total									19,595

Route 410 – Columbia Mall to Long Reach Village Center

Service Description

- Serves the Columbia Medical Practice Medical Plan (Medical Plan) and Long Reach Village Center.
- Ride time from Columbia Mall to Long Reach Village Center will be approximately 30 minutes.



Service Days



Service Span

	AM											PM																											
	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00			

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Long Reach Village Center	Columbia Medical Practice Medical Plan	1	6:00	18:00	12.00	1.44	13.44	255	3,427
Saturday									
Columbia Mall- Long Reach Village Center	Columbia Medical Practice Medical Plan	1	8:00	18:00	10.00	1.20	11.20	52	582
Sunday									
Columbia Mall- Long Reach Village Center	Columbia Medical Practice Medical Plan	-	-	-	-	-	-	-	-
Phase 1: Route 410 Total									4,010

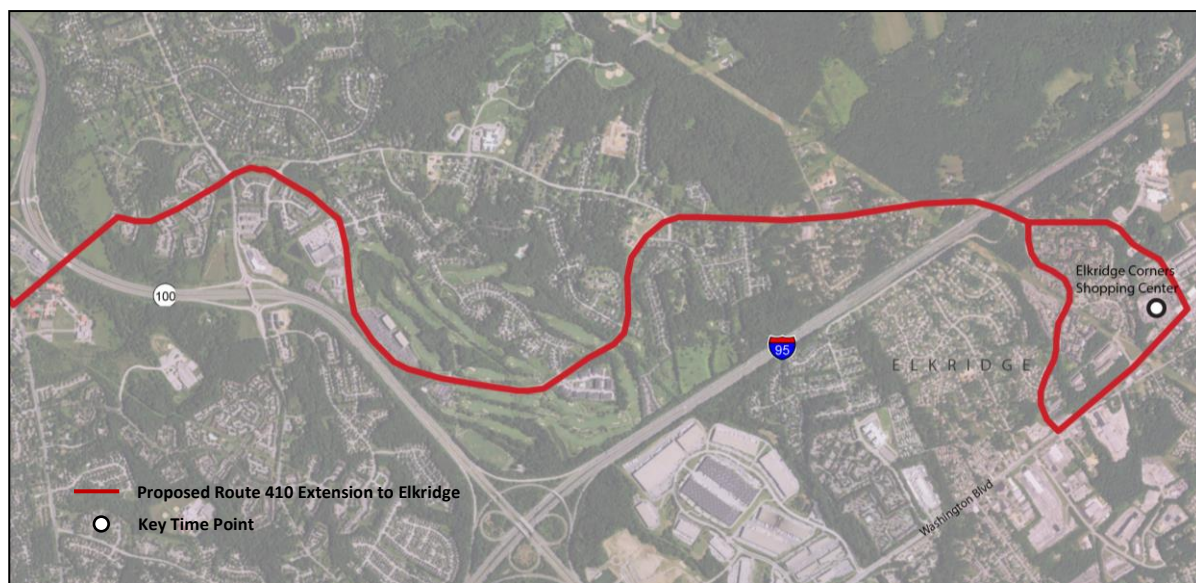
PHASE 2

Monday-Friday									
Columbia Mall- Long Reach Village Center	Columbia Medical Practice Medical Plan	1	6:00	18:00	12.00	1.44	13.44	255	3,427
Saturday									
Columbia Mall- Long Reach Village Center	Columbia Medical Practice Medical Plan	1	8:00	18:00	0.42	1.20	11.20	52	582
Sunday									
Columbia Mall- Long Reach Village Center	Columbia Medical Practice Medical Plan	-	-	-	-	-	-	-	-
Phase 2: Route 410 Total									4,010

Route 410 – Columbia Mall to Elkridge Corners Shopping Center (expansion route)

Service Description

- Provides for a connection to Elkridge from Columbia.
- Will connect with Route 409A and 409B at the Elkridge Corners Shopping Center.
- Ride time from Columbia Mall to Elkridge Corners Shopping Center will be approximately 40 minutes.



Service Span

AM											PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00		
																				Monday - Friday																	
																				Saturday																	
																				Sunday																	

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



Service Characteristics

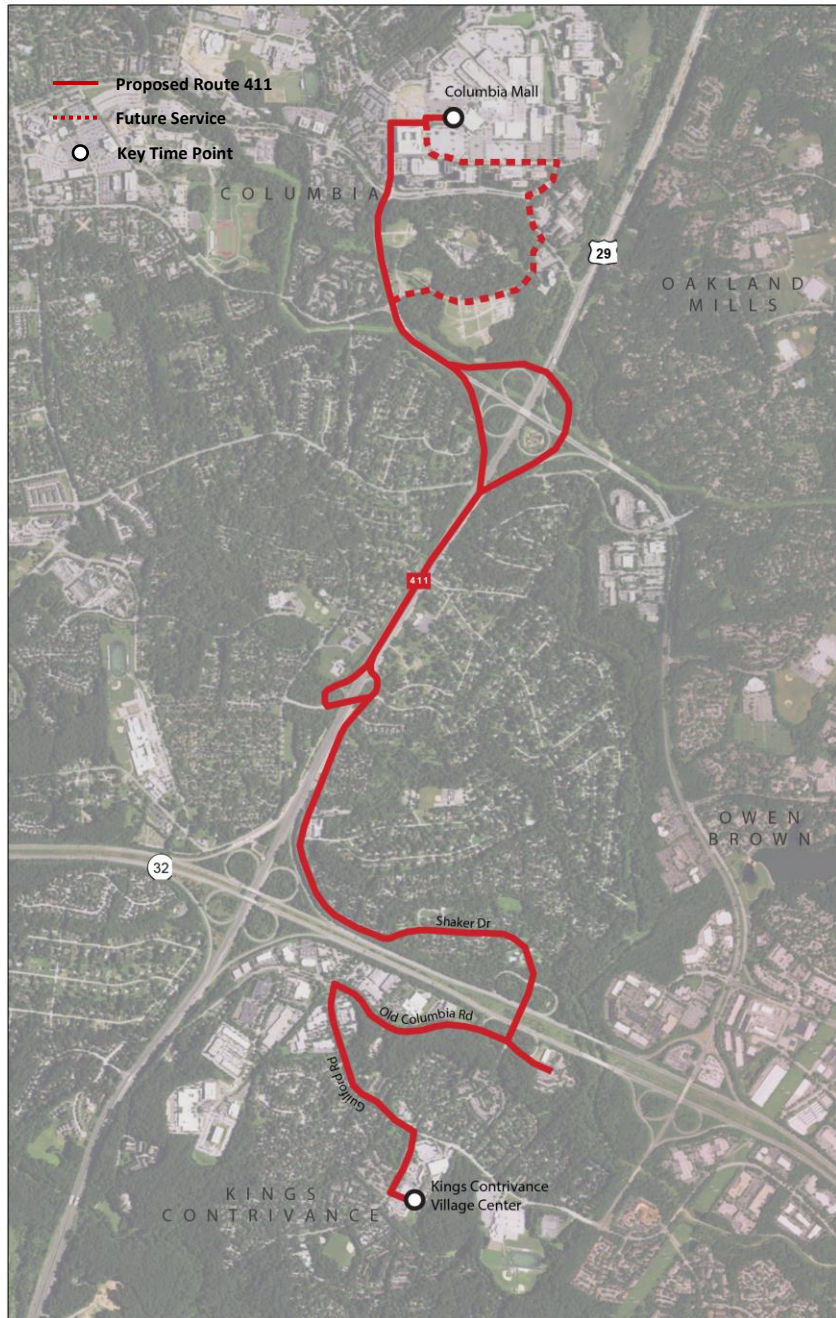
Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours *
Monday-Friday									
Columbia Mall - Elkridge	Columbia Medical Practice Medical Plan; Elkridge	2	6:00	18:00	23	2.76	25.76	255	6,569
Saturday									
Columbia Mall - Elkridge		2	8:00	18:00	19	2.28	21.28	52	1,107
Route 410 Expansion Total									7,675

* Represents the total annual hours of the route. The incremental hours for the expansion to Elkridge are 3,665 hours annually.

Route 411 – Columbia Mall to Kings Contrivance Village Center

Service Description

- Route will be adjusted as the Crescent develops.
- Ride time from Columbia Mall to Kings Contrivance Village Center will be approximately 20 minutes.



Service Days



Service Span

AM														PM																					
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
					Monday - Friday														Phase 1 & 2																
					Saturday														Phase 1 & 2																
					Sunday														Phase 1 & 2																

Service Frequency

	Phase 1	Phase 2
Monday - Friday		
AM Peak & PM Peak	every 60 minutes	every 60 minutes
Midday	every 60 minutes	every 60 minutes
Saturday		
Daytime	every 120 minutes	every 60 minutes
Evening	-	-
Sunday		
Daytime	every 120 minutes	every 120 minutes
Evening	-	-

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday - Friday									
Columbia Mall- Kings Contrivance Village Center	Crescent	1	6:00	17:50	11.83	1.42	13.25	255	3,380
Saturday									
Columbia Mall- Kings Contrivance Village Center <i>(Interline with 406)</i>	Crescent	1	8:00	17:50	9.83	1.18	11.01	52	286
Sunday									
Columbia Mall- Kings Contrivance Village Center <i>(Interline with 406)</i>	Crescent	1	8:00	17:50	9.83	1.18	11.01	55	303
Phase 1: Route 411 Total									3,969

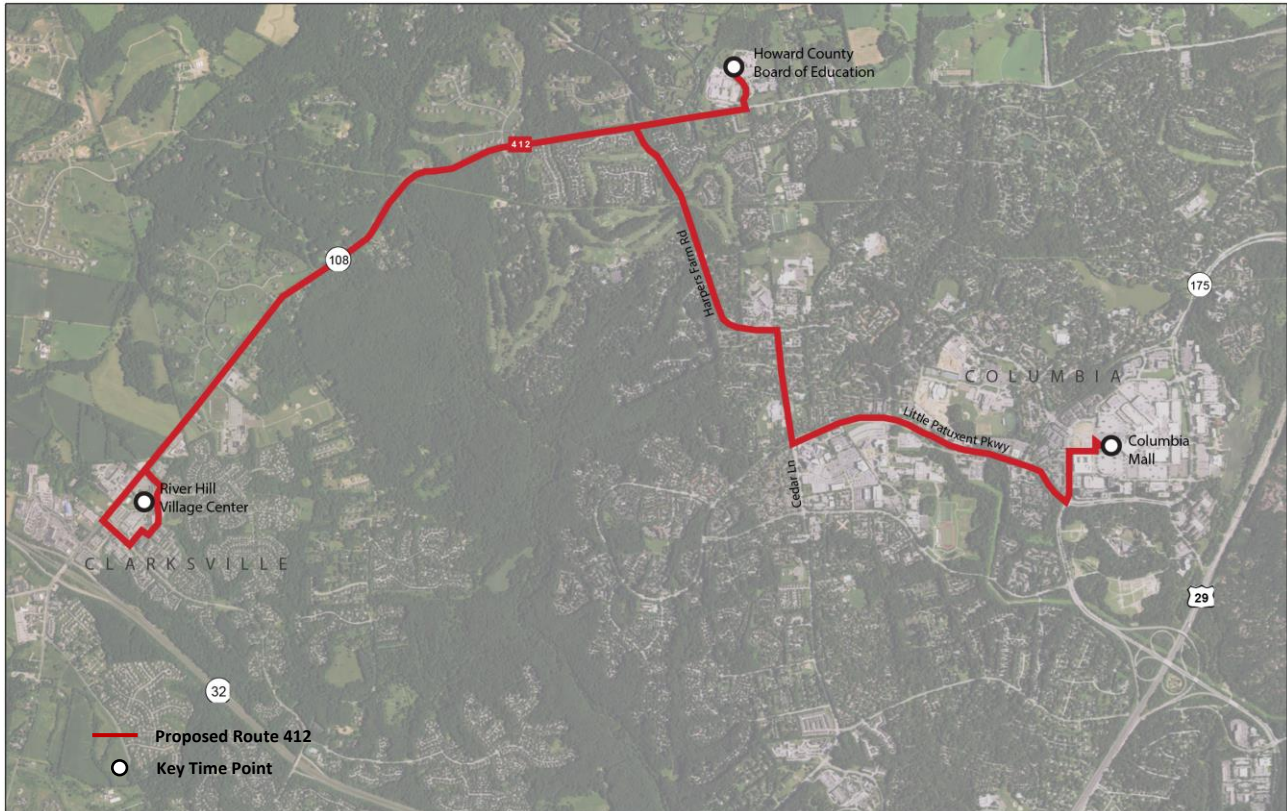
PHASE 2

Monday - Friday									
Columbia Mall- Kings Contrivance Village Center	Crescent	1	6:00	17:50	11.83	1.42	13.25	255	3,380
Saturday									
Columbia Mall- Kings Contrivance Village Center	Crescent	1	8:00	17:50	9.83	1.18	11.01	52	573
Sunday									
Columbia Mall- Kings Contrivance Village Center <i>(Interline with 406)</i>	Crescent	1	8:00	17:50	9.83	1.18	11.01	55	303
Phase 2: Route 411 Total									4,255

Route 412 – Columbia Mall to Clarksville (expansion route)

Service Description

- Will also serve the Howard County Board of Education.
- Ride time from Columbia Mall to River Hill Village Center will be approximately 30 minutes.



Service Days



Service Span

AM													PM																									
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00			
																			Monday - Friday																			
																			Saturday																			
																			Sunday																			

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



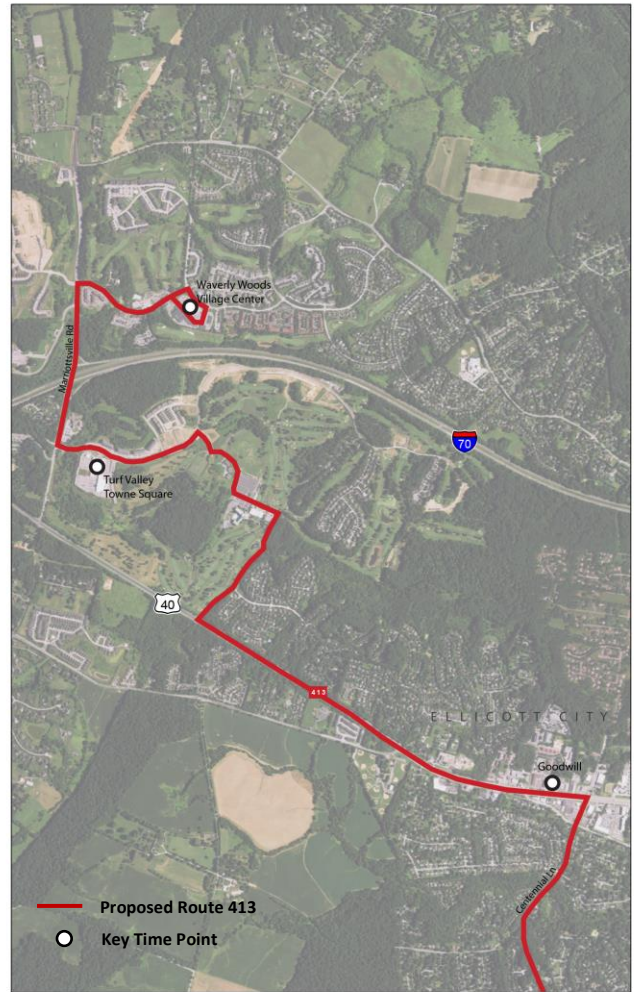
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Clarksville	Howard County Board of Education, River Hill Village Center	1	5:55	22:00	16	1.92	17.92	255	4,570
Saturday									
Columbia Mall- Clarksville	Howard County Board of Education, River Hill Village Center	1	8:00	17:55	10	1.20	11.20	52	582
Route 412 Total									5,152

Route 413 – Columbia Mall to Turf Valley/Waverly Woods (expansion route)

Service Description

- Waverly Woods Village Center, Turf Valley Towne Square, Goodwill, and Centennial High School will be served along the route.
- Ride time between Columbia Mall and Waverly Woods Village Center will be approximately 35 minutes.



Service Days



Service Span

AM													PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 90 minutes
Midday & Evening	every 90 minutes
Saturday	
Daytime	every 90 minutes
Evening	every 90 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



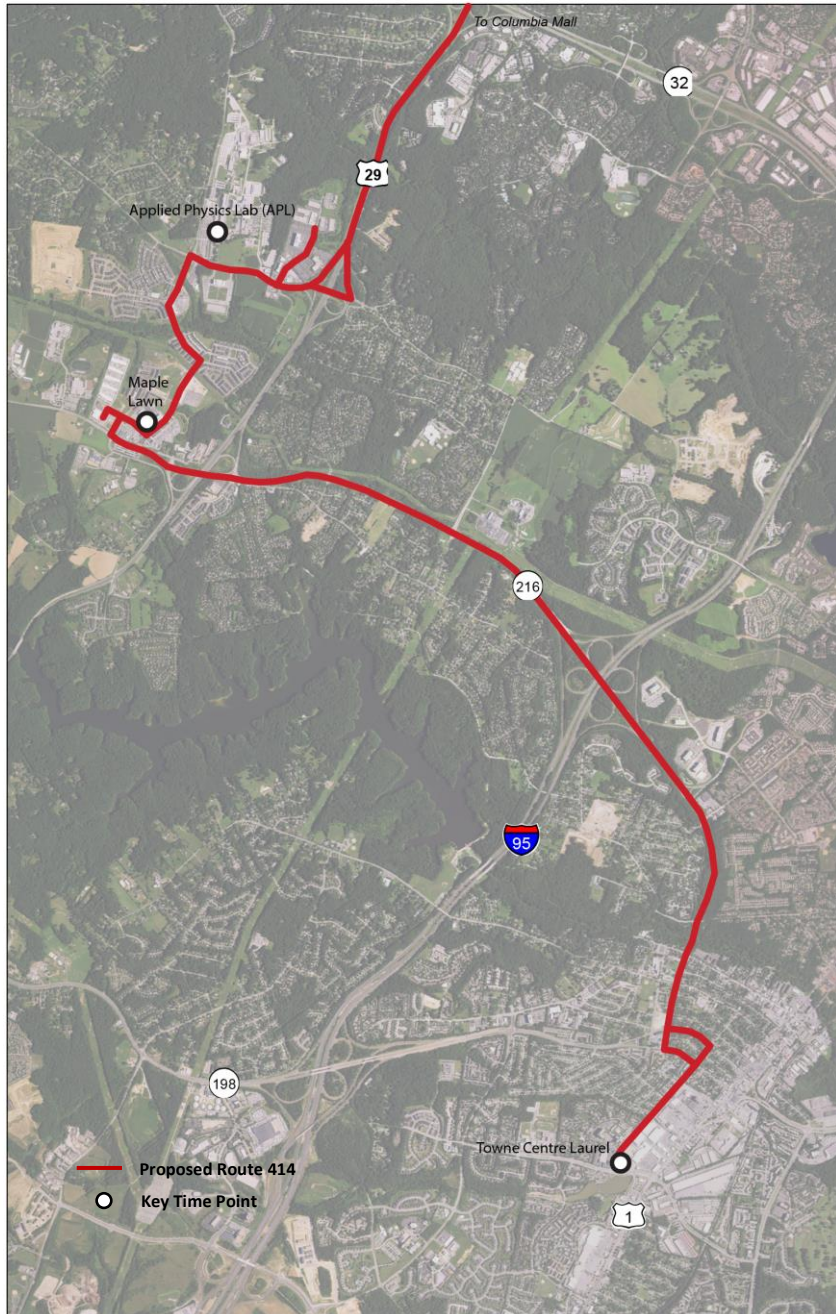
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall-Turf Valley/Waverly Woods Village Center	Goodwill, Centennial High School	1	6:00	19:20	13.33	1.60	14.93	255	3,808
Extension - Saturday									
Columbia Mall-Turf Valley/Waverly Woods Village Center	Goodwill, Centennial High School	1	7:30	19:20	11.83	1.42	13.25	52	689
Route 413 Total									4,497

Route 414 – Columbia Mall to Towne Centre Laurel via Maple Lawn (expansion route)

Route Description

- Serves APL and employment along Montpelier Rd. and Maple Lawn.
- Ride time from Columbia Mall to Towne Centre Laurel through Maple Lawn will be approximately 50 minutes.



Service Days



Service Span

AM														PM																						
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
														Monday - Friday																						
														Saturday																						
														Sunday																						

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



Service Characteristics

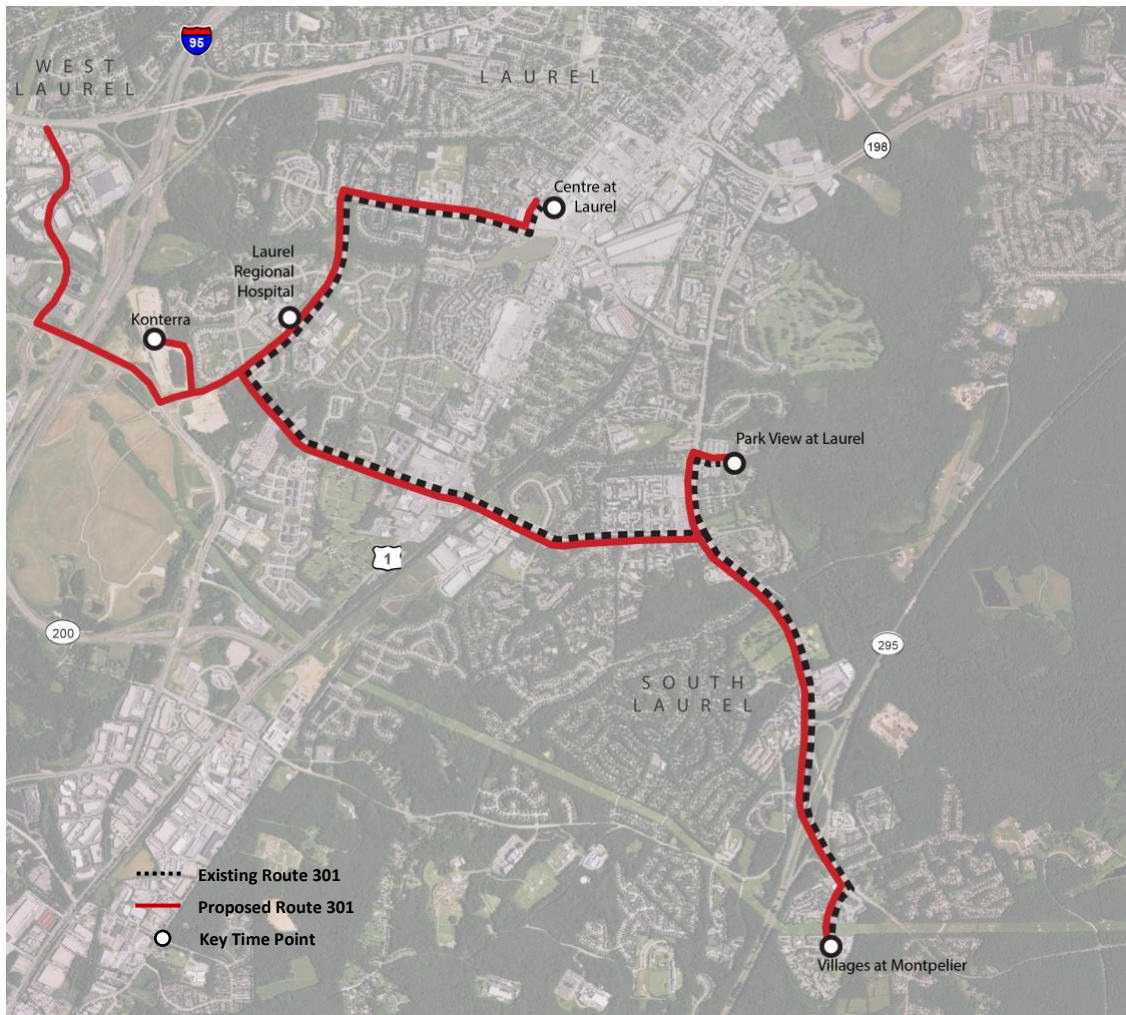
Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall - Towne Centre Laurel	MCIH, APL	2	6:05	20:00	28.00	3.36	31.36	255	7,997
Saturday									
Columbia Mall - Towne Centre Laurel	MCIH, APL	2	8:05	17:55	19.66	2.36	22.02	52	1,145
Route 414 Total									9,142

PRINCE GEORGE'S COUNTY/CITY OF LAUREL

Route 301 – West Laurel/Konterra to South Laurel via Town Centre Laurel

Service Description

- Service to be extended to Konterra and West Laurel.
- Ride time between West Laurel and the Villages of Montpelier will be approximately 45 minutes.



Service Days



Service Span

AM													PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				
																		Monday - Friday																					
																		Saturday																					
																		Sunday																					

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 45 minutes
Midday & Evening	every 45 minutes
Saturday	
Daytime	every 45 minutes
Evening	every 45 minutes
Sunday	
Daytime	every 45 minutes
Evening	every 45 minutes

Number of Peak Vehicles



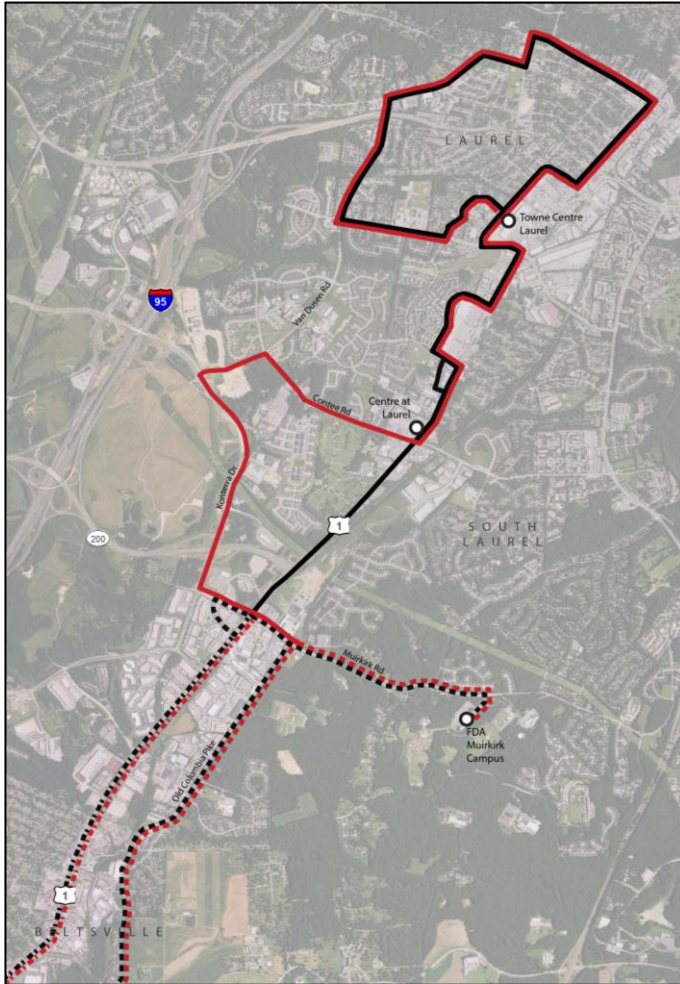
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
South Laurel- West Laurel	Park View at Laurel, Towne Center Laurel, Laurel Regional Hospital, Konterra, Switzer Lane	2	6:00	19:00	13	1.56	14.56	255	7,426
Saturday									
South Laurel- West Laurel	Park View at Laurel, Towne Center Laurel, Laurel Regional Hospital, Konterra, Switzer Lane	2	8:00	19:00	11	1.32	12.32	52	1,281
Sunday									
South Laurel- West Laurel	Park View at Laurel, Towne Center Laurel, Laurel Regional Hospital, Konterra, Switzer Lane	2	8:00	19:00	11	1.32	12.32	55	1,355
Route 301 South Laurel to West Laurel Total									10,062

Route 302 – Towne Centre Laurel to College Park Metro Station

Service Description

- Service will be extended to Konterra.
- Greenbelt Metro Station will be served on weekends only.
- Ride time from Towne Centre Laurel to College Park Metro Station will be approximately 45 minutes.



Service Days



Service Span

AM											PM																								
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
													Monday - Friday																						
													Saturday																						
													Sunday																						

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



Service Characteristics

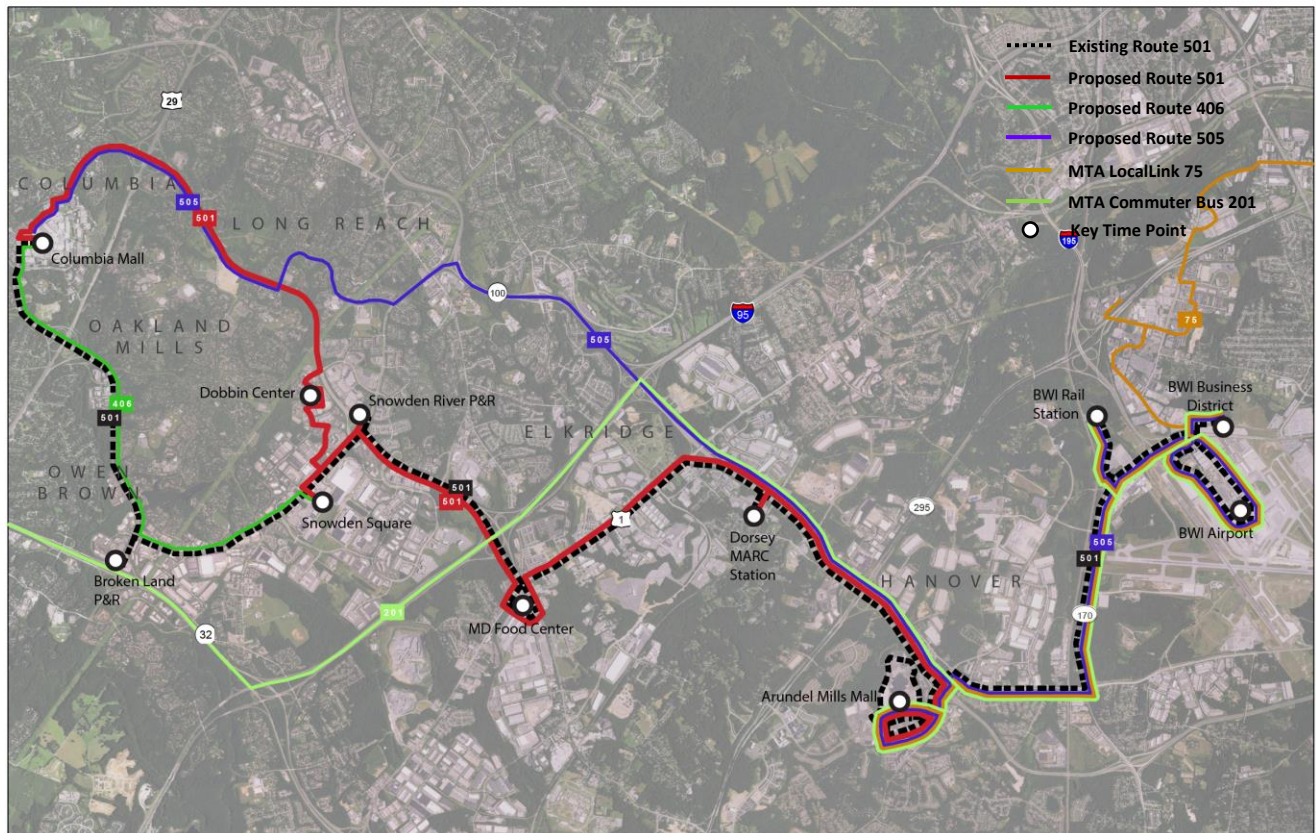
Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Towne Centre Laurel- College Park Metro Station	Laurel Lakes Centre, Contee Crossing, Konterra, FDA Muirkirk Campus, Muirkirk MARC, USDA	3	6:00	21:15	15.25	1.83	17.08	255	13,066
Saturday									
Towne Centre Laurel- College Park Metro Station	Laurel Lakes Centre, Contee Crossing, Konterra, FDA Muirkirk Campus, Muirkirk MARC, USDA, Greenbelt Metro Station	3	9:00	19:15	10.25	1.23	11.48	52	1,791
Sunday									
Towne Centre Laurel- College Park Metro Station	Laurel Lakes Centre, Contee Crossing, Konterra, FDA Muirkirk Campus, Muirkirk MARC, USDA, Greenbelt Metro Station	2	10:00	18:45	8.75	1.05	9.8	55	1,078
Route 302 Towne Centre Laurel to College Park Metrorail Station Total									15,935

REGIONAL SERVICE

Route 501 – Columbia Mall to Arundel Mills Mall

Service Description

- Route 501 will no longer serve BWI airport.
- Not every bus will continue on to Arundel Mills Mall. Buses will turn around at the Snowden Square on every other run.
- Service to BWI airport from Columbia Mall will be served by Route 505.
- Ride time from Columbia Mall to Arundel Mills Mall will be approximately 50 minutes.



Service Days



Service Span

	AM											PM																								
	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00

Service Frequency

	Phase 1		Phase 2
	Columbia Mall to Snowden Square	Snowden Square to Arundel Mills Mall	Entire Route
Monday - Friday			
AM Peak & PM Peak	every 30 minutes	every 60 minutes	every 30 minutes
Midday	every 30 minutes	every 60 minutes	every 30 minutes
Evening	every 60 minutes	every 120 minutes	every 60 minutes
Saturday			
Morning	every 60 minutes	every 120 minutes	every 60 minutes
Midday	every 30 minutes	every 60 minutes	every 30 minutes
Evening	every 60 minutes	every 120 minutes	every 60 minutes
Sunday			
Daytime	every 60 minutes	every 120 minutes	every 60 minutes
Evening	every 60 minutes	every 120 minutes	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- Arundel Mills Mall (Interlined with 407)	Dobbin Center, Snowden Square, MD Food Center, Dorsey MARC Station	3	5:55	22:55	42.54	5.11	47.65	255	12,150
Saturday									
Columbia Mall- Arundel Mills Mall (Interlined with 407)	Dobbin Center, Snowden Square, MD Food Center, Dorsey MARC Station	3	5:55	22:55	40.54	4.87	45.41	52	2,361
Sunday									
Columbia Mall- Arundel Mills Mall (Interlined with 407)	Dobbin Center, Snowden Square, MD Food Center, Dorsey MARC Station	1	8:00	19:55	17.88	2.15	20.02	55	1,101
Phase 1: Route 501 Total									15,612

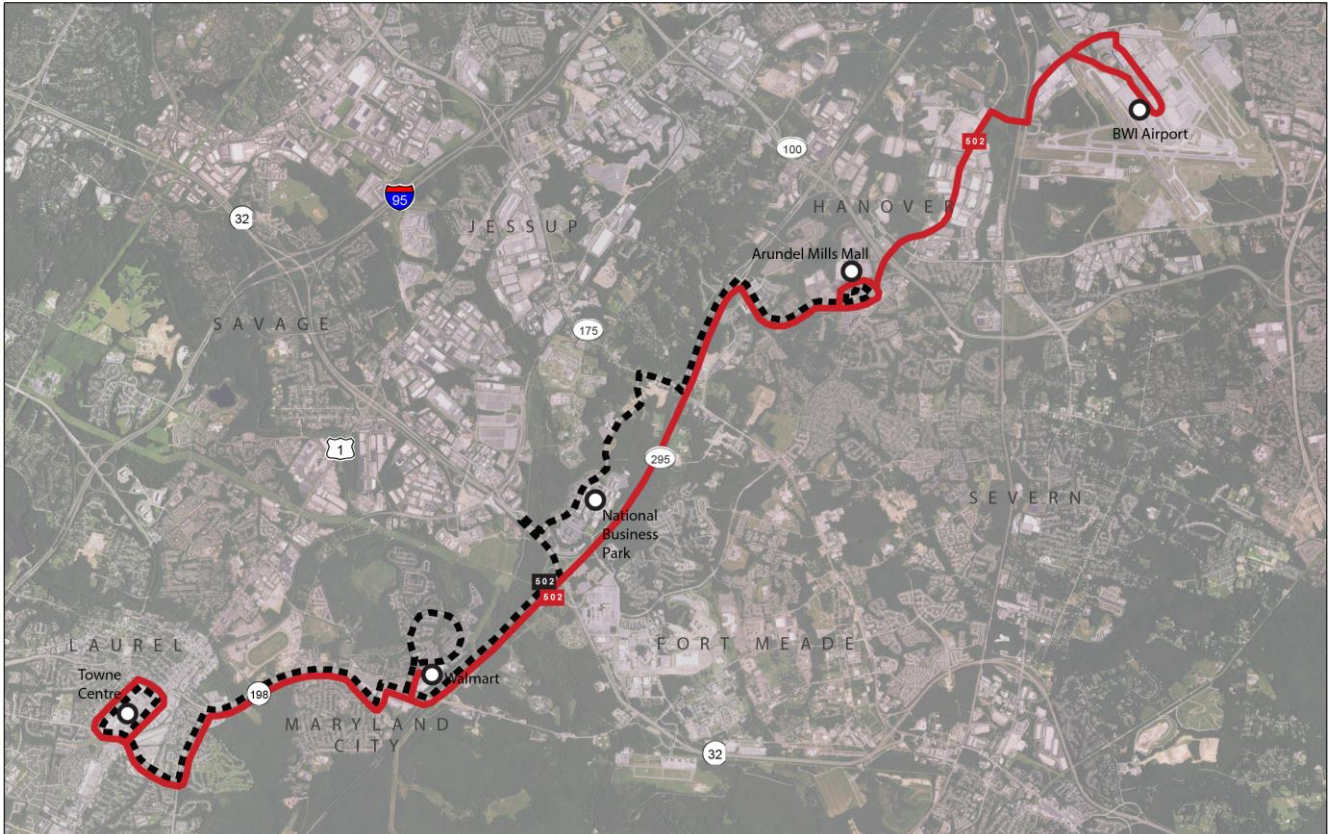
PHASE 2

Monday-Friday									
Columbia Mall- Arundel Mills Mall	Dobbin Center, Snowden Square, MD Food Center, Dorsey MARC Station	4	5:55	22:55	57.67	6.92	64.59	255	16,470
Saturday									
Columbia Mall- Arundel Mills Mall	Dobbin Center, Snowden Square, MD Food Center, Dorsey MARC Station	4	5:55	22:55	53.67	6.44	60.11	52	3,126
Sunday									
Columbia Mall- Arundel Mills Mall	Dobbin Center, Snowden Square, MD Food Center, Dorsey MARC Station	2	7:55	19:55	23.83	2.86	26.69	55	1,468
Phase 2: Route 501 Total									21,063

Route 502 – Towne Centre Laurel to BWI Airport

Service Description

- National Business Park will no longer be served.
- Loop around Russett Green will no longer be served.
- Route 502 will be extended to BWI Airport.
- Ride time from Towne Centre Laurel to BWI airport will be approximately 80 minutes.



- Existing Route 502
- Proposed Route 502
- Key Time Point

Service Days



Service Span

AM													PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 120 minutes
Evening	every 120 minutes
Sunday	
Daytime	every 180 minutes
Evening	every 180 minutes

Number of Peak Vehicles



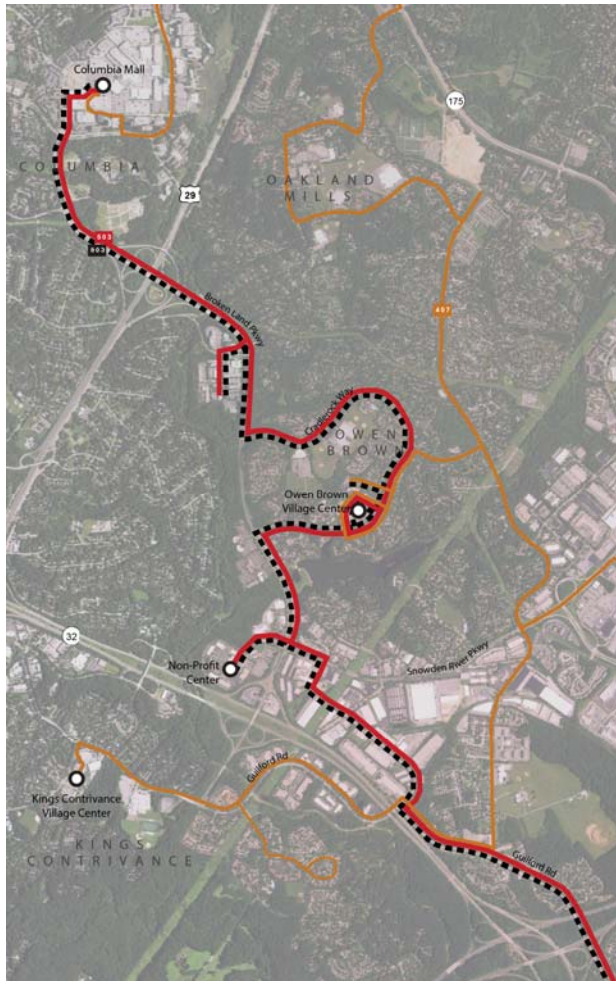
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Towne Centre Laurel- BWI Airport	Maryland City, Fort Meade, Arundel Mills, BWI MARC/Amtrak	3	6:00	22:45	16.75	2.01	18.76	255	14,351
Saturday									
Towne Centre Laurel- BWI Airport	Maryland City, Fort Meade, Arundel Mills, BWI MARC/Amtrak	2	9:00	18:00	9	1.08	10.08	52	1,048
Sunday									
Towne Centre Laurel- BWI Airport	Maryland City, Fort Meade, Arundel Mills, BWI MARC/Amtrak	1	10:00	19:45	8.75	1.05	9.8	55	539
Route 502 Towne Centre Laurel to BWI Airport Route Total									15,939

Route 503 – Columbia Mall to Towne Centre Laurel via Savage

Service Description

- Park View at Owen Brown will no longer be served by Route 503. It will be served by Route 407.
- Ride time from Columbia Mall to Towne Centre Laurel via Savage will be approximately 1:15 minutes.



Service Days



Service Span

AM											PM																								
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
											Monday - Friday																								
											Saturday																								
											Sunday																								

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall-Towne Center Laurel	Owen Brown, Savage Mill	3	5:30	21:15	44.25	5.31	49.56	255	12,638
Saturday									
Columbia Mall-Towne Center Laurel	Owen Brown, Savage Mill	3	7:30	21:15	38.25	4.59	42.84	52	2,228
Sunday									
Columbia Mall-Towne Center Laurel	Owen Brown, Savage Mill	-	-	-	-	-	-	-	-
Phase 1: Route 503 Total									14,865

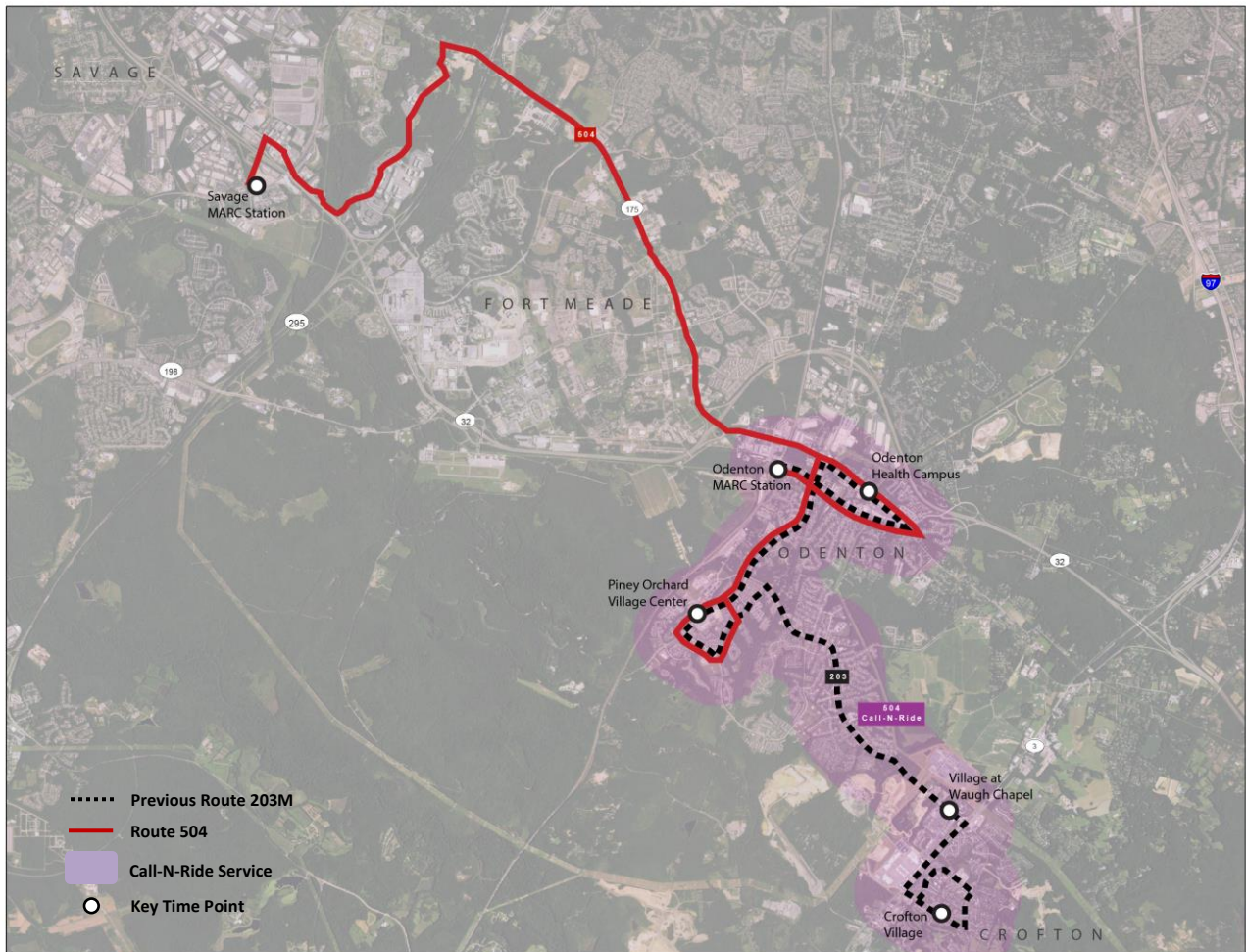
PHASE 2

Monday-Friday									
Columbia Mall-Towne Center Laurel	Owen Brown, Savage Mill	5	5:30	23:15	62.25	7.47	69.72	255	17,779
Saturday									
Columbia Mall-Towne Center Laurel	Owen Brown, Savage Mill	5	7:30	21:15	58.25	6.99	65.24	52	3,392
Sunday									
Columbia Mall-Towne Center Laurel	Owen Brown, Savage Mill	2	8:00	20:00	24	2.88	26.88	55	1,478
Phase 2: Route 503 Total									22,649

Route 504 (Formerly 203M) – Savage MARC to Crofton Village

Service Description

- Previous Route 203M is replaced with a mid-day Call-N-Ride service. Service between Odenton, Piney Orchard, and Crofton will be served by the Call-N-Ride.
- Service between Odenton MARC and Piney Orchard Village Center is served by Route 504.
- Ride time between Savage MARC station and Piney Orchard Village Center will be approximately 50-55 minutes.



Service Days



Service Span

AM											PM																								
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00
											Mid-day Call-N-Ride																								
											Mid-day Call-N-Ride											Monday - Friday													
											Mid-day Call-N-Ride											Saturday													
											Mid-day Call-N-Ride											Sunday													

Service Frequency

	504
Monday - Friday	
AM Peak & PM Peak	every 30 minutes
Midday (Call-N-Ride
Saturday	
Daytime	Call-N-Ride
Evening	-
Sunday	
Daytime	Call-N-Ride
Evening	-

Number of Peak Vehicles



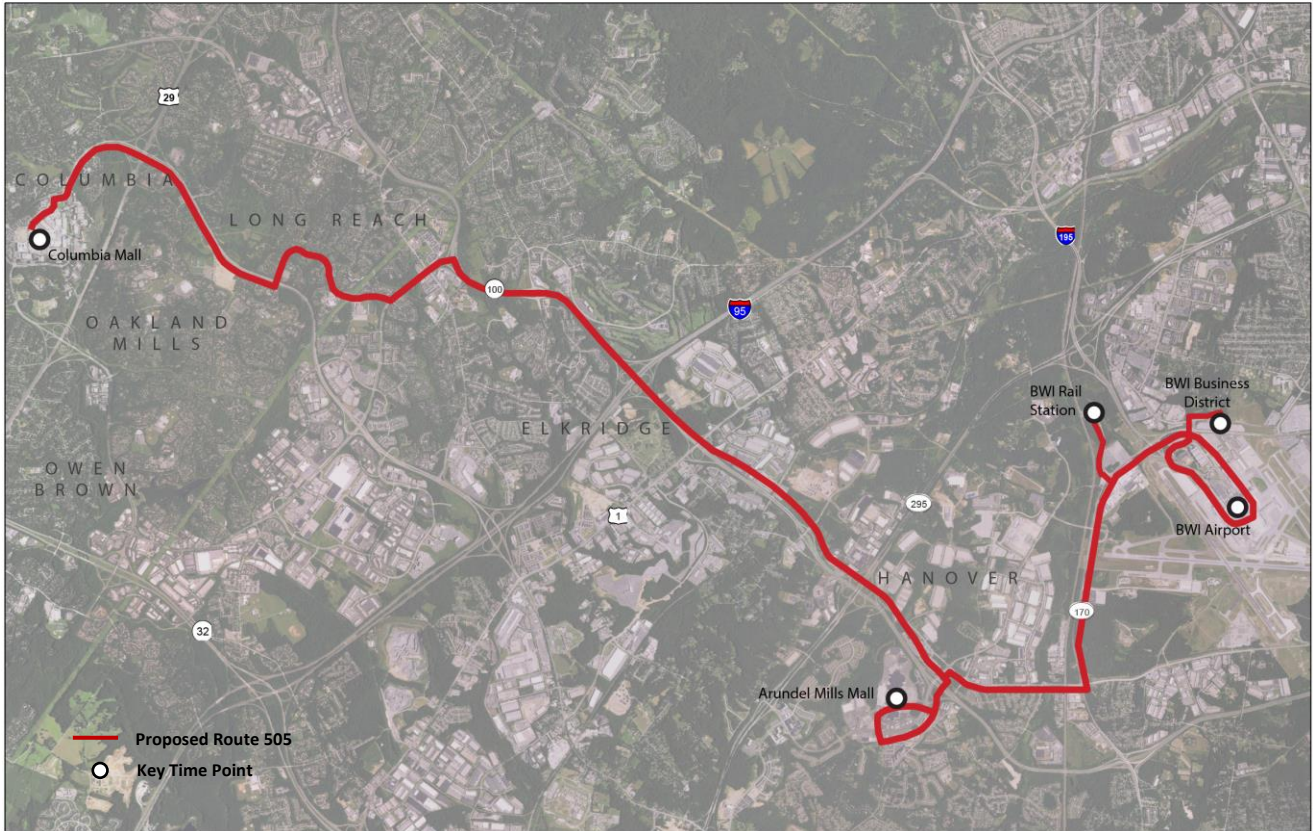
Service Characteristics

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Piney Orchard- Savage MARC	Odenton MARC, Fort Meade, National Business Park	4	5:43	10:30	4.78	0.57	5.36	255	5,464
		4	14:43	18:30	3.78	0.45	4.24	255	4,322
Odenton-Waugh Chapel	Piney Orchard, Odenton MARC	2	10:00	16:00	6	0.72	6.72	255	3,427
Saturday									
Odenton-Waugh Chapel	Piney Orchard, Odenton MARC	2	10:00	19:00	9	1.08	10.08	52	1,048
Sunday									
Odenton-Waugh Chapel	Piney Orchard, Odenton MARC	2	10:00	19:00	9	1.08	10.08	55	1,109
Route 504 Totals									15,371

Route 505 – Columbia Mall to BWI Airport

Service Description

- Provides a more direct connection to BWI airport.
- Ride time from Columbia Mall to BWI airport will be approximately 50 minutes.



Service Days



Service Span

AM													PM																							
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
													Monday - Friday																							
													Saturday																							
													Sunday																							

Service Frequency

	Phase 1
Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday	every 60 minutes
Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	every 60 minutes
Evening	every 60 minutes

Number of Peak Vehicles



Service Characteristics

PHASE 1

Origin/ Destination	Major Intermediate Points	Peak Number of Buses	Proposed Start (A)	Proposed End (A)	Number of Proposed Hours (B)	Deadhead (12%)	Daily Hours	Days of Operation	Annual Hours
Monday-Friday									
Columbia Mall- BWI Airport	Long Reach Village Center, Arundel Mills Mall, BWI Rail Station	2	5:40	23:15	34.42	4.13	38.55	255	9,829
Saturday									
Columbia Mall- BWI Airport	Long Reach Village Center, Arundel Mills Mall, BWI Rail Station	2	5:40	23:15	34.42	4.13	38.55	52	2,004
Sunday									
Columbia Mall- BWI Airport	Long Reach Village Center, Arundel Mills Mall, BWI Rail Station	2	7:05	19:55	25.67	3.08	28.75	55	1,581
Phase 1: Route 505 Total									13,415

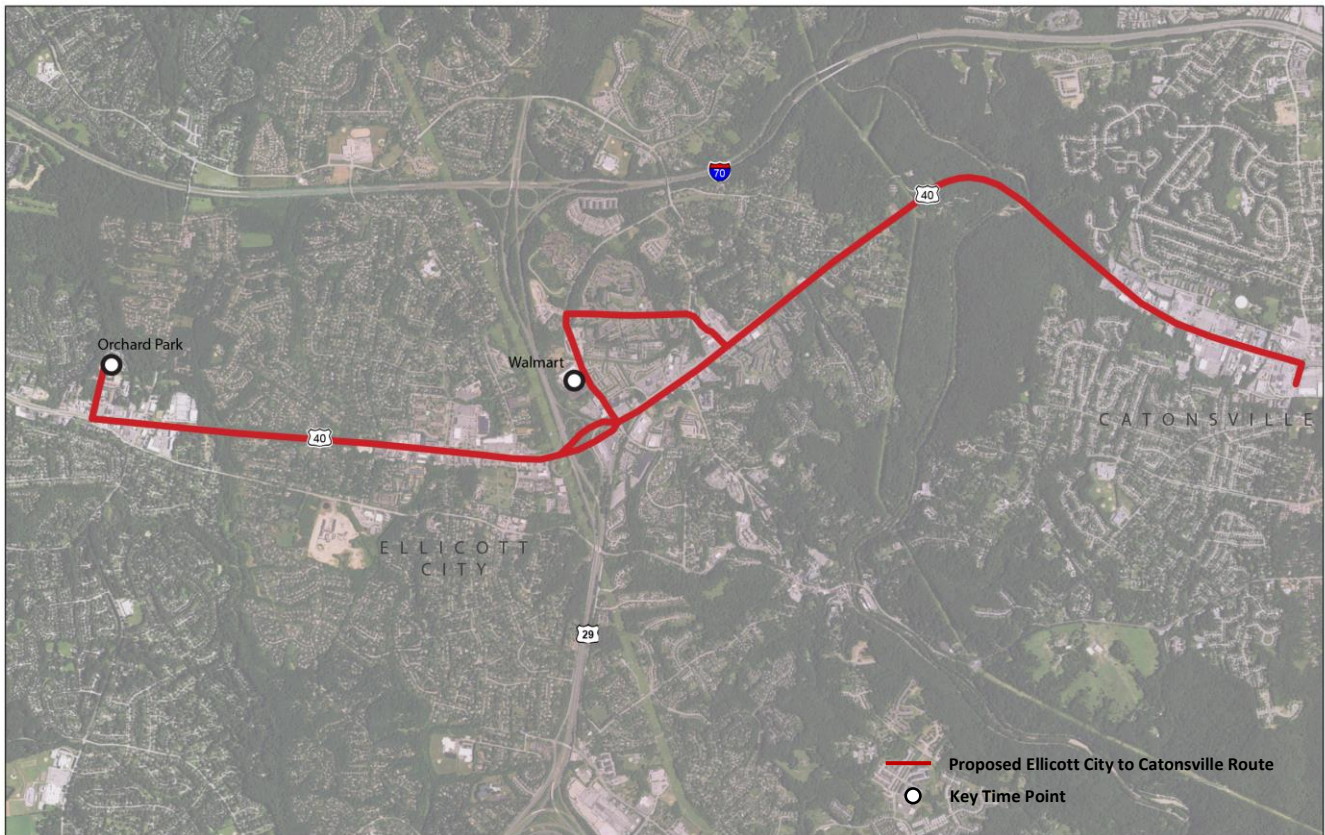
PHASE 2

Monday-Friday									
Columbia Mall- BWI Airport	Long Reach Village Center, Arundel Mills Mall, BWI Rail Station	4	5:40	23:55	57.50	6.9	64.40	255	16,422
Saturday									
Columbia Mall- BWI Airport	Long Reach Village Center, Arundel Mills Mall, BWI Rail Station	4	5:40	23:55	53.50	6.42	59.92	52	3,116
Sunday									
Columbia Mall- BWI Airport	Long Reach Village Center, Arundel Mills Mall, BWI Rail Station	2	7:05	20:55	25.67	3.08	28.75	55	1,581
Phase 2: Route 505 Total									21,119

Ellicott City to Catonsville*

Service Description

- Serves the Walmart in Ellicott City, Orchard Park, Normandy Shopping Center, and Town and Country.
- Connects with MTA bus service in Catonsville.
- Ride time from Orchard Park in Ellicott City to Catonsville is approximately 30 minutes.



* Potential MTA route. Because the service goes beyond the RTA jurisdictions' boundaries, service would need support from MTA and Baltimore County.

Service Days



Service Span

AM													PM																										
5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00				

Service Frequency

Monday - Friday	
AM Peak & PM Peak	every 60 minutes
Midday & Evening	every 60 minutes
Saturday	
Daytime	every 60 minutes
Evening	every 60 minutes
Sunday	
Daytime	-
Evening	-

Number of Peak Vehicles



PHASED IMPLEMENTATION

The individual route proposals constitute the basic building blocks of the TDP, but there is a need to combine them into a phased implementation plan that reflects the interdependencies among the routes and services, and is potentially implementable in terms of funding. Under the current organizational structure, each of the jurisdictions is a separate grant recipient, responsible for grants management and compliance. Each jurisdiction has a different history of providing funding for transit in the central Maryland region, and each will have its own budget for transit in the coming years. For that reason, the phased implementation is presented here as separate phased implementation plans for each jurisdiction. A combined regional table is also presented, although it should be noted that inclusion in the regional table does not necessarily mean that the service would be operated by the RTA.

Howard County

The fixed-route plan for Howard County is presented as two phases, and in addition there are four potential expansion routes. Phase I is a comprehensive restructuring of the routes currently providing coverage in the County, with a goal of shortening routes and increasing frequencies, largely by having multiple routes serve many of the same stops on schedules that are offset to provide higher frequencies (interlining). Because of the use of the interlining and increased transfer opportunities that allow coverage with fewer long meandering routes, it would be most efficient and understandable to the public to implement this phase at one point in time. It will require an increase in operating funds, and the fixed-route fleet will need to be expanded by three vehicles. The capital costs of fleet replacement and expansion are addressed later in this chapter. Phase II builds upon the first phase, adding service. The four expansion routes are essentially independent projects, and the timing of implementation is dependent on local needs and funding availability.

Phase 1: Restructuring: Buses and Hours

Table 6-1 summarizes the number of buses and the estimated service hours required to implement the Phase 1 fixed-route changes that need to be implemented concurrently. The number of buses is the total required for each route. The revenue hours needed to operate each route are taken from the individual route plans presented earlier in this chapter.

Table 6-1: Howard County Phase 1 Buses Required and Service Hours by Route

Route	Origin-Destination	Total Buses Required	Total Annual Hours
401	Columbia Mall - Clary's Forest	2	10,895
402	Ellicott City - Snowden Square	2	9,271
403	Columbia Mall – Dorsey Search Village Center	1	5,397
404	Columbia Mall - Hickory Ridge	1	5,139
405	Columbia Mall - Ellicott City	2	10,675
406	Columbia Mall - Columbia Gateway	1	3,873
407	Columbia Mall - Kings Contrivance Village Center	3	16,160
408	Columbia Mall – Sherwood Crossing	1	6,517
409	Towne Centre Laurel to Elkrige Shopping Center	3	13,245
410	Columbia Mall - Long Reach Village Center	1	4,010
411	Columbia Mall - Kings Contrivance Village Center	1	3,969
501	Columbia Mall - Arundel Mills Mall	3	15,612
503	Columbia Mall – Towne Centre Laurel via Savage	3	14,865
505	Columbia Mall - BWI Airport	2	13,415
Total			133,043

Phase 2: Frequency and Span Improvements: Buses and Hours

The Phase 2 improvements as a package represent the build-out of the current plan for the existing Howard County service area. As can be seen in Table 6-2, the service hours by route vary considerably from the Phase 1 level, with major increases in the service hours for Routes 404, 407, 409, 501, 503 and 505, representing frequency improvements. The increase to 171,788 service hours represents a 30% increase in service levels over Phase 1.

Some of these expansions could be implemented as incremental improvements, once the Phase 1 restructuring has been completed. However, this would depend on budget availability in subsequent years.

Table 6-2: Howard County Phase 2 Buses Required and Hours by Route

Route	Origin-Destination	Total Number of Buses	Total Annual Hours
401	Columbia Mall-Clary's Forest	2	11,096
402	Ellicott City-Snowden Square	2	10,074
403	Columbia Mall – Dorsey Search Village Center	1	5,813
404	Columbia Mall - Hickory Ridge	2	9,611
405	Columbia Mall - Ellicott City	2	10,788
406	Columbia Mall – Columbia Gateway	1	4,411
407	Columbia Mall - Kings Contrivance Village Center	4	21,434
408	Columbia Mall – Sherwood Crossing	1	6,517
409	Towne Centre Laurel – Elkridge Village Center	4	19,595
410	Columbia Mall - Long Reach Village Center	1	4,010
411	Columbia Mall - Kings Contrivance Village Center	1	4,255
501	Columbia Mall - Arundel Mills Mall	4	21,063
503	Columbia Mall – Towne Centre Laurel via Savage	5	22,649
505	Columbia Mall - BWI Airport	4	21,119
Total			172,435

Howard County Expansion Routes: Buses and Hours

Four routes have been proposed for new coverage in Howard County:

- 410 Columbia Mall to Elkridge (expansion of 410 Columbia Mall to Long Reach)
- 412 Columbia Mall to Clarksville
- 413 Columbia Mall to Turf Valley/Waverly Woods
- 414 Columbia Mall to Laurel MARC/Towne Centre via APL and Maple Lawn

Prioritization and phasing will need to be determined based on funding availability. The more direct connection between Columbia and Elkridge is supported by the relatively high level of regional commuting evident in the BMC demand model results; the Clarksville route is the return of a linkage that previously existed and responds to interest in transit from the Village of River Hill and Howard County Public Schools; the Turf Valley route serves a residential and employment growth area. The 414 would provide the first transit link to the County's largest employer, the Johns Hopkins Applied Physics Laboratory (APL), and to the Maple Lawn mixed-use community, which is close to buildout and includes a substantial residential population, much of it at higher densities. APL participated in several TDP meetings and is very interested in transit alternatives to service its campus. The extension of this route to connect with the MARC Camden Line in Laurel would provide enhanced commuting opportunities in both directions.

Table 6-3 presents the number of buses required and the service hours for each of the expansion routes. It includes a line that is a place-holder for the associated ADA paratransit service requirements. Unlike the Phase 1 and Phase 2 expansions which essentially serve areas that already have ADA complementary paratransit, the expansion areas are new coverage, and there is a need to need to serve the ADA eligible population within $\frac{3}{4}$ of a mile of these new fixed-routes with complementary paratransit. Estimating paratransit demand for small areas, at an undefined point in the future is difficult, so to err on the side of caution an additional 15% in service hours is included and used in the subsequent estimate of costs.

Table 6-3: Howard County Expansion Routes Number of Buses and Service Hours

Route	Origin-Destination	Number of Buses	Annual Fixed-Route Hours	15% ADA Hours
410	Columbia Mall –Long Reach: Extension to Elkridge	2	3,665 (Incremental)	550
412	Columbia Mall - Clarksville	1	5,152	773
413	Columbia Mall – Turf Valley/Waverly Woods	1	4,497	675
414	Columbia Mall – Towne Centre Laurel /MARC via Maple Lawn	2	9,142	1,371
Total Hours			22,456	3,369

Estimated Costs—Howard County

Table 6-4 presents the estimated operating costs in 2017 dollars. For the base service, the costs are presented using projected FY 2018 RTA fully-allocated average cost rates of \$75.43 per service hour for fixed route service. The hours shown include the 12% allowance for deadhead and pre/post trip inspections as shown in the individual route tables above. These base rates include the management fee spread over the number of FY 2018 service hours.

However, because the management structure is already in place, and has the capacity to administer the additional fixed-route service, the appropriate cost for the new services beyond the base is the incremental average hourly rate for fixed-route service of \$58.06. In Table 6-4 the incremental hours of the planned services (above and beyond existing service) are separated and costed at the \$58.06 per hour rate to present an estimate of the incremental costs of the TDP proposed expansions. The initial Phase 1 restructuring has an incremental annual operating cost of \$1,367,081 for a total annual fixed-route operating budget of \$9,626,439. Full implementation of Phase 2 adds \$2,287,100 resulting in a total fixed-route operating budget of \$11,913,539. The expansion routes are each presented separately, along with additional ADA service hours are included for the expansion routes at the current

average cost per hour of \$91.15. Three additional paratransit vehicles are included in the capital plan to address this potential need. All of these operating costs are the full cost, and do not include any potential federal/state grant funding.

It should be noted that under the RTA MOU, the 409, the 501, the 503 and the 505 routes cross-jurisdictional lines, and the operating costs would be shared based on the revenue hours in each jurisdiction, so the actual incremental costs would not be quite as high.

Table 6-4: Howard County Fixed-Route Operating Costs

	Total Service Hours	Incremental Expansion Hours	Hourly Rate	Incremental Cost	Incremental ADA for Expansion Routes ¹	Expansion Route Costs	Total Cost: Base Plus Incremental
Existing Base Service Costs	109,497	n/a	75.43	n/a			\$8,259,359
Phase I Incremental Costs (over Base Service)	133,043	23,546	58.06	\$1,367,081			\$9,626,439
Phase 2 Incremental Costs (over Phase 1)	172,435	39,392	58.06	\$2,287,100			\$11,913,539
Expansion Route Costs							
Columbia Mall-Elkridge		3,665	58.06	\$212,790	\$38,605	\$251,395	
Columbia Mall-Clarksville		5,152	58.06	\$299,125	\$54,257	\$353,382	
Columbia Mall-Turf Valley/Waverly Woods		4,497	58.06	\$261,096	\$47,378	\$308,474	
Columbia Mall-Town Centre Laurel via APL/Maple Lawn		9,142	58.06	\$530,785	\$96,230	\$627,015	
Sub-Total: Expansion Routes		22,456	58.06	\$1,303,795	\$236,470	\$1,540,265	
Total Potential Cost: Phase 1, Phase 2 and Expansion Routes							\$13,453,804

(1) Calculated based on 15% additional hours times estimated incremental cost of RTA ADA paratransit of \$70.19 per service hour.

Anne Arundel County

TDP recommendations for Anne Arundel County address improvements in the existing RTA routes with regard to frequency and span of service, some revisions in routing on those routes, and a substantial amount of proposed new service to provide new connections between communities in the County. Because much of the County is developed at relatively low densities, a new kind of service is proposed to provide local community access within communities and at the same time provide first-mile/last-mile connections to MTA, RTA and proposed new fixed-route links.

Demand-Response Zones—Call N'Rides

The new services, named Call N'Rides, are community-based demand-response services, each operating in a limited area. Through telephone requests and phone apps transit riders would be able to summon a ride from their residence or place of employment to a stop where they could connect to fixed-route trunk lines, or to local jobs, shopping and medical services. The service design will vary somewhat in each Call N'Ride service area—some will be pure demand-response, while others will follow a basic route but deviate to pick up and drop off passengers. These services will be individually designed to connect to MTA, RTA and new fixed-routes.

The new county linkages are designed to complement the existing MTA and RTA services, primarily by providing new internal connections between activity centers: Annapolis to BWI and Arundel Mills; Anne Arundel Community College/Severn to Odenton and Fort Meade; Crofton to Annapolis, Glen Burnie and Bowie. The overall vision is the creation of a connected network that would allow transit users access to employment and services.

South County

Currently the South County is served by the demand-response van services now operated by the Office of Transportation. This service is provided to persons age 55 and above, and to persons with disabilities age 18 and above. The service is weekday only, and is arranged by calling the County to schedule trips. Priority is given to medical trips and access to Senior Centers. There is no fare, and all vehicles are accessible. Seniors may also use the County's taxi voucher program to purchase taxi trips at a discounted rate, though the rural nature and long distances of trips serving the southern part of the County may make that a less feasible option than in the more densely populated areas.

In previous TDPs recommendations were made to operate route deviation services in the south County, using rural transit funding provided by the MTA. A vehicle was purchased specifically for this service, but there was very limited ridership and the service was discontinued. In this TDP several areas of the south county were identified as having populations with transit needs, primarily in the Deale, Shadyside and Wayson's Corner areas.

Based on both the density and percentage of persons with transportation needs, the relative need score for these areas is considered low compared to the rest of the County. This area also lacks employment centers.

Given the low density and relatively low need, the approach taken in this TDP is to continue to implement demand-response service, marketing its availability to south County residents, monitor ridership, and based on evidence of usage potentially open up the service to the general public for a fare in a later phase. If a pattern of use is identified, a south county Call N'Ride area or flexible route could potentially be developed as the County gains experience with the Call N'Rides in the more densely populated parts of the County.

Anne Arundel County: Phases 1 to 5

The proposed phasing (Table 6-5) is designed to spread the cost of developing this transit network over at least five phases, though it could actually become a ten-year plan by splitting the phases. The initial phase is designed to improve the existing RTA services funded by the County, followed by implementation of a number of Call N'Ride zones that will connect to existing MTA services including light rail. The third phase implements the connection between Annapolis and BWI/Arundel Mills, along with a connecting Call N'Ride in the south Glen Burnie area. The fourth phase is a cross-county connection from the Anne Arundel Community College to Fort Meade, and the final phase links Crofton to Annapolis, Glen Burnie and Bowie, supported by a local Crofton Call N'Ride.

For the new fixed-route service areas, there will be an increase in the service for which ADA complementary paratransit is required. The existing routes are already served by RTA ADA complementary paratransit, and the Call N'Ride areas are considered demand-response services not requiring ADA complementary paratransit, so there is no additional ADA budgeted for the first two phases. The ADA service cost is estimated as potentially requiring additional service hours equal to 15% of the fixed-route total.

Table 6-5: Anne Arundel County Implementation Phasing by Route and Hours

Route	Peak Buses	Annual Hours
Phase 1: Improve Existing Services		
Route 202 Service Alternative	3	20,811
Route 504 Service Alternative	4	15,371
Route 201 Service Alternative	3	15,477
Phase 1: Sub Total		51,659
Phase 2: Call N'Rides		
Riviera Beach Call N'Ride Service Alternative	2	8,707
Patapsco Light Rail Station to Glen Burnie District Court Call N'Ride Service Alternative	2	8,707
Patapsco Plaza-Cromwell Light Rail Station Call N'Ride Service Alternative	2	9,816
Glen Burnie Call N'Ride Service Alternative	2	9,816
Phase 2: Call N'Rides		37,046
Phase 3: New Route Connections		
Annapolis to Arundel Mills/BWI Route Alternative	3	20,766
South Glen Burnie Call N'Ride Service Alternative	2	9,816
ADA Service-15% of hours of New Fixed-Route Service		3,115
Phase 3: New Route Connections		33,696.90
Phase 4: New Route Connections		
Anne Arundel Community College-NSA Route Service Alternative	3	11,138
Gold	3	15,920
ADA Service-15% of hours of New Fixed-Route Service		4,059
Phase 4: New Route Connections		31,117

Phase 5: Crofton/Waugh Chapel Connections		
Crofton Park and Ride to Annapolis Mall Route Service Alternative	4	12,134
Crofton Call N'Ride Service Alternative	2	8,707
Bowie Town Center to Cromwell Light Rail Station Route Alternative	3	14,724
ADA Service-15% of hours of New Fixed-Route Service		4,029
Phase 5: Crofton/Waugh Chapel Connections		39,594
TOTAL: All Phases		193,113

Anne Arundel Operating Costs

Table 6-6 presents an estimate of the operating costs associated with the five phase plan for transit development in Anne Arundel County. The phasing corresponds to that presented above. The existing level of fixed-route service is presented as the base case, with the estimated hourly cost of \$75.43, based on the fully-allocated RTA FY 2018 estimated operating cost for fixed-route service. Costs for new service hours beyond the current base are estimated at an incremental cost of \$58.06 per service hour for fixed-route service, based on data provided by the RTA that reflects the capacity of the existing management staff to operate additional services. For the Call N'Ride services and additional ADA, an incremental cost per hour of \$70.19 is used in the table. This figure is based on the same ratio of incremental to fully-allocated cost that exists for the fixed-route estimates. The actual cost of these services may be higher or lower, depending on the operator chosen by Anne Arundel County—if operated by the Office of Transportation demand response program, based on current contract costs, they could have a lower hourly cost. If operated by the RTA at its current fully-allocated paratransit rate, the costs per service hour could be higher. If operated by another contractor to the County, they could also differ depending on the bid process. In any event they are likely to be in this range, given that such demand-response services not only have the costs of the operator and the vehicle operation, but also the call center, reservations and dispatch staff.

Table 6-6: Anne Arundel County Fixed-Route Operating Costs

	Existing Base Service Hours	Incremental Expansion Hours	Hourly Rate	Incremental Operating Cost	Total Operating Cost: Base Plus Incremental
Existing Base Service Costs	24,083	n/a	\$75.43	n/a	\$1,816,581
Phase I: Costs (over Base Service)					
Fixed-Route		27,576	\$58.06	\$1,601,063	
Call N'Ride					
ADA Paratransit					
Phase 1 Sub-Total				\$1,601,063	\$3,417,643
Phase 2: Incremental Costs (over Phase 1)					
Fixed-Route					
Call N'Ride		37,046	\$70.19	\$2,600,259	
ADA Paratransit					
Phase 2 Sub-Total				\$2,600,259	\$6,017,902
Phase 3: Incremental Costs (over Phase 2)					
Fixed-Route		20,766	\$58.06	\$1,205,674	
Call N'Ride		9,816	\$70.19	\$688,985	
ADA Paratransit		3,115	\$70.19	\$218,642	
Phase 3 Sub-Total				\$2,113,301	\$8,131,203
Phase 4: Incremental Costs (over Phase 3)					
Fixed-Route		27,058	\$58.06	\$1,570,987	
Call N'Ride					
ADA Paratransit		4,059	\$70.19	\$284,901	
Phase 4 Sub-Total				\$1,855,889	\$9,987,092
Phase 5: Incremental Costs (over Phase 4)					
Fixed-Route		26,858	\$58.06	\$1,559,375	
Call N'Ride		8,707	\$70.19	\$611,144	
ADA Paratransit		4,029	\$70.19	\$282,796	
Phase 5 Sub-Total				\$2,453,315	\$12,440,407

Prince George's County

The RTA services provided in Prince George's County have also been included in the plan, as there are proposed changes to the three routes. Phasing has been proposed for these services, though it is recognized that the County is doing its own separate transit plan, and that could result in different proposed services and/or different priorities for implementation based on the County's assessment of all of its routes including The Bus and Metrobus.

Prince George's County Implementation Phasing

Table 6-7 presents the proposed Prince George's County routes, the changes are potentially implementable in two phases. Though it is a regional route with a majority of its length in Anne Arundel County, the 502 is included in the Prince George's list because it provides local service along Route 198, and then functions to link the Laurel area to Arundel Mills with few opportunities for boarding and alighting at other locations in Anne Arundel County. In an initial phase, the 502 is extended to BWI, providing a link to the airport from Laurel. Under the MOU between the jurisdictions, this service would be funded jointly by Anne Arundel and Prince George's, based on the service hours in each jurisdiction. Initially the current 301 and 302 routes are continued. A second phase includes some minor rerouting of the 302, and adds service to the 301 to provide a route from Laurel Towne Centre to Konterra and then on Switzer Lane to West Laurel. Combined with the existing 301 this offers an east-west connection across Laurel with connections to the north-south services at the Laurel Towne Centre transfer point. Implementation of this change could wait until there is additional development at Konterra.

Table 6-7: Prince George's County Hours and Costs by Route and Phase

Phase	Route	Origin-Destination	Number of Peak Buses	Annual Hours
1	502	Towne Centre Laurel – BWI Airport	3	15,909
2	302	Towne Centre Laurel – College Park Metrorail Station	3	15,876
2	301	South Laurel - West Laurel	2	9,988
Total				41,774

Prince George's County Operating Costs

Table 6-8 presents an estimate of the operating costs to implement the proposed changes. The existing base service includes the 301 service to South Laurel, the 502 to Arundel Mills, and the 302 to College Park. These base hours are shown at the current RTA estimated FY 2018 hourly cost of \$75.43 per service hour. The extensions of the 302 and the 502 are included at the incremental cost of \$58.06. No additional ADA hours are included because of the existing RTA ADA coverage, and the existing Metro Access ADA service area—a very limited portion of the west Laurel route is beyond the existing $\frac{3}{4}$ mile service area.

Table 6-8: Prince George's County Operating Costs

	Existing Base Service Hours	Incremental Expansion Hours	Hourly Rate	Incremental Operating Cost	Total Operating Cost: Base Plus Incremental
Existing Base Service Costs	24,436	n/a	\$75.43	n/a	\$1,843,207
Fixed-Route		17,338	\$58.06	\$1,006,644	
Total Operating Cost All Routes					\$2,849,852

CAPITAL PLAN

The Fleet

Previous chapters have documented that the large number of overage vehicles in the fleet has contributed to unreliable service, and that users want better buses and reliable service. Howard County has funded seven new heavy duty buses which are scheduled for delivery in December 2017. However, the lack of a complete Fleet Management Plan has hampered the ability of the RTA and the counties to be in compliance with state and federal requirements, or to obtain the funding needed to address this problem. While grant funding has helped the paratransit fleet, the last grant funding received for the fixed route fleet was in FY 2012.

In Chapter 4, an inventory of the RTA fleet was used as the basis for a description of the fleet in terms of ownership of the vehicles. Under the RTA's current organizational structure the four partners each have assets used by the system. Each is a separate grant recipient, and MTA compliance monitoring treats each as a separate jurisdiction. Under the MOU signed by all the partners, each jurisdiction can lease its assets to the RTA, replace them through mechanisms outside the RTA, or withdraw them. Consequently, in this TDP the fleet inventory and the fleet replacement and expansion plans are developed separately by jurisdiction, based on ownership, and assessed in terms of the number of peak vehicles needed to provide the services in or on behalf of that jurisdiction.

Despite the separate presentation, the partners could potentially meet the identified needs for the services they obtain from the RTA by sharing in the costs of a unified fleet that would be procured by a single entity, most likely Howard County. Cost shares can be based on the percentage of system service hours operated in each jurisdiction, as proposed by Howard County. However, there are some potential issues. It is not clear how Anne Arundel County, for example, could apply for grant funding for a share of a fleet titled to Howard County—as the RTA is not a legal entity it could not hold title or apply for the grants itself. Also, if an entity decided to leave the RTA, or withdraw its assets, it could be difficult to determine which assets had been funded by that entity—would it take some vehicles? Or would the other partners need to buy them out and retain the vehicles?

Fleet Plans—Replacement of Existing Vehicles and Expansion Vehicles

In the following sections, there are two tables for each jurisdiction. Each table uses data from the RTA Master Fleet inventory regarding the current fleet, ownership, service type, and projected year of eligibility for replacement. The replacement years are based on the MTA minimum life cycle for that type of vehicle:

- Heavy Duty Bus: 12 years or 500,000 miles,
- Medium Duty Bus: 8 years or 250,000 miles,

- Cutaway: 6 years or 200,000 miles, and
- Sedans: 5 years or 100,000 miles.

The format of the tables is based on the vehicle plan format developed for use in MTA procured fleet management plans. The shaded area covers vehicles that are eligible for replacement based on MTA guidelines, those not shaded are not yet eligible. There are two tables for each jurisdiction—one that deals with the replacement of the existing fleet, and the other shows the fleet plan that could potentially be used to replace existing vehicles and implement proposed expansions. These are illustrative—none of the partners has made a commitment to a particular level or order of expansion. This second table shows the level of resources that would be needed for full implementation—i.e. the investment required to replace all overage vehicles and initiate all the service proposals.

Howard County Fleet Plan

Table 6-9 presents the fleet replacement plan for the existing Howard County owned fleet, including both fixed-route and paratransit vehicles. The table is based on a 2017 draft Fleet Management Plan (FMP), but adjusted to reflect:

- The need for 23 vehicles for the peak, including the three needed for the 503. The 503 connects Columbia Mall and Towne Centre Laurel, and is 90% in Howard County.
- County acquisition (using county funds for a lease/purchase plan) of 7 heavy-duty buses (due for delivery at the end of CY 2017), and 8 cutaways for paratransit—these were not included in the draft FMP.
- Howard County proposed purchase of 6 heavy duty buses in FY 2019 under a lease/purchase plan using county funds.
- A desire to achieve the required maximum 20% spare ratio in the near term.
- The active paratransit fleet of 21 vehicles.

As can be seen, the proposed plan calls for a significant elimination of overage vehicles as the county-funded FY 2018 and FY 2019 vehicles are added to the fleet. This allows a significant reduction in the percentage of vehicles eligible for retirement, from 33% in FY 2017 to 0% in FY 2021, after an increase in FY 2018 as some additional vehicles age.

Table 6-9: Recommended Vehicle Replacement Plan for the Howard County Fleet-Existing Service

Fixed-Route Active Fleet (Howard County Owned)										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1999	NABI	40	Heavy Duty	2	0	0	0	0	0	0
2002	Gillig	40	Heavy Duty	5	0	0	0	0	0	0
2004	Chevy C5500/Eldorado	30	Medium Duty	1	0	0	0	0	0	0
2006	Thomas	30	Heavy Duty	5	0	0	0	0	0	0
2008	Gillig	35	Heavy Duty	2	2	2	0	0	0	0
2009	Gillig	35	Heavy Duty	1	1	1	1	0	0	0
2010 (1)	International/Eldorado	30	Medium Duty	8	8	2	0	0	0	0
2011	Gillig	40	Heavy Duty	3	3	3	3	3	3	3
2013	International/Eldorado	30	Medium Duty	5	5	5	5	5	0	0
2017	BYD	40	Heavy Duty-E (2)	3	3	3	3	3	3	3
2018	TBD	30	Heavy Duty (3)		7	7	7	7	7	7
2019	TBD	35	Heavy Duty (4)			6	6	6	6	6
2020	TBD	30	Medium Duty				5	5	5	5
2021	TBD	35	Heavy Duty						3	3
2022	TBD	30	Medium Duty						3	3
2023	TBD	40	Heavy Duty							0
Total				35	29	29	30	29	30	30
Peak Vehicle Requirement-Base (includes 503)				23	23	23	23	23	23	23
Spare Ratio				34.29%	20.69%	20.69%	23.33%	20.69%	23.33%	23.33%
Number Eligible for Retirement				21	8	2	1	5	0	3
Percentage Eligible for Retirement				60%	28%	7%	3%	17%	0%	10%

(1) Eligible for Retirement based on mileage over 250,000.

(2) Delivered-In Service

(3) Ordered, on assembly line

(4) Budgeted

**Table 6-9: Recommended Vehicle Replacement Plan for the Howard County Fleet- Existing Service
(continued)**

Paratransit										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2014	Ford Fusion	16	Sedan	4	4	4	0	0	0	0
2014	International	32	Medium Duty	1	1	1	1	1	1	0
2014	Ford Phoenix	26	Cutaway	5	5	5	5	0	0	0
2015	Ford Fusion	16	Sedan	3	3	3	3	0	0	0
2015	Ford Phoenix	26	Cutaway	8	8	8	8	8	0	0
2016										
2017	Ford Phoenix	26	Cutaway	8	8	8	8	8	8	8
2018										
2019										
2020	TBD	16	Sedan				4	4	4	4
2021	TBD	16	Sedan					3	3	3
2021	TBD	26	Cutaway					5	5	5
2022	TBD	26	Cutaway						8	8
2023	TBD	32	Medium Duty							1
Total				29	29	29	29	29	29	29
Peak Vehicle Requirement-Base				24	24	24	24	24	24	24
Spare Ratio				17.24%	17.24%	17.24%	17.24%	17.24%	17.24%	17.24%
Number Eligible for Retirement				0	0	4	8	8	1	8
Percentage Eligible for Retirement				0.00%	0.00%	13.79%	27.59%	27.59%	3.45%	27.59%



 Vehicles in shaded areas are eligible for replacement.
 Blank cells mean no vehicles need to be purchased in that year.
 UNK: Unknown

Table 6-10 presents a fleet plan that encompasses the proposed expansions, beginning with Phase 1 in FY 2019, incremental additions to support Phase 2 (or for the expansion routes) between FY 2019 and FY 2022, with full implementation of Phase 2 in FY 2022, and then implementation of the expansion routes in FY 2023. The expansion routes could be implemented in the interim period, with Phase 2 at the end, but the end of period fleet size would be the same.



Table 6-10: Recommended Vehicle Replacement/Expansion Plan for Howard County Fleet-Phase 1, Phase 2, and Expansion

Fixed-Route Active Fleet (Howard County Owned)										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1999	NABI	40	Heavy Duty	2	0	0	0	0	0	0
2002	Gillig	40	Heavy Duty	5	0	0	0	0	0	0
2004	Chevy C5500/Eldorado	30	Medium Duty	1	0	0	0	0	0	0
2006	Thomas	30	Heavy Duty	5	0	0	0	0	0	0
2008	Gillig	35	Heavy Duty	2	2	2	1	0	0	0
2009	Gillig	35	Heavy Duty	1	1	1	1	0	0	0
2010	International/Eldorado	30	Medium Duty	8	8	8	0	0	0	0
2011	Gillig	40	Heavy Duty	3	3	3	3	3	3	3
2013	International/Eldorado	30	Medium Duty	5	5	5	5	5	0	0
2017	BYD	40	Heavy Duty-E	3	3	3	3	3	3	3
2018	TBD	30	Heavy Duty		7	7	7	7	7	7
2019	TBD	35	Heavy Duty			6	6	6	6	6
2020	TBD	30	Medium Duty				9	9	9	9
2021	TBD	35	Heavy Duty					8	8	8
2022	TBD	30	Medium Duty						5	5
2022	TBD	35	Heavy Duty						3	3
2023	TBD	40	Heavy Duty	0						7
Total				35	29	35	35	41	44	51
Peak Vehicle Requirement (1)				23	23	28	28	32	34	39
Spare Ratio				34.29%	20.69%	20.00%	20.00%	21.95%	22.73%	23.53%
Number Eligible for Retirement				21	8	8	1	5	0	3
Percentage Eligible for Retirement				60%	28%	23%	3%	12%	0%	6%

(1) FY 2018 is base existing service level, FY 2019 is Phase 1, 2020-2022 ramp up to full Phase 2, and FY 2023 is four expansion routes.

Table 6-10: Recommended Vehicle Replacement/Expansion Plan for Howard County-Paratransit Fleet-Phase 1, Phase 2, and Expansion (continued)

Paratransit										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2014	Ford Fusion	16	Sedan	4	4	4	0	0	0	0
2014	International	32	Medium Duty	1	1	1	1	1	1	0
2014	Ford Phoenix	26	Cutaway	5	5	5	5	0	0	0
2015	Ford Fusion	16	Sedan	3	3	3	3	0	0	0
2015	Ford Phoenix	26	Cutaway	8	8	8	8	8	0	0
2017	Ford Phoenix	26	Cutaway	8	8	8	8	8	8	8
2020	TBD	16	Sedan				4	4	4	4
2021	TBD	16	Sedan					3	3	3
2021	TBD	26	Cutaway					5	5	5
2022	TBD	26	Cutaway						8	8
2023	TBD	32	Medium Duty							1
2023	TBD	26	Cutaway							6
Total				29	29	29	29	29	29	35
Peak Vehicle Requirement-Base				24	24	24	24	24	24	29
Spare Ratio				17.24%	17.24%	17.24%	17.24%	17.24%	17.24%	17.14%
Number Eligible for Retirement				0	0	4	8	8	1	8
Percentage Eligible for Retirement				0.00%	0.00%	13.79%	27.59%	27.59%	3.45%	22.86%

 Vehicles in shaded areas are eligible for replacement.
 Blank cells mean no vehicles need to be purchased in that year.
 UNK: Unknown

Anne Arundel County

With fewer routes, and only two county-owned vehicles in the RTA fleet, the existing service fleet replacement table for Anne Arundel is much shorter as can be seen in Table 6-11. It includes replacements for six vehicles used in Anne Arundel service that are owned by Transit Management of Central Maryland (the RTA). Both sets of vehicles are eligible for retirement. The RTA provides ADA complementary paratransit for the RTA routes in Anne Arundel, and so a single paratransit vehicle is included to ensure that the Anne Arundel portion could meet its ADA obligations if the active RTA paratransit fleet (which is all owned by Howard County) was in use elsewhere.

The second table for Anne Arundel County presents the fleet requirements for a phased implementation of all the proposed TDP services. Table 6-12 assumes a phased implementation over five years. A combination of heavy duty and medium duty buses is proposed for the fixed-routes, and a substantial number of cutaways for the Call N Ride zone implementation. Because the new fixed-routes include an ADA obligation, and serve areas that currently have no transit, additional ADA paratransit vehicles are included in the out years when the new fixed-routes would be implemented. Depending on the integration and

utilization of the fleet used for seniors and persons with disabilities services, these additional ADA vehicles may or may not be needed.

Prince George's County

Table 6-13 presents a replacement plan for the five RTA vehicles owned by Prince George's County. They are eligible for retirement, and that has been included in FY 2019. With a peak vehicle requirement of five vehicles for the 301, 302 and 502 routes, a sixth vehicle provides a single spare. This keeps the spare ratio under the desired 20%, but it demonstrates the advantage of a combined fleet in that there may be occasions where a second spare is needed to maintain service. No ADA paratransit vehicles are included because Prince George's County does not own any of the RTA paratransit fleet, and because of the overlap with Metro Access ADA service.

However, in the expansion table for Prince George's, Table 6-14, additional vehicles are included for extending the 502 from Arundel Mills to BWI Airport (the miles are in Anne Arundel, but the purpose is to link Laurel to BWI), and for extension of the 301 from Laurel Towne Centre to Konterra and West Laurel.

Table 6-11: Recommended Vehicle Replacement/Expansion Plan for Anne Arundel County-Fixed Route and Paratransit Fleet-Base Service

Fixed-Route										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2002	Gillig	30	Heavy Duty	6	2	0	0	0	0	0
2010	International	32	Medium Duty	2	2	0	0	0	0	0
2017	TBD									
2018	TBD	30	Medium Duty		4	4	4	4	4	4
2019	TBD	35	Heavy Duty			3	3	3	3	3
2020	TBD	30	Medium Duty							
2021	TBD	35	Heavy Duty							
2022	TBD	30	Medium Duty							
2023	TBD	40	Heavy Duty							
Total				8	8	7	7	7	7	7
Peak Vehicle Requirement-Base				6	6	6	6	6	6	6
Spare Ratio				25.00%	25.00%	14.29%	14.29%	14.29%	14.29%	14.29%
Number Eligible for Retirement				8	4	0	0	0	0	0
Percentage Eligible for Retirement				100%	50%	0%	0%	0%	0%	0%
Paratransit										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2017	TBD									
2018	TBD	26	Cutaway	0	1	1	1	1	1	1
2019	TBD									
2020	TBD									
2021										
2022	TBD									
2023	TBD									
Total				0	1	1	1	1	1	1
Peak Vehicle Requirement-Base				1	1	1	1	1	1	1
Spare Ratio				0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Number Eligible for Retirement				0	0	0	0	0	0	0
Percentage Eligible for Retirement				0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



 Vehicles in shaded areas are eligible for replacement.
 Blank cells mean no vehicles need to be purchased in that year.
 UNK: Unknown

Table 6-12: Recommended Vehicle Replacement/Expansion Plan for Anne Arundel County-Fixed Route Fleet-Base Service plus Phased Expansions

Fixed-Route										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2002	Gillig	30	Heavy Duty	6	2	0	0	0	0	0
2010	International	32	Medium Duty	2	2	0	0	0	0	0
2017	TBD									
2018	TBD	30	Medium Duty		4	4	4	4	4	4
2019 (1)	TBD	35	Heavy Duty			8	8	8	8	8
2020 (2)	TBD	24	Cutaways				10	10	10	10
2021 (3)	TBD	24	Cutaways					3	3	3
2021 (3)	TBD	35	Heavy Duty					3	3	3
2022 (4)	TBD	30	Medium Duty						3	3
2023 (5)	TBD	35	Heavy Duty							4
2023 (5)	TBD	24	Cutaways							2
Total				8	8	12	22	28	31	37
Peak Vehicle Requirement-Base				6	6	10	18	23	26	30
Spare Ratio				25.00%	25.00%	16.67%	18.18%	17.86%	16.13%	18.92%
Number Eligible for Retirement				8	4	0	0	0	0	0
Percentage Eligible for Retirement				100%	50%	0%	0%	0%	0%	0%

- (1) Improved 201 and 202
- (2) Expansion-Four Call N'Rides
- (3) Expansion-Annapolis-Arundel Mills/BWI, South Glen Burnie Call N'Ride, Gold Route Frequency Improvement
- (4) Expansion-Anne Arundel Community College-Fort Meade
- (5) Expansion-Crofton Call N'Ride, Bowie-Crofton-Glen Burnie route, Crofton-Annapolis route.

Table 6-12: Recommended Vehicle Replacement/Expansion Plan for Anne Arundel County-Fixed Route Fleet-Base Service plus Phased Expansions (continued)

Paratransit (Not including former DOAD vehicles)										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2021	TBD	16	Cutaway					2	2	2
2022	TBD	16	Cutaway						2	2
2023	TBD	16	Cutaway							2
Total				0	0	0	0	2	4	6
Peak Vehicle Requirement-Base				0	0	0	0	2	3	5
Spare Ratio								0.00%	25.00%	16.67%
Number Eligible for Retirement								0	0	0
Percentage Eligible for Retirement								0.00%	0.00%	0.00%

Vehicles in shaded areas are eligible for replacement.
 Blank cells mean no vehicles need to be purchased in that year.
 UNK: Unknown

Table 6-13: Recommended Vehicle Replacement/Expansion Plan for Prince George's County-Fixed Route Fleet-Base Service

Fixed-Route										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2006	Thomas	30	Heavy Duty	5	5	0	0	0	0	0
UNK										
2017	TBD									
2018	TBD									
2019	TBD	30	Heavy Duty			6	6	6	6	6
2020	TBD	24	Cutaways							
2021	TBD	24	Cutaways							
2022	TBD	30	Medium Duty							
2023	TBD	35	Heavy Duty							
Total				5	5	6	6	6	6	6
Peak Vehicle Requirement-Base				5	5	5	5	5	5	5
Spare Ratio				0.00%	0.00%	16.67%	16.67%	16.67%	16.67%	16.67%
Number Eligible for Retirement				5	5	0	0	0	0	0
Percentage Eligible for Retirement				100%	100%	0%	0%	0%	0%	0%





 Vehicles in shaded areas are eligible for replacement.
 Blank cells mean no vehicles need to be purchased in that year.
 UNK: Unknown

Table 6-13: Recommended Vehicle Replacement/Expansion Plan for Prince George's County-Fixed Route Fleet-Base Service Plus Phased Expansions (continued)

Fixed-Route										
Model Year	OEM	Length	Type	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
2006	Thomas	30	Heavy Duty	5	5	0	0	0	0	0
2017	TBD									
2018	TBD									
2019	TBD	30	Heavy Duty			6	6	6	6	6
2020	TBD	30	Heavy Duty				2	2	2	2
2021	TBD									
2022	TBD									
2023	TBD									
Total				5	5	6	8	8	8	8
Peak Vehicle Requirement-Base plus phased Expansion				5	5	5	6	7	7	7
Spare Ratio				0.00%	0.00%	16.67%	25.00%	12.50%	12.50%	12.50%
Number Eligible for Retirement				5	5	0	0	0	0	0
Percentage Eligible for Retirement				100%	100%	0%	0%	0%	0%	0%

 Vehicles in shaded areas are eligible for replacement.
 Blank cells mean no vehicles need to be purchased in that year.
 UNK: Unknown

Estimated Costs

Vehicle costs used in projecting fleet costs were taken from the MTA grant application for medium-duty and cutaway buses, from the Howard County heavy-duty bus procurement, and an estimate of \$25,000 was used for sedans. The estimated costs used in the tables are based on:

- Heavy Duty Bus: \$360,764 + Genfare Farebox \$15,000 = \$375,764
- Medium Duty Bus: \$218,972 including \$15,000 Genfare Farebox
- Cutaway: \$83,363 + Genfare Farebox \$15,000 in vehicles used in fixed-route or Call N Ride service = \$98,363
- Sedan: \$25,000

These prices were inflated by 4% per year over the planning period to allow for cost increases. The bus prices are based on vehicles using current standard diesel technology, as alternative fuel vehicles are currently significantly more expensive and potentially have maintenance and reliability issues. The current demonstration project involving electric buses will provide an experience base at the RTA for such vehicles, and it is possible that in the later years of the plan alternative fuel vehicles will become cost competitive (both capital and operating). However, at this point in time there is a need to use the available capital to procure as many new vehicles as possible.

It should be noted that all future bus procurements have the cost of electronic registering fareboxes included. A separate line item will have to be developed for adding fareboxes to existing vehicles that have several years of use in them, and for cutaways used in fixed-route or Call N Ride service.

Table 6-15 presents the estimated costs for each jurisdiction for both the replacement-only scenario and the full service expansion scenario. It is quite likely that the expansion path for services in each jurisdiction will vary from that put forward in this table, and that this plan implementation might well stretch out over more years—but the tables do answer the question—What would it take to fix the fleet and implement all these changes over the five-year TDP period?

For Howard County, the estimated cost of vehicle capital to bring the fleet into a state of good repair for the existing service would require an additional \$5,050,480 over and above the amount funded in FY 2017 and 2018 (deliveries in FY 2018 and 2019) for 13 heavy-duty buses. The estimated \$5.1 million amount would be spread over four years. Vehicle capital for all the planned expansions would add \$8,819,606 over and above the replacement of the existing fleet (including the 13 buses already funded).

For Anne Arundel, most of the cost is related to the expansion of service. Fleet replacement for the existing vehicles would require \$1,218,279 (over and above the funds for the four FY 2018 medium-duty buses), while expansion vehicle costs for the entire plan would require an additional \$9,509,633 over the period FY 2019-2023.

Prince George's County's replacement of the in the RTA fleet that it owns would require \$2,438,558, and expansion as outlined in the plan would add \$845,367 in capital to operate the expanded routes.

Table 6-15: Summary of Fleet Plans - Howard County and Anne Arundel County

County	Base Unit Cost	2018		2019		2020		2021		2022		2023		Total for Years 2018-2023		
		Number	Price	Total	Number	Price	Total	Number	Price	Total	Number	Price	Total			
Howard County																
Base Replacement																
Heavy Duty	\$375,764	7	\$390,795	\$2,735,562	6	\$406,426	\$2,438,558	\$422,683	\$0	\$439,591	\$0	3	\$457,174	\$1,371,523	\$475,461	\$0
Medium Duty	\$218,972		\$227,731	\$0		\$236,840	\$0	\$246,314	\$1,231,569	\$256,166	\$0	3	\$266,413	\$799,239	\$277,069	\$277,069
Cutaway + Farebox	\$75,139		\$78,145	\$0		\$81,270	\$0	\$84,521	\$0	\$87,902	\$439,510	8	\$91,418	\$731,345	\$95,075	\$0
Cutaway	\$60,139		\$62,545	\$0		\$65,046	\$0	\$67,648	\$0	\$70,354	\$0		\$73,168	\$0	\$76,095	\$0
Sedan	\$25,000		\$26,000	\$0		\$27,040	\$0	\$28,122	\$112,486	\$29,246	\$87,739	3	\$30,416	\$0	\$31,633	\$0
Total Base Replacement			\$2,735,562			\$2,438,558		\$1,344,055		\$527,249			\$2,902,107		\$277,069	\$10,224,600
With Expansions																
Heavy Duty	\$375,764	7	\$390,795	\$2,735,562	6	\$406,426	\$2,438,558	\$422,683	\$0	\$439,591	\$3,516,726	3	\$457,174	\$1,371,523	\$475,461	\$3,328,229
Medium Duty	\$218,972		\$227,731	\$0		\$236,840	\$0	\$246,314	\$2,216,823	\$256,166	\$0	5	\$266,413	\$1,332,065	\$277,069	\$277,069
Cutaway + Farebox	\$75,139		\$78,145	\$0		\$81,270	\$0	\$84,521	\$0	\$87,902	\$439,510	8	\$91,418	\$731,345	\$95,075	\$0
Cutaway	\$60,139		\$62,545	\$0		\$65,046	\$0	\$67,648	\$0	\$70,354	\$0		\$73,168	\$0	\$76,095	\$456,570
Sedan	\$25,000		\$26,000	\$0		\$27,040	\$0	\$28,122	\$112,486	\$29,246	\$87,739	3	\$30,416	\$0	\$31,633	\$0
Total with Expansions			\$2,735,562			\$2,438,558		\$2,329,310		\$4,043,975			\$3,434,932		\$4,061,869	\$19,044,206
Anne Arundel County																
Base Replacement																
Heavy Duty	\$375,764		\$390,795	\$0	3	\$406,426	\$1,219,279	\$422,683	\$0	\$439,591	\$0		\$457,174	\$0	\$475,461	\$0
Medium Duty	\$218,972	4	\$227,731	\$910,924		\$236,840	\$0	\$246,314	\$0	\$256,166	\$0		\$266,413	\$0	\$277,069	\$0
Cutaway + Farebox	\$75,139		\$78,145	\$0		\$81,270	\$0	\$84,521	\$0	\$87,902	\$0		\$91,418	\$0	\$95,075	\$0
Cutaway	\$60,139		\$62,545	\$0		\$65,046	\$0	\$67,648	\$0	\$70,354	\$0		\$73,168	\$0	\$76,095	\$0
Sedan	\$25,000		\$26,000	\$0		\$27,040	\$0	\$28,122	\$0	\$29,246	\$0		\$30,416	\$0	\$31,633	\$0
Total Base Replacement			\$910,924			\$1,219,279		\$0		\$0			\$0		\$0	\$2,130,203
With Expansions																
Heavy Duty	\$375,764		\$390,795	\$0	8	\$406,426	\$3,251,411	\$422,683	\$0	\$439,591	\$1,318,772	3	\$457,174	\$0	\$475,461	\$1,301,845
Medium Duty	\$218,972	4	\$227,731	\$910,924		\$236,840	\$0	\$246,314	\$0	\$256,166	\$0	3	\$266,413	\$799,239	\$277,069	\$0
Cutaway + Farebox	\$75,139		\$78,145	\$0		\$81,270	\$0	\$84,521	\$845,212	\$87,902	\$283,706	3	\$91,418	\$0	\$95,075	\$190,150
Cutaway	\$60,139		\$62,545	\$0		\$65,046	\$0	\$67,648	\$0	\$70,354	\$140,708	2	\$73,168	\$146,337	\$76,095	\$0
Sedan	\$25,000		\$26,000	\$0		\$27,040	\$0	\$28,122	\$0	\$29,246	\$0		\$30,416	\$0	\$31,633	\$0
Total with Expansions			\$910,924			\$3,251,411		\$845,212		\$1,723,186			\$945,575		\$2,091,995	\$9,768,303

Table 6-15: Summary of Fleet Plans - Prince George’s County (continued)

County	Base Unit Cost	2018		2019		2020		2021		2022		2023		Total for Years 2018-2023	
		Number	Price	Number	Price	Number	Price	Number	Price	Number	Price	Number	Price		
Prince George’s County															
Base Replacement															
Heavy Duty	\$375,764	\$390,795	\$0	6	\$406,426	\$2,438,558	\$422,683	\$0	\$439,591	\$0	\$457,174	\$0	\$475,461	\$0	
Medium Duty	\$218,972	\$227,731	\$0	\$236,840	\$0	\$246,314	\$0	\$256,166	\$0	\$266,413	\$0	\$277,069	\$0		
Cutaway + Farebox	\$75,139	\$78,145	\$0	\$81,270	\$0	\$84,521	\$0	\$87,902	\$0	\$91,418	\$0	\$95,075	\$0		
Cutaway	\$60,139	\$62,545	\$0	\$65,046	\$0	\$67,648	\$0	\$70,354	\$0	\$73,168	\$0	\$76,095	\$0		
Sedan	\$25,000	\$26,000	\$0	\$27,040	\$0	\$28,122	\$0	\$29,246	\$0	\$30,416	\$0	\$31,633	\$0		
Total Base Replacement			\$0		\$2,438,558		\$0		\$0		\$0		\$0	\$2,438,558	
With Expansions															
Heavy Duty	\$375,764	\$390,795	\$0	6	\$406,426	\$2,438,558	2	\$422,683	\$845,367	\$439,591	\$0	\$457,174	\$0	\$475,461	\$0
Medium Duty	\$218,972	\$227,731	\$0	\$236,840	\$0	\$246,314	\$0	\$256,166	\$0	\$266,413	\$0	\$277,069	\$0		
Cutaway + Farebox	\$75,139	\$78,145	\$0	\$81,270	\$0	\$84,521	\$0	\$87,902	\$0	\$91,418	\$0	\$95,075	\$0		
Cutaway	\$60,139	\$62,545	\$0	\$65,046	\$0	\$67,648	\$0	\$70,354	\$0	\$73,168	\$0	\$76,095	\$0		
Sedan	\$25,000	\$26,000	\$0	\$27,040	\$0	\$28,122	\$0	\$29,246	\$0	\$30,416	\$0	\$31,633	\$0		
Total with Expansions			\$0		\$2,438,558		\$845,367		\$0		\$0		\$0	\$3,283,925	

Fare Collection

As a result of its history, the RTA has issues with fares that could be addressed in part if it had a modern electronic registering farebox system instead of using simple drop boxes.

The RTA has two distinct fare policies, as described in Chapter 4. This alone causes additional work for the operators, different revenue levels in different jurisdictions, and confusion for riders. Therefore, the RTA would like to settle on one fare structure. Modern fareboxes could potentially allow for new multi-ride options, including smart-phone payment or stored-value cards—potentially increasing customer convenience and ridership.

A significant related issue is that many RTA customers transfer to or from MTA services or WMATA services, and RTA does not have transfer arrangements with either system because they do not consider that drop boxes provide adequate accounting for any kind of shared revenue that would result from a transfer agreement. RTA policies vary for each system. There is no transfer agreement with WMATA, so users simply pay a second fare; there is a limited number of MTA/RTA shared stops where the RTA will accept display of an MTA Charm Card as a transfer, and accept a reduced fare. However, there is no sharing of revenue, and RTA riders transferring to MTA buses must pay a full second fare. A modern farebox system would allow negotiation of fare policies to facilitate transfers, as the revenue accounting function would be supported by farebox data collection.

Finally, there is a need to have accurate data about ridership and revenue if the RTA is to obtain policy-level buy-in from its partners. Modern electronic registering fareboxes would facilitate revenue accounting, which is difficult to achieve with the drop boxes and manual counters now used. Ridership counts and reconciliation with revenues would be possible, and if a working automatic passenger counting system was integrated with the system it would provide better data with less manual work.

For these reasons a \$15,000 estimated cost of new electronic registering fareboxes is included in the vehicle prices used for heavy duty and medium buses, and is added to cutaways required for the Call N Ride services. Depending on the dispatch technology used, these vehicles may not ultimately require fareboxes if the fares are paid through a smart phone or stored value card—a simple reader may be all that is needed. The \$15,000 unit cost is consistent with the amount used in MTA medium bus procurements.

Bus Stops and Accessibility

Bus stops are an essential part of the transit infrastructure. This plan calls for improvements in bus stops across the region as an additional investment priority over the next five years. A critical element in the success of transit in the region is the bus stop, which is the location where the customer first encounters the transit network. However, the concern is not just the stop itself, but the need to provide for a safe, accessible pathway to reach the stop. Recent research has documented that stop improvements including sidewalks, ADA improvements, shelters, seating and signage increases fixed-route ridership from the area served by the stop and reduces the demand for paratransit services. A recently completed study in Utah found that improved bus stops saw ridership increases that were higher than increases in control group stops, while also experiencing ADA paratransit demand increases that were lower than at control group stop areas¹. Improved stops make the existence of the transit system more visible and increase the likelihood that more trips will be made on the fixed-route system.

With limited public resources, one of the major challenges in implementing a bus stop improvement program is deciding what and where to focus those limited resources. Therefore, being able to leverage existing data sources to prioritize bus stop locations where safety and accessibility improvements will have the greatest impacts is important. Transit systems vary in the factors used in prioritizing bus stop placement and improvements, but in general the following factors (however measured) are used:

- **Safety:** Stop location is a key factor, whether it is located at the near side (of the intersection), far side, or mid-block; its proximity to safe pedestrian crossings, visibility to motorists (whether located in a blind spot, due to a curve, rise, or obscured by a structure or landscaping); and design aspects such as presence of a curb, the amount of setback, lighting, etc. are all safety factors to be considered both in prioritization and in the design of each bus stop. Accident and enforcement statistics should also be used to identify and prioritize changes to improve safety.
- **Usage:** stops with higher usage would likely have higher priority, after safety factors have been addressed.
- **Transfer points:** locations used by more than one route or carrier are likely to need a larger stop with amenities such as benches and shelters because of the likelihood of passengers with longer wait times between buses.
- **Key public facilities or population concentrations:** stops with a higher level of amenities and accessibility would be a priority at public facilities such as schools, senior centers, libraries, public buildings, colleges, hospitals or medical facilities. Some systems also prioritize stops at large apartment or higher-density residential developments, senior residential communities, or mobile home parks.

¹ Ja Young Kim, Keith Bartholomew, and Reid Ewing, Impacts of Bus Stop Improvements, University of Utah, Department of City and Metropolitan Planning, for the Utah Department of Transportation, Research Division, Report UT-18.04, March 2018.

- **Americans with Disability Act design requirements:** Bus stop locations must have adequate sidewalk connections and roadway crossing amenities, such as marked crosswalks, median islands, curb ramps, and/or pedestrian signals. The design of the bus stop itself needs to meet requirements calling for an unobstructed concrete landing pad that is 5 feet wide (parallel to the roadway) by 8 feet deep (perpendicular to the roadway), connected to sidewalks and streets by an accessible path, with the slope of the pad parallel to the roadway the same as the roadway, and a cross-slope not exceeding 1:50 (2%)². A related consideration is that the location of bus stops (whether relocation of an existing stop or placement of new stops) should be cognizant of the impact on the ADA complementary paratransit eligibility area, which is the area 0.75 miles mile on either side of a fixed-route. Moving a stop may inadvertently cut off ADA eligibility from persons who are currently ADA certified, or from a key destination such as a clinic or elderly housing facility.

Other factors to be considered in prioritizing bus stop placement and improvement investments include public input, user characteristics (for example benches where the riding population is more likely to be elderly). Many transit systems with ongoing bus stop improvement programs develop these factors into a score and categorize stops based on the scoring system.

Howard County

There are approximately 490 RTA bus stops in Howard County of which approximately 50 have shelters. Many of the bus stops were installed twenty plus years ago and are simply “poles in the ground”. Many lack basic amenities such as a concrete pad where passengers can stand, a bench, trash can, or adequate lighting. Many are not connected to the sidewalk network, and even some that are connected are not fully accessible to persons with disabilities.

The Howard County Office of Transportation is responsible for bus stops. The Office maintains a GIS database and inventory of bus stop locations and the amenities at each.

Improvements to bus stops in Howard County are made under capital projects; for the past several years Howard County has had two capital projects (Co286 and Co332). Since 2011 the County has improved approximately 140 stops, an average of approximately 18 per year. Progress slowed in FY 2016 and FY 2017 due to the change of a construction and installation contract but has picked up under a new contract and the County is on track to complete approximately 80 improvement projects in FY 2018.

Some bus stop projects can be complex and need time to resolve, such as if they need sidewalk extensions where right of way needs to be acquired or where a road crossing is unsafe. This can occur where a good bus stop can be provided on one side of a road near a

² Full guidance on the ADA requirements can be found in *Accessibility Guidelines for Buildings and Facilities* by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).

destination, such as a library or community center, but there is no safe access to the destination from a bus stop on the other side of the road.

Bus stops and changes to bus routes need to be coordinated with bicycle and pedestrian access. BikeHoward, the County's bicycle master plan (2016), makes recommendations for integrating bicycling with transit services (see page 46, for example). All RTA buses have bicycle racks facilitating mode transfer from bicycles to buses.

WalkHoward is Howard County's Pedestrian Master Plan (draft 2017). As part of the WalkHoward update, County staff assessed 494 bus stops and access to them via sidewalks and roadway crossings. The highest needs at bus stops were for landing pads (78 percent) and for pedestrian lighting (51 percent). Other often-recommended improvements were for a new bus stop sign (33 percent), a map and schedule (27 percent), and a curb ramp to the stop (22 percent). Bus stop needs are factored into WalkHoward's 44 recommended priority improvement projects (the WalkHoward Plan uses the term "structured projects"). For example, the structured project scoring system incorporated bus stops that were missing landing pads.

As part of TDP implementation, improvements to bus stops need to continue and be accelerated where possible. Funding for bus stop capital projects needs to be maintained. In FY 2018 and FY 2019, spending is anticipated to be between \$400,000 and \$500,000 per year. The Office of Transportation should continue to use the recommendations from BikeHoward and WalkHoward, in addition to the criteria above, to inform the prioritization process for bus stop improvements. Implementation of the TDP routes reconfiguration is an opportunity to review bus stop locations, potentially relocating some to better, safer locations. Other opportunities for bus stop improvements occur when capital and private development projects, particularly new construction projects, affect roads and rights-of-way. The County should continue its efforts to leverage these opportunities to improve bus stops. This TDP recommends the County develop a Bus Stop Plan to bring together in one place coordinated recommendations from this TDP, WalkHoward, and BikeHoward.