



**PUBLIC TRANSPORTATION BOARD**

April 26, 2016

7:00 p.m.

The George Howard Building  
3430 Court House Drive, Ellicott City, MD 21043

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**AGENDA**

1. Approval of the March 22, 2016 Minutes
2. Announcements
3. Public Comment
4. Old Business
  - RTA bus replacement
  - Role of the Public Transportation Board – bike/ped committee
  - Transportation Development Plan
  - Regional Transportation Agency Commission
  - Maryland Department of Transportation Priority Letter
5. New Business
  - Bus Rapid Transit update
  - May / June meetings
6. Adjournment

Future PTB Meetings Dates

- May 24, 2016
- June 28, 2016
- July 26, 2016
- September 27, 2016
- October 25, 2016

For confirmation, please call the Office of Transportation at 410-313-3130.



***PUBLIC TRANSPORTATION BOARD MINUTES***

*April 26, 2016 at 7:00 p.m.*

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**Members Present:** Ron Hartman, Chair  
Jason Quan  
Astamay Curtis  
Larry Schoen  
Earl Armiger

**Staff:** David Cookson, Acting Executive Secretary  
John Ainsley, Recording Secretary

**Excused:** Hector Garcia  
Alice Giles

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1. **Approval of the March 22, 2016, Minutes**

The Minutes were approved by a vote of 4-0. Mr. Armiger abstained from the vote.

2. **Announcements**

- Mr. Cookson announced to the Board that the County Council adopted the Howard County Bicycle Master Plan. There were few amendments to the plan other than adding some additional text and adding the bridge over US 29.
- The Bike Share program was announced this week by County Executive Kittleman. The program will include seven bike stations that would connect the Hospital to the Blandair Park. This six year pilot program is expected to start in Spring/Summer of 2017.
- The kick off meeting for the Complete Streets project is Friday April 29, 2016. The Office of Transportation (OoT) along with Planning and Zoning and Public Works, will be meeting with several other county departments to review the current Design Manual. Feedback from the departments would be considered to revise the current design manual to reflect complete streets concepts.

3. **Public Comments**

There were no public comments.

4. **Old Business**

**Regional Transportation Agency Bus Replacement (Update)**

Mr. Pritchard stated that bus replacement is the number one priority to improve RTA service. County Executive Allan Kittleman's proposed FY 2017 budget includes funds to

replace 11 buses by using a lease option for the new bus purchases. The County Council will be reviewing the budget in a work session this on May 13, 2016.

Mr. Pritchard advised that RTA operational staff has targeted replacement of ten 14 year old Gillig buses as well as seven of 2010 body on chassis buses that are reaching the end of their useful life. Mr. Pritchard requested that additional replacement buses be included in future budget cycles as more buses reach the end of their useful lives.

Mr. Pritchard presented two RTA reports that were requested by the PTB board. These reports are also provided to the RTA partners meetings on a monthly basis. The Board commented that the reports presented had too much data with inadequate descriptions. Mr. Armiger requested that copies of the reports be provided prior to each meeting. Mr. Pritchard commented that the Partners meeting members also asked for the reports to be revised.

#### **Role of the Public Transportation Board- bike/ped committee**

Mr. Schoen advised that a permanent Bicycle Advisory Board would be required of the Howard County Master Bicycle Plan. He suggested the Public Transportation Board (PTB) might widen its scope to include this duty. Mr. Hartman asked OoT staff for input on this suggestion at the next meeting. Mr. Hartman was not sure if this group was the right group and suggested more discussion at next month's meeting.

#### **Transportation Development Plan**

Mr. Cookson advised that the Maryland Transit Administration (MTA) awards grants to local jurisdictions to create Transit Development Plans (TDP). The TDP generally is updated every five years. The current plan was completed approximately eight years ago. The MTA has hired a consultant to review the Howard County transit routes, starting from scratch to update the routes as they have not been reviewed for several years. The TDP may also suggest that each jurisdiction be required to set aside a given amount of funding each year which will be earmarked for the purchase of new buses. Members of the PTB asked to be informed about the scope of the review, the process for revision and content of the TDP prior to its finalization.

#### **Regional Transportation Agency Commission**

The OoT is currently formulating a draft of bylaws and a Memoranda of Understanding (MOU) for the RTA Commission. The intent is to have one MOU in place rather than three separate agreements which will streamline processes when the Commission is in place. Mr. Pritchard advised that there are currently three separate MOU' that will expire on June 30, 2016. The new MOU is currently being reviewed by the Office of Law and will be forwarded to the partner agencies for approval. It is hoped that the RTA Commission will be seated in July.

#### **Maryland Department of Transportation Priority Letter**

Mr. Cookson advised a draft copy of this year's priority letter has been completed and the County Executive is reviewing it. The OoT is currently compiling the supporting documentation and data that will be forwarded to MDOT along with the finalized letter. Mr. Cookson advised that a public survey was used this year and received over 1,400 public comments. Mr. Hartman requested that a copy of the priority letter be available for the PTB board members to review.

## 5. New Business

### **Bus Rapid Transit (Update)**

David Cookson (OoT) presented an update of the Howard County Bus Rapid Transit study.

#### Overview

#### Extending BRT Phase I County Wide Travel Forecasting Study Performance Objectives

- Establish preliminary BRT corridors and perform testing and analysis for the year 2035 to determine the most likely candidates for further analysis
- Refine BRT corridors to include local feeder networks, potential park-and-rides, and increased pedestrian accessibility
- Conduct modal split analysis and preliminary cost analysis for the refined BRT corridors
- Select most cost effective and highest mobility accessibility combinations of BRT facilities and land use and provide final analysis
- Develop final recommendations and next steps

#### Documented Travel Market/ Demand for high quality BRT From/To Howard County

- High demand from the northern most stations.
- Network connections improve accessibility and boost ridership (BRT-BRT and BRT-local).

#### Next Steps

- On Going Collaboration with Montgomery County on US 29
- Service planning
- Station design
- Branding
- Extend service to Howard County
- Letter of support for Montgomery County BRT TIGER Grant Application
- Work with Montgomery County on grant application
- Meetings with MTA to use existing funding to advance HC side of project

Other next steps/possible future actions

- Coordination with Prince George’s County (US 1), Anne Arundel County (US 1/ Broken Land/ 32)

Preliminary Engineering:

- Dedicated ROW where needed to provide reliable transit speeds/ quality of service
- Station costs/ parking supply/ ROW preservation
- Access/Egress to guideway at key locations

Mr. Nichols affirmed that the County Executive remains solidly supportive of the Route 29 BRT. He informed the Board that the County continues to work with Montgomery County and the Maryland Department of Transportation in creating the environment for BRT to be successful in Howard County, including the potential use of bus-on-shoulder, traffic signal prioritization, and other elements that would support a BRT system. He also informed the Board that Montgomery County had applied for a TIGER grant, which Howard County supported and worked collaboratively on. He also told the Board that Howard County felt it was premature at this time to pursue its own TIGER grant given the lack of specific designs, and only just having completed the feasibility study. Mr. Nichols also explained that Howard County would examine the potential to piggy-back on to the Montgomery County TIGER grant should it be successful.

Members of the Board, including Messrs. Hartman and Schoen expressed urgency that the process move more quickly and pointed out its apparent financial viability. Suggestions included, (a) incremental changes to the existing commuter service such as mid-day and weekend service; (b) Howard County applying for TIGER grants; and (c) beginning early planning for the large projects over the bridges that are currently significant bottlenecks.

**Upcoming, May/ June meetings**

The board discussed agenda topics for upcoming PTB meetings. The May meeting would be a presentation on the Development Review & the Transit Development Plan. Mr. Hartman is checking if the MTA would be available for the June meeting to present on suburban bus operations and plans.

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**6. Adjournment**

Mr. Hartman adjourned the meeting at 8:35 pm. The next Public Transportation Board meeting is scheduled for **May 24, 2016 at 7:00 pm.**



# Howard County Bus Rapid Transit Phase II Study

## Final Results

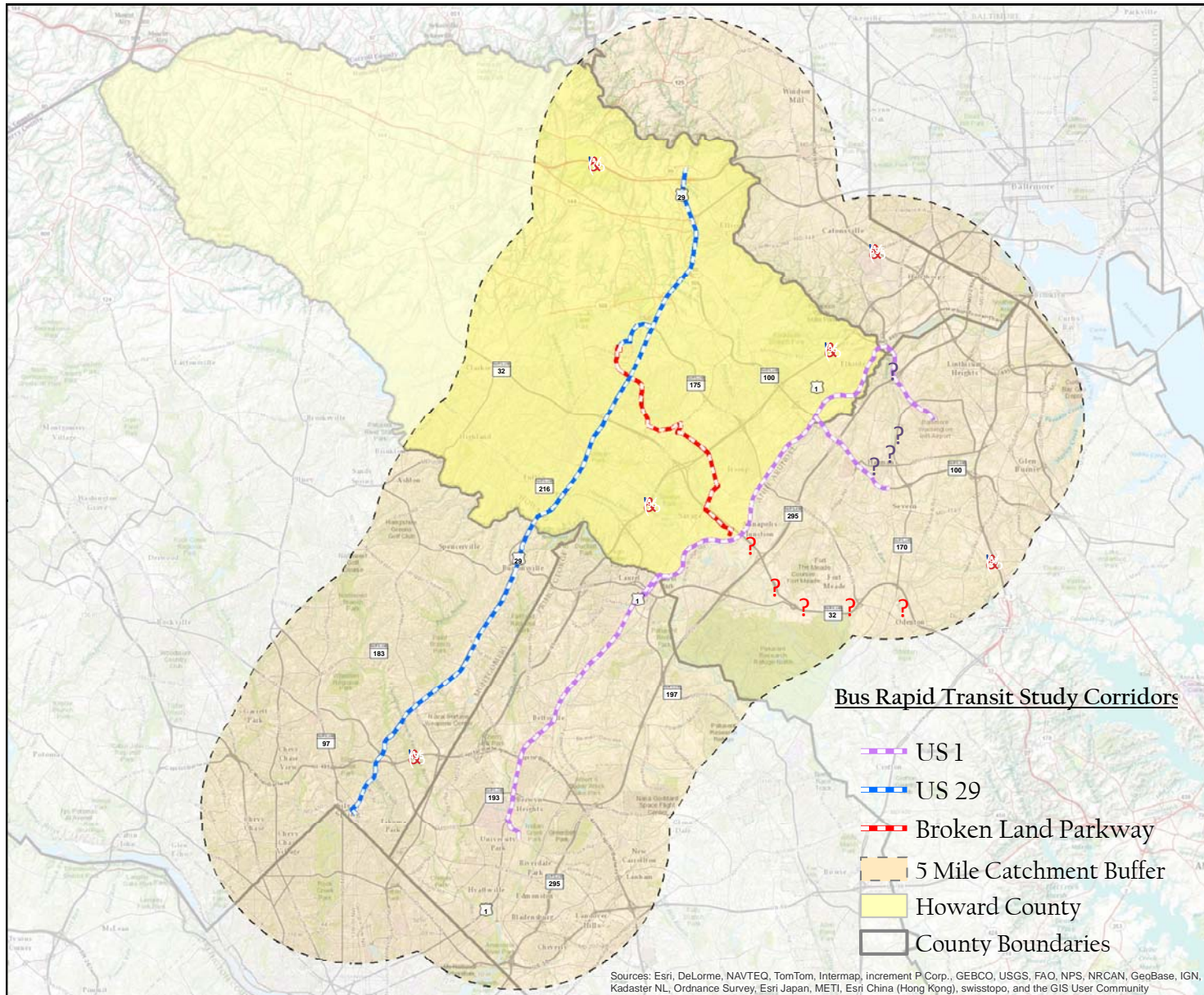


# Overview/Project Understanding

- Extend BRT Phase I County Wide BRT Travel Forecasting Study
- Performance Objectives
  1. Establish preliminary BRT corridors and perform testing and analysis for the year 2035 to determine the most likely candidates for further analysis.
  2. Refine BRT corridors to include local feeder networks, potential park-and-rides, and increased pedestrian accessibility.
  3. Conduct modal split analysis and preliminary cost analysis for the refined BRT corridors.
  4. Select most cost effective and highest mobility accessibility combinations of BRT facilities and land use and provide final analysis.
  5. Develop Final recommendations and next steps.



# Original Howard County BRT Phase II Study Corridors



# BRT Route Alignments and Stations

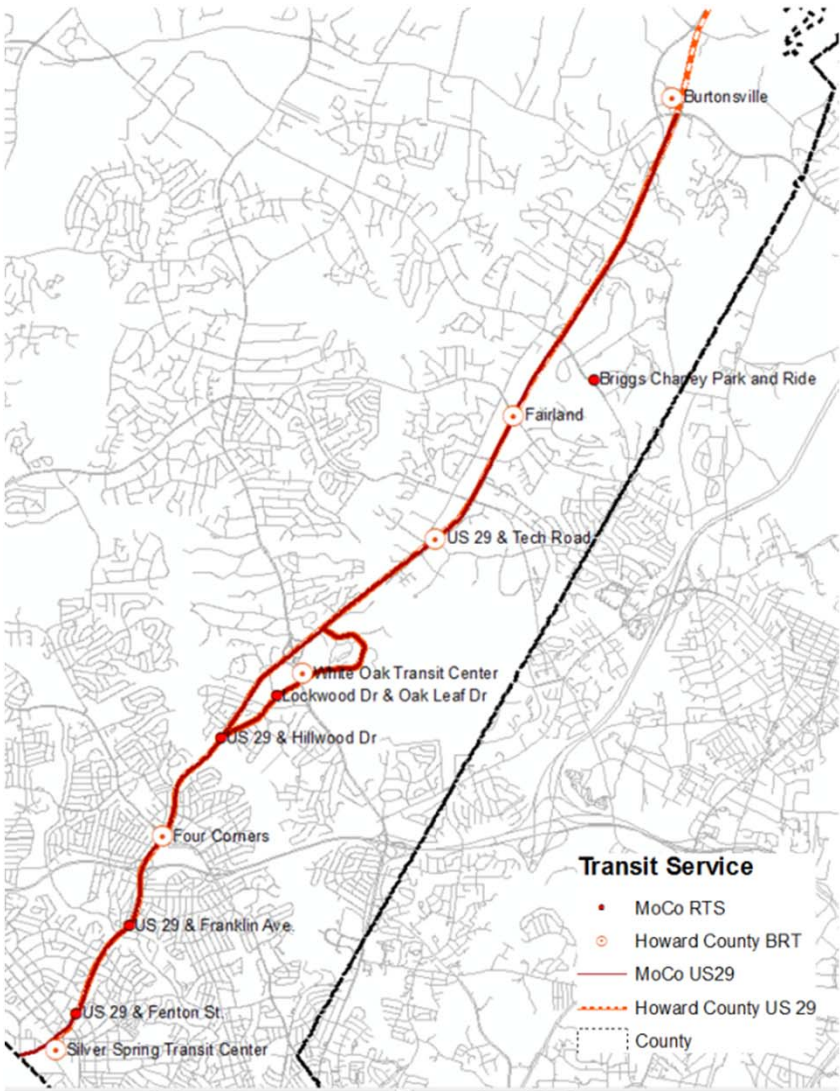
- Updated based on Howard County Staff Inputs and Regional Coordination Meetings
- Defined to test all options in Model Runs
  - Alternative Alignments
  - Alternative Stations

# Build BRT System

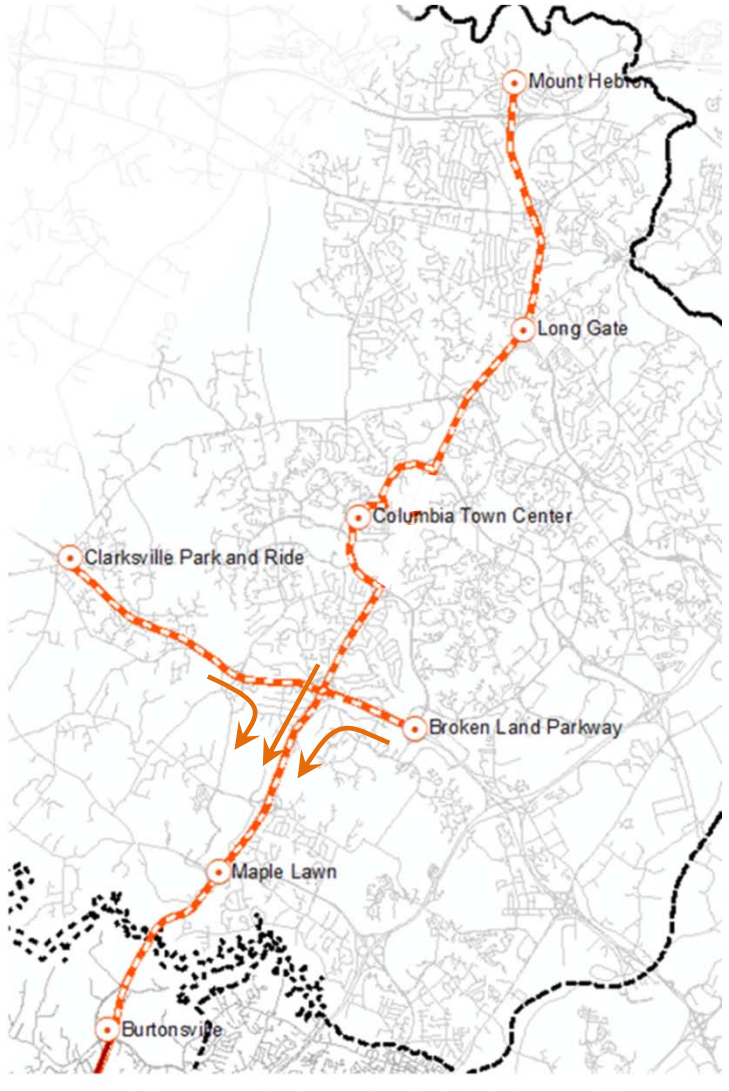
Recommended Alignment									
Corridor	Alignment	North Terminus	South Terminus	Stations & ROW Treatment			Key Destinations	Intermodal Connections	
US 29	Primarily follows US 29	Mount Hebron	Silver Spring Transit Center	1	Mount Hebron	New w parking	Exclusive	Downtown Silver Spring, White Oak, Maple Lawn, Columbia Town Center, Long Reach/ Ellicott City	Long Gate P&R, Clarksville P&R, Broken Land Parkway P&R, Maple Lawn P&R, Burtonsville P&R, White Oak Transit Center  MTA, RTA, Ride On, Metrobus, Metrorail Red Line, Purple Line, MARC
				2	Long Gate	New w parking	Exclusive		
				3	Columbia Town Center	New w remote parking	Exclusive		
				4	Maple Lawn	New w parking	Exclusive		
				5	Burtonsville	Montgomery County BRT	Montgomery County BRT		
				6	Fairland	Montgomery County BRT	Montgomery County BRT		
				7	US 29 & Tech Road	Montgomery County BRT	Montgomery County BRT		
				8	White Oak Transit Center	Montgomery County BRT	Montgomery County BRT		
				9	Four Corners	Montgomery County BRT	Montgomery County BRT		
				10	Silver Spring Transit Center	Montgomery County BRT	Montgomery County BRT		
				11	MD 32 Clarksville P&R	Enhanced	On Shoulder		
				12	MD 32 Broken Land Pkwy P&R	Enhanced	On Shoulder		
US 1	Yellow Line Options. Alternative routing from BWI to Arundel Mills via New Ridge Rd and Aviation Blvd with three additional stations along New Ridge Rd and Aviation Blvd in Anne Arundel County. Addition of an Elkridge spur & station only if demand warrants.	BWI Airport	College Park Metro Station	1	BWI Airport	Enhanced	On Shoulder	College Park/ Univ of MD, Laurel, Savage, BWI Airport	North Laurel P&R, Savage P&R  MARC, Metrobus, Metrorail Green Line, Purple Line, Shuttle UM, The Bus, RTA, MTA, Central Light Rail Line
				2	BWI Business Park	New w parking	On Shoulder Exclusive		
				3	Northrup Grumman	New/ w parking	Exclusive		
				4	Rental Car Facility	New	Exclusive Part in mixed flow		
				5	Arundel Mills	New/ w parking	Exclusive		
				6	Dorsey MARC	Enhanced	Exclusive		
				7	Jessup North	New/ w parking	Exclusive		
				8	Jessup South	New/ w parking	Exclusive		
				9	Savage	New/ w parking	Exclusive		
				10	North Laurel	New/ w parking	Exclusive		
				11	Laurel Marc	Enhanced	Exclusive		
				12	Downtown Laurel	New	Exclusive		
				13	South Laurel	New/ w parking	Exclusive		
				14	Konterra	New/ w parking	Exclusive		
				15	College Park North	New	Shared Lane		
				16	N. U of MD	New	Shared Lane		
				17	U of MD Route 1	New	Shared Lane		
				18	College Park Metro	Use Wmata Station	Shared Lane		
				19	Elkridge extension	New with Parking	Shared Lane		
Broken Land Parkway	Extend service along MD 31 east to MD 175 to Odenton Town Center/ MARC	Columbia Town Center	Savage MARC Station	1	Columbia Town Center	New w remote parking	Exclusive	Columbia Town Center, Snowden River Commercial Corridor, Savage	MTA, MARC, RTA, Broken Land P&R, Savage P&R
				2	Stevens Forest	New w parking	Exclusive		
				3	Snowden River Parkway	New w parking	Exclusive		
				4	Columbia Gateway	New	Exclusive		
				5	Jessup South	New w parking	Exclusive		
				6	Savage	New w parking	Exclusive		
				7	Savage MARC	Enhanced	On Shoulder		
				8	Fort Meade	New	On Shoulder		
				9	Odenton Town Center/ MARC	Enhanced	On Shoulder		



# US 29, Columbia Pike

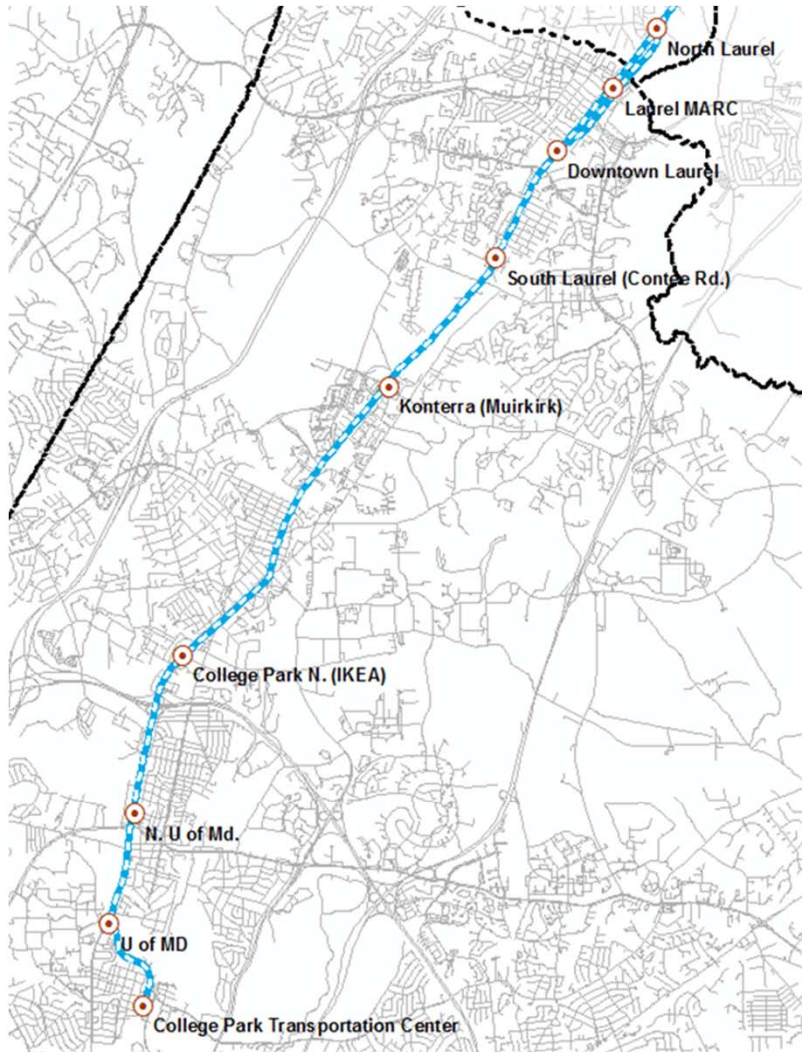


Montgomery County RTS

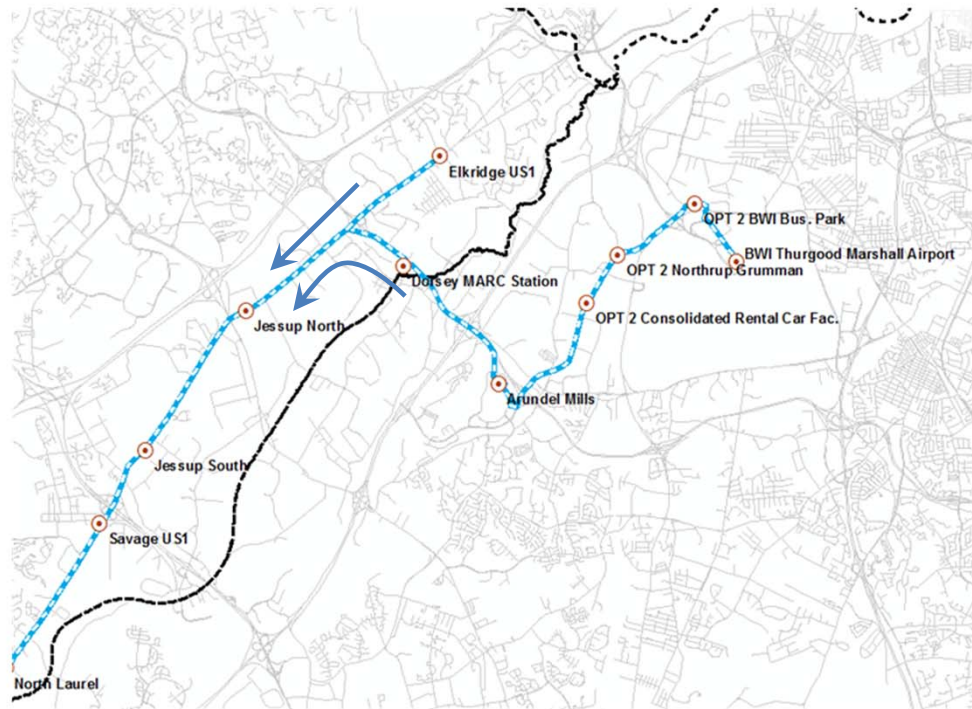


Howard County BRT Phase II

# US 1



South (Prince George's Co.)



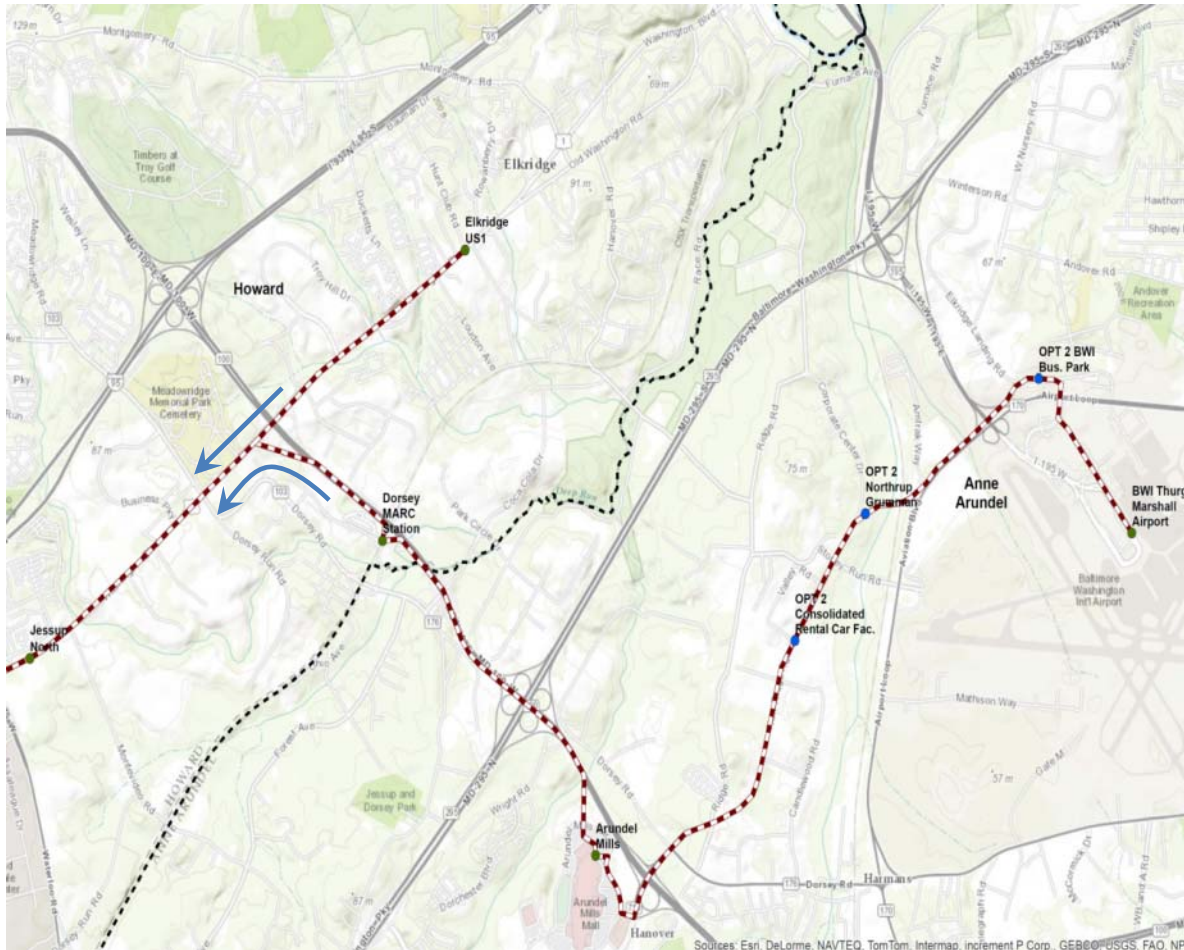
## Transit Service

- US 1 Stations
- US 1
- - - County

North (Howard and Anne Arundel Co.)

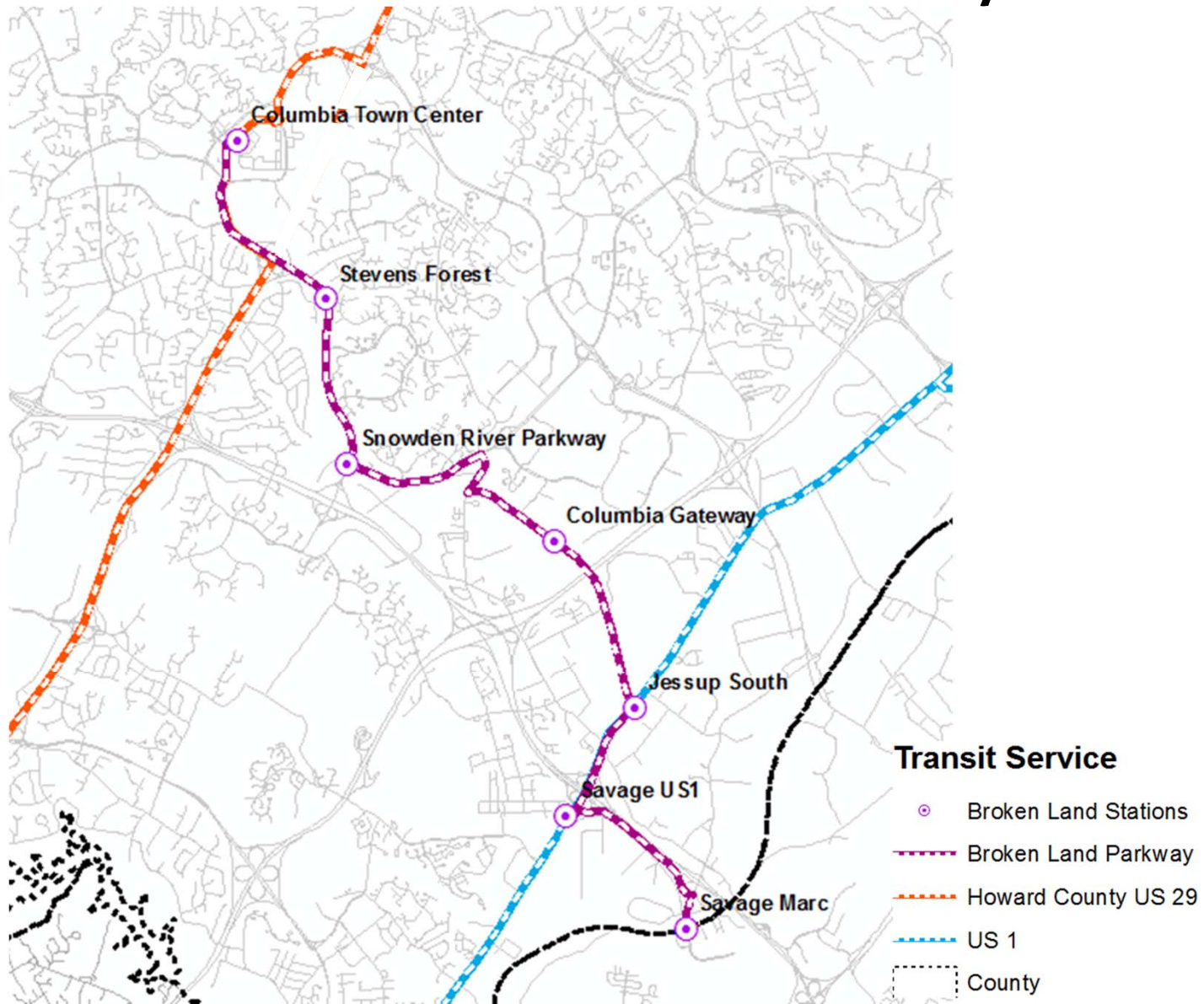


# US 1 North

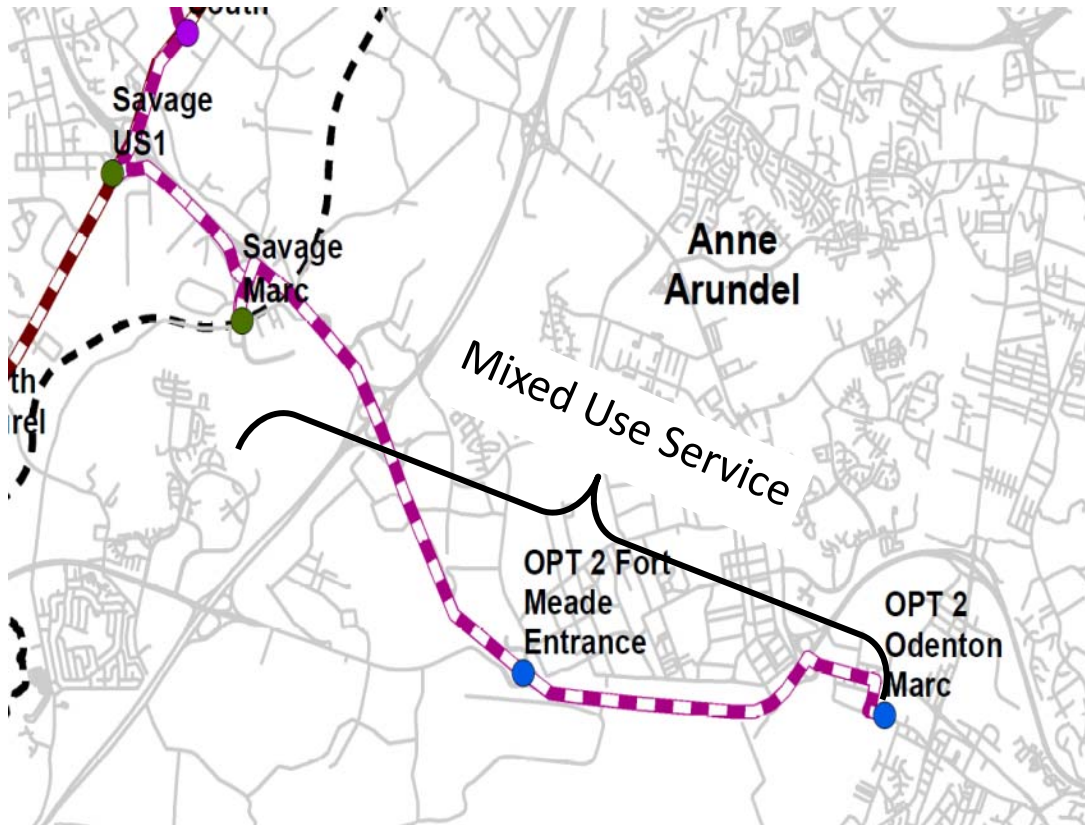


- Spur to Elkridge
- Follows Anne Arundel County 2005 BWI to Dorsey Corridor Preservation Study (Yellow Line)
  - Base Alignment no longer feasible
  - MD 100 Variation
  - Aviation Blvd Variation
  - Stations
    - BWI Business Park
    - Northrup Grumman
    - Consolidated Rental Car Facility

# Broken Land Parkway



# Broken Land Parkway Extension



- Extend service (20 minutes) from Savage Marc Station to Odenton Marc Station
- In mixed use along US 32
- Additional Stations
  - Fort Meade Entrance
  - Odenton MARC



# Service Parameters

Policy Assumptions	Initial	Final
Vehicle	60 foot Articulated BRT Vehicle Capacity = 90 passengers Cross platform, multiple door access	Adjusted to demand within each corridor
Span of Service	Weekdays & Sunday: 5 am to 12 midnight Friday & Saturday: 5 am to 2 am	Weekdays & Sunday: 5 am to midnight Friday & Saturday: 6 am to 6 PM
Feeder Bus Speeds	From BMC model process: Congested speed + dwell time Dwell = 0.65 minutes for local service: Dwell = 1.4 minutes for Express (non BRT station)	Adjusted to final model run
Howard County BRT speed	Maximum: 55 mph for exclusive ROW Maximum: Free flow of Parallel facility for Bus on Shoulder Plus: acceleration, deceleration, dwell, and turn restrictions for stations Dwell: 20 seconds at BRT stations	Adjusted to final model run
Park and Ride Access	Within Howard County: Park and Ride at all Stations to estimate potential Other: As provided by Jurisdiction	Adjusted to demand within each corridor
Kiss and Ride Access	At all stations	No adjustment
Pedestrian and Bicycle Access	Expanded amenities and access at all stations	No adjustment
Fares	BRT = MTA Commuter Zone Fare Local Feeder = Free transfer	No adjustment
Transit Signal Priority	At all at grade crossings	No adjustment
Fare Collection	Off Board Fare Collection	No adjustment
Traveler Information	Next Bus Displays at all stations Internet Next Bus website and app On vehicle annuciation and display	No adjustment
Branding:	Unique Vehicle and Branding/Marketing	No adjustment
Headways:		
US 29 Corridor	Peak: 7.5 minutes Off Peak: 15 minutes Late Night & Weekend: 30 minutes	Peak: 7.5 minutes on US29 & Broken Land Pkwy 30 minutes on Clarksville Off Peak: 15 minutes & 60 minutes Late Night & Weekend: 60 minutes
US 1 Corridor	Peak: 7.5 minutes mainline (15 on each branch) Off Peak: 15 minutes mainline (30 on each branch) Late Night & Weekend: 30 minutes with tumbback at Jessup North	Peak: 10 minutes BWI, 20 mintues Elkridge Off Peak: 20 minutes BWI, 30 mintues Elkridge Late Night & Weekend: 60 minutes
Broken Land Parkway	Peak: 7.5 minutes Off Peak: 15 minutes Late Night & Weekend: 30 minutes	Peak: 7.5 minutes Off Peak: 15 minutes Late Night & Weekend: 60 minutes Tumbback at South Jessup

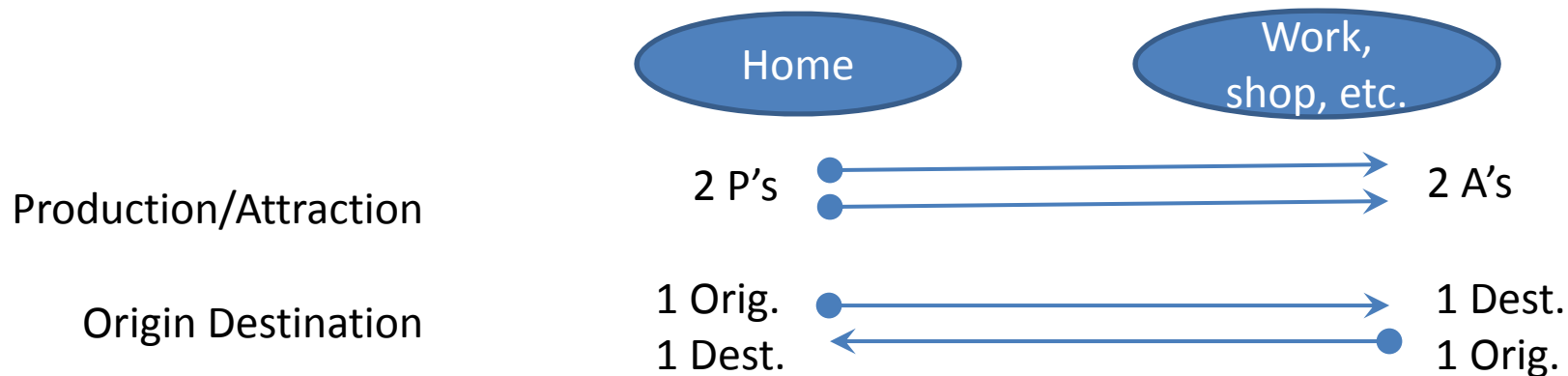
Derived from Proposed Maryland & Virginia BRT/LRT systems (Corridor Cities Transitway, Southern Maryland, Potomac Yards...)

# Feeder Service Changes

- Route 405/Yellow
  - Extended to serve the Mount Hebron and Long Gate BRT Stations/P&R. It was also extended to the South West.
  - Dropped portion south of Long Gate to Columbia Town Center was dropped (served by other service)
- MTA Commuter Route 929
  - Converted to a circulating shuttle connecting Broken Land Parkway, Maple Lawn, and Columbia Town Center.
  - Move to RTA local service
- MTA Commuter Route 995 A, B, C
  - Replaced 995 C with US 29 BRT Clarksville Branch
  - Reduced peak service to 1 trip/hour, and extended to Midday
- Maple Lawn circulator
  - Created an new Maple Lawn Circulator
- Other Changes
  - Reversed RTA of Central Maryland service coverage reductions (HT Purple, CTCJ, CTCKB)
  - Added internal circulator for Fort Meade and Columbia Gateway (reflected in increased % walk)
  - Routed all existing routes to BRT stations

# Transit Forecasting Terms

- Linked Trips = Transit trip from start to end
- Unlinked Trips = Each leg of a linked trip (Boardings on each line)
- Boarding = Getting on a transit vehicle
- Alighting = Getting off a transit vehicle
- Production = The home or starting location of a trip
- Attraction = The destination or ending location of a trip



## Howard County BRT Phase II BRT 1 2035 Forecast Summary

- Transit Trips From Howard County (productions)

Howard Co.	2035 Base	2035 BRT 1	Difference
From (p's)	12,896	21,976	9,080

- Transit Trips To Howard County (attractions)

Howard Co.	2035 Base	2035 BRT 1	Difference
To (a's)	6,691	9,992	3,301

- 2035 BRT Summary Statistics (Trips to/from BMC Region)

	US 29	US1	Broken Land Parkway	Total
Average Weekday				
Boardings	18222	20266	18213	56701
Passenger Miles	221404	186401	122466	530271
Passenger Hours	4510	4004	3357	11871
Average Trip Length (miles)	12.2	9.2	6.7	9.4
Average Trip Length (minutes)	14.9	11.9	11.1	12.6

For comparison: Baltimore Redline BRT Boardings = 18,915

Boardings for trips made within the Washington Region not included (within Montgomery County, Prince George's County)

# Transit Operations and Maintenance Cost Assumptions

- Fully Allocated Cost Model approach (FTA)

**Annual O&M Cost = (A x Revenue Hours) + (B x Revenue Miles) + (C x Peak Vehicles)**

**Where: A,B, & C coefficients estimated from local system and NTD data**

- Transfer from CCT & Purple Line

- Update to 2015\$ using Consumer Price Index
- Maintenance of way and Station Costs from Montgomery Co. and Crystal City Potomac Yards
- Updated with local data where available

- Annualization

- 250 Weekdays
- 114 Weekends/Holidays

# Transit Operations & Maintenance Costs (2015\$)

Howard County BRT								
Components	Peak Vehicles	Revenue Mile	Revenue Hours	ROW Lane miles	New Stations	Enhanced Stations	Parking Lots	
US 29	20	2163104	52261	32.28	4	2	4	
Broken Land Parkway	7	1163957	35256	15.98	4	2	2	
US 1	12	1315896	31094	38.78	14	3	9	
<b>Total</b>	<b>39</b>	<b>4642958</b>	<b>118612</b>	<b>87.04</b>	<b>22</b>	<b>7</b>	<b>15</b>	
Unit Costs (2015\$)	\$/peak vehicles	\$/Rev Mile	\$/Rev Hours	\$/ROW Miles	\$/New Station	\$/Enhanced Station	\$/w Parking	
	\$ 77,412	\$ 5.84	\$ 66.89	\$ 11,190	\$ 12,200	\$ 6,100	\$ 20,000	
Annual O&M Costs								Total
US 29	\$ 1,548,244	\$ 12,634,148	\$ 3,495,677	\$ 361,225	\$ 48,800	\$ 12,200	\$ 80,000	\$ 18,180,295
Broken Land Parkway	\$ 541,886	\$ 6,798,382	\$ 2,358,243	\$ 178,822	\$ 48,800	\$ 12,200	\$ 40,000	\$ 9,978,333
US 1	\$ 928,947	\$ 7,685,821	\$ 2,079,844	\$ 433,962	\$ 170,800	\$ 18,300	\$ 180,000	\$ 11,497,674
<b>Total</b>	<b>\$ 3,019,076</b>	<b>\$ 27,118,351</b>	<b>\$ 7,933,765</b>	<b>\$ 974,009</b>	<b>\$ 268,400</b>	<b>\$ 42,700</b>	<b>\$ 300,000</b>	<b>\$ 39,656,302</b>
Feeder Bus Service								
Components	Peak Vehicles	Revenue Mile	Revenue Hours					
Local/Circulator	12	339242.8	22478.9275					
MTA Commuter	-22	-666300	-35345					
Unit Costs (2015\$)	\$/peak vehicles	\$/Rev Mile	\$/Rev Hours					
Local/Circulator	\$96,599	\$2.33	\$76.45					
MTA Commuter	\$77,412	\$3.55	\$66.89					
Annual O&M Costs								Total
Local/Circulator	\$1,159,184.14	\$791,021.84	\$1,718,601.71					\$ 3,668,808
MTA Commuter	(\$1,703,068.78)	(\$2,368,524.44)	(\$2,364,176.91)					\$ (6,435,770)
							<b>Net O&amp;M</b>	<b>\$ 36,889,340</b>

# Vehicle Capital Cost Assumptions

From MTA Studies and APTA Vehicle Database						
Type	Length (Ft)	Capacity			Propulsion	Capital
		Seats	Standees	Total	Type <sup>1</sup>	Cost (2015 \$)
Local: Small transit bus	30	30	6 <sup>2</sup>	36	Gasoline	\$ 443,000
Local: Standard transit vehicle	40	38	8 <sup>2</sup>	46	Clean Diesel	\$ 556,800
Local/Express: Articulated	60	61	12 <sup>2</sup>	73	Diesel	\$ 850,000
Commuter: Over the Road Coach	45	55	0 (policy)	55	Diesel	\$ 540,000
Type	Length (Ft)	Capacity			Propulsion	Capital
					Type <sup>1</sup>	Cost (\$)
Bus Rapid Transit (Articulated)	60	60	30	90	Hybrid	\$ 850,000
Specialty BRT (Articulated) <sup>3</sup>	60	27-37	37-90	104-117	Hybrid	\$ 1,146,600
Specialty BRT (2x Articulated) <sup>3</sup>	80	40-70	60-70	110-130	Hybrid	\$ 1,600,000

Montgomery County Maryland is using \$1.2 Million/Vehicle for their BRT Vehicle Costs

# Vehicle Capital Costs

<b>Vehicles</b>	<b>Number</b>	<b>Cost/vehicle</b>	<b>Total</b>
New BRT Vehicles	39	\$ 1,100,000	\$ 42,900,000
Local Service (30 foot bus)*	12	\$ 350,000	\$ 4,200,000
MTA Commuter Bus	-22	\$ 540,000	\$ (11,880,000)
		<b>Net Cost</b>	<b>\$ 35,220,000</b>

\* RTA of Central Maryland (K Donodeo, 3/17/16)



# Summary

- Documented Travel Market/ Demand for high quality BRT From/To Howard County
  - High demand from the northern most stations
  - Network connections improve accessibility and boost ridership (BRT-BRT and BRT-local)

# Next Steps

- On Going and Immediate Collaboration with Montgomery County on US 29
  - MOU in progress
    - Service planning
    - Station design
    - Branding
    - Extend service to HC
  - HC wrote a letter of support for MC BRT TIGER Grant Application
  - Worked with MC on grant application
  - Meeting with MTA to use existing funding to advance HC side of project
  - Future TIGER Grant?
- Other next steps/possible future actions
  - Coordination with Prince George's County (US 1), Anne Arundel County (US 1/ Broken Land/ 32)
  - Preliminary Engineering:
    - dedicated ROW where needed to provide reliable transit speeds/ quality of service
    - Access/Egress to guideway at key locations
    - Station costs/ parking supply/ ROW preservation

