MEMORANDUM

May 3, 2017

TO: Transportation, Infrastructure, Energy, and Environment County Council

FROM: Glenn Orlin, Deputy Council Administrator

SUBJECT: FY18 Capital Budget and amendment to the FY17-22 Capital Improvements Program (CIP): Rapid Transit System

The County Executive is proposing an FY18 appropriation of $9.5 million and an amendment to the FY17-22 CIP to the Rapid Transit System project for $31.5 million to fund the first stage of implementation of a 14-mile-long US 29 Bus Rapid Transit (BRT) line between Burtonsville and the Silver Spring Metro Station. The sources of funds are $14 million from the Mass Transit Fund, $7.5 million from General Obligation bonds, and $10 million from a Federal Transportation Investment Generating Economic Recovery (TIGER) grant (©1-2).

The Executive proposes to run BRT vehicles on the outside shoulders of US 29 between Burtonsville and Industrial Parkway (except through the Briggs Chaney and Randolph Road interchanges, where they would run in mixed traffic), and in mixed traffic between Industrial Parkway and Silver Spring Metro. He proposes to use these funds to buy 14 articulated (60'-long) BRT vehicles, acquire land for and construct 18 high-level platforms with off-board fare collection at 11 station locations, to implement 10 bikeshare stations and other pedestrian and bike access improvements to stations, to install transit system signal priority along US 29, and to fund associated planning and design expenses.

Attached is a report that was circulated in March to the US 29 Citizens Advisory Committee members and other interested persons (©3-37). The report also includes over 100 pages of appendices; the full report and appendices can be found here: http://montgomerycountymd.gov/BRT/Resources/Files/US%2029%20BRT%20Project%20Description%20March%202017.pdf.

The opposing perspective is best summarized by CAC member Harriet Quinn’s letter to the T&E Committee. She argues that the ridership and travel time savings in the Executive’s proposal are overestimated, costs are underestimated, and makes other salient points about the study (©38-42).

Public hearings on this project were held on February 7 (part of the hearing on all the Executive’s January CIP amendments) and on April 18. Opinion was generally split between supporters and opponents of the specific project scope proposed by the Executive. However, most who testified want faster and more frequent improved bus service. Many supporters of the Executive’s.
proposal look forward to a future time when a dedicated bus lane can be provided between White Oak and Silver Spring. Many of the opponents of the Executive’s proposal believe its weakness is the lack of a dedicated bus lane between White Oak and Silver Spring.

**Sean Emerson’s proposal.** Four Corners resident and CAC member Sean Emerson testified with a proposed means of creating a dedicated BRT lane between New Hampshire Avenue and Sligo Creek Parkway (©43-59). His proposal relies on reducing the width of the existing general-use lanes to 10’ (11” on the outside curb), leaving 22’ in the middle for a dedicated 12’-wide bus lane (two lanes at Four Corners) as well as an 8’-wide median, and a 2’-wide painted strip between the BRT lane and the adjacent travel lane. Where there is a station, the 22’ would be used for the BRT lane and a one-sided platform. South of Sligo Creek Parkway the BRT would appropriate one of the four peak-direction lanes. North of New Hampshire Avenue the lanes would either be in the existing median or, similar to the Executive’s proposal, on the outside shoulders, where they exist.

This concept would be improved if the BRT buses were to be in a mechanically-guided busway. The buses would be outfitted with guide wheels that would have them run between two curbs—a bus driver would not even be using the steering wheel—allowing much closer tolerances. The width of a guided bus lane is typically 8½’ wide, not 12’. Furthermore, the bus would automatically steer an inch or two from the platform, and not have to rely on a driver’s skills. Boarding and alighting would be a bit quicker, and always simpler for wheelchair-bound patrons. The extra 3½’ of width could be utilized for a wider platform or median.

At Four Corners Mr. Emerson is proposing that the inside traffic lane in each direction on US 29 be repurposed to make room for two BRT lanes; the concept is that buses running north and south on the dedicated lane could bypass each other there. The concept also includes “Michigan Lefts” for drivers from University Boulevard wanting to turn left to go north or south on US 29; rather than allowing a simple left turn, a Michigan Left would have these drivers pass directly across US 29, go around the loop at the far side of the intersection, return to US 29 and make a right turn. Michigan Lefts are part of this proposal because removing a lane in each direction would reduce the area where vehicles could stack on US 29 between the two University Boulevard intersections.

An alternative would be having just one BRT lane through Four Corners. The vehicular demand on US 29 is very uneven: it is much heavier southbound in the morning rush and northbound in the evening rush. Buses running in the off-peak direction would receive very little travel time advantage from a dedicated lane. If only one BRT lane passed through Four Corners, no more than one traffic lane would need to be removed, reducing the need for a Michigan Left for eastbound-to-northbound traffic or westbound-to-southbound traffic, not both.

Another issue is where left-turns would be permitted into neighborhoods between Burnt Mills and Sligo Creek Parkway. If a 10’-wide pocket were created for left-turn lane, some of that width could be taken from the remaining median. But there would also need to be a sufficiently wide pedestrian refuge area. Thus, at these spots the right-of-way would have to widened by a few feet. These left-turn neighborhood entry points would have to be signalized, and would be the places where pedestrians would be allowed to cross US 29. The related issue is which streets into the neighborhood should be designated as the entry points. These are issues that would need considerably more study, and would need input from the neighborhoods abutting US 29 in this area.
Nevertheless, Council staff believes Mr. Emerson’s general concept shows great promise for creating what the master plan calls for: a dedicated lane along most of US 29. Council staff’s understanding is that the State Highway Administration is open to the idea that the US 29 lane widths could be reduced to 10’. A design with 10'-wide lanes would also result in drivers reducing their speeds (when the speed isn’t already reduced by congestion) in this area where residences, businesses, and pedestrians are close to the roadway. Furthermore, the elements of the Executive’s proposed BRT project could be incorporated into Mr. Emerson’s concept:

- The $14.0 million for BRT vehicles would be used under both the Executive’s project and Mr. Emerson’s proposal. If the dedicated lane provides a faster round-trip time, then there may be fewer buses needed for the US 29 route, but the extra buses ultimately could be used either to provide even more frequent service on US 29, or on another BRT route.
- The $2.0 million for bike and pedestrian access improvements, the $1.0 for transit signal priority (TSP), and the $1.5 million for overhead would be needed under either concept.
- The $13.0 million for stations would also be used under either concept. And not just the off-US 29 stations: those on the curb of US 29 would be stations for the BRT buses running in mixed traffic in the off-peak direction.

There are no funds in the Rapid Transit System project programmed to carry forward the planning or design of this next project along US 29. Councilmember Riemer has recommended programming such funds (©60). Council staff has requested that DOT prepare the cost for preliminary engineering (35% design) of this next project, and over how many years it would take to complete. DOT hopes to have this information ready to share with the Committee at this worksession.

Should some version of the Executive’s proposed project be approved? Council staff believes that Ms. Quinn’s critique hits the mark in many cases. The percentage of the 14 miles that would have dedicated lanes under the Executive lanes is well less than 40%. The reliability of Metrorail service in the corridor is in the 76-83% range, not the 40% reported earlier by DOT. The 2020 ridership estimates from the Executive’s proposals is optimistic, since the land use in the corridor will not materialize to large degree by then, and the overwhelming amount of ridership would come from existing residences and businesses anyway. In short, the Executive’s proposal, taken alone, is not a game-changer for transit in the US 29 corridor.

Nevertheless, the Executive’s proposal garnered $10 million from the Federal Transit Administration, which is not known for granting funds for frivolous projects. And, as noted above, the elements of the Executive’s proposal do nest nicely into a future project that would provide a dedicated lane through most of the route between Burtonsville and Silver Spring, and that would be a game-changer for transit in the corridor. Therefore, Council staff recommends approval of a CIP amendment and FY18 appropriation, with some revisions noted below.

Funds programmed and appropriated. Some of the testimony in opposition noted that the project would be funded before many of the important details of the project have been determined: in particular, the exact locations of stations and what right-of-way would be taken for them. However, while the Executive is requesting programming $31.5 million in the CIP, as noted above he is requesting only a $9.5 million appropriation for FY18, and only $6.0 million is explicitly for the US 29 BRT:
• $3.5 million for US 29 design
• $2.0 million for US 29 right-of-way
• $0.5 million for US 29 oversight and grant administration
• $2.0 million for MD 355 planning
• $0.5 million for outreach
• $1.0 million for overall program support

This means that no funds for station construction would be appropriated in FY18. If the right-of-way is needed for the station locations, but their precise locations have not been identified and commented upon by the CACs, then it is premature now to program and appropriate funds for right-of-way acquisition in FY18.

Council staff recommends deferring $2.0 million of spending from the Federal TIGER grant from FY18 to FY19, to reduce the FY18 appropriation to $7.5 million (without the $2.0 million for right-of-way acquisition), and to spell out on the project description form the remaining items for which the $7.5 million is being appropriated (see ©61-62).

Over the course of FY18, DOT—working with its consultants and receiving substantive advice from the CACs—would design the station locations and other project elements. The Council would not appropriate funds for right-of-way acquisition or construction until after a public hearing on the Executive’s subsequent appropriation request, which would either be part of the FY19 Capital Budget or as a supplement to the FY18 Capital Budget late in the upcoming fiscal year, should the design work be concluded by then. Either way there would be another public hearing on the project, so that the Council can hear the public’s reaction to these design elements before granting authority to build them.

Fenton Street station. A consistent comment at the public hearing was opposition to a station at Fenton Street in Downtown Silver Spring. It was noted that the buildings there are relatively close to the sidewalks, and that the sidewalks are not wide enough to accommodate the high-level platforms that are part of the BRT’s design. Others stated that there did not need to be a second stop in the CBD, and that an additional stop would increase the travel time for patrons destined to the Metro and the transit center.

Council staff agrees that Fenton Street is not an appropriate location for a BRT station given the physical constraints there. However, there should be a second station in the vicinity to serve employment east of Georgia Avenue. If the BRT goes only to the transit center, it is unlikely that many employees working east of Georgia Avenue would backtrack on foot to their workplaces. United Therapeutics testified that it did not want a station adjacent to its site, but there is space nearby that could accommodate a high-level platform on each side of Colesville Road near Spring Street. The space in front of the former Silver Spring Library is one such space. Note that a much larger transit investment—the Purple Line—will have two stops in Silver Spring: at the Metro Station and at Fenton Street (at the current Silver Spring Library). Council staff recommends relocating the proposed project’s BRT station from Fenton Street to the vicinity of Spring Street.

MetroExtra service. Many testified that instead of implementing the Executive’s proposal, the County should pay WMATA to initiate limited-stop MetroExtra service on US 29. BRT service,
especially once dedicated lanes are introduced, would provide superior service, but even if the Council
approves the Executive’s proposal, the service will not begin until 2020. Over the past year WMATA’s
Z routes have experienced some of the best ridership growth in the region (see @63). DOT cannot run
Ride On extRa service on US 29 in the short term, because it does not have the necessary buses on
hand. WMATA does have buses available to operate this service, and it could begin MetroExtra service in FY18.

WMATA staff suggests a new route that would run every 15 minutes in each direction either from Castle Boulevard/Briggs Chaney Park & Ride (P&R) or from Burtonsville P&R. In either case the route would run south on US 29 to Stewart Lane, continue through White Oak along Stewart Lane and Lockwood Drive to Burnt Mills, and from there south through Four Corners to Silver Spring and the transit center. The stops would be the same as the station locations in the Executive’s proposal. The staff suggests that the service only be provided during the weekday peak periods: 5:30-9:00 am and 3:00-7:00 pm.

The County’s cost would be to cover the portion of operating costs not recovered by fares, as well as certain one-time start-up costs, such as painting the buses with the “FLASH” brand, installing receptors to interact with the transit signal priority (TSP), among others. WMATA staff estimates the start-up and annual operating cost to the County to be:

<table>
<thead>
<tr>
<th>Service</th>
<th>Start-up Cost</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle Blvd./Briggs Chaney P&amp;R to Silver Spring</td>
<td>$170,000</td>
<td>$880,000</td>
</tr>
<tr>
<td>Burtonsville P&amp;R to Silver Spring</td>
<td>$250,000</td>
<td>$1,360,000</td>
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WMATA believes a reasonable objective is to have the service begin in mid-March 2018. Therefore, the cost in FY18 would be the start-up cost plus about 29% of the annual cost: $425,000 for the Castle Boulevard/Briggs Chaney P&R option or $645,000 for the Burtonsville P&R option.

DOT staff has raised concerns about the County directly paying for Metrobus service. They point out that for two decades there has been a bright line between the State’s and the County’s responsibilities when it comes to transit: the State is expected to pay all WMATA-related expenditures. However, MetroExtra on US 29 would be temporary—probably lasting only two years—until the Executive’s proposal is implemented. In the I-270 Corridor the County will be providing new Ride On express and limited-stop services while, because of State budget limitations, similar Metrobus services will be discontinued; effectively, is this not the County taking on what has been a State expense? DOT also asks whether the first call for additional County transit funds should be to retain these services. But they are relatively poor performers compared to the ridership that could be expected from the US 29 Corridor.

Council staff recommends adding to the Reconciliation List funds for MetroExtra service on US 29, in two tranches: a first tranche of $425,000 for weekday, peak-period service running every 15 minutes between Castle Boulevard/Briggs Chaney P&R and Silver Spring; and second tranche of $220,000 to have this service run between the Burtonsville P&R and Silver Spring.
Rapid Transit System (P501318)

This project provides for the initial steps and detailed studies related to a bus rapid transit system in the County, supplementing the Metrorail Red Line and master-planned Purple Line and Corridor Cities Transitway (CCT). The County Council approved the Countywide Transit Corridors Functional Master Plan, an amendment to the Master Plan of Highways and Transportation, on November 26, 2013. The amendment authorizes the Department of Transportation to study enhanced transit options and Bus Rapid Transit for 10 transit corridors, including: Georgia Avenue North, Georgia Avenue South, MD 355 North, MD 355 South, New Hampshire Avenue, North Bethesda Transitway, Randolph Road, University Boulevard, US 29, Veirs Mill Road and Corridor Cities Transitway.

Estimated Schedule
Phase 1 (Alternatives Retained for Design Study) facility planning for the MD 355 and US 29 corridors occurred in FY15 and FY16. Phase 2 (Recommended Alternative) facility planning for MD 355 will occur in FY17-19. Planning and design for US 29 will occur in FY17 and FY18. Construction may begin as early as FY18 contingent on status of design efforts and any necessary right-of-way acquisition for stations.

Cost Change
Increase due to the addition of vehicles, stations (including right-of-way), Transit Signal Priority, bicycle and pedestrian improvements, and project management for the US 29 BRT project. Also reflects $10 million in Federal TIGER grant funding for the US 29 BRT project.

Justification
The proposed RTS will reduce congestion on County and State roadways, increase transit ridership, and improve air quality. The RTS will enhance the County’s ability to meet transportation demands for existing and future land uses. Plans & Studies: MCDOT Countywide Bus Rapid Transit Study, Final Report (July 2011); County Executive’s Transit Task Force (May 2012); and Countywide Transit corridors Functional Master Plan (November 2013).

Other
The County has programmed funds for the Maryland Department of Transportation (MDOT) to conduct preliminary engineering for a master-planned RTS line on Veirs Mill Road between the Rockville and Wheaton Metro Stations ($6 million). This study is funded in the State Transportation Participation project, PDF #500722. The Georgia Avenue study was terminated in FY15.

Fiscal Note
The Maryland Department of Transportation draft Consolidated Transportation Program for 2014-2019 provides $10 million for County Rapid Transit System planning; $4.2 million in FY15 and $5.8 million in FY16. The Department is using these funds to begin facility planning for the MD 355 and US 29 corridors; FY17 includes $1.6 million in Liquor Bonds reallocated from the State Transportation Participation project. The project originally included $1 million in Liquor Bonds for facility planning on the New Hampshire Avenue corridor. Those funds have been reallocated to US 29 planning and design. Assumes $2 million in Impact Taxes from the cities of Rockville and Gaithersburg toward MD 355 facility planning. Assumes $2 million in private contributions for US 29 planning and design. Reflects reallocation of $1.3M in GO Bonds from the ADA Compliance Transportation project (#509325) to cover ADA sidewalk upgrades.

The Executive asserts that this project conforms to the requirements of relevant local plans, as required by the Maryland Economic Growth, Resource Protection and Planning Act.

**Coordination**

Maryland Department of Transportation, Washington Metropolitan Area Transit Authority, Maryland-National Capital Park and Planning Commission, City of Rockville, City of Gaithersburg, Montgomery County Rapid Transit Steering Committee, State Transportation Participation project (#500722)
US29 Bus Rapid Transit (BRT) Project
Montgomery County, Maryland

Montgomerycountymd.gov/brt/us29project.html
GetOnBoardBRT.com/us29

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March 2017

| Montgomery County US 29 BRT Project

TIGER

Montgomery County Department of Transportation
**PROJECT OVERVIEW**

**Project Name:** US 29 Bus Rapid Transit (BRT) Improvements Project

**Project Type:** Premium, limited-stop Bus Rapid Transit service and Bikeshare

**Project Description:** The Montgomery County Department of Transportation (MCDOT) is implementing a bus rapid transit (BRT) system along US 29 that meets the immediate needs of transit populations along this busy corridor. The US 29 Bus Rapid Transit (BRT) Improvements Project will transform mobility options with the implementation of a 14-mile, premium, branded, limited-stop BRT service. This new service will improve transit travel time and increase opportunity for a broad range of users, including a significant number of minority and low-income riders living along a highly congested corridor.

The project will improve passenger transit mobility by connecting riders to high density housing and employment centers. This project is vital to the success of significant new private development and employment in the recently adopted White Oak Science Gateway Master Plan.

The project is funded in part by a $10 million from the U.S. Department of Transportation’s TIGER (Transportation Investment Generating Economic Recovery) discretionary grant program.

**Total Capital Cost:** $31,500,000  
**Federal TIGER Funds:** $10,000,000  
**County Contribution:** $21,500,000
PROJECT DESCRIPTION

The US 29 Bus Rapid Transit (BRT) Improvements Project will transform mobility options with the implementation of a **14-mile, premium, limited-stop BRT service** on the eastern edge of Montgomery County, Maryland. This project will improve transit reliability and opportunities for low-income and minority populations, enhance planned mixed-use redevelopment transforming an auto-oriented single-purpose development into vibrant, mixed-use urban centers, provide access to a fast-growing jobs corridor, and enhance the quality of life for over 120,000 people who live within a half-mile of this highly congested suburban corridor. The project is funded in part by a $10 million from the U.S. Department of Transportation’s TIGER (Transportation Investment Generating Economic Recovery) discretionary grant program.

US 29 BRT PROJECT OVERVIEW

- **Frequent all-day service**
  - Running every 7.5 minutes during the peak period and every 15 minutes during the off-peak.
  - A proposed span of service from 5am to midnight, 7 days/week.
- **Uses Existing Roadway**
  - Uses existing bus-on-shoulder lanes on US 29 in the northern section of the corridor.
  - Operates in mixed traffic in the southern section of US 29 and along Lockwood Drive, Stewart Lane, Briggs Chaney Road, and Castle Boulevard.
- **Transit Signal Priority (TSP)** will be installed at up to 15 intersections along the corridor to provide traffic signal benefits to BRT vehicles where appropriate, reducing travel time and increasing reliability.
- **Uniquely Branded Vehicles and Stations**
  - Sleek, articulated BRT vehicles with multiple-door level boarding and interior bike accommodation
• 11 stations locations (18 station platforms) with level-boarding, off-board fare payment, and real time travel information.
• **Bike and pedestrian improvements** to facilitate station access, including 10 new Capital Bikeshare stations

**US 29 BRT Corridor**

Unlike other parts of the region, the US 29 Corridor has not benefited from recent growth. The recently approved White Oak Science Gateway Master Plan provides a path to bring vibrant mixed-use developments to the area. At one million people, Montgomery County has the largest population of any county in Maryland, and it’s growing: after adding more than 166,000 people between 2000 and 2015, the County is projected to add another 162,000 people between 2015 and 2040. This fast-paced growth has spurred new investment and planning in the County’s lower-density suburban auto-centric communities and corridors, aiming to increase quality of life and reduce crippling traffic congestion for both County residents and regional commuters. The US 29 BRT Corridor, located on the eastern side of the Montgomery County near the borders with Howard and Prince George’s County, is a critical part of that investment and planning.

The US 29 BRT will link a continuous corridor of suburban centers, highway developments, shopping centers, federal offices, residential neighborhoods, regional park-and-rides, and a highly dense residential and jobs center in Silver Spring. Over 120,000 people live within half of a mile of US 29 planned BRT stations, and the racial and income diversity of corridor residents is indicative of the continuing diversification of suburbs nationwide. The corridor is highly *diverse*, with 65% minority, 32% foreign born, and 30% of households classified as “very low-income.” As housing prices surge in neighboring Washington D.C., corridors like US29 in Montgomery County and other suburban jurisdictions have become home for previous residents of the nation’s capital, newly arrived immigrants, and others seeking more affordable residential locations beyond the Capital Beltway.

Despite its diverse and growing population, the US 29 corridor still has the infrastructure from a
previous generation, including both auto-centric development and intense traffic congestion due to the corridor’s role as both a vital intra-county connection and a commuter route to Washington, D.C. Of the 366,000 trips per day start in the corridor area, 46 percent are single-occupancy vehicle and 10 percent are transit.\footnote{6}

Despite the automobile-oriented development patterns, US 29 is the busiest transit corridor in Maryland. The regional, local, and commuter buses carry over 11,000 daily trips on the US 29 Corridor.\footnote{7} However, bus travel on the corridor is subject to the same lengthy delays as automobiles, reducing the reliability and usefulness of transit for both commuter and non-work trips.\footnote{8} In fact, bus trips on the corridor are, on average 20 percent longer than automobile trips, and can be as much as 60 percent longer during peak periods.\footnote{9}

The process of re-developing a 3,000 acre suburban center along US 29, the White Oak Science Gateway, into a series of mixed-use, transit-friendly developments that embrace the existing assets of the corridor while reducing roadway congestion has begun. To be truly successfully, a vital component of this redevelopment is a BRT corridor. The US 29 Corridor currently lacks a transit connection from Burtonsville to Silver Spring that can support its planned growth.

\textbf{PROJECT HISTORY}

The US 29 BRT Improvement Project is the product of a multi-year planning effort to bring a high quality, convenient and reliable transit to the US 29 corridor. Montgomery County Department of Transportation’s Countywide Bus Rapid Transit Study (2011) recommends BRT for the US 29 corridor, as does the Countywide Transit Corridors Functional Master Plan, which was adopted in 2013. In 2014, Montgomery County Department of Transportation (MCDOT) began working with the Maryland State Highway Administration (SHA) and the Maryland Transit Administration (MTA) to study the possibility of BRT implementation on the corridor with $3.5 million in state assistance.
In order to give community stakeholders a critical voice in the BRT system planning process, Montgomery County formed two Citizen Corridor Advisory Committees (CACs) for the US 29 corridor. Over the last two years, the State and County have held 19 public meetings with CACs on US 29, a group of approximately 60 community members who represent the neighborhoods along the corridor. The Committees, which advise on BRT design, study assumptions, transit access, coordination with other modes, public involvement planning, and community needs, helped the project team develop a Preliminary Purpose and Needs document for a US 29 Bus Rapid Transit Corridor in 2015. During US 29 BRT planning, Montgomery County has incorporated other jurisdiction’s goals as outlined by Washington Metropolitan Area Transit Authority’s Priority Corridor Network (WMATA PCN), the TIGER I grant, and neighboring BRT plans. The input from CAC members and other stakeholders has shaped the project that is being advanced as an outcome of the planning process.

In response to the corridor’s immediate need and with input from the CACs, MCDOT developed a plan to implement BRT on US 29. In early 2016, Montgomery County Executive Ike Leggett announced recommendations for better transit on the County’s corridors, including $6.5 million in the County’s Capital Budget for the planning and design of a US 29 BRT on existing pavement, with the intent of “Getting this route up and running less than four years.”

Maryland Department of Transportation (MDOT) released the US 29 BRT Draft Corridor Study Report (CSR) for the US 29 Bus Rapid Transit (BRT) project in January 2017. One notable finding of the CSR was that implementation of managed lanes in the southern portion of the corridor would require additional analysis. As a result, these **managed lanes are not included as part of the County’s BRT project on US 29**. The US 29 BRT will use existing Bus on Shoulder north of Tech Road and existing travel lanes south of Tech Road. The project will include BRT stations, new vehicles, Transit Signal Priority (TSP), and station-area bike/pedestrian improvements.

Completion of the CSR, which focuses on a 2040 horizon year, was a significant milestone and represented a point of transition from long range planning into design of more immediate transit improvements for the US 29 corridor. The more immediate BRT implementation is based on the County Executive’s vision described last March for implementation using existing
infrastructure as much as possible by 2020. Moving forward, MCDOT will lead the implementation of the US 29 BRT, drawing upon the findings documented in the CSR such as station locations and service plans.

In March 2017, MCDOT held a series of Public Open Houses in three locations on the corridor, as an opportunity for additional conversation with people interested in the County’s plans to improve transit service on the corridor. MCDOT plans to make meeting materials available as a “virtual” open house on the BRT website.

**THE CORRIDOR – A SECTOR SNAPSHOT**

BRT on US 29 will serve three distinct sectors of the corridor: Silver Spring, White Oak, and Burtonsville/Fairland. Each of these sectors has unique characteristics, both in the built environment and use:

- **Silver Spring**: Densely built urban environment near Washington, D.C. that serves as a regional activity center with private and government jobs, social services, healthcare, a large community college campus, and access to local and regional transit, including commuter rail and heavy rail to DC, Virginia, and Maryland. With 15,000 daily boardings, the Silver Spring Metro Station is the busiest station in the County. Downtown Silver Spring has a current Non-Auto Driver Mode Share of (NADMS) 53 percent.

- **White Oak**: Transitioning from an auto-centric 3,000-acre regional activity center north of Silver Spring with over 27,000 jobs, including the Food and Drug Administration (FDA) and the White Oak Federal Research Center to an urban focused development. The White Oak Science Gateway Master Plan, developed with community input, provides guidance for the area to be redeveloped as three walkable mixed use activity centers. US29 will be the first of three BRT corridors to serve White Oak. In addition to the FDA, the area’s largest employers include a new Washington Adventist Hospital, Kaiser Permanente, and Verizon.

13,500+ Federal Jobs in White Oak and Silver Spring
White Oak is a new Transportation Management District with a NADMS goal of 30 percent for new development.

- **Burtonsville/Fairland**: Near the intersection of three Maryland counties, currently serves as a Commuter Park and Ride hub for the region; the Burtonsville Crossroads Neighborhood Plan is helping to shape the rural/suburban area into a neighborhood center with community services.

### CORRIDOR NEEDS

#### Limited Appeal of Existing Transit Services

**Transit trips currently account for 10 percent of total trips on the corridor.** Current on time performance for local corridor transit services averages 45-77%. As transit demand and ridership in the US 29 corridor continues to grow, high-quality transit service is needed to maintain current transit riders and attract new riders. Current transit is noncompetitive when compared to automobile use for “choice” riders on the US 29 corridor. Without an attractive system, the amount of automobile travel will increase, which leads to greater traffic congestion and reduced bus performance and greatly detracts from the vision of the White Oak Science Gateway.

#### Roadway Congestion and Safety

Traffic congestion currently impedes bus and rider mobility and results in unpredictable bus service, longer travel times, and delayed schedules. Corridor-wide enhancements to address efficiency and reliability are needed to improve mobility for transit riders. Currently, bus travel times along the corridor take, an average, over 20 percent longer than automobile trips, with some segments reaching as high as 60 percent longer.

White Oak has limited options for new vehicular connections. This area is particularly constrained by existing development, ownership patterns, the large federal property, and environmental resources. These physical constraints limit opportunities to improve circulation and connectivity, which forces all local traffic onto the major highways.

**Statement of Need**

- Limited appeal of existing transit services despite a strong market for transit trips
- Roadway congestion and safety
- Limited connectivity of facilities for pedestrians and bicyclists
- Planned growth within the study area
- Transit-dependent community with limited options for mobility
System Connectivity

A high-quality, continuous transit service from Silver Spring to Burtonsville that can support the surrounding mixed used development along the corridor is needed to connect transit customers to local and regional employment and activity centers. The US 29 corridor serves as both a job location, with 61,000 jobs along the corridor in 2010 (projected to over 81,000 in 2040), and a job connection to the more than 3.8 million jobs in the greater Washington, DC region. Transit service is essential to support future the development of mixed-use communities along the corridor, including the planned White Oak Science Gateway development. The US 29 BRT will have ridership in both directions during the peak period due to the growing job market in White Oak as well the traditional suburban commute to downtown.

Quality of Life

Transit improvements are needed throughout the US 29 corridor to create a transportation network that enhances choices for transportation users and promotes positive effects on the surrounding communities and residents' quality of life. Twelve percent of...
households on the corridor do not have access to a car, and an additional 38 percent of households on the corridor only have access to one car. Median income is 22 percent below the County average in the White Oak Science Gateway area and 42 percent of bus riders use more than 30 percent of their income on housing costs. A 2014 Washington Post profile of the increasing poverty in the eastern edge of Montgomery County notes that “[t]he economic downturn in Montgomery was accompanied by record immigration, with many newcomers leaving white-collar jobs in their home countries only to find few decent job opportunities here. Meanwhile, rents in the District and close-in suburbs spiked faster than outside the Capital Beltway, and government voucher programs made the suburbs more accessible to the poor. But accessible does not necessarily mean hospitable. From Briggs Chaney Road, the Silver Spring Metro station is nine miles away, connected by a bus route that can take more than 45 minutes.” (emphasis added)

"BRT is crucial to Montgomery County's future if we are to reduce traffic congestion, spur business growth and attract a talented workforce to build on our innovative economy, provide affordable transportation options for people of all incomes, create a reliable intra-county bus rapid transit system and fight climate change through reduced greenhouse gas emissions. Many of our current plans for walkable, livable new mixed use communities hinge on providing a robust and efficient transit system."

-Ike Leggett, County Executive

HOW BRT CAN HELP

Improve the Quality of Transit Service

US 29 BRT will improve the quality of transit service by increasing travel speed, reliability, frequency and ease of use thus better serving existing riders and attracting new riders.

- Improved transit reliability: Current on time performance for local corridor transit services averages 45-77%. US 29 BRT will improve reliability through use of Bus on Shoulder lanes, Transit Signal Priority (TSP), and more efficient operations (level multiple-door vehicle boarding, limited stops, off-board fare collection).

- Travel time savings: The more efficient operation of BRT on US 29 is expected to result in a 22-35% corridor travel time savings over current local bus service.

- New and existing riders: In 2020, the US 29 BRT is expected to have 13,000 daily weekday riders, 3,950 of which will be new transit riders shifting from autos. In 2040, this grows to 5,700 new riders and 20,000 boardings. This number of daily boardings exceeds the ridership for most BRT lines in the United States.
- Efficiency: An element of the US 29 BRT project will be to examine local service along and around the corridor for operational efficiency improvements, potentially increasing the level of transit service to surrounding communities.

Improve Mobility Opportunities and Choices

US 29 BRT will improve mobility options and choices by strengthening the north/south transit connectivity to existing and proposed transit systems and major employment and activity centers thus improving neighborhood, local and regional connectivity.

- Increased access to job opportunities: The US29 BRT corridor has over 61,000 jobs today, including 13,500+ federal jobs, and is projected to have 81,000 jobs by 2040. The metropolitan region has over 3.8 million jobs today, and is projected to have over 5.4 million jobs by 2040.

- Transit connectivity: The US 29 BRT will provide major links to the region’s transit modes, including the Red Line on the Metrorail system, MARC Commuter Rail, numerous county and intercity bus routes; commuter buses; planned Bus Transit Priority Corridor in Washington, D.C.; and the future Light Rail line (the Purple Line) connecting the outer edges of the Metrorail system. US 29 will be the first of three planned BRT corridors to serve White Oak area. Additionally, Montgomery and Howard Counties are exploring a future bi-county service expansion.

- Pedestrian and Bike Access: Ten new Capital Bikeshare stations will further connect the US 29 corridor to Capital Bikeshare’s 350+ stations throughout Montgomery County, Washington, D.C., Arlington, Virginia, and Alexandria, Virginia, including 66 bikeshare stations in the County. Montgomery County offers low-income residents free Bikeshare memberships, training, helmets, and route planning.

Enhance Quality of Life

US29 BRT will enhance quality of life by improving access to housing and jobs and better serving transit demand and transit dependent populations.
• **Upward Mobility:** US 29 BRT biggest impact will be felt among those who rely on the service to access jobs and other social services. A Harvard Study showed that commute times were the single strongest factor in the odds of escaping poverty. In the short term, faster service on US 29 will reduce travel times and provide transit dependent populations more flexibility in their daily lives. In the long term, the US 29 BRT will create the framework for upward mobility.

• **Better Access:** The US 29 BRT corridor will provide immediate, positive benefits to the diverse populations living along the corridor. Within approximately a ½ mile of US 29 BRT stations, residents will have access to six public schools, one regional community college campus, four community and recreation centers, two Regional Service Centers, which coordinate Montgomery County direct service delivery, focusing on the needs of each region, three public libraries, five health centers providing healthcare for low-income families and 61,000 jobs, including jobs at nine federal offices and 16 shopping centers. Expanded mid-day service will help make these connections for all residents, not just typical commuters.

Support Master Planned Development

US 29 BRT will support master planned smart growth development.

- **White Oak Science Gateway:** This project is vital to the success of significant new private development and employment in the recently adopted White Oak Science Gateway Master Plan, which includes the relocation of Washington Adventist Hospital, the

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**Ladders of Opportunity**

For residents along the corridor, US 29 BRT will

- Increase transit access and reliability
- Increase regional connections and access to a fast-growing jobs corridor
- Support mixed-use developments in suburban corridors (reducing the need for a vehicle to access critical services)
- Improve quality of life through decreased travel times and congestion-related negative impacts, such as greenhouse gas emissions.

**US 29 is a snapshot of America's increasingly diverse suburban areas**

The census block groups and tracts within ½ mile of planned US 29 BRT stations are:

- 65% minority
- 32% foreign born
- 30% Very Low Income
  - Households with an annual income of less than $30,000
- 12% of households have access to zero vehicles
- 38% of households have access to only one vehicle
- 31% of those over the age of 5 speak a language other than English at home
- Home to over 9,000 senior citizens and over 11,000 people with disabilities
consolidation of the Food and Drug Administration (FDA) at the White Oak Federal Research Center (FRC), and 300 acres of private development. In addition to the FDA, which now has 8,100 employees on site, the area's largest employers include Washington Adventist Hospital, Kaiser Permanente, and Verizon.20

- Economic Benefits: The US 29 BRT project is estimated to result in $269-520 million of economic net benefit.21 Development of the White Oak Science Gateway will benefit substantially from the presence of high quality transit service such as the US 29 BRT.

Sustainable and Cost Effective

US 29 BRT is a sustainable and cost effective transportation solution that addresses both physical and financial constraints.

- Minimal Impacts: To capitalize on existing assets and minimize impacts, US 29 will be implemented primarily within existing right of way (ROW). Stations may be built outside of the existing curbs and may require some additional property.

- Better Health: US 29 BRT will improve air quality by reducing regional auto vehicle miles traveled (VMT) and related emissions. In 2040, the BRT will result in an average weekday savings of 33,353 VMT and an average annual savings of 9,672,382 VMT. The resulting value of the air quality savings is approximately $1.09 million (at a 3 percent discount rate).

- Lasting Benefits: The project has a benefit cost ratio of 4 to 1. This means the monetized user time savings, user cost savings, greenhouse gas & emissions reductions, and accident reductions outweigh the project costs.
**BENEFITS:** The US 29 BRT project will provide many quantifiable benefits to one of the busiest transit corridors in the State, including:

- **ATTRACTING "CHOICE" RIDERS AND PROVIDING BETTER SERVICE FOR EXISTING RIDERS:** US 29 BRT is projected to have 10,000 daily boardings in 2020 and 20,000 daily boardings in 2040. This number of daily boardings exceeds the ridership for most BRT lines in the United States.

- **IMPROVED TRANSIT RELIABILITY:** Current on time performance for local corridor transit services averages 45-77%. US 29 BRT will improve reliability through use of dedicated Bus on Shoulder lanes, Transit Signal Priority (TSP), and more efficient operations (level multiple-door vehicle boarding, limited stops, off-board fare collection).

- **TRAVEL TIME SAVINGS:** The more efficient operation of BRT on US 29 is expected to result in a 22-35% corridor travel time savings over current local bus service.

- **ECONOMIC BENEFITS:** The US 29 BRT project is estimated to result in $269.52 million of economic net benefit. Development of the White Oak Science Gateway will benefit substantially from the presence of high quality transit service such as the US 29 BRT.

- **EFFICIENCY:** An element of the US 29 BRT project will be to examine local service along and around the corridor for operational efficiency improvements, potentially increasing the level of transit service to surrounding communities.

- **ACCESSIBILITY:** US 29 BRT will increase regional connections and access to a fast-growing jobs corridor, and will improve transit access and provide upward mobility to transit-dependent populations along the corridor.

- **LASTING BENEFITS:** The project has a benefit cost ratio of 4 to 1. This means the monetized user time savings, user cost savings, greenhouse gas & emissions reductions, and accident reductions outweigh the project costs.

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PROJECT LOCATION

The proposed 14-mile US 29 Bus Rapid Transit (US29 BRT) runs along US Route 29 in eastern Montgomery County, Maryland. Montgomery County is located just north of Washington, D.C., and is an integral part of the economic, social, and political fabric of the Washington DC Metropolitan Area. The county is part of the Metropolitan Planning Organization’s National Capital Region Transportation Planning Board and the Washington-Baltimore-Northern Virginia Combined Statistical Area, which has a population of more than 9 million people. Montgomery County is the most populous county in the state of Maryland with over 1 million residents, and it is the second most populous county in the metropolitan region.

Montgomery County’s high median income masks the social and economic factors at play in eastern Montgomery County. While the western section of the county has flourished, the eastern section has suffered from a legacy of disconnection, as well as the effects of the recent economic recession. The US 29 corridor is the prime example, as cited by a 2014 Washington Post article, “In 2000, none of the county’s census tracts had more than an 18 percent poverty rate. Now, even as $3 million condos sprout in Bethesda, there are 12 tracts exceeding that benchmark, including the Briggs Chaney neighborhood east of Route 29, near the Prince George’s County line.”23 The US 29 BRT will travel through a diverse set of neighborhoods ranging from rural Burtonsville to suburban White Oak to urban Silver Spring. The demographics of the corridor range from very low income to above the median income level. The US 29 BRT will connect these diverse populations and landscapes to provide the most in need populations with access to the more than 3.8 million jobs in the greater Washington, D.C. region.
The US 29 BRT will directly serve Silver Spring and White Oak, major regional activity centers, which are home to three of the county's largest employers: the U.S. Food and Drug Administration (FDA), with over 13,000 employees; the National Oceanic and Atmospheric Administration (NOAA), with over 4,600 employees; and Discovery Communications, a Fortune 500 company, with over 1,500 employees. The corridor will only continue to grow, with job growth in Silver Spring and White Oak estimated to be over 80 percent by 2040. Montgomery County supports economic development and growth with transit infrastructure, such as that envisioned in the Countywide Transit Corridors Functional Master Plan, and by offering many competitive business resources including “Fast Track” permitting. These policies ensure the US 29 BRT project generates sustainable growth by attracting businesses that are accessible to all populations regardless of income level or background.

Along the corridor, US 29 changes from an urban road in Silver Spring to a six-lane divided expressway with existing Bus on Shoulder lanes north of MD 200. The US 29 BRT project will transform US 29, the only US Route in the County, from auto-centric to a transit oriented roadway that provides transit connections to the corridor, the County, and the region. The US 29 BRT will provide vital transit connections to 22 local bus routes, six Commuter Routes, Metrorail, MARC Commuter Rail, and Amtrak on one of the most congested and failing road corridors in the region. The US 29 BRT will also provide future connections to the Purple Line Light Rail Line, which is scheduled for construction, providing inter- and cross-county connections, and the US 29 BRT will provide a link between Howard County's and Washington, D.C.'s US 29 BRT systems. These numerous transit connections provide the corridor and the region's diverse, low-income transit dependent populations with affordable, safe, and reliable access to one of the country's fastest growing job and housing markets.
PROJECT PARTIES

The US 29 BRT project will be implemented and operated by Montgomery County Department of Transportation (MCDOT). MCDOT will oversee all aspects of the project and will coordinate closely with all project parties.

Montgomery County Department of Transportation (MCDOT)
MCDOT will oversee all aspects of the project and will coordinate closely with all project parties. MCDOT has 1,345 Employees and an annual operating budget of $205 million.

Maryland State Highway Administration (SHA)
SHA, part of the Maryland Department of Transportation, maintains, improves and develops state highways and roads and ensures safe driving conditions for Maryland citizens. SHA will be a coordinating partner in planning, engineering, signal design and Bikeshare.

Maryland Transit Administration (MTA)
MTA, part of the Maryland Department of Transportation, provides commuter rail, commuter bus, and mobility services to Maryland citizens. MTA will coordinate implementation of the BRT with its existing commuter bus routes and the Purple Line. MTA will also assist with grant administration.

Washington Metropolitan Area Transportation Authority (WMATA)
WMATA operates Metrobus, Metrorail, and MetroAccess. WMATA will participate in coordinating bus operations, real time transit information (RTTI), and fare collection to ensure system integrations.

Howard County
Montgomery County, Howard County, and the State of Maryland are working closely to provide future BRT service through US 29 to Columbia in Howard County. Howard County will
be initiating a planning study of BRT along US 29 in their county in 2017. The study will be conducted by Howard County with funds provided by the Maryland Department of Transportation.

Corridor Advisory Committees

The County's Corridor Advisory Committee (CAC) of US29 Corridor residents and businesses will continue to meet to provide feedback and input on the US29 BRT project. The County created a robust application process and the CAC members reflect the corridors diversity. Throughout all phases of the US 29 project, Montgomery County will take numerous steps to inform and involve the public and community groups, including holding public meetings, open houses and presentations. See Section VIII. Public Engagement for information about the CACs and the Public Involvement Plan.

The project has numerous letters of support from local, regional, state, federal, and non-profit representatives and other public and private stakeholders who support the project and the application to USDOT for grant funding, all of which are included in Appendix A.

The list below itemizes the support letters that can be found in Appendix A:

Barbara Mikulski, United States Senator, MD
Benjamin Cardin, United States Senator, MD
U.S. Rep. John Sarbanes, 3rd Congressional District, MD
U.S. Rep. John Delaney, 6th Congressional District, MD
U.S. Rep. Chris Van Hollen, 8th Congressional District, MD
Pete Rahn, Secretary, Maryland Department of Transportation
Isiah Leggett, Montgomery County Executive
Allan H. Kittleman, Howard County Executive
Sen. Nancy J. King, Chair, Montgomery Co. Senate Delegation
Del. Shane Robinson, Chair, Montgomery Co. House Delegation
Nancy Floreen, President, Montgomery County Council
Casey Anderson, M-NCPPC - Montgomery County Planning Board
National Capital Region Transportation Planning Board (MPO)
Paul J. Wiedefeld, General Manager and Chief Executive Officer, Washington Metropolitan Area Transit Authority (WMATA)

East County Citizens Advisory Board
Good Hope Estates Citizens Association
Greater Colesville Citizens Association
LABQUEST Partnership, Montgomery County, MD
Saul Centers, Inc., Bethesda, MD
Soltesz Inc., Lanham, MD
The Duffie Companies, Silver Spring, MD
Washington Adventist Hospital, Takoma Park, MD
2011: MCDOT completes a Countywide Bus Rapid Transit Study, which studies how to address increased travel demand in the county's corridors, including BRT on US 29.

2013: County Council approves the Countywide Transit Corridors Functional Master Plan, which proposes a BRT network throughout the County (including US29) to support the County's mobility, land use, and economic development goals.

2014: Montgomery County begins working with the Maryland State Highway and the Maryland Transit Administrations to study four corridors for possible BRT implementation. Three corridors included in the process, including US29.

2014: Citizen Corridor Advisory Committees are formed for each study corridor, giving community stakeholders a critical voice in the BRT system planning process. Committees advise on BRT design, study assumptions, transit access, coordination with other modes, public involvement planning, and community needs.

2015-2017: Two Corridor Advisory Committees for US 29 have meet 19 times so far and will continue to meet as the process goes forward.

2015: The project team, in consultation with the two Corridor Advisory Committees for US 29, develops a preliminary purpose and needs document for the US 29 Bus Rapid Transit Corridor.

2016: Montgomery County Executive Ike Leggett announces recommendations for better transit on the county's corridors, including $6.5 million in the County's Capital Budget for the planning, design, outreach and marketing of a US 29 BRT on existing pavement, with the intent of "Getting this route up and running less than four years."

2016: U.S. Department of Transportation selects Montgomery County to receive a $10 million TIGER grant (Transportation Investment Generating Economic Recovery) to help fund the 14-mile Bus Rapid Transit (BRT) system along US 29. The TIGER program is merit-based and highly competitive.
PROJECT BUDGET AND SOURCE OF FUNDS

The implementation cost for the US 29 BRT project is estimated to be $31.5 million, $10 million of which will be supported by the Federal government as part of a Transportation Infrastructure Generating Economic Recovery (TIGER) grant.

TIGER GRANT SELECTION CRITERIA

The highly competitive TIGER grant program supports innovative capital projects that generate economic development and improve access to reliable, safe and affordable transportation for communities. The US 29 BRT project was selected to receive $10 million in TIGER funds because it is well-aligned with the TIGER Discretionary Grant program selection.
criteria and provides both long-term and short-term benefits to Montgomery County and the surrounding region. This project will provide a new link to the multimodal transportation network, thus reducing operating costs, travel times, vehicle exhaust emissions and other environmental benefits compared with the current conditions. At the same time, the BRT will increase job opportunities, economic competitiveness, and improve livability in the County and National Capital Region by stimulating development of this key corridor into a vibrant, mixed-use, and inclusive community.

The corridor's suburban landscape currently encourages automobile usage which further degrades the corridor's vitality. The US 29 BRT will redefine the suburbs by creating a sustainable, inclusive, and accessible landscape. By improving transit service on the corridor, the disadvantaged populations who do not have access to automobiles will finally have reliable, fast, and safe access to the corridor and region's opportunity.

STATE OF GOOD REPAIR

The US 29 BRT project reflects Montgomery County's dedication to improving and maintaining its existing transportation facilities. A transportation system in a state of good repair creates a built environment that inherently promotes the success of all people. The bus purchase component of the US29 BRT project will enable the County to purchase 14 articulated buses. Smaller bus shelters will be replaced at stops with larger, newer stations with enhanced amenities including real-time transit information screens, off-board fare collection, and level-boarding platforms to accommodate increased ridership. Ride On's state-of-the-art maintenance and operation facility (which opened in October 2013) has capacity to service and maintain the proposed fleet expansion. County's Ride On bus system consists of 337 County owned and operated buses on 78 routes. Ride On has an annual ridership of approximately 27 million and a daily average of 88,000 riders.

ECONOMIC COMPETITIVENESS

This project meets the USDOT's goals for the provision of "ladders of opportunity" by creating and improving connections between people and centers of employment, education, and

"BRT is crucial to Montgomery County's future if we are to reduce traffic congestion, spur business growth and attract a talented workforce to build on our innovative economy, provide affordable transportation options for people of all incomes, create a reliable intra-county bus rapid transit system and fight climate change through reduced greenhouse gas emissions. Many of our current plans for walkable, livable new mixed use communities hinge on providing a robust and efficient transit system."

-Ike Leggett, County Executive
services while removing barriers to connected systems of transportation. Specifically, the US 29 BRT project will spur sustainable and equitable development and redevelopment of non-transit-oriented suburban spaces.

Increase Movement of People

The US 29 BRT system will facilitate the efficient movement of people and provide viable alternatives to the automobile. In 2020, the US 29 BRT is expected to have 13,000 daily weekday riders, 3,950 of which will be new transit riders shifting from autos. In 2040, this grows to 5,700 new riders and 20,000 boardings.24

Increase Transit Oriented Development in Suburban Areas

The US 29 BRT will connect suburban White Oak and rural Burtonsville to Silver Spring, which serves as a model for the county’s successful ability to transform suburban landscapes into sustainable and equitable transit oriented developments. The White Oak Sector Plan envisions a walkable and livable community with the US 29 BRT, which is expected to become operational on a time frame concurrent with the Sector Plan, serving as the backbone of the area’s revitalization. The Burtonsville Crossroads Neighborhood Plan also envisions a complete community with small businesses, retail, local services, offices, residential, and open spaces, and sees the US 29 BRT station as a foundation for improving the area’s economy and regional connectivity.

Attract Tenants to Transit-Accessible Office Space

Montgomery County and the Washington D.C. region are experiencing an unprecedented increase in office vacancies, which negatively impacts the real estate market and more seriously degrades the region’s tax base. The office market vacancy rate in the region is 15 percent, and a Montgomery County Planning Department report found that “single use office developments without convenient transit or highway access are having difficulty in attracting tenants.”25 The same report also noted that technology has changed traditional location factors based on knowledge economy workers who prefer “[a]ccess to transit and walkable mixed-use environments where workers can live, eat and play.” In 2014, the office vacancy rate in Silver Spring — which is a more densely developed area — was 11.4 percent, while the vacancy rate

The most successful office clusters in Montgomery County are part of mixed-use developments with strong sense of place and a quality environment. Transit connectivity is increasingly important to office tenants. This trend is consistent with recommended land use strategies in recent County plans for White Flint, Bethesda, White Oak and other communities.

- Office Market Assessment, Montgomery County

This Plan relies on an efficient and attractive transit network to achieve the vision of transforming this area into a vibrant mixed-use center. The type and level of growth needed to achieve this vision cannot be supported by road improvements alone; there must be a robust transit network that connects the area to the rest of the eastern County and the region’s transit and highways.

-White Oak Master Plan
along the remainder of the US 29 corridor was 12.5 percent. With anticipated job growth on the corridor at 32 percent, the US 29 BRT project prioritizes transit oriented development, which the report recommends is the key to reducing vacancy levels.

Create New Jobs
This project will stimulate the region's economy through the creation of short-term and permanent jobs.

Once operational, the project will support 85 permanent jobs within Montgomery County, for a total of 130 full-time jobs statewide. These jobs will be associated with annual labor income of roughly $6.5 million statewide. Annual business sales will be bolstered by $13.4 million statewide.

In the long-term, the project will directly contribute to the creation of an even greater number of permanent new jobs in Montgomery County by enhancing the communities near new development in the Silver Spring and White Oak business districts. The corridor is estimated to have job growth of 32 percent by 2040, with estimates as high as 80 percent for Silver Spring and White Oak. In White Oak, BRT on US 29 could lead to the construction of 7 million square feet of commercial space – space that could accommodate more than 20,000 jobs.

QUALITY OF LIFE

Montgomery County is nationally recognized as one the nation’s top places for upward mobility. The US 29 BRT reflects the county's dedication to ensuring the top quality of life for all residents, employees, and visitors by increasing access to high-quality transit to benefit a diverse population, increasing access to jobs centers and access to areas north of the beltway with more affordable housing stock.

"I know that providing a BRT system will give County residents more time to spend with their family and enjoy leisure activities, and will improve each of our lives."
- Ike Leggett, County Executive

Montgomery County ranks #9 for creating economic opportunity

For children of parents at the 25th percentile of the national income distribution

Montgomery County raises their household income in adulthood by 0.52%.

- Harvard University: The Impacts of Neighborhoods on Intergenerational Mobility
Equitable Transit

Single Occupancy Vehicles (SOVs) are the primary travel mode along the US29 corridor and account for 46 percent of all trips. Under current roadway conditions, Maryland State Highway Administration found transit to be noncompetitive compared to automobile travel on US 29 due to inefficiency and unreliability. However, twelve percent, or nearly 15,000 households, on the corridor do not have access to a vehicle, which is twice as high as the county's average.28

Transit trips account for 10 percent of daily US 29 trips, but almost 35 percent of the corridor’s daily home based work trips. While the US 29 corridor is home to 65 percent minority populations, minority populations account for a higher proportion of the 15,000 daily transit riders, between 72 and 82 percent.

The US 29 BRT project also enhances the walkability and bikability along the corridor, in turn providing additional affordable, efficient, and safe transportation modes to all users. In addition to providing support programs such as Kids Ride Free and Seniors Ride Free, Montgomery County offers free Capital Bikeshare memberships, bike safety training, helmets and route assistance to low-income residents through its MCLiberty Program.

Equitable Housing

The suburbanization of poverty is a national trend, and through the US 29 BRT project, Montgomery County is working to ensure the built environment does not hinder the area’s affordability. Based on the Center for Neighborhood Technology's Housing and Transportation Index, the US 29 corridor becomes unaffordable as you travel north where the landscape is more auto-centric. For example, in rural Burtonsville, census data shows households on average spend 71 percent of their income on Housing and Transportation Costs.29 With driving costs as high as $14,000 a year in these areas, transforming these areas into walkable neighborhood centers will increase the affordability of the corridor.

Montgomery County is the nationwide leader in providing affordable housing and has policies in place to ensure the US 29’s corridor redevelopment is inclusive of low income populations. The White Oak Science Gateway Master Plan prioritizes retaining and creating

Montgomery County's Moderately Priced Dwelling Units Program

- The most number of affordable units of any community in the county
- More than 14,000 affordable units since 1976
- Serves households at a lower percentage of area median income than served in most other counties

TIGER

Montgomery County Department of Transportation
new affordable units to ensure redevelopment does not displace disadvantaged communities. In addition to establishing a 12.5% Moderately Priced Dwelling Unit (MPDU) requirement for new residential development, the plan also calls for a comprehensive countywide housing study to ensure redevelopment does not result in rent increases or reduce/eliminate the number of units that are currently market affordable.

ENVIRONMENTAL SUSTAINABILITY

More than 45 percent of all daily trips on the corridor are in Single Occupancy Vehicles (SOVs). This creates myriad environmental hazards for residents, workers, and visitors to the corridor. In Montgomery County, environmental hazards have a disproportionate impact on minority communities. With 65 percent of the US 29 corridor's population qualifying as minority, the environmental burden of projected increase of 15 percent more Vehicle Miles Traveled (VMT) in the absence of BRT will be more heavily felt among already disadvantaged populations.

The project will promote environmental sustainability by providing the following benefits:

- Reduced travel time and congestion will reduce vehicle emissions of particulate matter, nitrogen oxide, carbon monoxide, Volatile Organic Compounds and carbon dioxide. The value of the air quality savings is approximately $670,864 (at a 7 percent discount rate for the 21-year benefit-cost analysis term).

- Convert vehicle trips from single occupant vehicle to transit, bicycling and walking. The BRT will result in an average weekday savings of 33,353 VMT and an average annual savings of 9,672,382 VMT.

- The project includes solar Bikeshare stations and energy efficient signals.

SAFETY

The corridor's current suburban landscape limits alternative forms of transportation due to a lack of convenient, safe access. Creating a safer roadway by integrating multiple transportation

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options ensures populations with limited transportation choices have alternative, affordable, and safe travel options. The US 29 BRT will improve the safety of travel for all modes and users along the corridor, while increasing the accessibility of the regional transportation network by providing:

Safer and More Inclusive Transportation Options

BRT will incorporate appropriate safety elements into the adaptive transit signal priority (TSP) system design. Specific TSP design safety elements include use of a signal control algorithm that adjust signals to maintain safe and adequate pedestrian crossing intervals where applicable; emergency vehicle pre-emption; and basic timing plans that maintain safe operations requirements.

The BRT project will improve pedestrian access, ADA accessibility, and safety at BRT facilities, and to ensure safe connections can be made between the BRT facilities and existing rail stations, bus stops, and bikeshare stations.

The US29 BRT project includes implementing 10 more Capital Bikeshare stations and bike parking shelters at BRT stops. The Capital Bikeshare system provides users access to 350 stations throughout Montgomery County, Maryland, Washington D.C., Arlington, Virginia, and Alexandria, Virginia, with 66 stations in Montgomery County. Montgomery County is the first jurisdiction in the Bikeshare system to offer low-income residents free Bikeshare memberships, safety training, helmets, and route planning through the MCLiberty program.

Reduce Corridor Crash Rate

The current 14-mile corridor has a significantly higher crash rate than the statewide average for similar state-owned roadways. By implementing necessary pedestrian safety measures, the BRT project will improve safety on the corridor. The value of safety benefits from reduced crashes will be $19.9 million per year (2015 dollars), equivalent to $141 million when discounted at 7 percent over 21 years.
INNOVATION AND TECHNOLOGY

The US 29 BRT is pursuing innovation by advancing the region’s real-time transit information screens and transit signal priority efforts.

Real Time Transit Information (RTTI) Screens
As part of USDOT’s TIGER One award, the Washington, DC metropolitan region tested and installed real time arrival displays on priority corridor Metrobus routes around the region including in Montgomery County. The US29 Bus Rapid Transit project will to build on this success and install up to 18 new real time travel information screens at stops along the route. The new screens will show information about Metrorail and Metrobus; commuter rail arrivals; Bikeshare availability; and car sharing proximity. This live technology will increase ridership by improving rider confidence in the bus services, enable transit riders to quickly choose and adjust their preferred mode of travel, and promote the short bus headways available from the US 29 Bus Rapid Transit service.

Adaptive Transit Signal Priority
The TIGER US 29 BRT project will expand the County’s TSP implementation at up to 15 intersections on US 29. A successful pilot on MD 355 showed that TSP can be implemented smoothly in the County and will help accelerate this key project element.

PARTNERSHIPS
Collaboration between Montgomery County, the Maryland State Highway Administration (SHA) and the Maryland Transit Administration (MTA) has been critical in the planning process for this project. MCDOT will continue to coordinate with SHA and MTA during implementation for permits and grant administration. Howard County and WMATA will also play important participating and coordinating roles.
The County’s Corridor Advisory Committees (CACs) of US 29 Corridor residents and businesses will continue to meet and provide feedback and input on the US 29 BRT. The project team has already seen the benefit of their input in the development of the US29 Purpose and Need Document, service plans and station locations. Throughout all phases of the US 29 project, Montgomery County will take numerous steps to inform and involve the public and community groups, including holding public meetings, open houses and presentations.

**BENEFIT-COST ANALYSIS**

A formal benefit-cost analysis (BCA) was conducted for the project in accordance with USDOT’s recommended methodology for a period of 21 years, starting when operations begin in 2020 and ending in 2040. The project benefits and costs were discounted to current dollars using the USDOT’s recommended 7.0% discount rate and the alternative 3.0% discount rate. The BCA ratios, comparing the discounted benefits and costs are summarized in Appendix C. All monetized benefits and costs discussed below are in 2015 dollars and reflect net present values (NPV).

<table>
<thead>
<tr>
<th>Benefit-Cost Analysis Summary (2015$)</th>
<th>Discount Rate</th>
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<tr>
<td></td>
<td>No Discount</td>
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<tr>
<td><strong>Benefits</strong></td>
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<tr>
<td>Good Repair</td>
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<tr>
<td>Economic</td>
<td>User Time Savings</td>
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<td>Competitiveness</td>
<td>User Cost Savings</td>
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<td><strong>Costs</strong></td>
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<tr>
<td>Benefits Cost Ratio</td>
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</tbody>
</table>
The US 29 Bus Rapid Transit project costs include design and construction as well as annual operating and maintenance costs. In all, the monetized project cost over 21 years is $132 million (7.0% discount rate) or $168 million (3.0% discount rate). While the project requires notable investment, the project's BCA indicates that the benefits greatly outweigh the costs.

The project is expected to provide substantial benefits in the form of travel time savings for users, reduced vehicle operating costs for motorists who switch to BRT, and crash reductions along key segments of the corridor. When monetized, these benefits amount to nearly $401 million (7.0% discount rate) or $689 million (3.0% discount rate) – yielding a benefit-cost ratio of 3.04 to 4.08. Understanding the inherent risks of double-counting benefits, the assumptions used to quantify these benefits were conservative and pragmatic.

The BCA Summary is available Appendix C.

**PROJECT TIMELINE**

The US 29 Bus Rapid Transit project is a result of cooperative regional and local planning and as such, fits the local land use plans in the surrounding corridor. US 29 BRT is pursuing a timeline and implementation schedule with operations to begin in late 2019 to early 2020. The remaining work for the project is primarily engineering, station construction, and vehicle procurement.

**Environmental Approval**

The project qualifies for a Categorical Exclusion (CE) due to the limited impacts of this project and per FTA guidance on NEPA based on 23 C.F.R. §771.118.

**Right of Way & Technical Feasibility**

US 29 BRT will be implemented primarily within the existing right-of-way. In select locations, stations may be built outside of the existing curbs and may require additional

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property. These minor acquisitions have been included in the station cost and will not impede the project schedule.

**Project Schedule**

The figure below shows the planned schedule for the completion of preliminary engineering, final design and construction of US 29 BRT. Vehicle procurement will begin in late 2017 and occur throughout the project timeline. Construction will commence in mid-2018, with expected completion by late 2019 and the opening of US29 BRT as soon as possible thereafter. Public outreach will continue to be an essential part of the project.

![Project Schedule Diagram]

**PUBLIC ENGAGEMENT**

Plans for BRT on US 29 have been in development for nearly 10 years and public engagement for the proposed project has built upon earlier planning efforts that offered substantial opportunities for public involvement. These opportunities included the development of the Countywide Transit Corridors Functional Master Plan (CTCFMP) through the Montgomery County Planning Board’s and County Council’s public participation processes.

Once the CTCFMP was adopted, work began on specifically advancing study of BRT on US 29. In the last two years, the US 29 BRT project has been the subject of a Maryland Department of Transportation (MDOT) study and the opportunities for input on the project have gone well beyond the typical State or County public process. Before the onset of the US 29 BRT corridor study, the County Council established a requirement for a higher level of community engagement than is customary for transportation projects. The Council specified formation of
Corridor Advisory Committees (CACs) to ensure engagement of the most directly-affected stakeholders in the BRT projects. MDOT, in coordination with MCDOT, diligently embraced the required CAC process for public engagement throughout the study. The result is that public input has directly guided the project now proposed for implementation.

Over the last two years, the State and County have held 19 public meetings with Corridor Advisory Committees on US 29, a group of approximately 60 community members who represent the neighborhoods along the corridor. Meetings were held on the following dates:

- February 28, 2015 (two meetings)
- March 26, 2015
- March 31, 2015
- May 28, 2015
- June 2, 2015
- September 8, 2015
- September 10, 2015
- December 1, 2015
- December 2, 2015
- February 1, 2016
- May 18, 2016
- May 24, 2016
- July 14, 2016
- July 20, 2016
- September 22, 2016
- September 26, 2016
- January 31, 2017
- February 2, 2017
The CAC members were selected by their respective communities. One of their primary responsibilities is to share information from the meetings with their neighbors and those who selected them, obtain their input and convey this information to other CAC members, MDOT, and MCDOT.

To more widely share information, the CAC meetings are open to the public and all meeting materials, including video recordings of the meetings, are posted on the County’s BRT website for public review. Consistently throughout this process, MCDOT has offered to meet with any interested individuals and community groups about their concerns, and many residents and groups have availed themselves of these opportunities.

The project that MCDOT is advancing includes the station locations and transit service plans studied through the State’s US 29 analysis that included substantial public input from community members. The decision not to include the managed lane portion of the project at this time is based, in part, on concerns we have heard from the community about potential traffic impacts. There is no roadway construction included in the County’s planned implementation of BRT on US 29, and other elements that would have small right-of-way impacts, such as station locations, are being adopted from the State’s documented corridor study. All elements of the County’s BRT implementation, which includes new bus service, stations, transit signal priority, and bike/pedestrian improvements, have all been included in the study that has been conducted and vetted with the community over the last two years. The CAC members’ input has shaped the project that is being advanced as an outcome of the planning process.

As the project transitions from planning into design with MCDOT as the lead agency, MCDOT is stepping up our engagement activities. MCDOT will continue to meet with the CACs every one to two months to ensure community members have ample opportunity to provide input on the details of the project design. In addition, three Open Houses have been held as an opportunity for additional conversation with people interested in the County’s plans to improve transit service on the corridor. A second set of Open Houses will be held in the Fall of 2017 as the
project nears completion of preliminary design. In an effort to reach as broad a constituency as possible during the design phase of the project, MCDOT also plans to develop a “virtual” open house with the materials from the March meetings so that community members who are not able to attend in person can learn about the project and provide their input.

The project team recognizes that there are community members who may have little knowledge of the County’s plans for BRT, so in November 2016 MCDOT launched the GetOnBoardBRT education and outreach campaign to engage with County residents more broadly in the plans for BRT. The community outreach team has developed an easy-to-use website and informational videos; engaged on social media; held or attended 20 outreach events; and met with several major employers. All future outreach activities for the US 29 and other BRT projects in the County will be coordinated with the GetOnBoardBRT education efforts.

As part of the US 29 BRT project’s design phase, MCDOT is developing a comprehensive Public Involvement Plan (PIP) that will include outreach events, coordination with civic associations, employer focus groups, newsletters and other strategies for soliciting even more public feedback. A draft of the PIP will be provided to the CAC members so they can suggest other strategies we may want to consider. MCDOT’s goal is to reach out as broadly as possible to community members who may use and benefit from the BRT, as well as those who could be more directly impacted along the corridor itself.
REFERENCES

3. Unless otherwise specified, “the corridor” refers to a half-mile radius around planned BRT stations.
4. HUD FMR Income Limits for Montgomery County, MD 2015.
8. US 29 Bus Rapid Transit Corridor Planning Study Preliminary Purpose and Need Document.
27. Montgomery County 7.5%, US-29 Corridor: 12.1% (Silver Spring Station 20%, White Oak/Four Corners Station 7.6%, Burtonsville/Fairland Stations 9.5%)
28. Table B08201 Household Size by Vehicles Available (by Census Tract), ACS 2010-2015, 5-year sample.
29. Center for Neighborhood Technology. The Housing and Transportation Index. See "Montgomery County, Maryland."
County Council Members of the Transportation and Environment Committee:

There has been a great deal of testimony about the premature nature of the public hearing given that the County’s proposal, which may sound simple, was not fully studied or analyzed by comparing with other alternatives, nor was any environmental analysis done. The fact that this was the final public hearing on the Route 29 BRT with such minimal time for review is astonishing given the other corridors being studied and the appropriate attention to detail they are receiving. The County has not even provided the right-of-way acquisition that would be required, but you will be voting on whether to approve right-of-way acquisition and construction.

I am confident that the situation we find ourselves in would not occur if this were one of the other corridors being studied, Veirs Mill Road, Route 355 and Georgia Avenue. It is worth noting that you are receiving your second briefing on Veirs Mill Road BRT study this week which began over 5 years ago, yet you’re not being asked to vote on construction and right of way approval for that project, which has been under official study for 4 years longer than this study. It is also difficult for residents to understand why this is the first vetting by Councilmembers of the Route 29 BRT and that you are making a decision in the middle of very hectic annual budget discussions. This much abbreviated schedule allows very little time for meaningful discussion of pertinent details.

The purpose of this Route 29 study was to evaluate **options for improving mobility along Route 29**. The County’s proposal does not improve mobility. MCDOT did not even consider any other options nor was their proposal, which was just discussed this month for the first time in the CAC, included in the now closed State MTA study.

Note the following about existing conditions from page 6 of the MTA Study Operations Technical Report:

> “Additionally, corridor travel times for cars and trucks in the peak period directions are approximately 33 and 23 minutes during the AM and PM peak hours, respectively. Corridor travel times for local buses in the peak period directions are approximately 33 and 28 minutes during the AM and PM peak hours, respectively.”

A basic question that must be asked before review of this project is, **What Problem are You Trying to Solve?**

The MTA study showed that the best overall option for person throughput and travel time was the No Build option. The County did not include their proposal in the MTA Study, refused to do any alternatives analysis with other viable alternatives such the TSM, limited stop service, MetroExtra or BRT traveling on New Hampshire Avenue to the Purple Line at Takoma Langley Transit Center and on to Fort Totten. They haven’t even looked at the effect of providing shelters along the corridor where in many places, they have not existed before. So the information before the Council is insufficient and flawed and you must ask why.
Upon examination of the studies and the data made available, the following inconsistencies and questions are raised regarding MCDOT’s estimated benefits of their proposal:

1. **Did MCDOT underestimate projected travel time** by assuming in their model that there is more shoulder space (they are using outside shoulder) than there is? The route is 14 miles and their proposal says 40% will travel on the shoulder at 45mph. The MTA study describes the lack of shoulder space north of Tech Road due to exit and entrance ramps at several overpasses as well as pillars from overpasses. In fact the County’s own press release stated that the BRT would travel in a dedicated lane in the northern corridor. That is not true. Reviewing the MTA Study Mapping of Alternative B which showed the amount of outside shoulder, shows there are intermittent shoulders between Tech Road and Fairland Road (less than 1.5 miles) and then it picks up again past Briggs Chaney road near Paint Branch High School to intermittent shoulders near Greencastle. The shoulder appears intermittently again to Blackburn and then to the Exit to 198. So it is really less than 3 miles of shoulder available or 20% of the route.

2. **Did MCDOT also overestimate the average speed the bus would travel on the shoulder** between Tech Road and MD 198 by assuming 45 mph? The MTA study uses a more realistic 35 mph.

3. The benefits for level boarding and off board fare collection are minimal for Route 29 because 85% of riders use SmarTrip. In addition, when ITDP studied the corridor they found that since the only crowding was at the Silver Spring Metro station bus area, the benefits were not significant on the corridor for those features. “Concentrations of boarding and alighting passengers tend to indicate locations of critical bus delay and high volumes of transferring passengers or popular origins or destinations. As BRT infrastructure’s main benefit is reducing delay from the boarding and alighting process, larger volumes of boarding and alighting passengers indicate locations where BRT infrastructure will bring the most time savings benefits. The points that stand out as critical points of boarding and alighting delay are the metro stations...” ” Off-board fare collection could bring the most benefits in these locations. Notably, nothing along Route 29 stood out except for downtown Silver Spring.” (page 16)

4. **Did MCDOT overestimate the benefits of using Transit Signal Priority (TSP) along the route?** They modeled 15 intersections using TSP. In the MTA study it shows that only two intersections on the corridor would meet the criteria for TSP because they are the only ones with V/C ratios <.9. This is Sabra Wang’s own criteria for whether TSP will be effective.
5. Did MCDOT overestimate ridership by underestimating the travel time and overestimating the land use for 2020? They also state that there are currently 15,000 boardings a day when there are actually 10,800 according to the MTA study. So they start out with an incorrect baseline and then move a certain percentage of current ridership to the BRT. For land use, they used mostly 2040 land use and did not adjust their numbers for 2020 accurately. MCDOT’s consultant stated at the April 3rd CAC meeting that they likely overestimated the jobs that would be established in White Oak by 2020. In their April 2016 Benefit Cost Analysis, they forecast more 6,000 more boardings a day than MTA did for the same proposal which used bus on shoulder, bus lanes and managed lanes. When MCDOT adjusted their numbers for a 60% traveling in mixed traffic, they still forecast more ridership in 2040 than MTA did for dedicated lanes. The MCDOT projections do not appear to be reliable.

6. Did MCDOT underestimate the costs because of the roadwork that would be required if they were able to travel all the way on a shoulder from Tech Road to Route 198? They also do not include right-of-way acquisition costs, underground cables for the special stations or financing costs. In addition, since no engineering has been done, the estimates are not very precise.

7. Did MCDOT overestimate service delay on local bus service today for WMATA? They claimed it is in the 40% range but attached are the latest figures from WMATA showing in the 76-83% range which is consistent with the WMATA Z bus study. Therefore their estimates for trip savings appear to be overestimated.

8. MCDOT has not studied the operational issues of having 2 different kinds of bus stations within constrained right of way. Only the BRT buses would be able to use their special stations. Local buses would stop in close proximity to but would be forced to use existing stops. This will cause operational issues in congested areas.

9. MCDOT has not studied (as MTA did) what the effect on the level of service is for the existing routes to intermediate (non-BRT) stops. There are over 50 stops serviced by Z buses and only 12 BRT stops. It is very likely that service would be reduced for those who cannot walk or drive to one of the 11 BRT stations.

Why should all this matter? It matters because the County’s proposal does not offer significant benefits over MetroExtra service that has been studied and proposed by WMATA after a comprehensive study of their Z service on the Corridor. They have been ready to implement this service for a couple of years and no special stations are required. With no additional capital costs, this is the best and most cost effective option for improving transit service immediately on the corridor. Almost all of the major bus corridors in the District of Columbia are using Metro Extra and they have higher ridership, density and space constraints: Wisconsin Avenue, Georgia
Avenue, New Hampshire Avenue, 16th Street, H Street, Rhode Island Avenue and soon, 14th street with 15,000 boardings a day. Why isn’t Montgomery starting with this to build ridership?

**Route 29 South CAC members repeatedly requested a comparison** (MetroExtra is one of the options in the Veirs Mill Road BRT study and the Route 355 study) but project managers refused. It was not until Councilmembers requested the information that numbers were requested from WMATA in an email which is attached. WMATA states that there is not sufficient demand for a 7 day a week, 18 hour a day 60 foot bus service every 15 minutes (7.5 minutes peak). They will provide that level of service if requested to do so.

I and many others along the corridor are dismayed that the Council went along with the County by holding a public hearing without them having provided a valid study with reliable data. People who have been working many hours on the CAC for the last 2 years, as well as County residents deserve more respect than that.

Prior to a request to Council, MCDOT did not even have an open house or CAC meeting scheduled to discuss their new proposal prior to the public hearing. Although the Council changed the date as a response to the request, MCDOT did not provide sufficient information to stakeholders. The open house served as a promotional event.

**Overall bus ridership declined again last year by 11%**. The latest figures show most of the Z buses also experiencing declining ridership as well as the Ride On buses.

As I pointed out before, there is no evidence that the County will lose any TIGER funding if you require them to actually provide the details that are required under the master plan. The grant in question is funded with FY 2016 funds, which are not at risk. **Therefore there is no reason the County Council is required to approve this right of way acquisition and construction approval request when MCDOT has not even provided any detailed engineering.**

With regard to studying a second phase with Mr. Emerson’s proposal, I understand that you were told his proposal did not receive enough attention. Mr. Emerson’s proposal was discussed in the CAC and the MTA did not advance it. CAC members have spent two years already reviewing all the State’s data. We have heard other suggestions from the dais about other median treatments. These have been studied before. Please do not ignore the significant safety and operational issues of services in the median, as well as the barriers created to businesses and neighborhood access when you restrict the left turns. The issues with median stations were discussed in the MTA report (A median station in Option A in Four Corners and a median station in Option B modified at Tech Road) as well as the Veirs Mill Road study report and previous studies of Route 29. Left turns would be prohibited from University Boulevard to Colesville Road and to and from Colesville Road at unsignalized intersections.

One final point, I think Councilmembers should know is that Mr. Lovas, who testified at the hearing as a resident of Woodmoor, works for VHB, formerly for Mr. Chris Conklin, who used
to work for VHB prior to being hired as the Deputy Director of MCDOT. VHB has worked on several of the BRT contracts for MCDOT, and Mr. Lovas has worked on those contracts. He attended the Task Force meetings for VHB. Of course I respect Mr. Lovas' right to advocate at the public hearing but I think that if someone has gained financially from a County project that they are testifying about, that should be disclosed in the interest of transparency.

Thank you for reviewing this information.

I urge you not to approve the request for approval of right-of-way and construction funds in the CIP. Please work to get the Metro Extra service on Route 29 started as soon as possible and the K9 Metro Extra on New Hampshire extended one more stop from FDA to White Oak Transit Center which is an important link in the system.

Providing free Ride On service would also make a major difference for residents and hope you will also consider that in the near future.

Harriet Quinn

CC: Glenn Orlin

Attachments
Introduction

Opponents of bus rapid transit on Route 29 have expressed concern throughout the public engagement process that dedicated bus lanes of any kind cannot fit on Route 29 without repurposing a travel lane, widening the road, or both. This is a flawed assumption. At least one median bus lane can fit on U.S. Route 29 (Colesville Road/Columbia Pike) between Sligo Creek Parkway and New Hampshire Avenue (MD-650), while retaining at least three travel lanes in each direction. This can all be done within the existing curb-to-curb width, with only minimal spot-widening to provide left turn pockets and preserve neighborhood access at select locations that would not affect homes and businesses.

Need for dedicated lanes

The Route 29 corridor suffers from serious traffic congestion at peak periods of the day, and the road is often congested at off-peak times as well. The existing Metrobus Z lines on this corridor become delayed by this traffic congestion on a daily basis, dramatically affecting their schedules and headways. This occurrence has been documented in the Countywide Transit Corridors Functional Master Plan, the WMATA’s Metrobus Z Lines Study, and the US 29 Bus Rapid Transit Corridor Planning Study. The most congested section of the Route 29 corridor is south of New Hampshire Avenue to the Capital Beltway, where traffic volumes exceed 65,000 vehicles per day according the MDSHA annualized average daily traffic (AADT) data, and multiple traffic signals disrupt traffic flow. Without some kind of dedicated right-of-way, it is difficult for any transit route to maintain a reliable schedule and speed given the serious traffic congestion in the corridor. The issue of traffic congestion was and has been the impetus for multiple county and state studies for some kind of transit enhancement in the corridor, dating back to plans for light rail in the 1980s.

MetroExtra service does not address delays caused by traffic congestion

The WMATA Z Lines Priority Corridor Study\(^1\) published in January of 2015 recommends MetroExtra service on the Route 29 corridor between Stewart Lane in White Oak and the Silver Spring Transit Center. However, it should be noted that with ~10 minute headways and less than eight stops between Greencastle and the Silver Spring Transit Center during the peak hour, the Z11\(^2\) essentially provides MetroExtra service along the Route 29 corridor. However, the WMATA study shows an actual and scheduled end-to-end travel time greater than 45 minutes. Without TSP, off-board fare collection, and level boarding, MetroExtra would not


provide significant time savings over the Z11. A BRT vehicle in a dedicated busway on the other hand, could potentially make the same trip in less than thirty minutes.

Along Stewart Lane and Lockwood Drive in White Oak, the existing Metrobus routes Z6 and Z8 stop frequently due to the high level of residential density behind the White Oak Shopping Center. However, south of Oak Leaf Drive to downtown Silver Spring, the Z2, Z6, and Z8 become "de facto express buses", stopping only a couple of times on average along a 3.5 mile long road segment. The reason for the de facto express bus occurrence is the low residential density and lack of transit ridership south of White Oak, through Four Corners, and into the Silver Spring CBD. Aside from the Kinsman Farm townhome community in Four Corners and the Burnt Mills Crossing townhome community in Burnt Mills, residential land uses along the 3.5 mile stretch of Route 29 between White Oak and the Silver Spring CBD consist entirely of detached single family homes.

While MetroExtra will certainly speed up buses along Stewart Lane and Lockwood Drive as they pass through the apartment complexes of White Oak by mitigating frequent stops, MetroExtra can do little (if anything) to speed buses south of Oak Leaf Drive (near the Enclave Apartments) and into the Silver Spring CBD, because the Z2, Z6, and Z8 already behave as express buses along this segment due to low residential density. Only the University Boulevard bus stop in the Four Corners commercial district sees consistent boardings along this low density stretch of Route 29. All other "flag stops" are used infrequently, and it is not at all uncommon for a southbound Z8 to stop for passengers at University Boulevard, and then not stop again until Fenton Street, 1.8 road miles to the south. The below chart shows that the Z's often reach peak load by the time they enter the congested stretch of Route 29 between Burnt Mills and Silver Spring.

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3 A "flag stop" is a bus stop with a sign and nothing else. No bench, shelter, etc.
Figure 1: The AM peak passenger load patterns in the WMATA studies show that boardings for the Z lines plateau after Burnt Mills, suggesting that there are few riders boarding the bus south of White Oak.

Figure 2: More pronounced plateau ridership pattern for the Z6.
Figure 3: Similar pronounced plateau ridership pattern for the Z8.

While low in density, the same stretch of Route 29 that sees the de facto express buses also sees the worst traffic congestion, which is why MetroExtra is not a suitable or comprehensive solution for the problems facing buses on the Route 29 corridor.

Route 29 cross-sections

- Between the Silver Spring Transit Center and Georgia Avenue, Colesville Road is 84' wide, with two 34' carriageways in either direction with a 16' median, occupied by 12' left turn pockets and a 4' raised concrete strip.
- North of Georgia Avenue, Colesville Road narrows from 74' at the north edge of the intersection with Georgia Avenue to 60' where it passes the AFI Silver Theater. The road remains 60' wide from this spot to just north of Dale Drive, three quarter miles to the north. The section consists of six 10' travel lanes, with two full-time lanes in each direction and two reversible lanes in the center.
- Approaching Sligo Creek Parkway, Colesville Road widens to 84' by the time it reaches the intersection. The cross-section of Colesville Road north of Sligo Creek Parkway to the Capital Beltway ramps is identical to the stretch between the transit center and Georgia Avenue: 84' wide, with two 34' carriageways in either direction with a 16' median, occupied by 12' left turn pockets and a 4' raised concrete strip.
• Upon reaching the Beltway, Route 29 gains one lane in each direction, widening the curb-to-curb cross-section to 104’. The road remains 104’ in width to just north of the westbound lanes of University Boulevard.

• North of Timberwood Avenue, the road narrows back to 84’ until the vicinity of New Hampshire Avenue, where the road is 94’ wide as it crosses the New Hampshire Avenue bridge, comprising of five travel lanes and two merge lanes.

• Lockwood Drive between Route 29 and New Hampshire Avenue consists of at least two 12’ travel lanes, with parking lanes along much of the segment. This stretch of Lockwood Drive also has traffic calming features installed in 2014 by MCDOT.
The Proposal

The following sections describe each segment of this proposal, beginning at the Silver Spring Transit Center to New Hampshire Avenue. An overview of the proposal is provided in Figure 4.

**PROPOSED UPGRADES TO CURRENT PLAN**

- **Two dedicated lanes**
- **One dedicated lane w/ "single tracking"**
- **Burnt Mills Station**
- **Four Corners Station**
- **Two dedicated lanes**
- **One dedicated lane w/ "single tracking"**
- **Washington, D.C.**
- **Silver Spring Transit Center**
- **Tech Road**
- **Paint Branch**
- **Stewart Lane**
- **White Oak Transit Center**
- **Oak Leaf Driveway**
- **University Boulevard**
- **Sligo Creek Parkway**

Figure 4: Overview map of the proposal overlaid on top of the map found on MCDOT's website. Whereas the County Executive's current plan proposes running the BRT vehicles in mixed traffic south of Tech Road (solid green line, 40% of the US 29 Corridor), this proposal demonstrates that one or two dedicated lanes can be added to US 29 to provide 90% of the corridor with dedicated lanes (dashed lines).
**Silver Spring Transit Center to Georgia Avenue**

Segment length: .18 miles

Station: no

Between the Silver Spring Transit Center and Georgia Avenue, the BRT vehicles would run in mixed traffic. Southbound buses in this segment would be merging to the left to enter the dedicated bus only left turn lane into the transit center, while northbound buses would use the right travel lane.

**Georgia Avenue to Sligo Creek Parkway**

Segment length: .90 miles

Station: yes

From Georgia Avenue to Sligo Creek Parkway, buses would use a curbside managed lane, as the stations at Fenton Street must be on the curb of the roadway due to the restricted 60' cross-section of the road in this segment. This segment of Colesville Road already uses a reversible lane setup, and the managed lane would add to this configuration.

The below diagrams represent peak northbound and peak southbound traffic patterns.

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**Figure 5**: Looking northbound during the evening peak. One northbound peak period bus lane, three northbound peak travel lanes, two southbound travel lanes.
As Route 29 approaches Sligo Creek Parkway from the south, the road widens from 60' to 84', becoming a six lane divided roadway with two 34' carriageways and a 16' raised median. In locations where left-turns exist, the median is replaced with a 12' left turn lane with an adjacent 4' concrete strip. This plan calls for a dedicated single-lane median busway north of Sligo Creek Parkway (details in following sections), meaning buses in the right side managed lanes would need to merge to the left side of the road to enter the dedicated facility. This merging movement for northbound buses could be facilitated by a peak-period queue jump (utilizing transit signal priority, TSP) at Dale Drive. For southbound buses, a queue jump from the dedicated lane at the Sligo Creek Parkway signal could facilitate their merge to the right side. Queue jumps using TSP are commonly practiced for BRT and light rail systems throughout the United States.

**Sligo Creek Parkway to the Capital Beltway (I-495)**

*Segment length: .62 miles*

*Station: no*

North of Sligo Creek Parkway to the Capital Beltway, there is sufficient space within the existing 84' cross-section of Colesville Road to fit six travel lanes, a raised median, and a single lane dedicated busway. The measurements of the arrangement are the following:

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4 See example in Austin, Texas.  
• Two 31' carriageways comprised of 11' right travel lanes, and 10' wide center and left travel lanes.
• A 22' median space, comprised of a 2' buffer (mountable curb), a 12' bus lane, and a 6-8' raised median with planting strip.

The format of this single lane reversible busway is shown below:

![Colesville Road median busway](image)

Figure 7: potential cross-section

It is possible to retain a turn pocket into each neighborhood in this segment (Indian Spring, North Hills) without impacting adjacent structures and with minimal road widening in the area of pockets.

**Capital Beltway to Timberwood Avenue**

**Segment length:** 4.46 miles

**Station:** yes

After crossing the Beltway, Colesville Road widens to 104' with eight total lanes, six travel lanes and two temporary/turn lanes. Prior to 1998, this segment of Colesville Road was only six lanes, when traffic volumes just south of University Boulevard were about 56,000 vehicles per day. Currently, MDSHA data shows that same stretch carrying 64,000 vehicles per day as of 2016, representing a modest increase. As shown below, there are several examples of six-lane roads in Montgomery County that carry similar or greater traffic volumes. The eight lane section of the road begins to narrow just north of the westbound lanes of University Boulevard, narrowing back to 84' past Timberwood Avenue at Woodmoor Circle.
By reconfiguring the lanes in the vicinity of the Four Corners intersection, a two-lane dedicated busway can fit in the median, along with stations. This can be achieved by eliminating the left travel lanes and narrowing the remaining lanes to 11’ right lanes and the other four being 10’, for a total of six lanes (essentially returning the general travel lanes to their pre-1998 configuration). This makes for 31’ of space for each carriageway, with 42’ left in the median for a two lane busway and stations.

The two lane full-time busway is critical to ensuring that the BRT buses can serve the same platform at all times. At each end of the two lane busway, where the busway transitions back to a single lane, provisions can be made for either merging into the general travel lanes or alteration of buses in both directions within the one lane busway, so that the station may be serviced regardless of time of day. The station is depicted in Figure 9. There is no road widening in the vicinity of Four Corners needed to achieve this configuration, it can all be done within existing curbs.

Figure 8: AADT numbers on similar roads that either have, or recently had six travel lanes.
As seen in the image above, the northbound and southbound BRT stations are configured for right side door buses, and they are staggered across the intersection from each other to accommodate the spatial constraints of the intersection. The right turn lane onto eastbound University Boulevard from Colesville Road remains in place.

The stations would be accessed by existing crosswalks, and would each be on the right side of the two-lane busway (rather than between each bus lane as center platform). Putting the stations on the right side of the bus in the two-lane busway will allow any type of bus to service the station, rather than specific BRT vehicles with left side doors. Design provisions could also be made that enable local buses like the Metrobus Z8 or RideOn 22 to temporarily enter the two-lane busway between Lanark Way and Timberwood Avenue, service the same platform as the BRT vehicles, and merge back into regular traffic. Such an arrangement would allow for a seamless one-platform transfer from local services to BRT services, and perhaps most beneficial, it would remove local buses from the right travel lanes of Route 29, removing a bottleneck for motorists. Presently, buses stopping in the right travel lanes of Route 29 delay drivers and cause unsafe last-minute lane changes. Allowing local buses to service a median platform with right side doors eliminates this scenario and makes the situation easier from transit riders, resulting in a win-win for motorists and riders.
Median BRT stations are safe and are used in various systems across the United States. The stations could be designed in a way as to shield passengers from the wind and sound of passing vehicles, which would be behind the passengers waiting at the platforms. See Figure 10 for a closer look at the potential stations.

![Figure 10: closer view of potential stations.](image)

**Potential "Michigan Lefts" at the intersection**

Due to the reduction of travel lanes through the intersection, there is less queuing room for vehicles turning off of University Boulevard and onto Colesville Road (where they wait in the space between the two directions of University Boulevard). To mitigate this, the current left turns from University Boulevard to Colesville Road could be reconfigured as "Michigan Lefts", where the traffic goes straight across Route 29 and uses the existing jughandles to make a left turn. See Figure 11 below.
In another effort to mitigate the lane reduction in Four Corners from eight to six, the ramp from Route 29 south to I-495 west could be expanded from the present one lane configuration to two lanes, with an alternate merge on the ramp itself.

A two lane merge ramp onto the Beltway would allow southbound motorists on Route 29 to use two lanes to access the highway rather than one. Currently, most motorists headed for the Beltway queue up in the right lane of Route 29 as far north as Southwood Avenue, while the left lanes of Route 29 southbound are more lightly used. Allowing the center lane of Route 29 southbound to also provide Beltway access would allow drivers to queue up in both lanes, better distributing the amount of volume in each lane. The center lane could be a "right and straight" turn lane, similar to the one on southbound Georgia Avenue at 16th Street in Montgomery Hills.

Although the figure below shows two southbound travel lanes on Route 29 after the split, there is adequate width in the right of way and the bridge to provide three southbound travel lanes by modifying the southbound carriageway and slightly widening the road into the state-owned land that comprises the interchange. See Figure 12 below for visualization of the two lane merge ramp.
Timberwood Avenue to New Hampshire Avenue
Segment length: 1.9 miles
Station: yes

Between Timberwood Avenue and the New Hampshire Avenue bridge, the cross-section of the dedicated bus lane would be identical to the one between Sligo Creek Parkway and the Capital Beltway six travel lanes and a reversible median busway. The potential configuration is shown in Figure 13 below.
A station is planned for the vicinity of Burnt Mills. Due to the restricted right-of-way and terrain challenges of Route 29 in the Burnt Mills area, the wedge of land between the Lockwood Drive ramp and Columbia Pike is the most suitable location for the BRT station. A concept of such a station is shown below in Figure 14. While the concept shows a left-side door platform (blue rectangle between the red bus lanes) there is ample space to build two platforms on either side of the busway for right-side door vehicles. This wedge of lane is currently just trees.

Figure 14 potential Burnt Mills station.

The station location in this proposal has more households and businesses within a five-minute walkshed than the alternative station location being considered by others in front of the shopping center. See Figure 15 below for walk-shed examples.
Figure 15: Comparison of the 5-minute (0.2 mile radius) walkshed for a station located on Lockwood Drive (left) versus a station located at the shopping center (right). Although the former is a five-minute walk from the shopping center, it is located on a safer road, has fewer space constraints, and is closer to nearby homes. Walkshed is approximate.

With some modifications to the intersection of Lockwood Drive and Columbia Pike, it is possible for this station layout to be serviced by both local BRT buses running the Lockwood Drive spur, and through buses staying on Route 29. The station would have a small portion of dedicated busway at and approaching the platforms. Buses continuing up Lockwood Drive would merge into mixed traffic and drive up Lockwood, while buses staying on Route 29 could enter the station from the Route 29 median busway, and then use a modified signalized intersection with TSP to re-enter the mainline and continue in dedicated lanes.

The single lane median busway within the 84' curb-to-curb width could continue north on Route 29 from Lockwood to New Hampshire Avenue, where it could cross the overpass bridge and transition to a two-lane median busway or bus on shoulder operation north of Stewart. As the right-of-way in that area is more generous than the constrained section of Route 29 south of New Hampshire Avenue, *this report will not detail the segment of Route 29 between White Oak and Burtonsville.*

**Turn pockets**

The preservation of turn pockets along Route 29 between Sligo Creek Parkway and New Hampshire Avenue is critical for neighborhood access. Under this plan, not all turn pockets would be retained on Route 29. However, *at least one turn pocket into each neighborhood can be preserved* while maintaining the dedicated busway and without threatening adjacent homes or businesses. The preserved turn pockets would require signalization for the safety of motorists turning across the reversible busway. A signalized intersection would be justified in
these locations by Warrants 6 and/or 8 of Chapter 4C\(^5\) of the Manual of Uniform Traffic Control Devices (Coordinated Signal System and Roadway Network, respectively).

**Conclusion**

At minimum, a single lane dedicated busway can fit on Route 29 between Sligo Creek Parkway and New Hampshire Avenue while retaining six travel lanes, and with no road widening for most of the segment. A signalized left turn pocket into each neighborhood is possible without threatening homes or businesses and with minimal widening beyond the existing curbs in select locations. The plan is completely feasible and will allow for a high quality BRT system with minimal impact on adjacent communities or motorists.

MEMORANDUM

To: Transportation, Infrastructure, Energy & Environment Committee
From: Council Vice President Hans Riemer
Date: May 2, 2017
Re: US 29 BRT Dedicated Lane Proposal

I am writing to urge your support to further develop a potentially effective concept for a dedicated bus rapid transit lane south of Industrial Parkway for the US 29 BRT.

Like many of you, I recently met with Sean Emerson and Sebastian Smoot to discuss their proposal to improve BRT on US 29. As you know, the current proposal before the County Council calls for BRT vehicles to ride in the shoulder on the northern section of corridor, providing a dedicated lane. South of Industrial Parkway, to the Silver Spring Transit Center, the vehicles would travel in mixed traffic.

While the overall plan is a meaningful step forward for bus service, the game changer for the corridor is securing dedicated lanes where congestion is the worst, south of Industrial Parkway. Mr. Emerson’s proposal envisions a dedicated lane and platforms in the median of US 29 south of Industrial Parkway. Mr. Emerson’s proposed dedicated lane can largely be accommodated within the existing curbs and without removing travel lanes, which reduces additional impacts. In fact, it seems possible that most or all of the elements of the Executive’s proposal would nest readily into Mr. Emerson’s more comprehensive plan.

My understanding is that MCDOT and SHA have expressed interest in the proposal. I believe the next step after approving the Executive’s proposed project is to identify the funding to flesh out the design of Mr. Emerson’s proposal, as well as engaging the US 29 Citizens Advisory Committees.

Therefore, I respectfully request your support for the further study of a dedicated BRT lane between Industrial Parkway and Downtown Silver Spring.
Rapid Transit System (P501318)

Category: Transportation
Sub Category: Mass Transit
Administering Agency: Transportation (AAGE30)
Planning Area: Countywide

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**Description**

This project provides for the initial steps and detailed studies related to a bus rapid transit system in the County, supplementing the Metrorail Red Line and master-planned Purple Line and Corridor Cities Transitway (CCT). The County Council approved the Countywide Transit Corridors Functional Master Plan, an amendment to the Master Plan of Highways and Transportation, on November 26, 2013. The amendment authorizes the Department of Transportation to study enhanced transit options and Bus Rapid Transit for 10 transit corridors, including: Georgia Avenue North, Georgia Avenue South, MD 355 North, MD 355 South, New Hampshire Avenue, North Bethesda Transitway, Randolph Road, University Boulevard, US 29, Veirs Mill Road and Corridor Cities Transitway.

**Estimated Schedule**

Phase 1 (Alternatives Retained for Design Study) facility planning for the MD 355 and US 29 corridors occurred in FY15 and FY16. Phase 2 (Recommended Alternative) facility planning for MD 355 will occur in FY17-19. Planning and design for US 29 will occur in FY17 and FY18. Construction may begin as early as FY18 contingent on status of design efforts and any necessary right-of-way acquisition for stations.

**Cost Change**

Increase due to the addition of vehicles, stations (including right-of-way), Transit Signal Priority, bicycle and pedestrian improvements, and project management for the US 29 BRT project. Also reflects $10 million in Federal TIGER grant funding for the US 29 BRT project.

**Justification**

The proposed RTS will reduce congestion on County and State roadways, increase transit ridership, and improve air quality. The RTS will enhance the County’s ability to meet transportation demands for existing and future land uses. Plans & Studies: MCDOT Countywide Bus Rapid Transit Study, Final Report (July 2011); County Executive’s Transit Task Force (May 2012); and Countywide Transit corridors Functional Master Plan (November 2013).

**Other**

The County has programmed funds for the Maryland Department of Transportation (MDOT) to conduct preliminary engineering for a master-planned RTS line on Veirs Mill Road between the Rockville and Wheaton Metro Stations ($6 million). This study is funded in the State Transportation Participation project, PDF #500722. The Georgia Avenue study was terminated in FY15.

**Fiscal Note**

The FY18 appropriation is for the following:

- US 29 BRT project
- US 29 oversight and grant administration
- MD 355 BRT planning
- BRT outreach
- Overall BRT program support
The Maryland Department of Transportation draft Consolidated Transportation Program for 2014-2019 provides $10 million for County Rapid Transit System planning; $4.2 million in FY15 and $5.8 million in FY16. The Department is using these funds to begin facility planning for the MD 355 and US 29 corridors; FY17 includes $1.6 million in Liquor Bonds reallocated from the State Transportation Participation project. The project originally included $1 million in Liquor Bonds for facility planning on the New Hampshire Avenue corridor. Those funds have been reallocated to US 29 planning and design. Assumes $2 million in Impact Taxes from the cities of Rockville and Gaithersburg toward MD 355 facility planning. Assumes $2 million in private contributions for US 29 planning and design. Reflects reallocation of $1.3M in GO Bonds from the ADA Compliance Transportation project (#509325) to cover ADA sidewalk upgrades.

The Executive asserts that this project conforms to the requirements of relevant local plans, as required by the Maryland Economic Growth, Resource Protection and Planning Act.

**Coordination**
Maryland Department of Transportation, Washington Metropolitan Area Transit Authority, Maryland-National Capital Park and Planning Commission, City of Rockville, City of Gaithersburg, Montgomery County Rapid Transit Steering Committee, State Transportation Participation project (#500722)
WMATA eGIS Map
Ridership Changes by BPLN Sector and Line February 2017 vs. February 2016
Average Weekday

WMATA Enterprise GIS