BALTIMORE REGION
FY 2020-2021
UNIFIED PLANNING WORK PROGRAM
FOR TRANSPORTATION PLANNING

APRIL 23, 2019

PREPARED FOR THE
BALTIMORE REGIONAL TRANSPORTATION BOARD
The designated Metropolitan Planning Organization for the Baltimore Region

The BRTB is staffed by the:
BALTIMORE METROPOLITAN COUNCIL

1500 Whetstone Way, Suite 300
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The U.S. Department of Transportation, (the Federal Highway Administration, and the Federal Transit Administration) and the Maryland Department of Transportation contributed funding towards the preparation of the FY 2020-2021 Unified Planning Work Program.

BALTIMORE REGION
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The Honorable Catherine Pugh
Chair
Baltimore Regional Transportation Board

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April 23, 2019

Produced under the auspices of the Baltimore Regional Transportation Board,
the Metropolitan Planning Organization for the Baltimore Region

Baltimore Metropolitan Council
1500 Whetstone Way, Suite 300
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Mr. Gary Blazinsky, Administrator, Harford Transit

***** Denotes non-voting members

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INTRODUCTION

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UNIFIED PLANNING WORK PROGRAM DEVELOPMENT PROCESS

The Fiscal Years (FY) 2020-2021 Unified Planning Work Program (UPWP) outlines the planning activities to be performed by all state, regional, and local participants involved in the Baltimore metropolitan transportation planning process over the two fiscal years (July 1, 2019 through June 30, 2021). It defines the regionally agreed upon planning priorities and the roles and responsibilities of the various participants in this process.

The work program reflects a careful consideration of critical transportation issues currently facing the region, as well as the analytical capabilities needed to address them. The UPWP is required as a basis and condition for all federal funding assistance for transportation planning by the joint planning regulations of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

Through the FY 2020-2021 UPWP, as well as previous UPWP initiatives, the Baltimore Regional Transportation Board (BRTB), acting as the designated metropolitan planning organization (MPO), will address and support the short-term and long-range transportation planning priorities of the Baltimore metropolitan area. In July 2019, the BRTB will approve *Maximize2045: A Performance-Based Transportation Plan*, the long-range regional transportation plan that guides the region's short-term and long-term multimodal investments. As of the end of FY 2019, the BRTB completed all development phases for this plan except for preparation of the final document, adoption of the plan, and submittal of the plan to the Federal Highway Administration, Federal Transit Administration, and U.S. Environmental Protection Agency for review and approval. This included the continued development of processes and procedures to address requirements related to performance-based planning and programming. This UPWP includes studies and programs to those ends.

The UPWP is funded through an 80 percent planning grant provided by FHWA and FTA and a 20 percent match provided by the Maryland Department of Transportation (MDOT) and the local governments of the Baltimore metropolitan planning area. Federal funding sources include Title 1, Section 112 metropolitan planning funds (Federal Highway Act (PL-93-87)) and Title III, Section 5303 metropolitan planning funds. The total funding proposed for the FY 2020 transportation planning activities for the Baltimore region is $7,898,500 and the estimated budget for FY 2021 is $6,286,750.

Developing this UPWP has relied on the continued cooperation among State (specifically transportation, air quality, and planning agencies), local, and regional entities. This and previous UPWPs were prepared with the involvement of these organizations, acting through the BRTB and its subcommittee structure.

The work tasks delineated in the UPWP are performed primarily by staff working in the Transportation Planning Division of the Baltimore Metropolitan Council (BMC), with limited support provided by other functioning units within the BMC. Specific elements of the UPWP, at times, are contracted out to consultants in accordance with the work program project descriptions and the budget. Some UPWP funds are also "passed through" to local jurisdiction members of the BRTB for specific transportation planning studies that support the regional transportation planning process.

METROPOLITAN PLANNING AREA

At a minimum, a Metropolitan Planning Area (MPA) must cover the urbanized area and contiguous geographic areas likely to become urbanized within the next 20 years. The Baltimore MPA consists of Baltimore City as well as Anne Arundel, Baltimore, Carroll, Harford, Howard and portions of Queen Anne's counties (see **Figure 1** for the geographic location of each participating local jurisdiction).

The planning area is part of the 2010 U.S. Census Bureau's Baltimore-Columbia-Towson Metropolitan Statistical Area (MSA), containing the Baltimore Urbanized Area, the Aberdeen-Havre De Grace-Bel Air Urbanized Area, the Westminster Urbanized area, and a portion of Queen Anne's County. Also included within the Baltimore region are thirteen smaller incorporated municipalities. The renamed Baltimore-Towson metropolitan area (excluding Queen Anne's County) has also been designated by the Environmental Protection Agency (EPA) as a "moderate" nonattainment area for the 8- hour ozone standard and a maintenance area for fine particulate matter ($PM_{2.5}$). The entire nonattainment area is in the northern portion of the 2010 U.S. Census Bureau designated Washington-Baltimore-Northern Virginia, DC-MD-VA-WV Combined Statistical Area (CSA).

PUBLIC INPUT INTO THE UPWP

In keeping with the proactive public involvement spirit of the Fixing America's Surface Transportation (FAST) Act (P.L. 114-94), the FY 2020-2021 UPWP is being released to the public for a 30-day review and comment opportunity. Information on the public review process (including outreach) is shown in Appendix E this document.

METROPOLITAN TRANSPORTATION PLANNING

The most recent federal transportation legislative program, Fixing America's Surface Transportation (FAST) Act, was signed into law on December 4, 2015. FAST preserves the commitment to the metropolitan transportation planning process established in previous federal initiatives. On May 27, 2016, the U.S. Department of Transportation (U.S. DOT) issued the latest regulations regarding metropolitan transportation planning, specifically outlining the planning requirements associated with the metropolitan planning process, including the Transportation Improvement Program and the Long- Range Transportation Plan.

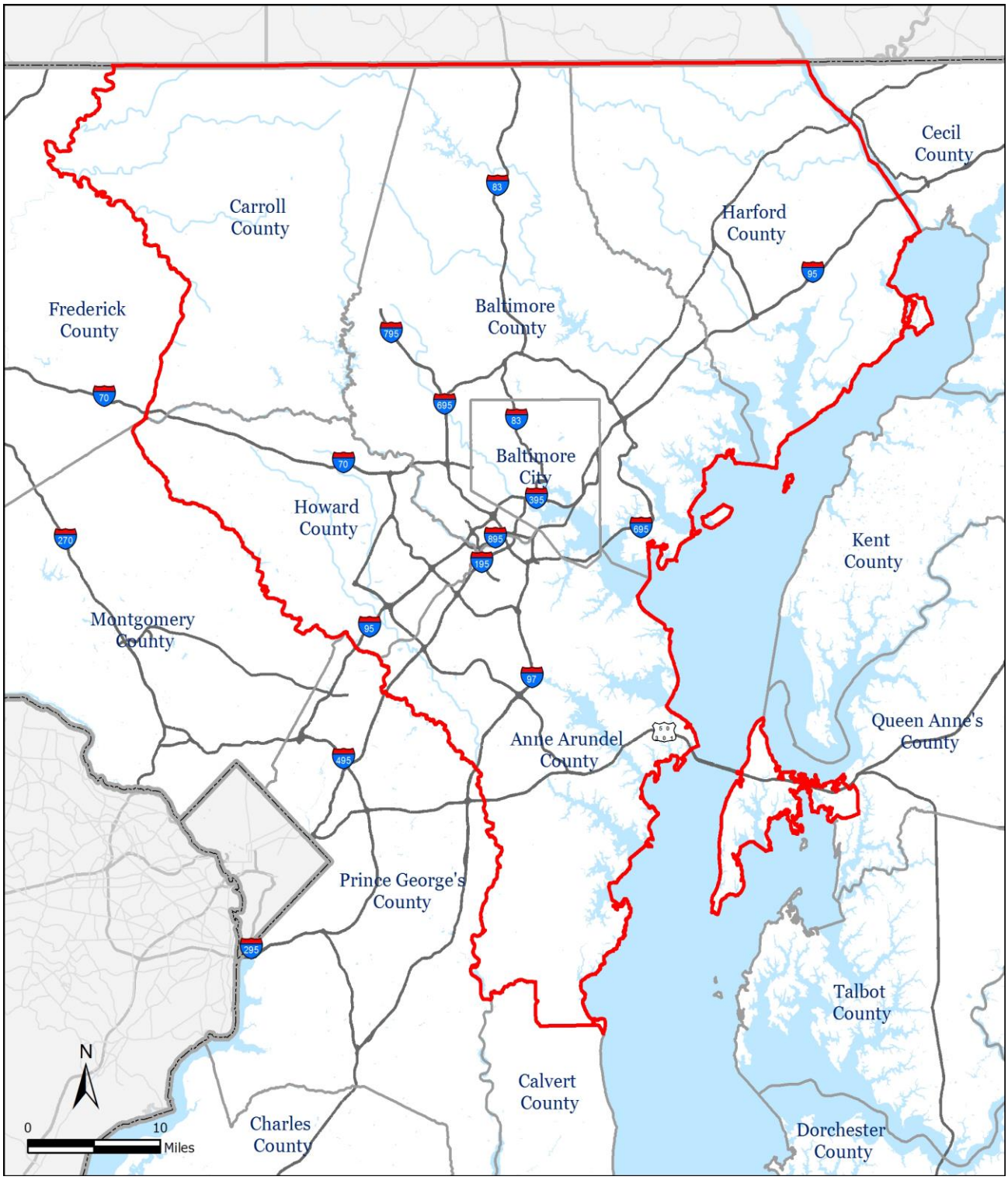
Performance-Based Planning and Programming

In an effort to plan for future regional transportation needs and to comply with the intention of MAP-21 and the Clean Air Act Amendments of 1990 (CAAA), the BRTB developed *Maximize2045: A Performance-Based Transportation Plan*, the long-range transportation plan, during 2018 and 2019. The factors that guided development of *Maximize2045* are listed in the Metropolitan Planning Regulations effective May 27, 2016. These regulations continue and strengthen the emphasis on performance-based planning and programming.

Maximize2045 includes a set of overarching regional goals, specific implementation strategies that support these goals, and a series of performance measures and targets. These measures and targets are consistent with the performance-based approach to planning and programming set forth the FAST Act and corresponding regulations. These measures and targets help the BRTB and operating agencies gauge system-wide progress relative to regional goals and strategies.

FIGURE 1

THE BALTIMORE REGION



Compliant with requirements of the FAST Act and deadlines set forth in regulations, MDOT, public transportation providers, and the BRTB coordinated efforts to develop and adopt a series of regional performance targets. Performance targets have been adopted for transit asset management, roadway safety, roadway and bridge conditions, and system performance.

Out of the set of 25 federally mandated performance targets, the BRTB has adopted 21 to date. These include:

- four transit asset management measures and targets (adopted in June 2017): (1) percentage of non-revenue service vehicles that have either met or exceeded their Useful Life Benchmarks (ULBs), (2) percentage of revenue vehicles within an asset class that have either met or exceeded their ULBs, (3) with respect to infrastructure (rail fixed-guideway, track, signals, systems): percentage of track segments with performance restrictions, and (4) percentage of facilities within an asset class rated below condition 3 on the TERM scale

- five highway safety measures and targets (adopted in January 2018 and updated in January 2019): (1) Number of fatalities, (2) rate of fatalities per 100 million VMT, (3) number of serious injuries, (4) rate of serious injuries per 100 million VMT, and (5) number of non-motorized fatalities + non-motorized serious injuries – pedestrian and bicycle

- two system performance measures and targets to assess traffic congestion (unified MDOT/BRTB targets for the urbanized area; adopted in May 2018): (1) annual hours of peak-hour excessive delay per capita (PHED measure) and (2) percentage of non-SOV (single-occupancy vehicle) travel.

- one measure to assess on-road mobile source emissions (applies to projects with CMAQ funding) (adopted in June 2018): total emissions reduction: 2-year and 4-year cumulative reported emission reductions of each criteria pollutant and applicable precursors (PM2.5, PM10, CO, VOC, and NOx) for which the area is designated nonattainment or maintenance [*Note: the BRTB region is in nonattainment only with respect to ozone*]

- four measures to assess pavement condition (adopted in October 2018): (1) percentage of pavement on the interstate system in good condition, (2) percentage of pavement on the interstate system in poor condition, (3) percentage of pavement on the NHS (excluding the interstate system) in good condition – state/local, and (4) percentage of pavement on the NHS (excluding the interstate system) in poor condition – state/local

- two measures to assess bridge condition (adopted in October 2018): (1) percentage of NHS bridges by deck area classified as in good condition and (2) percentage of NHS bridges by deck area classified as in poor condition

- two measures to assess performance of the National Highway System (NHS) under the National Highway Performance Program (expressed as Level of Travel Time Reliability (LOTTR) (adopted in October 2018): (1) percentage of person-miles traveled on the interstate system that are reliable (Interstate Travel Time Reliability measure) and (2) percentage of

person-miles traveled on the non-interstate NHS that are reliable (non-interstate NHS Travel Time Reliability measure)

- one measure to assess freight movement on the interstate system (adopted in October 2018): percentage of interstate system mileage providing for reliable truck travel times (Truck Travel Time Reliability Index – TTTR)

The BRTB, in coordination with MDOT MTA, will adopt the remaining four targets after the adoption of *Maximize2045*. This adoption date will depend on when MDOT establishes its state targets. The remaining targets are:

- four transit safety measures (reported by mode): (1) number of reportable fatalities and rate per total vehicle revenue miles, (2) number of reportable injuries and rate per total vehicle revenue miles, (3) number of reportable safety events and rate per total vehicle revenue miles, and (4) mean distance between major mechanical failures.

All of the measures and targets will be used to guide MDOT and the BRTB in carrying out the requirements of the applicable FHWA and FTA laws and regulations, including the Highway Safety Improvement Program (HSIP).

All Transportation Improvement Programs (TIPs) that will be adopted after May 2019 will follow the performance-based approach described in the long-range transportation plan. These TIPs will include a narrative explaining how the programmed projects relate to specific regional performance measures and targets.

MPO Roles and Responsibilities

The BRTB is the federally designated MPO acting as the regional transportation planning and policy making body for the Baltimore region. In this capacity, the BRTB is directly responsible for conducting the continuing, cooperative and comprehensive (3-C) transportation planning process for the Baltimore metropolitan region in accordance with the metropolitan planning requirements of Section 134 (Title 23 U.S.C.) of the Federal Highway Act of 1962 and Section 8 of the Federal Transit Act. The BRTB provides overall program management of the UPWP work tasks and budget as well as policy direction and oversight in the development of the federally mandated long-range transportation plan, the Transportation Improvement Program, and the transportation element of the State Air Quality Implementation Plan.

The BRTB is a 13-member policy board consisting of the cities of Annapolis and Baltimore; the counties of Anne Arundel, Baltimore, Carroll, Harford, Howard, and Queen Anne's; and MDOT, the Maryland Department of the Environment (MDE), the Maryland Department of Planning (MDP), the Maryland Transit Administration (MDOT MTA) and a Representative of Public Transportation (currently Harford Transit). Voting rights are extended to all members with the exception of the Maryland Department of the Environment, the Maryland Department of Planning and the Maryland Transit Administration. These agencies serve the BRTB in an advisory capacity. Harford Transit currently serves the role of "representative of public transportation" on the Board based on a vote of the public transit providers in the region. Representatives from the local jurisdictions and agencies

have been designated and empowered by their respective lead elected official or department secretary to integrate locally oriented policies and needs into a regionally based agenda.

In the Baltimore metropolitan area, the roles and responsibilities of the BRTB, state and local transportation operators and transportation-related state agencies for cooperatively conducting transportation planning and programming have been established over several years.

A network of committees and subcommittees was formulated to focus on specific technical and policy areas at the direction of the BRTB. Coordination of this diversified transportation planning structure, a direct responsibility of the BRTB, serves to ensure that transportation planning is integrated with the region's efforts to address economic and environmental challenges, land development and quality of life issues such as public health. The BRTB establishes a Budget Subcommittee annually to review projects and work tasks included in the UPWP to ensure regional significance and quality control.

The MDOT has a standing Memorandum of Understanding (MOU) with the BMC that delineates responsibilities in support of the regional transportation planning process. This agreement, initiated in 1992 with the redesignation of the BRTB and reauthorized in 2004 and amended in 2014, stipulates that MDOT will apply for federal transportation planning grants from both FHWA and FTA to support the UPWP as well as provide a portion of the nonfederal matching funds required. The BRTB is in the process of reviewing the MOU and expects an update to incorporate recent changes in federal transportation law. In addition, MDOT formally represents all State-affiliated transportation modes and authorities on the BRTB.

As the leading air quality agency, MDE is an active member in the transportation planning process. Providing technical input and direction, MDE has assumed an advocacy role in the development of transportation system improvements that enhance the region's efforts to reach attainment by the prescribed timelines. MDP provides a direct linkage between transportation planning decisions and statewide growth management and land planning strategies.

MDOT MTA operates a comprehensive transit system throughout the Baltimore and Washington metropolitan areas. The MTA works closely with the BRTB on planning improved transit in the Baltimore region.

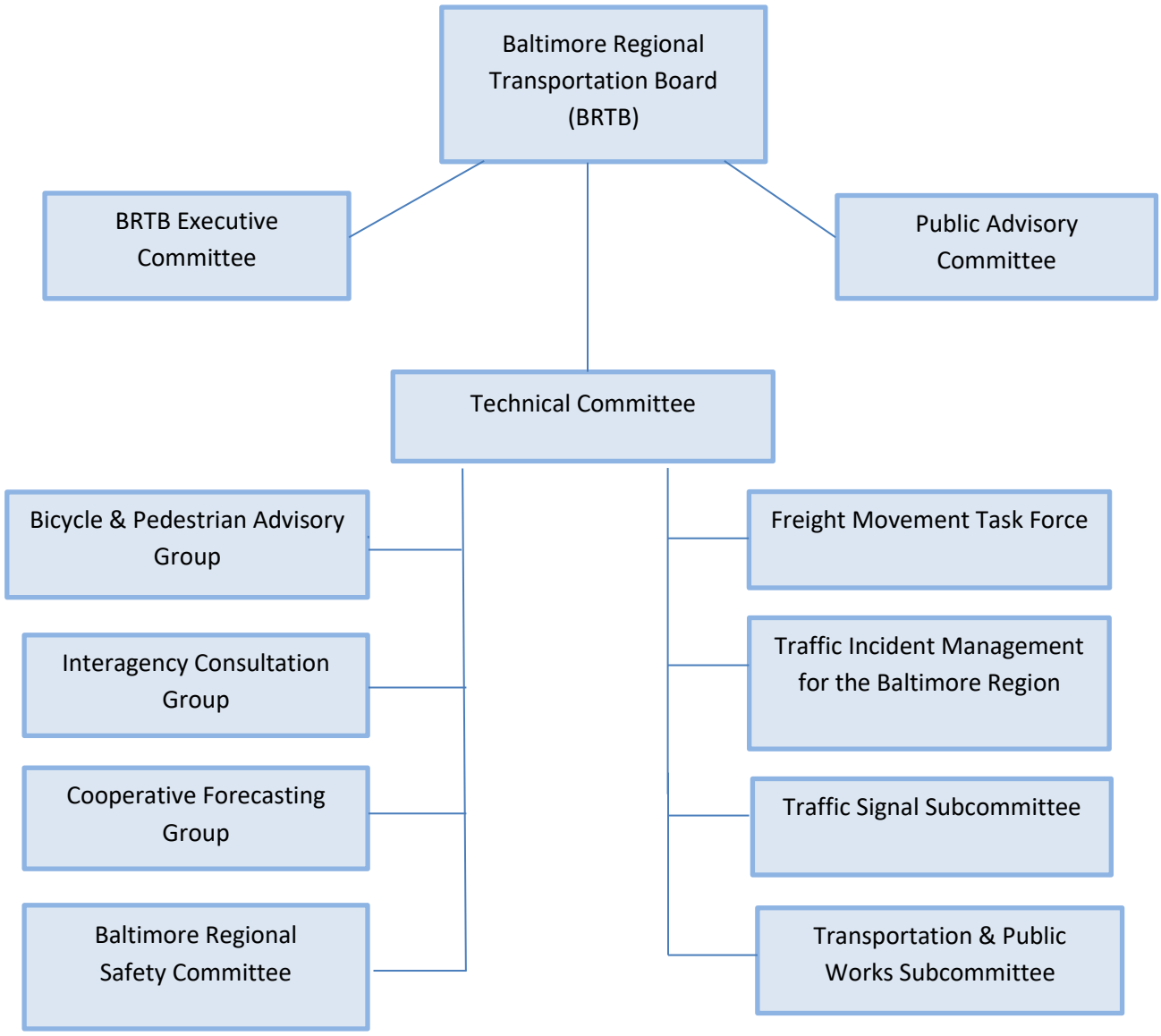
TABLE 1

ROLES AND RESPONSIBILITIES FOR TRANSPORTATION PLANNING AND PROGRAMMING

Planning Responsibility	Memorandum of Understanding (MOU)	Date Execute	Status	Changes Planned
UPWP Development	Formal MOU establishing the BRTB as the Baltimore MPO and develop a UPWP consistent with the 3-C planning process.	7/1/2004	In Effect	No
UPWP Development	Formal Memorandum of Agreement (MOA) between MDOT and BMC outlining managerial oversight of the UPWP.	7/1/2004	In Effect	No
Transportation Conformity and State Implementation Plan Development	Formal procedures of Interagency Consultation Process	1996	In Effect	No
Public Transit Operators and MPO Process	Formal MOA between BRTB, MDOT and MDOT MTA defining roles and responsibilities of public transit operator and State Department of Transportation in the Baltimore	2/26/2008	In Effect	No
Financial Plan for Long-range Transportation Plan and Transportation Improvement Program	Formal MOA between BRTB, MDOT and MDOT MTA defining roles and responsibilities of public transit operator and State Department of Transportation in the Baltimore regional planning process.	2/26/2008	In Effect	No
Corridor Planning Studies	Formal MOA between BRTB, MDOT and MDOT MTA defining roles and responsibilities of public transit operator and State Department of Transportation in the Baltimore regional planning process.	2/26/2008	In Effect	No
MPO Certification	Formal MOA between BRTB, MDOT and MDOT MTA defining roles and responsibilities of public transit operator and State Department of Transportation in the Baltimore regional planning process.	2/26/2008	In Effect	No

FIGURE 2

BALTIMORE REGIONAL TRANSPORTATION BOARD COMMITTEE STRUCTURE



Federal Certification Review Process

At least every four years, the FTA and FHWA must jointly certify that the transportation planning process in urbanized areas with a population greater than 200,000 (i.e. Transportation Management Area (TMA)), is being conducted in accordance with the joint planning requirements. The primary purpose of a certification review is to formalize the continuing oversight and day-to-day evaluation of the planning process. The certification review process ensures that the planning requirements under Title 23 are being satisfactorily implemented. In a broader sense, the certification review process is a valuable opportunity to provide advice and guidance to a TMA, for enhancing the planning process and improving the quality of transportation investment decisions.

While the FHWA and FTA interact with TMA planning officials, state DOTs, transit operators, etc. on a routine basis—reviewing and approving planning products, providing technical assistance, and promoting good practice—the formal assessment during a certification review provides an objective view of the TMA transportation planning process. It can serve as a catalyst to improve the effectiveness and efficiency of the planning process, and help ensure that the major transportation planning issues facing a metropolitan area are being addressed.

2016 Federal Certification Review

The most recent certification review took place from April 25-27, 2016. In general, the federal team determined that the BRTB continues to conduct a "3-C" transportation planning process that satisfies the federal provisions governing metropolitan planning.

The review team commended the BRTB for its efforts in several areas, including:

- achieving transit representation on the board
- endeavoring to complete projects funded through the Housing and Urban Development (HUD) Regional Sustainable Communities program
- making significant progress in implementing performance measures into the planning process
- developing interactive mapping intended to facilitate environmental coordination for *Maximize2040*
- coordinating and participating in freight activities in the region, particularly the Port-to-Point (P2P) initiative to assess the effects of the redevelopment of the Sparrows Point terminal complex on truck movements
- taking advantage of two SHRP-2 grant opportunities: conducting freight demand modeling and data development through the SHRP-2 C20 program and developing an advanced travel demand model through the SHRP-2 C10 program.

The team also identified areas in need of improvement. These include:

1. incorporating specific information into the LRTP financial plan that identifies the sources of federal, state, and local transportation program funds available to the region, including historic trends and future projections
2. continuing to improve efforts to garner public support and participation in air quality initiatives
3. making Title VI complaint information easily available to the public on the website
4. making information about freight-related initiatives more readily available on the website
5. making information about efforts to improve pedestrian and bicycle planning more readily available on the website.

The FY 2020-2021 UPWP attempts to encompass all of the required planning and programming tasks, to continue to build on the commended practices identified in the 2016 federal certification review, and to address the recommendations for improvement identified in this certification review.

UPWP Priorities: Regional Transportation Goals / Performance-Based Approach

The tasks delineated in the UPWP are linked to the region's transportation goals, as adopted by the BRTB in developing the next plan, *Maximize2045: A Performance-Based Transportation Plan*. The region's transportation goals as adopted for *Maximize2045* are:

1. **Improve System Safety** – Make conditions safer for pedestrians, bicyclists, transit riders and operators, and motorists.
2. **Improve and Maintain Existing Infrastructure** – Improve the conditions of existing transportation facilities; systematically maintain and replace transportation assets as needed.
3. **Improve Accessibility** – Help people of all ages and abilities to reach specific destinations.
4. **Increase Mobility** – Help people and freight to move reliably and efficiently.
5. **Conserve and Enhance the Environment** – Pass on to future generations the healthiest natural and human environments possible.
6. **Improve Transportation System Security** – Provide a secure traveling environment for everyone; improve the region's ability to respond to natural and man-made disasters.
7. **Promote Prosperity and Economic Opportunity** – Support the revitalization of communities, the development of activity centers, and the movement of goods and services.
8. **Foster Participation and Cooperation among Stakeholders** – Enable all interested and affected parties to participate and cooperate to find workable solutions.
9. **Promote Informed Decision Making** – Ensure that adopted transportation policies and performance measures guide the regional decision making process.

These goals and their supporting strategies are means by which the Baltimore region can make sound, responsible investments in transportation systems. They also provide the framework through which the region can make progress toward improving accessibility and mobility for people and goods, in as safe and secure and environmentally sustainable a manner as possible, to advance the overall prosperity of the Baltimore region and the opportunities available to its communities and citizens.

Table 2 below shows how the UPWP tasks relate to these regional transportation goals:

TABLE 2

TABLE 2

UPWP Tasks	**Regional Goals** (✓ = primary association; ▪ = peripheral association)								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Program Management & Coordination									
UPWP Management								✓	✓
Professional Consultant Services									
Traffic Count Program	✓	✓							✓
Evaluation of Public Involvement							✓	✓	✓
Elderly Trip Characteristics			✓			✓		▪	
Traffic Impact Study Guidelines		▪		▪			▪		✓
Best Practices for Changing	✓			▪			▪	▪	▪
Congestion Management Process	▪	✓		✓	▪		▪		✓
Technical Analysis in Support of State Initiatives			✓	✓				▪	✓
Planning Context									
Long-Range Transportation Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transportation Improvement Program	✓	✓	✓	✓	✓	✓	✓	✓	✓
Promoting Inclusiveness & Cooperation									
Public Participation & Community Outreach	▪	▪	▪	▪	▪	▪	▪	✓	✓
Transportation Equity Planning			✓				▪	✓	✓
Gathering & Analyzing Data									
GIS Activities	▪	▪	▪	▪	▪	▪	▪	▪	✓
Demographic & Socioeconomic Forecasting				▪			✓	✓	✓
Development Monitoring					▪		✓		✓
Analysis of Regional Data & Trends	✓		✓	✓	▪	▪	▪		✓
Current Simulation Tools			✓	✓			▪		✓
Expanding the Region's Tools			✓	✓			▪		✓

Safety & Security									
Safety Planning and Analysis	✓							▪	✓
Transportation Systems Management & Operations Planning	▪			✓		✓		▪	✓
Emergency Preparedness Planning				▪		✓			✓
Mobility, Accessibility & Connectivity									
System Performance: Monitoring & Adapting				✓					✓
Freight Mobility Planning	▪	▪		✓		▪	✓	▪	✓
Bicycle and Pedestrian Planning	✓	▪	✓		▪			▪	✓
Transit & Human Service Transportation Planning	▪	▪	✓	▪		▪		✓	✓
Protecting Current & Future Resources									
Environmental Planning					✓			▪	✓
Air Quality Conformity Analysis				▪	✓			▪	✓
Subarea Projects									
Feasibility Study for Additional Ramps to Truman Park-&-Ride	✓			✓					
Feasibility Study for Bus Rapid Transit on MD 32			✓	✓					
High Crash Reduction Plan	✓								✓
MD 103, MD 108, MD 104 Strategic Corridor Studies			✓				✓		
US 1 Traffic Modeling / Land Use Scenarios	✓			✓			▪		▪
Patapsco Regional Greenway: Advance Planning for the Elkridge to Guinness Segment	✓		▪				▪		

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PROGRAM MANAGEMENT & COORDINATION

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UPWP MANAGEMENT

PURPOSE: To manage, coordinate, and guide the activities of the Unified Planning Work Program (UPWP) and the regional transportation planning process. This requires a variety of means, including: direct involvement in planning activities, public education and public participation opportunities, and support of the multi-disciplined and multi-agency transportation committees essential to a coordinated regional planning process.

During Fiscal Year (FY) 2019 staff coordinated with local jurisdictions to collect products and billing information. Monthly Progress Reports and Invoices were submitted to the Maryland Department of Transportation (MDOT). Agendas and minutes for the Baltimore Regional Transportation Board (BRTB) as well as all standing committees were made available to the public and remain available online. The Executive Committee provided guidance on BRTB agendas as well as direction on Transportation Improvement Program (TIP)-related Administrative Modifications. Baltimore Metropolitan Council (BMC) managed several contracts throughout the year as identified in the FY 2019 UPWP. In January 2019 the BRTB and the Technical Committee (TC) held a Retreat to assess progress in the current year and then plan for the upcoming UPWP work program. A schedule was endorsed to complete the work program with an opportunity for the public to review.

In FY 2020-2021, BMC staff will continue to provide administrative support for the UPWP. Staff manages the work program and budget, and is charged with preparation of work programs, contracts and progress reports. Included within this budget category are non-staff expenses that support transportation planning functions. Typical expenses include: 1) staff training and education, participation at meetings and other transportation-related seminars, workshops and conferences; 2) membership fees for professional organizations and associations; 3) publication costs including printing and design; 4) travel expenses; 5) preparation for special events; 6) purchase of computers and related software for BMC staff; and 7) annual computer maintenance agreements for BMC and local/state participants. Work with MDOT to identify and spend down available funds.

Staff also will provide support activity to committees such as the BRTB, TC, Interagency Consultation Group, Public Advisory Committee, Bicycle & Pedestrian Advisory Group, Freight Movement Task Force, Cooperative Forecasting Group, etc., including the preparation of meeting notices, minutes, agendas, mailings, and reports on issues of special committee interest.

The local jurisdictions are also responsible for a similar set of work tasks that are required as part of their involvement in the administration of the UPWP. This includes preparation of invoices and progress reports, financial reports, project work programs, annual UPWP contracts, and related correspondence. This activity also supports the professional development and training activities of the local government staffs.

A Focus Area identified in FY 2017 will now be integrated as an ongoing task in the UPWP. This task will seek to provide training to members of jurisdictions and partner agencies. Some examples of training that jurisdictions have mentioned include training in traffic modeling packages and in the National Environmental Policy Act (NEPA) process.

BMC staff will continue to promote participation of minority business enterprises in the planning

process and implementation of transportation projects within the Baltimore region in accordance with Title VI of the Civil Rights Act of 1964 and the requirements set forth in 49 Code of Federal Regulations (CFR) Part 23. Staff will also promote Federal Transit Administration's (FTA) policy to encourage private enterprise participation in the planning and provision of transportation services.

Based on the level of funding made available by the Federal Highway Administration (FHWA) and the FTA, the bulk of the FY 2020 UPWP is in place. Should some additional funding above that which is documented at this time, there will be an opportunity to consider additional BMC consultants and/or Local Subarea projects. Any changes will be reflected in an amended budget table.

PRODUCTS/MILESTONES	SCHEDULE
Minutes, resolutions and special reports	Monthly
Progress Reports, invoices, and financial reports	Monthly (BMC) Quarterly (Locals)
Training opportunities	As scheduled
FY 2020 UPWP amendments	Throughout Fiscal Year
FY 2020 UPWP budget adjustments	3rd Quarter
FY 2021 UPWP budget development and local contracts as necessary	4th Quarter

FY 2020 BUDGET: **$800,000**

FY 2021 EST. BUDGET: **$800,000**

PROFESSIONAL CONSULTANT SERVICES

PURPOSE: To retain consultant services for work activities in the Unified Planning Work Program (UPWP) that requires external support due to complexity or uniqueness of the tasks. These work efforts will strengthen the overall regional transportation planning process and expand the capabilities of the Baltimore Regional Transportation Board (BRTB).

During Fiscal Year (FY) 2019, contracts were utilized for the following activities: continued development of an activity based travel demand model, support for the traffic count program, a household travel survey, development of transportation data books, and the Maryland Transit Administration/Locally Operated Transit Systems (MDOT MTA/LOTS) transfer points study. BMC managed a contract for Anne Arundel County on the Multimodal Center Feasibility Study. BMC also managed two contracts based on grants received, they were for: Statewide Supply Chain/Logistics And Urban Freight/Commercial Vehicle as well as Incorporating Reliability Performance Measures in Operations and Planning Modeling. Consultants are typically utilized in various activities to enhance the decision-making ability of the region's transportation professionals and provide input to BMC staff.

In FY 2020, the continued use of consultant services will be employed. At the direction of the BRTB, BMC staff expects to explore using consultant services for the following activities:

Model Development – Finalize the role out of the activity based travel demand model.

Traffic Count Program – Obtain portable and classified traffic and/or bicycle/pedestrian counts throughout the region for use in the travel demand model and for local traffic management purposes.

Household Travel Survey – Continue to collect and analyze surveys.

Evaluation of BRTB Public Involvement Activities – To evaluate the effectiveness of current public involvement activities and recommendations for improvement.

Elderly Trip Characteristics – Identify locations of concentrations of the elderly in the region and trends that may suggest future population concentrations, conduct an examination of travel behaviors and identify patters and trends in travel, and identify specific policy implications and mitigation plans to address current and future needs.

Traffic Impact Study Guidelines – review impacts of a proposed development on the surrounding transportation network. The Maryland Department of Transportation State Highway Administration (MDOT SHA) and many local jurisdictions in the Baltimore region have traffic impact study guidelines or requirements, some governed by their local Adequate Public Facilities Ordinances (APFO).

Practices for Changing Mobility – With the advent of new mobility solution companies there is a growing competition for curb space and sidewalk space both on public roadways and within private development plans. Document best practice review/comment techniques for local jurisdictional plan reviewer staff.

Pedestrian Safety at Roundabouts – To analyze available data to characterize safety concerns for pedestrians in traffic roundabouts and to identify crash trends and develop recommendations for improving the design of roundabouts and increasing safety for non-motorists.

Congestion Management Process – Refresh the required CMP approach in the region and incorporate activities related to the long-range transportation plan and Transportation Improvement Program as well as ongoing performance measures.

Patapsco Greenway: Elkridge to Guinness – Undertake a feasibility study and preliminary engineering for a new paved pathway segment between River Road or Levering Avenue in Elkridge and the Guinness brewery in Relay.

PRODUCTS/MILESTONES	SCHEDULE
Develop RFPs, select consultants, write contracts	1st Quarter
Memoranda/Reports	Throughout Fiscal Year

FY 2020 BUDGET: **$1,595,000**

FY 2021 EST. BUDGET: **$790,000**

TECHNICAL ANALYSIS IN SUPPORT OF STATE INITIATIVES

PURPOSE: To provide the modal administrations of the Maryland Department of Transportation (MDOT) special technical assistance using regionally-generated data, development goals, forecasts, as well as regional priorities for transportation planning activities related to the Baltimore region.

During Fiscal Year (FY) 2019, the Baltimore Metropolitan Council (BMC), continued providing technical assistance to state modal agencies. The Baltimore Regional Transportation Board (BRTB) in partnership with Maryland Department of Transportation/State Highway Administration (MDOT MDOT SHA) have successful completed two Strategic Highway Research Program (SHRP) 2 travel modeling enhancement pilot demonstration grants. The SHRP 2 C20 Freight Demand Modeling and Data Improvement grant developed a new Freight Modeling System representing the long distance supply chain, the urban delivery freight and the commercial vehicle movement for goods and services. The C20 Freight Modeling System was integrated within the Trip Based Model and the Initiative to Simulate Individual Travel Events (InSITE) replacing the commercial vehicle and freight adaptive assignment method developed in 2001. The C20 Freight Modeling System was expanded to the Maryland Statewide Travel Model (MSTM) version 2 zone system and integrated with the state wide disaggregate micro-simulation model. The C20 Freight Demand Modeling System estimates a freight (medium and heavy) and commercial vehicle tour roster consistent with the InSITE person tour roster. The SHRP 2 C10 Partnership to develop an integrated, advanced travel demand model and a fine-grained, time-sensitive network was completed with the integration of InSITE with the Dynamic Traffic Assignment (DTALite). An integrated modeling system was created loading InSITE person tour rosters using DTALite with travel time feedback (DTALite was used in generating half hour skims which are feedback into InSITE travel behavior/choice simulation). As a result of significant integrated model runtime, a population sampling method was created and users have a non-speed feedback option loading InSITE person tour roster within DTALite. The SHRP 2 L04 Incorporation of Reliability within Travel Models is underdevelopment with final project documentation completed in FY 2020.

The Maryland Transit Administration (MDOT MTA) requested technical assistance in the calculation of transportation analysis zone (TAZ) job accessibility using various transit modes. The analysis required BMC to develop transit mode specific networks and calculate in and out of vehicle transit run time. For each TAZ the number of jobs reachable within 30, 60, and 90 minutes was accumulated. MDOT MTA initiated the development of the Central Maryland Transit Plan and is partnering with BMC in the identification of data and simulation results. BMC staff is working with MDOT MTA consultants in processing and understanding simulation result. The analysis will continue into FY 2020.

MDOT SHA and BMC have formed a unique partnership working collaboratively on development of simulation tools and coordinating data collection efforts. The SHRP2 federal grants are an example of both agencies implementing model improvements from working cooperatively. The MDOT SHA has transferred the method and procedure developed for InSITE to the version 2 of the MSTM. BMC staff provided technical assistance and guidance on their experience developing and applying InSITE. BMC is providing their knowledge and expertise in the statewide/regional household travel survey. The assigned one travel day survey was completed in FY 2019 and work on cleaning, summarizing and understanding observed behavior will continue in FY 2020. The MDOT SHA requested the development of a travel demand forecast for several projects using both InSITE and the travel based model (TBM).

This required the development of alternative specific highway networks and multiply travel simulation runs.

In FY 2020 and FY 2021, staff will continue to support MDOT modal administrations in three areas – 1) technical tool validation, 2) technical tool evaluation towards deployment, and 3) technical tool application.

The region and modal administrations have completed a transit on-board survey and a household travel survey. The comprehensive observed travel behavior data sets need to be reviewed, analyzed and summarized to identify emerging and changing regional person and household travel trends. Understanding person's behavior choices of when, where, why and how travel is made to assist in managing the current transportation system and supports decision-making on future infrastructure choices. Staff will summarizes captured observed travel choices and behavior from the transit on-board and household travel survey in the form of presentation and reports. In addition, the processed survey data sets will serve as InSITE model calibration/validation in FY 2021. The InSITE travel behavior was estimated using the 2001 household travel survey and validated to a 2012 base year. Depending on funding, the InSITE model should either be calibrated/validated to an updated base year of 2018 or possible re-estimation using the 2018 Household Travel Survey. MDOT SHA and BMC were agency sponsors to a University of Maryland Federal Highway Administration (FWHA) funded grant to investigate using mobile device data for tracking and predicting origin destination (OD) travel trends. As agency sponsors, BMC has received 2017 OD data from three different data providers that has been geocoded to the travel model region TAZ system. The OD data can be compared with the travel survey patterns and serve as an additional observed validation data set.

MDOT SHA is moving towards developing project planning forecasts using Vissum, a traffic micro-simulator. The existing method processes trip based model time period travel demand using Vissim, a traffic meso-simulator. The time specific (15 minute) Vissim meso-simulator vehicle trajectories are further simulated using Vissum, a micro-simulator. Several assumptions are made and some processes are not well understood (priority software), when converting time period demand into 15 minute resolution vehicle trajectories. BMC will assist MDOT SHA in investigating the use of disaggregate modeling tools throughout the conversion process. The region's InSITE model estimates a person tour roster and the C20 Freight Modeling System estimates a freight tour roster using ½ hour resolution. The SHRP2 C10 project developed methods to process InSITE tour rosters into vehicles using 15 minute resolution and freight aggregate trip tables (from previous freight adaptive assignment method) for simulation of route choice using DTALite, a meso-simulator. The SHRP 2 C10 produced an initial DTALite calibration. The completed SHRP2 C10 calibration will be reviewed and validated at the regional level and for identified corridors. Working with MDOT SHA and their partners, BMC will develop a method to load the C20 freight tour roster using DTALite. Incorporation of C20 freight tour roster will require a new round of model calibration and validation. The disaggregate method, replacing the existing method, will feed directly into MDOT SHA preferred project planning forecasting method using Vissum.

When requested, BMC staff will support MDOT modal administration with data analysis, model development and deployment, and technical tool application. In FY 2020, staff will continue to coordinate with MDOT MTA in supporting the development of the Central Maryland Transit Plan through application of the technical tools and analysis of simulation results. In FY 2019, MDOT SHA

and BMC staff initiated a discussion on vehicle connectivity and automation's potential impact on transportation demand and system performance. The potential impact on transportation demand is highly uncertain and is best explored through a scenario planning exercise. BMC will review other state/MPO model applications looking at vehicle connectivity and automation as well as national guidance documentation on methods on incorporation within activity based models (ABMs). Modeling capabilities will be MDOT Shared with a work group. Using work group discussion on potential impacts and modeling capabilities, scenario narratives will be developed identifying modeling variable assumption(s) to be changed within InSITE. BMC will summarize the changes in travel demand and choice and report back to working group.

PRODUCTS/MILESTONES	SCHEDULE
Transit On-Board and Household Travel Survey – Review, Analyze, Summarize, and Report	Ongoing FY 2020-2021
InSITE/DTALite Evaluation Towards Development and Validation	Ongoing FY 2020-2021
Technical Tool Application/Analysis	Ongoing FY 2020-2021

FY 2020 BUDGET: **$180,000**

FY 2021 EST. BUDGET: **$180,000**

PLANNING CONTEXT

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LONG-RANGE PLANNING

PURPOSE: Maintain the regional planning process in response to guidance in the Metropolitan Planning Regulations. Develop the plan guiding long-term investments in the region's transportation systems.

During Fiscal Year (FY) 2019 a range of activities supporting long range planning were completed.

2015 Plan – The Baltimore Regional Transportation Board (BRTB) adopted the final 2015 plan, known as *Maximize2040: A Performance-Based Transportation Plan*, and the corresponding air quality conformity determination in November 2015. Since that time, the BRTB has amended the plan several times to advance projects to earlier implementation dates, while maintaining fiscal constraint.

2019 Plan – Activities related to development of the next regional long-range transportation plan that were accomplished during FY 2019 included:

Development of the 2019 plan followed the performance-based approach established in the Moving Ahead for Progress in the 21st Century Act (MAP-21) and refined in the Fixing America's Surface Transportation (FAST) Act. To this end, BMC staff worked with MDOT SHA staff to gather data and information on methodologies for PM2 performance measures (pavement and bridge condition) and the remaining PM3 performance measures (relating to travel time reliability). The BRTB approved regional targets for the PM2 measures and PM3 measures in November 2019. BMC also worked with MDOT SHA to update regional highway safety performance targets first adopted in January 2018. The BRTB adopted these updated targets in January 2019. Internally, BMC staff discussed the format of the system performance report required to be included in the regional long-range plan and the regional short-range Transportation Improvement Program.

BMC staff coordinated development of the financial forecast with MDOT staff. In September 2019, the BRTB endorsed the financial forecast provided by MDOT. This includes forecasted revenues and estimates of amounts expected to be spent on system operations, system preservation, and major capital projects.

BMC staff solicited major capital projects from jurisdictions and state modal agencies. Staff received 82 candidate projects from the jurisdictions and agencies and coordinated with submitters as needed to gather additional information.

BMC staff evaluated the submitted projects relative to major scoring criteria. In December 2019, BMC staff completed the scoring and mapping of the candidate projects. Staff also compared the estimated year of expenditure costs of major capital projects to forecasted revenues. This was in preparation for BRTB and Technical Committee development of a preferred alternative for *Maximize2045*.

BMC staff evaluated the potential performance of the preferred alternative projects relative to expected travel demand, air quality conformity requirements, and Environmental Justice policies and concerns. Staff also coordinated with resource agencies on potential effects relative to natural and cultural resources.

BMC staff developed a draft plan and held seven public meetings throughout the jurisdictions to allow for public review of the document.

FY 2020 activities will include:

- gathering and responding to comments from the public
- producing a final plan and submitting the plan to the Federal Highway Administration, Federal Transit Administration, and U.S. Environmental Protection Agency for review and approval
- continuing to keep Technical Committee and BRTB members informed about developments related to trends discussed in the plan.

FY 2020 BUDGET: **$140,000**

FY 2021 EST. BUDGET: **$140,000**

TRANSPORTATION IMPROVEMENT PROGRAM

PURPOSE: To assemble a comprehensive listing of requests for federal funds and regionally significant projects, in support of state and local transportation investments planned over the next four-year period. Coordinate the Baltimore Regional Transportation Board (BRTB) Transportation Improvement Program (TIP) process to ensure member transportation projects fulfill all related federal requirements.

Baltimore Metropolitan Council (BMC) staff have utilized the web-based online TIP system to produce every TIP document since the Fiscal Year (FY) 2016-2019 TIP. In addition, all jurisdictions and agencies submit, view and edit their TIP projects through the online web-based portal. BMC staff continue to train agency staff as necessary and distribute a step-by-step guide to using the web-based system at the beginning of each call for projects. Staff continue to work with Data Transfer Solutions LLC (DTS) staff to integrate updates and functionality into the TIP system as necessary. For example, two additional project categories were added in FY 2019 at the request of the Public Advicory Committee (PAC). Transit and commuter rail projects were split into "preservation" and "capacity" categories to match the categorization of highway projects.

In FY 2018, the BRTB unanimously approved the FY 2018-2021 TIP on July 25, 2017, with approval from federal agencies on August 9. The published FY 2018-2021 TIP was made available online in portable document format (PDF) form as well as in an interactive project map developed by BMC staff. A listing of projects with federally obligated funds from FY 2017 was published when it became available from the Maryland Department of Transportation (MDOT). Staff reviewed and coordinated with the region's conformity determination in the processing of 10 amendments and 13 administrative modifications to the FY 2018-2021 TIP.

Also in FY 2018, BMC staff worked with BRTB members to prepare for the FY 2019-2022 TIP. Project sponsors completed project submittals in March followed by the Interagency Consultation Group (ICG) determination of exempt/nonexempt status for projects in April. A 30-day review took place from May 23 through June 25 with one public meeting. A representative from each project sponsor was on hand to answer questions, with approximately 30 members of the public attending. In addition to the web-based tools provided by the TIP database and posting the TIP online as a PDF, staff developed an interactive project map for the FY 2019-2022 TIP.

FY 2019 followed a similar schedule to FY 2018. There was a brief period for the consideration of amendments to the FY 2018-2021 TIP, with two amendments and three administrative modifications approved in July 2018. The BRTB approved the FY 2019-2022 TIP on July 24, 2018, with federal approval on August 27. A listing of projects with federally obligated funds from FY 2018 was published when it became available from MDOT. BMC staff worked with BRTB members to prepare for the FY 2020-2023 TIP. Project sponsors completed project submittals in February followed by ICG determination of exempt/nonexempt status for projects in March. This schedule was slightly expedited due to the joint conformity determination and public review necessary for the FY 2020-2023 TIP and *Maximize2045*. Staff reviewed and coordinated with the region's conformity determination in the processing of five amendments and eight administrative modifications to the FY 2019-2022 TIP (as of January 2019).

Also in FY 2019, several BMC staff attended a 2-day National Highway Institute (NHI) pilot course regarding methods for environmental justice analysis. Staff met several times throughout FY 2019 to discuss potential improvements to EJ analysis for both the TIP and Plan. Some of those improvements will be included in the FY 2020-2023 TIP and *Maximize2045*. BMC staff will continue to integrate improved EJ analysis methods into future TIP documents in FY 2020 and FY 2021.

A similar TIP production process to FY 2019 will take place in FY 2020 and FY 2021. In keeping with current surface transportation legislation, a listing of projects with federally obligated funds from the previous year's TIP's annual element will be published within ninety (90) days after the end of any given fiscal year. Over the two years there will be an analysis of TIP projects and the relationship to performance measures. These analyses will be included in all future TIP documents.

MDOT is currently working with a consultant to develop software to track project progress and change orders. This will enable MDOT staff to more efficiently identify the need for and to process TIP changes with MPO staff. Once the software has been rolled out, BMC will work with MDOT to integrate our respective STIP/TIP applications as possible. Further efforts to reduce the number of and streamline the processing of amendments and administrative modifications will be pursued. Finally, staff will continue updating the online TIP tool to integrate updates as needed for the production of the TIP document, the processing of amendments, and the presentation of information to the public.

PRODUCTS/MILESTONES	SCHEDULE
Approval of the FY 2020 – 2023 TIP	1st Quarter of FY 2020
Approval of the FY 2021 – 2024 TIP	1st Quarter of FY 2021
FY 2019 Obligated Listing Development	2nd Quarter of FY 2020
FY 2020 Obligated Listing Development	2nd Quarter of FY 2021

FY 2020 BUDGET: **$120,000**

FY 2021 EST. BUDGET: **$120,000**

PROMOTING INCLUSIVENESS & COOPERATION

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PUBLIC PARTICIPATION AND COMMUNITY OUTREACH

PURPOSE: To allow both individuals, organizations, and groups the opportunity to actively engage in the regional transportation planning process through a variety of methods. The Baltimore Regional Transportation Board (BRTB) has affirmed that it is important to ask for public participation, not just wait for it. Active participation, by the public and partner agencies alike, is an essential part of a meaningful transportation planning process because it enables government agencies to understand and account for the concerns and needs of the public, particularly at times when key decisions regarding the region's transportation network are made.

In Fiscal Year (FY) 2018 staff informed and engaged the public in a variety of ways, including: soliciting public comments through comment periods and public meetings on a variety of plans including the Unified Planning Work Program (UPWP) and Transportation Improvement Program (TIP) amendments; convening regular meetings of the Public Advisory Committee (PAC); improving communications and outreach efforts; utilize social media to MDOT SHAre information and grow audiences on Facebook, Twitter, and LinkedIn pages for BaltoMetroCo, B'more Involved, and Bike2WorkCentralMD; and a team of staff collaborated to continue the What's on Tap regional events series, as well as regional Bike to Work Day events.

In FY 2020-2021, staff will continue to educate and engage the public early and often throughout the planning process. Ongoing activities include:

Support ongoing efforts to solicit public input throughout the planning process by promoting public comment opportunities, hosting public meetings, and conducting outreach and education efforts throughout the region. In particular, staff will promote public involvement opportunities for *Maximize2045*, TIP, UPWP, Air Quality Conformity Determination, and other plans and programs issued for public review by the BRTB. Comments from the public will be MDOT Shared with the BRTB members and incorporated into plans when feasible. Responses to public comments will be coordinated and monthly reports on comments will be provided to the BRTB.

Staff will continue to assist the PAC with the fulfillment of their mission by providing support to the PAC members and convening monthly meetings of the PAC and its subcommittees.

Staff will continue to plan and host Every Voice Counts Transportation Academies around the region. Every Voice Counts was developed utilizing a United States Department of Transportation (U.S. DOT) toolkit to provide key background information and tools for emerging transportation leaders and other stakeholders who have traditionally been underserved or who have limited experience with the transportation decision-making process.

An internal communications team will meet regularly to coordinate and collaborate on outreach and education efforts including: *Maximize2045*, Bike to Work Day, Clean Commute Initiative, What's on Tap, and other planning efforts. Staff will utilize a variety of communications tools and techniques to reach the public including: outreach at local events and meetings; sending press releases and e-newsletters, maintaining a robust social media presence on B'more Involved (promoting civic engagement) and BaltoMetroCo (BMC/BRTB announcements, opportunities, and events); distributing surveys, place advertisements in local media outlets, etc. An annual report on public

involvement activities and outreach efforts will be published or incorporated into the agency's Annual Report.

Staff will coordinate a series of regional events that bring together the public with local and national thought leaders and innovators to learn about future trends and technology, MDOT Share ideas and best practices, and discuss a wide-range of important topics. The goals of these events are to build relationships with area residents and local institutions; provide opportunities for learning, collaborating, and networking; and increase awareness of the BRTB and opportunities for involvement in the planning process.

Staff will continue to work with BRTB members and elected officials to identify opportunities to move BRTB meetings out into the community.

Staff will also collaborate with local organizations to identify event speakers, locations, sponsors, and interested stakeholders, plan event objectives and programs, conduct marketing and promotion, and review event evaluations and identify ways to overcome barriers to involvement.

PRODUCTS/MILESTONES	SCHEDULE
Solicit and Address Public Comments	Throughout Fiscal Year
Public Advisory Committee	Monthly (or as needed)
B'More Involved, Press releases, and other e-news/social media marketing	Throughout Fiscal Year
Conduct outreach and promote initiatives	Throughout Fiscal Year

FY 2020 BUDGET: **$245,000**

FY 2021 EST. BUDGET: **$245,000**

TRANSPORTATION EQUITY PLANNING

PURPOSE: To encourage equitable outcomes and involvement in the regional transportation planning process.

During Fiscal Year (FY) 2019, staff completed an update the Title VI Program and Policy Statement, Title VI Annual Report, and Title VI Assurances to accompany this Unified Planning Work Program (UPWP). In addition, staff updated the Vulnerable Population Index (VPI) datasets based on current American Community Survey (ACS) data and also updated the Limited English Proficiency Plan. Staff also worked with the Public Advisory Committee (PAC) to determine enhancements to analyses that are considered for various documents, particularly the long-range transportation plan. Staff participated in advanced training for environmental justice applications and are now beginning to implement improvements.

In FY 2020-2021, staff will develop a plan and begin to implement a tool for the VPI to add interactive features such as local meeting locations, key organizations (as identified in the Baltimore Metropolitan Council (BMC's) Insightly database), and interested parties. Staff will continue to MDOT Share the updated VPI data/maps with local and state partners, nonprofits, and other interested parties. Feedback obtained in the MDOT Sharing of these tools will be incorporated, when possible, into the VPI data sets, maps, and web-based tool.

VPI data and other datasets will be used to develop/refine methods to evaluate the benefits and burdens associated with the Transportation Improvement Program (TIP) and long-range transportation plan. To support the determination of benefits and burdens, support staff for the InSITE model will develop a module to advance our process for determining outcomes.

Staff will conduct an update to the Americans with Disabilities Act (ADA) Evaluation last completed in 2016. BMC will continue to monitor contracts for Disadvantaged Business Enterprise (DBE) participation and host the annual "Meet the Primes" event.

Staff will provide support to the PAC Equity Subcommittee to continue the conversations underway.

Throughout the year, staff will continue to make sure all elements of the metropolitan planning process in the Baltimore region are undertaken in the most equitable fashion.

PRODUCTS/MILESTONES	SCHEDULE
Review DBE Participation Goal	2nd Quarter, FY 2020, 2021
Prepare Title VI Annual Report	3rd Quarter, FY 2020, 2021
Evaluate Benefits and Burdens for the LRTP, TIP	3rd Quarter, FY 2020, 2021
Review ADA Policies	1st Quarter, FY 2020

FY 2020 BUDGET: **$110,000**

FY 2021 EST. BUDGET: **$110,000**

GATHERING & ANALYZING DATA

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GIS ACTIVITIES

PURPOSE: To maintain the Geographic Information System (GIS) that allows for information and data to be spatially organized, updated, analyzed, disseminated, and graphically depict demographic, socio-economic, and travel information.

During Fiscal Year (FY) 2018 the Baltimore Metropolitan Council (BMC) played a key role in coordinating regional GIS initiatives on a number of subjects of interest to our local jurisdictions. This included creating a single GIS data layer for bicycle trails, hosting a panel on local applications for unmanned aerial systems (UAS), (drones), and hosting regional meetings for Next Generation 911 and Census 2020. In coordination with the Maryland Department of Information Technology (DOIT), BMC fully integrated the regional addressing layer into DOIT's statewide initiative. BMC continues to be a liaison between state and local government on GIS issues. BMC facilitates education, communication, and project coordination between local jurisdictions through quarterly Baltimore Regional Geographic Information System Committee (BRGISC) meetings.

Staff maintain a large enterprise database of transportation, planning, and demographic data for use in mapping and GIS analysis. This data supported a number of key projects at BMC including the Implements to Affordable Housing project, the Limited English Proficiency (LEP) Report, and the early stages of *Maximize2045*. BMC continued to build on its online technology with an updated traffic count app and a planning tool that allowed users to look at where TIP projects are located in relation to vulnerable communities. BMC launched an Open Data platform giving anyone in the community open and free access to GIS data products. Staff continue to use GIS data to improve public outreach online including web applications for the LEP Report, the latest Transportation Improvement Program (TIP), and Bike to Work Day.

In FY 2020-2021 work includes:

BMC staff will provide ongoing GIS maintenance, geospatial analysis, and technical support for various transportation planning activities including analysis for the long-range plan, the Transportation Improvement Program, and the travel demand model.

BMC will continue to support and expand BMC's web presence through our Open Data website, which allows users to download GIS data as well as incorporate it into their own applications. Additional web mapping applications will be created to assist in public outreach and in the creation of planning and analysis tools including an expanded demographic application, a bicycle facilities planning tool, outreach products for *Maximize2045*, and transportation information applications.

Staff will continue to coordinate with the local jurisdictions on regional projects including Next Generation 911, regional bicycle trails, and Census 2020. Work with the Baltimore Regional Geographic Information System Committee (BRGISC) will continue with ongoing coordination of regional projects, advocacy for regional interests at the state level, and by providing networking and training opportunities to GIS staff from our member jurisdictions.

BMC will continue its leadership role in state GIS activities, including working with the Maryland State Geographic Information Committee (MSGIC), coordinating with state GIS entities at MD iMap Technical Committee meetings, and assisting with the Towson GIS conference.

PRODUCTS/MILESTONES	SCHEDULE
GIS mapping and geospatial analysis	Throughout Fiscal Year
Manage, update, and maintain an enterprise GIS database system	Throughout Fiscal Year
Organize and participate in BRGISC and coordinate regional GIS projects	Throughout Fiscal Year
Participate in MSGIC and other GIS activities in the state and region	Throughout Fiscal Year
Develop new mapping applications and GIS web services	Throughout Fiscal Year

FY 2020 BUDGET: **$370,000**

FY 2021 EST. BUDGET: **$370,000**

DEMOGRAPHIC AND SOCIOECONOMIC FORECASTING

PURPOSE: To develop and maintain population, household, and employment forecasts for the Baltimore metropolitan region. The cooperative forecasts serve as a key input to the regional travel demand forecasting process and the development of the long-range transportation plan. Staff of the local jurisdictions comprise the Cooperative Forecasting Group (CFG) and coordinate the development of their jurisdiction's estimates and projections. Jurisdictional staff utilize local comprehensive plans, adopted zoning maps and regulations, and an inventory of available residential holding capacity to inform their forecast process.

During Fiscal Years (FY) 2018 and 2019, the CFG continued to meet on a bi-monthly basis. In February 2017, upon hearing the recommendations of the forecast survey subcommittee, the CFG members voted to make no changes to the current forecasting approach, and to maintain the group's bottom-up forecasting methodology. On June 26, 2018 the Baltimore Regional Transportation Board (BRTB) endorsed the Round 9 cooperative forecasts. Structural differences in the Round 9 data set include a new base year (2015), the extension of the forecast horizon to 2045, and the inclusion of Queen Anne's County in its entirety (the previous round had included only the modeled portion of the county). The Round 9 cooperative forecasts have been incorporated into the development of the 2019 long-range transportation plan update. BMC staff assisted local planning partners with the 2020 Census Local Update of Census Addresses (LUCA) work, hosted information and training sessions, and developed a work plan for the Participant Statistical Areas Program (PSAP). Additionally, the CFG continued discussions on bi-regional growth assumptions with the Metropolitan Washington Council of Governments (MWCOG) and Wilmington Area Planning Commission (WILMAPCO).

In FY 2020-2021, the CFG will continue to meet on a bi-monthly basis. The group will continue to evaluate the need for updated forecasts on an annual basis, and update the forecasts as necessary. BMC staff will continue to monitor the release of Census data that pertains to population, households, and employment, document the proceedings of the CFG meetings, document comparisons between Round 9 and future long-range population, household, and employment forecasts, provide small area residential and employment estimates and forecasts to local jurisdictions on request, continue data compilation, data development, and technical assistance for BMC partners, and continue discussions on bi-regional growth assumptions with the Metropolitan Washington Council of Governments (MWCOG) and Wilmington Area Planning Commission (WILMAPCO).

The CFG produces estimates and forecasts of total jobs in each jurisdiction and across the region. A job can be part-time or full-time, and more than one job may be held by a single person. With the rise of the gig-economy and increase in contract work, a growing number of people are finding alternative ways of generating income – often from a variety of sources. In FY 2020, BMC staff will conduct research on methods to quantify the number of multiple jobholders in our region and jurisdictions, and develop estimates for the MDOT Share of jobs held by multiple jobholders. These estimates will provide context for the observed gap between population and employment forecasts, and may inform future forecasting efforts.

BMC is serving as the Census 2020 Primary PSAP Official for the local jurisdictions in the Baltimore region. This role involves coordination with the United States Census Bureau and Maryland Department of Planning, as well as providing technical assistance to local jurisdictions throughout the PSAP process. BMC will work closely with local planners and the Census Bureau's Geography Division in the development of the statistical geographic boundaries that will be used in the 2020 census. These boundaries will include Census Designated Places, Census Tracts, and Census Block Groups. The BMC will ensure that the PSAP process is completed on schedule, and that the Census Bureau receives all finalized PSAP materials from the Baltimore region on time. During FY 2020, the BMC will provide the Maryland Department of Planning and local planning agencies technical assistance in developing and implementing Census 2020 outreach activities.

PRODUCTS/MILESTONES	SCHEDULE
Evaluate need for update to forecasts	Throughout Fiscal Years
Update forecasts as necessary	2nd and 3rd Quarters, FY 2020 - 2021
Provide technical assistance to local planners for Participant Statistical Areas Program (PSAP)	1st Quarter, FY 2020
Assist local jurisdictions and Maryland Department of Planning with Census 2020 Outreach Activities (as needed)	FY 2020
Monitor and review relevant Census data releases	Throughout Fiscal Years
Document proceedings of the CFG	Throughout Fiscal Years
Develop an estimate of multi-jobholders in the region	FY 2020
Provide data to local jurisdictions upon request	Throughout Fiscal Years
Provide data compilation, data development, and technical assistance	Throughout Fiscal Years

FY 2020 BUDGET: **$255,000**

FY 2021 EST. BUDGET: **$255,000**

DEVELOPMENT MONITORING

PURPOSE: To track new land development patterns in the region by type (residential, non-residential, mixed-use etc.), location, and timing. Tracking development activity is important to the transportation planning process as it recognizes the placement of household and employment growth across the region, and assists in the analysis of the associated demands upon the transportation network. Ongoing contact with state and local agencies provides data needed for this activity.

During Fiscal Year (FY) 2018 - 2019, Baltimore Metropolitan Council (BMC) staff continued to collect and process building permits from each of the local jurisdictions, bringing them into one common system. The Building Permit Data System (BPDS) at the BMC is the source for various products and services including reports and analyses of regional trends (supported by maps and charts highlighting notable development activity, as well as a comparison with the national trend during the reporting period) and BPDS Online, which allows users to develop their own queries and search the building permit files online through subscription. In addition, staff continues to make available the BPDS Quick Viewer, which is a free online mapping product that allows the user to view the location of selected building permits on a map. Staff also made multiple presentations on development monitoring activities to the Cooperative Forecasting Group and Technical Committee of the Baltimore Regional Transportation Board (BRTB).

In FY 2020-2021, staff will prepare monthly and quarterly reports of plans for new residential and non-residential development. BMC staff will incorporate building permit data from Queen Anne's County into the BPDS, creating a permit database inclusive of all regional jurisdictions. Staff will continue the production of annual reports on "green" construction activity. "Green" refers to the Addition/Alteration/Repair permit category that contains features directed toward energy conservation. Staff will continue to update a list of state and local incentives that impact "Green" permit activity. There will also continue to be a report on residential hot spots, detailing which residential developments in the region are permitting the most units. Additionally, there will be an analysis of building permit activity by water and sewer service areas and priority funding areas.

PRODUCTS/MILESTONES	SCHEDULE
Reports on residential/non-residential development plans	Throughout Fiscal Years
Reports on "green" construction activity	1st Quarter 2020 - 2021
Report on residential hot spots	2nd Half FY 2020 – 2021
Analyses/Maps of residential building permit activity by water and sewer service areas and Priority Funding Areas	2nd Half FY 2020 – 2021
Incorporate Queen Anne's County building permit data into the BPDS	2nd Half FY 2020
Update list of federal, state, and local energy efficiency incentives that impact residential and non-residential permit activity	2nd Half FY 2020 – 2021

FY 2020 BUDGET: **$265,000**

FY 2021 EST. BUDGET: **$265,000**

ANALYSIS OF REGIONAL DATA AND TRENDS

PURPOSE: To identify regional travel trends and related policy issues, using existing Baltimore Metropolitan Council (BMC) datasets and outside resources where available. The results of the analysis will be communicated to local officials and the public. Also to review, analyze and develop relevant transportation planning products from data released by relevant agencies such as the U.S. Department of Commerce and the U.S. Census Bureau; and to manage the 2017-2018 Household Travel Survey.

This task includes the following activities:

Regional Indicators **-** The scope of the Regional Indicators task reflects the broad social and economic forces that influence, and are influenced by, the policies and programs of the Baltimore Regional Transportation Board (BRTB). BRTB policy goals and program initiatives are articulated in documents such as *Maximize2040*, the region's long-range transportation plan.

The Regional Indicators task is an opportunity to re-evaluate and consolidate data collection activity at BMC. It may encompass data on land use and economic development, demographics and housing, the environment, the condition of transportation infrastructure, measures of access and mobility, transportation system safety and security, and other data as necessary.

Staff has worked with subject area specialists at BMC to develop indicators, while also identifying sources of indicators outside the agency and performing subject area literature reviews.

Major sub-tasks are selection, analysis, synthesis, and dissemination of regional indicators, as well as the Demographic and Socioeconomic Horizon Year Scenario Planning and Transportation Management Operation Corridor Analysis projects.

Vulnerable Population Index - During Fiscal Year FY 2018-2019, staff reviewed the Vulnerable Population Index (VPI), in which data is obtained from the Decennial Census or the ACS to determine the regional distribution for each of seven vulnerable populations. The methodology used to construct the Vulnerable Population Index, as well as the individual indices that comprise it, was revised. Staff also drafted language to explain to the general public the appropriate use of the VPI data. In addition, the graphical display of the data on the BMC website was improved. Finally, staff developed an online planning tool that allows users to view the location of TIP projects in relation to vulnerable communities.

Community Profiles – The Community Profiles task was incorporated into the Data Books project. Staff will continue to increase the capabilities of BMC's interactive software for visualizing demographic data and other datasets.

Household Travel Survey – The initial plan for a 2017-2018 BMC Household Travel Survey was expanded with the support of the Maryland Department of Transportation (MDOT) to a statewide survey under the name Maryland Travel Survey (MTS). Concurrently, the Metropolitan Washington Council of Governments (MWCOG) conducted its Regional Travel Survey. The products of the surveys will compose a uniform dataset for the state of Maryland.

Staff managed all phases of the Maryland Travel Survey: preparing the Request for Proposal (RFP);

reviewing four proposals submitted for the RFP and preparing a summary document; facilitating a meeting of the Selection Committee; organizing a Kick-Off meeting with the consultant at BMC's offices; working with the consultant to draft the invitation letter and questionnaire for the survey; performing demographic analysis and making recommendations for the sampling plan; and monitoring the results of data collection. BMC and MWCOG collaborated on development of the sampling plan; review of data during the survey; and adjustment of sampling strategy.

In FY 2020-2021, staff will work on these activities: analyze/synthesize current data; demographic and socioeconomic horizon year scenario planning; transportation management operation corridor analysis.

A major task will be post-processing of household travel survey data. Staff will collaborate with the consultant and MWCOG to check and clean the survey data and calculate final sample weights. Staff will also review the consultant's final report and present the survey results to the BRTB, to other committees, and to the public.

Analysis of the survey data will be ongoing. A proposed study is to look at Spatial Analysis of Elderly Travel. BMC staff will collaborate with local governments and other regional stakeholders to develop additional research projects.

PRODUCTS/MILESTONES	SCHEDULE
Analyze/Synthesize Current Data	Throughout Fiscal Year
Demographic and Socioeconomic Horizon Year Scenario Planning	Throughout Fiscal Year
Transportation Management Operation Corridor Analysis	Throughout Fiscal Year
Check and Clean Survey Data	FY 2020, 1st and 2nd Quarter
Analyze and Report on Survey Results	FY 2020, 3rd Quarter–FY 2021

FY 2020 BUDGET: **$280,000**

FY 2021 EST. BUDGET: **$280,000**

MAINTENANCE OF SIMULATION TOOLS

PURPOSE: Development and maintenance of the region's aggregate and disaggregate demand and traffic simulation tools and enhancing modeling methods.

The region maintains two travel simulation tools - 1) production travel simulation tool, a traditional aggregate (Trip Based Model (TBM)), and 2) moving towards the adoption of a disaggregate (InSITE/C20 Freight/DTALite) travel simulation tool. The travel simulation tools and methods support regional analysis, development of travel trends, horizon year uncertainty scenario applications, and forecasting corridor travel demand for project planning.

In Fiscal Year (FY) 2019, the TBM was the official production model used in regional and project corridor analysis and will continue as the official modeling tool until the Baltimore Regional Transportation Board (BRTB) adopts disaggregate modeling tools. The traditional 4-step trip based model zone system was expanded to include the urbanized area of Queen Anne's County. The zone system expansion required the development of new transportation networks including additional external stations. The estimated model region through trips and the method used in estimating external to internal travel was modified reflecting the new internal zone structure and additional external stations. The latest land use planning assumptions (Round9) were incorporated and the two (household by income and households by works) transportation analysis zone (TAZ) bivariate distributions were updated. Modeling script errors and issues identified through user application, were investigated and addressed in subsequent model script releases.

BMC reviewed the InSITE model and implemented code modifications to be consistent with BMC hardware (storage), instituted a more user friendly interface, and organized input assumptions to reduce user application error. The required transit network for the Washington region was revised adopting a coding scheme consist with Baltimore region coding scheme streamlining transit network maintenance. InSITE relies on the existing modeling method for the Baltimore Washington Thurgood Marshall International (BWI) ground access transportation, internal to external, external to internal, and through trips (the initial model used truck trip tables from the adaptive assignment method. Adaptive assignment method truck trip tables have been replaced with the C20 Freight Modeling System). Cube scripts were developed to estimate horizon year previous model required trip tables. InSITE developers revised the original InSITE model incorporating a relational database to improve model runtime and revised InSITE model code and PostgreSQL database schemes incorporating person and TAZ transportation accessibility measures.

BMC reviewed the C20 Freight Modeling System and integrated the process with InSITE. Simulated C20 trip tables were compared with the adoptive assignment method and simulated C20 freight link volume was compared with facility classified counts. The InSITE modeling script, catalog keys, and application manager were revised replacing the freight adaptive assignment method trip tables with C20 Freight Modeling System. The C20 Freight Modeling System R code was revised changing the TOD method from 4 time periods (consistent with the TBM) to the eight time periods used in InSITE static highway loading.

BMC developed a jurisdiction based Cohort Population Change model. The synthetic disaggregate

population method uses TAZ and jurisdiction marginal control variables. The existing TBM demographic sub-models were previously modified and enhanced to estimate TAZ marginal control variables. Jurisdiction population by sex and age (18 groups) marginal control variables are estimated using the developed Cohort Population Change model, estimated using Maryland Department of Health and Mental Hygiene vital statics on births and deaths and an indirect method for migration. A user interface was developed to allow users to update jurisdiction Cooperative Forecast population controls and to scenario births, survival rates, and changes in migration patterns.

BMC completed the SHRP2 L04 Incorporation of Reliability within Travel Models federal pilot demonstration grant. The project explored the conceptual foundations of travel modeling (InSITE) and traffic simulation (DTALite) providing a means of generating realistic reliability performance measures using network simulation models. Existing data on weather, incidents and system performance was analyzed for the L04 project subarea and used in the refinement of L04 trajectory processor and scenario manager tools. A subarea cut was conducted in DTALite extracting corridor vehicle trajectories and a DTALite base year calibration conducted. Generated scenarios updated vehicle trajectories were simulated in DTALite in calculating corridor reliability performance measures.

BMC investigated the application of DTALite. The SHRP 2 C10 completed project provided a regional calibrated integrated InSITE and DTALite model with methods for converting InSITE person tour roster and truck trip tables into DTALite inputs. Speed feedback (DTALite travel time skims feedback into InSITE demand) is used in the integrated model resulting in significant runtime. BMC developed a DTALite standalone process simulating InSITE demand directly within DTALite in order to reduce runtime. The DTALite standalone process was applied to the I-695 TSMO analysis for MDOT SHA.

In FY 2020 and FY 2021, staff will continue developing and maintaining the travel simulation tools, develop methods in preparing model inputs and assumptions and develop travel demand and traffic simulation dashboards.

The region's planning area was expanded and the TBM was update incorporating a new zone structure covering Kent Island. The Round9 Cooperative Forecast process created a zone structure for Queen Anne's County and forecasted model demographic inputs. The simulation tools will be modified incorporating all Queen Anne's County zones. Modification to the model zone system will result in identification of new external stations and estimation of a new through trip table. Transportation networks will need to be developed for the expanded zone system. Modeling scripts (TBM, InSITE and C20) will need to be modified and the synthetic household/population method adjusted to account for the additional zones.

An InSITE, C20, and DTALite model summarization process will be created replicating the TBM summarization script. A summarization script provides users with a consistent method to quickly review simulation results, verify model input assumptions, and provides horizon year travel behavior and choices trends. TBM Summary results are currently used to quickly respond to many general policy trend questions. The summarization process will be expanded incorporating dashboards with the goal of allowing non-model users to explore horizon year simulation data results.

Traffic simulation model (DTALite) development will continue with the development of a method

incorporating the C20 Freight Modeling System freight tour rosters combined with InSITE person tour roster. The simulation tools will maintain micro simulation from demand estimate to traffic simulation route choice. Inclusion of person and freight tour rosters will require a new model calibration and validation effort.

The regional mobile source emission process will be revised incorporating InSITE/C20 simulation results. The incorporation will require updates to the emission model process and assumptions. The InSITE/C20 8 time periods will be used in the expansion of hourly volumes replacing the TBM 4 time period method. MOVES assumptions on hourly TOD choice will be reviewed for consistence with InSITE/C20 simulated ½ hour TOD choice. Facility type and vehicle type travel MDOT Shares will be updated using InSITE/C20 horizon year simulation.

Through simulation tool application, users will discover code errors and/or identify methods to improve application analysis. Model code errors will be invested and addressed in subsequence model releases. Working with partnering agencies, staff will continue to enhance user interface and develop methods improving model input assumption development and/or general model application. The simulation tools rely on transportation networks, land use forecasts, and other assumption that need to be maintained incorporating latest local planning assumptions, addressing errors, and modified reflecting new policies.

PRODUCTS/MILESTONES	SCHEDULE
Incorporation of Queen Anne's County	Ongoing FY 2020
Simulation Tools Summary Scripts	Ongoing FY 2020
Simulation Tools Summary Visualization	Ongoing FY 2020-2021
Traffic Simulation Model (DTALite) Calibration and Enhancement	Ongoing FY 2020-2021
InSITE/C20 Freight Model and MOVES Integration	FY 2020
Simulation Tools Script Maintenance and Method Development	Ongoing FY 2020-2021

FY 2020 BUDGET: **$350,000**

FY 2021 EST. BUDGET: **$350,000**

SIMULATION TOOLS: APPLICATION AND ANALYSIS

PURPOSE: Apply aggregate and disaggregate demand and traffic simulation tools supporting the development of short and long-range transportation plans, the forecast of project corridor demand, and scenario analysis.

In FY 2019, simulation tools were applied in supporting *Maximize2045* development and technical analysis for Mobile Source Emissions and Environmental Justice. Simulation tools were used to score *Maximize2045* candidate projects. Travel model representative transportation networks were developed and demand was simulated using the latest planning assumptions (Round9). Prior to Maximize2045 adoption, estimated travel demand combined with emission factors from EPA's MOVES model were used in estimating regional mobile source emissions and compared to SIP budgets in determining air quality conformity determination. An analysis of American Community Survey (ACS) data was used to identify TAZs above the regional MDOT Share of minority population or household below federal poverty level. The simulation tools were used in calculating transportation accessibility to employment, shopping activities, hospitals and colleges/universities for identified EJ and non-EJ zones.

Staff supported the Cooperative Forecasting Group's demographic scenario planning initiative. Develop simulation tools (pOPTICS and PopGen) were initially used in exploring fluctuations in jurisdiction population distribution as a result of changing fertility or migration patterns. Regional labor force would be affected due to seniors aging in place versus migrating to other retirement communities outside the region. The knowledge gained has started a conversation on the development of demographic scenarios that will be furthered explored in FY 2020.

In FY 2020 and FY 2021, staff will continue supporting the development of plans and the required technical analysis. Working with state and local agencies the simulation tools will be applied in the support of scenario planning analysis and the forecast of corridor demand and traffic supporting project planning.

Simulation tools, combined with EPA's MOVES model will be used in estimating the mobile source emissions of short and long range plans. MOVES MySQL horizon year databases will be queried in summarizing criterion pollutants by source (vehicle), roadway and process type. Horizon year regional emissions associated with project plan implementation will be compared with SIP mobile source emission budgets in determining Federal Air Quality Conformity. In cooperation with MDE, the region's mobile source emission process will be maintained. Agencies will coordinate software updates and incorporation of latest planning assumption. Upon request, the region's mobile source emission process could support other regional environment analysis such as greenhouse gas estimates or air toxics.

The disaggregate simulation tools will be applied using the EJ guide developed in FY 2019. The EJ analysis for Maximize2045 was conducted using the production TBM. Working with consultant services, BMC staff developed an EJ guide using InSITE. The procedures outline in the EJ guide will be applied plans and programs. The EJ guide procedures and disaggregate simulation tool findings will be MDOT Shared with policy board committees for their review and comment. The agreed EJ

guide will become the procedure used for future plans.

Staff will apply aggregate and disaggregate demand and traffic simulation tools in the support of corridor studies. Corridor studies could be generated from the regions congestion management process or in coordination with state and local planning partners. In partnership with MDOT SHA, staff is developing a corridor approach using InSITE (demand) and DTALite (meso traffic). The full micro/meso simulation approach for household and freight travel would integrate with MDOT SHA preferred micro-traffic simulation tool VISSIM. The micro-traffic simulation approach allows MDOT SHA planners to consider adopted performance measures during project planning.

Staff will continue developing and exploring scenario planning approaches in learning about demographic, technology, and environment horizon year uncertainty. Topical working groups consisting of state and local planners will be formed in response to policy boards expressed interests. Staff will engage topical working groups to initially explore trends and possibilities. Work group members using knowledge gained will develop scenario stories and staff will convert story assumptions into simulation tool parameters. Simulation tool outcomes will be summarized and MDOT Shared with working group for further discussion. At the conclusion, work group members will have a better understanding on the magnitude of potential change in travel demand and traffic based on scenario variables.

PRODUCTS/MILESTONES	SCHEDULE
Plan Mobile Source Emission and EJ Technical Analysis	Ongoing FY 2020
Scenario Planning	Ongoing FY 2020
Project Corridor Demand and Traffic Forecast	Ongoing FY 2020-2021

FY 2020 BUDGET: **$300,000**

FY 2021 EST. BUDGET: **$300,000**

SAFETY & SECURITY

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SAFETY PLANNING AND ANALYSIS

PURPOSE: Improve safety in the region by supporting State and local efforts to reduce crashes, injuries, and fatalities. Fully integrate Baltimore Regional Transportation Board (BRTB) activities with the Maryland Strategic Highway Safety Plan (SHSP) as well as local safety planning efforts.

In Fiscal Year (FY) 2018-2019, Baltimore Metropolitan Council (BMC) continued to play an active role in the implementation of the state's 5-year (2016-2020) SHSP. The SHSP is a blueprint for reducing crashes, injuries, and fatalities across the state and the region. BMC co-chaired the Highway Infrastructure Emphasis Area Team (EAT) and played an active role on the Pedestrian and Distracted Driving EATs, the Maryland Older Driver Safety Forum, and the SHSP Implementation Team. Staff also participated on safety task forces in each jurisdiction led by regional traffic safety partners. In July 2018, an experienced epidemiologist and local safety partner joined the BMC staff as a safety planner tasked to develop, implement, and evaluate local SHSPs in each of the seven jurisdictions. Staff worked with partners throughout the region and supported other safety efforts for the BRTB, including setting targets for safety performance measures, assisting with the Baltimore Region Safety Subcommittee (BRSS), and supporting the development of regional pedestrian safety campaigns and law enforcement trainings. During FY 2018 and 2019, as part of the technical prioritization for *Maximize2045*, staff developed safety scores for over 50 projects submitted by the Maryland Department of Transportation (MDOT) State Highway Administration (MDOT SHA) and local jurisdictions. Scores were based on crash severity and frequency over a three-year period between 2015 and 2017.

The BRSS met as needed to work with safety stakeholders to identify regional safety issues and develop programs and resources to reduce the number of crashes, injuries, and fatalities in the region. The BRSS brings together state and local representatives from the 4 E's of traffic safety – Engineering, Education, Enforcement, and Emergency Medical Services. A focus of the subcommittee was pedestrian safety as crash-related injury and fatality trends continued to climb. As support was provided from BMC staff members to the statewide Pedestrian – Bicycle Emphasis Area Team (P-BEAT), ideas and resources were coordinated between the two committees.

In FY 20 and FY 21, staff and the BRSS will continue to play an advisory role to, MDOT SHA, Motor Vehicle Administration (MDOT MVA), Highway Safety Office (MDOT MVA-HSO) and local jurisdictions towards developing and implementing programs and projects that would help reduce the overall crashes, injuries, and fatalities. Local SHSPs will continue to be a priority in the region: Harford County completed a plan, therefore staff are supporting implementation and evaluation efforts; Carroll and Howard Counties convened an executive committee and began the problem identification process for determining Emphasis Areas; Anne Arundel County identified partners for an executive committee and a kickoff meeting will occur in late winter 2019; and preliminary meetings with contacts in Baltimore City and Baltimore and Queen Anne's Counties occurred and working teams will be established. Continued development is a focus and subsequent implementation is critical for success on the local level. BMC staff will continue to support all statewide EATs as well as the update process for the statewide SHSP to begin in fall 2019.

The BRSS will meet quarterly under the direction of a new chairperson to highlight progress being

made around the Toward Zero Death (TZD) goal adopted by Maryland. Staff members will work with the chairperson to identify themes for each meeting relevant to state crash trends and countermeasures. Staff will also work collaboratively with MDOT MVA-MHSO and MDOT MDOT SHA to develop and monitor performance targets for the Baltimore region as required by the Fixing America's Surface Transportation (FAST) Act. Updated targets were adopted by the BRTB in January 2019.

BMC is an active, non-voting member of the technical and executive committees of the Traffic Records Coordinating Committee (TRCC); a staff member is the co-chair of the technical committee. The mission of the TRCC is to coordinate all traffic records system components (crash, roadway, citation/adjudication, driver, vehicle, injury surveillance) using data quality performance measures (timeliness, completeness, accuracy, accessibility, integration, uniformity) in an effort to advance the Maryland traffic safety community. Staff will continue to get crash data and analytical support from the MDOT MVA-MHSO, Washington College, and the National Study Center (NSC) Trauma & EMS at the University of Maryland, Baltimore. Staff will MDOT Share data summary reports with the various subcommittees on a regular/as-needed basis. Relevant information gleaned from the TRCC will also be MDOT Shared with local SHSP teams to broaden communication channels.

BMC staff will continue to support several projects funded by the MDOT MVA-HSO, including two pedestrian safety efforts. A new pedestrian and bicycle safety outreach campaign is under development with Sherry Matthews, Inc. The new creative materials will be finalized in spring 2019 and an iterative implementation is planned over several years to strategically enhance the safety message with a consistent core platform. BMC is managing the consultant contract and supporting outreach efforts. The second project is aimed at law enforcement training for pedestrian safety and will involve potentially modifying existing curriculum. BMC is facilitating this effort with regional law enforcement partners and the MDOT MVA-HSO, which is anticipated to provide enforcement funding upon completion of the training courses.

PRODUCTS/MILESTONES	SCHEDULE
Regional Safety Subcommittee Meetings	Quarterly
Collaborate with state and local agencies on safety	Throughout Fiscal Year

FY 2020 BUDGET: **$160,000**

FY 2021 EST. BUDGET: **$160,000**

TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS PLANNING

PURPOSE: To improve the movement of people and goods and to increase the safety and efficiency of the transportation system through enhanced coordination of existing transportation systems management and operations (TSMO) activities and implementation of new TSMO activities.

Transportation Systems Management and Operations (TSMO) is defined as "An integrated program to optimize the performance of existing infrastructure through the implementation of systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system." During Fiscal Years (FY) 2018 - 2019, staff supported the ongoing activities of several TSMO-focused committees described below. Staff also continued to support TSMO efforts of the State, neighboring regions, and professional organizations such as the Intelligent Transportation Society of Maryland (ITSMD). Staff has also worked to identify opportunities to further integrate TSMO into the transportation planning process, particularly through closer coordination with the regional Congestion Management Process (CMP) and performance monitoring work.

Supporting Regional TSMO Committees:

Traffic Signal Subcommittee – This group meets quarterly to discuss signal operations and ways to improve mobility and safety for all road users, including pedestrians, bicyclists, and motorcycle riders. MDOT SHA and local jurisdictions continue to deploy adaptive and other signal control systems to improve operations and safety.

Traffic Incident Management for the Baltimore Region (TIMBR) Committee – This group meets quarterly to improve communication, coordination and cooperation needed for safe and efficient traffic incident management in the region. Staff continued to support activities of the committee, such as working on action items from the December 2017 TIM Conference and from the annual TIM Self-Assessments; and updating the Funeral Procession Contact List each quarter. One action initiated in FY2019 that will continue in FY2020 is outreach to local jurisdictions to identify local TIM issues to bring back to the TIMBR Committee. Staff also worked with MDOT SHA and Maryland State Police (MSP) representatives to schedule and promote the Strategic Highway Research Program (SHRP) 2 TIM Training.

Transportation & Public Works Committee – The Committee pursued daily operations and public works topics as well as supported homeland security / emergency preparedness planning. (Refer to Emergency Preparedness Planning section for emergency preparedness activities). In FY 2019, the group supported the Unmanned Aerial Systems Information Exchange Forum planned in conjunction with the Baltimore Regional GIS Committee and the Baltimore Region Cooperative Purchasing Committee.

Coordination with TSMO Partners:

In addition to supporting regional activities, committees, and initiatives, staff support local and state partners by participating in their TSMO planning activities. Baltimore Metropolitan Council (BMC) staff is a member of the State's Coordinated Highways Action Response Team (CHART) Board. Also, staff has been participating in several SHRP 2 implementation projects being led by MDOT SHA. In

FY 2015, BMC worked with MDOT SHA to submit an application to the Federal Highway Administration (FHWA) under the Integrated Corridor Management (ICM) Grant Program. The project was funded and work on the project began in FY 2016 and was completed in FY 2018. The project focused on the Baltimore-Washington corridor and included the development of a Concept of Operations; Analysis, Modeling and Simulation Plan; and ICM Deployment Approach Plan. Work will continue on this effort as funds are identified for implementation.

In FY 2020-2021, staff will focus on: supporting regional TSMO committees; continuing work on corridor studies; coordinating with TSMO partners; and coordinating with internal and external stakeholders on using archived operations data to support the regional CMP and measuring performance, as required by federal performance requirements.

Supporting Regional TSMO Committees: Traffic Signal Subcommittee - The subcommittee will hold its next Regional Traffic Signal Forum in late 2019. The Subcommittee will also coordinate with the CMP and corridor analysis teams to identify potential projects that could be eligible for Congestion Management and Air Quality (CMAQ) and/or other types of funding.

Traffic Incident Management for the Baltimore Region Committee - the Committee will continue to improve communication, coordination and cooperation needed for safe and efficient traffic incident management in the region and continue to meet quarterly. Staff will: complete TIM outreach to local jurisdictions; update and distribute the Funeral Procession Contact List; support MDOT SHA, as the lead organization, in scheduling SHRP2 TIM Training sessions for responders; work on items identified in the annual TIM self-assessments; and advance priority initiatives identified by the TIMBR Committee.

TIM Conference: Since FY 2000, the TIMBR Committee has held numerous TIM conferences funded with regional, state, and federal funds. These events have been very well-received and successful in spreading the message of the importance of TIM to field staff and managers. If funds are identified, the TIMBR Committee will hold another TIM conference.

Transportation & Public Works Committee – The Committee will continue to identify topics for discussion at regional information exchange forums, with the goal of holding one or two in each fiscal year, as topics are identified and funding is available.

Corridor Studies: This work, which began in FY 2017, was initiated to identify congestion management strategies for locally- or state-maintained corridors that may need study due to significant operational issues. This task involves identifying one corridor in each jurisdiction; the study includes gathering data on system performance, assessing alternative strategies for congestion management that meet state and local needs, and identifying congestion management strategies that could best be moved into the funding and implementation stages. In FY 2017, work began on the MD 140 corridor in Baltimore County; in FY 2020-2021, work will be completed on this corridor and will begin on corridors in other jurisdiction. During the period covered in this Unified Planning Work Program (UPWP), this work may become a consultant task.

Coordination with TSMO Partners: Staff will continue to support TSMO activities of various partners, such as ICM work in the Baltimore-Washington corridor, projects arising from the MDOT SHA TSMO Strategic Implementation Plan, and continued participation on the CHART Board. Staff will also

support the MDOT SHA-led effort to update the Maryland Statewide Intelligent Transportation Systems (ITS) Architecture, which will begin in FY 2020.

PRODUCTS/MILESTONES	SCHEDULE
Support subcommittee meetings and prepare agendas and minutes	Throughout Fiscal Year
Support stakeholder TSMO activities	Throughout Fiscal Year
Hold an incident management conference (if funding is available)	TBD
Hold T&PW forum(s) (as topics are identified and funding is available, if needed)	TBD
Hold Traffic Signal Forum	2nd Quarter FY 2020
Corridor studies	Throughout Fiscal Year
Coordinate with regional CMP	Throughout Fiscal Year

FY 2020 BUDGET: **$155,000**

FY 2021 EST. BUDGET: **$155,000**

EMERGENCY PREPAREDNESS PLANNING

PURPOSE: To increase the safety and security of the transportation system through enhanced coordination, communication, and cooperation of the region's emergency responders. Emergency planning work supports the Baltimore Regional Transportation Board (BRTB) as well as the Baltimore Urban Area Homeland Security Work Group (UAWG).

During Fiscal Years (FY) 2018 - 2019, staff supported the ongoing activities of the regional Transportation & Public Works (T&PW) Committee, which provides input to both the BRTB as well as the UAWG. Staff also continued to support the Disaster Debris Planning Task Force as well as emergency preparedness planning efforts of the State and local jurisdictions. Highlights include: Quarterly meetings of the T&PW committee; Unmanned Aerial Systems Information Exchange Forum; Coordination with Emergency Management and Federal Emergency Management Agency (FEMA) on evacuation planning for the region; and FEMA-sponsored debris trainings.

In FY 2020-2021, staff efforts will continue to focus on supporting Baltimore Metropolitan Council (BMC)/BRTB emergency preparedness committees and coordination with, and support of, emergency preparedness partners.

Supporting BMC/BRTB emergency preparedness committees:

Transportation & Public Works Committee – The T&PW Committee pursues daily operations and public works topics as well as supports homeland security/emergency preparedness planning. (Refer to Transportation Systems Management & Operations (TSMO) section for TSMO Planning activities). Staff will continue to support quarterly T&PW Committee meetings and projects. This Committee submits project funding requests to the UAWG, if projects are identified. Staff will continue to take the lead in preparing the T&PW project proposal submissions to the UAWG (which are now submitted through the UAWG Emergency Management Committee). The Committee will also initiate projects that are funded through other sources or do not require funding. Committee projects will focus on evacuation planning and coordination as well as other aspects of emergency preparedness of public works departments.

Disaster Debris Planning Task Force – The Disaster Debris Planning Task Force, which is a subcommittee of the T&PW Committee, meets quarterly to address coordination issues related to disaster debris planning, handling, and removal. In past years, this group held five disaster debris-focused exercises / forums to identify, discuss, and resolve coordination issues, as well as sponsored two FEMA debris training courses. In FY 2020 - 2021, staff will continue to work with the Task Force to address items identified in past exercises and training sessions, as well as support new issues that arise during discussions at quarterly meetings. This group will continue to meet quarterly. BMC staff will continue to provide support to this Task Force and act as project manager for its projects. If additional Urban Area Security Initiative (UASI) funds are allocated to the Task Force, staff will continue in the role of grant administrator.

Coordination with and Support of Emergency Preparedness Partners: Staff also supports other regional emergency preparedness planning efforts through membership in the UAWG and several of its other subcommittees, including Emergency Management, Recovery, and Public Information

Officer. Staff regularly attends the UAWG and subcommittee meetings to provide a transportation perspective on emergency preparedness planning.

PRODUCTS/MILESTONES	SCHEDULE
Support committee meetings, prepare agendas and minutes	Throughout Fiscal Year
Work on projects and on addressing issues identified by the T&PW Committee, typically related to evacuation and other emergency preparedness issues	Throughout Fiscal Year
Work on projects and on addressing issues identified by the Disaster Debris Planning Task Force in exercises, training courses, and meetings	Throughout Fiscal Year
Support the UAWG and its subcommittees as needed	Throughout Fiscal Year

FY 2020 BUDGET: **$120,000**

FY 2021 EST. BUDGET: **$120,000**

MOBILITY, ACCESSIBILITY & CONNECTIVITY

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SYSTEM PERFORMANCE: MONITORING AND ADAPTING

PURPOSE: Monitor performance of the system by collecting data to track travel conditions, reliability, and trends throughout the Baltimore region and using this data to analyze system performance. System performance data is used to support various planning needs including inputs to the regional travel demand model, air quality monitoring, and calculation of national system performance measures, Congestion Management Process (CMP), and the long-range transportation plan (LRTP) process. The ultimate goal of system performance monitoring is safe, efficient, and reliable mobility for people and goods.

Monitoring system performance is a critical task; this work supports a variety of other tasks in the UPWP as well as supporting the work of our partners. This task encompasses the following activities: traffic counts; speed and travel time collection; trip generation; asset management; documenting system performance; and monitoring measures for federal system performance requirements. Data from these activities directly supports the work of planning for and managing the system.

During FY 2018 and FY 2019, staff completed the following activities to support performance monitoring:

Traffic Counts: The Baltimore Metropolitan Council (BMC) completed a multi-year contract with a vendor to perform all forms of traffic counts from FY 2017-2019. In FY 2018-19 BMC collected turning movement counts requested by Baltimore City and Anne Arundel County. The requested counts included bicycle and pedestrian data. Volume counts were taken in support of BMC's travel demand model validation. Truck studies were taken in support of Tradepoint Atlantic, the Maryland Port Administration, and Baltimore County. Data collection involved video monitoring to conduct turning movement counts and truck classifications to monitor truck traffic on Wise Avenue from North Point Road to Merritt Boulevard. Truck movements were also collected entering and departing the Dundalk Marine Terminal to see if trucks were using the allowed routes. Staff has created a traffic count dashboard featuring the latest count information in an attractive, intuitive and interactive web page.

Speed and Travel Time Collection: Over the last several years, staff has been able to significantly expand data collection activities due to the availability of travel data accessible through the I-95 Corridor Coalition Probe Data Analytics (PDA) Suite. Staff has been very active on the I-95 Corridor Coalition's PDA User Group, which has helped enhance how the PDA Suite has been leveraged for use in the Baltimore region. Projects have been completed by request from multiple jurisdictions most notably for Howard County Planning analyzing speed data in several corridors.

Trip Generation: BMC conducted research on new Origin Destination Survey Data technologies such as AirSage and Tom Tom data products in order to understand how to best support projects such as continuous household travel surveys as well as to support MDOT MTA and MDOT SHA with future survey efforts.

Asset Management: MAP-21 includes requirements pertaining to the process for development of Risk Based Transportation Asset Management Plans (TAMP) that includes strategies leading to a program of projects that would make progress toward achievement of the State targets for asset

condition and performance of the National Highway System (NHS). MDOT SHA is responsible for creating a TAMP based on data and analysis including consideration of engineering, life-cycle cost, and risk analysis with investment strategies being developed to best manage the physical assets with the limited funding available and anticipated in the future. The BRTB is responsible for incorporating asset management into the LRTP. In FY 2017, staff attended several TAMP workshops and webinars as well as conducted independent research to learn how best to do so. In FY 2018 and FY 2019, staff put that knowledge and research to use by incorporating the TAMP into the 2019 LRTP. In FY 2017, BMC staff also reached out to its member jurisdictions to ascertain how best to assist them with their own asset management efforts; this work continued in FY 2018 and FY 2019.

Documenting System Performance: Since FY 2014, staff has been preparing quarterly bottleneck reports that identify the top ten bottlenecks in the region. Staff has also prepared two corridor congestion brochures and several press releases about potential holiday traffic such as Labor Day and Thanksgiving traffic based on analyses of past traffic conditions.

Monitoring Federal System Performance Requirements: In FY 2018–2019, a significant focus of staff efforts were on developing regional system performance targets, based on federal system performance requirements, and on incorporating them into plans and programs. Federal guidance requires targets be developed in three performance areas: Safety (PM1), Bridge and Pavement (PM2), and System Performance, Freight Movement, and Air Quality (PM3). Staff worked with local and state stakeholders to develop regional performance targets for bridge and pavement conditions. Data from the PDA Suite was used to develop preliminary results for calendar year 2018 for PM3 System Performance measures.

In FY 2020 and FY 2021, staff will work in the same areas:

Traffic Counts: A new vendor will be selected for a 3-year contract spanning FY 2020-FY 2022. The on-call contract will require the vendor to perform various types of traffic counts including, but not limited to: volume, vehicle classification, turning movement, bicycle and pedestrian. A targeted approach to data collection supporting regional corridor studies and the travel demand model will continue through the length of the contract. Staff will update and improve BMC's online interactive maps and dashboards. Staff will also continue exploring its non-vehicular count program in coordination with the Technical Committee, the Bicycle and Pedestrian Advisory Group (BPAG) and State Highway Administration (MDOT SHA).

Speed and Travel Time Collection: Staff will expand CMP activities incorporating the new applications and data available through the I-95 Corridor Coalition PDA Suite. Staff will continue to be active on the I-95 Corridor Coalition's Probe Data Analytics User Group.

Trip Generation: BMC will continue to research new Origin Destination Survey Data technologies to support future travel survey initiatives.

Asset Management: Staff will continue to work with state and local stakeholders to incorporate asset management into the LRTP and other planning efforts as appropriate. Staff will also work with state and local stakeholders to track how regional bridge and pavement conditions compare to the two-year targets developed for the region in FY 2019.

Documenting System Performance: Staff will continue preparing Quarterly Bottleneck Reports that

identify the top ten bottlenecks in the region. Staff will also continue the development of an Annual Congestion Report that will be issued in FY 2020. Staff will also continue to prepare, as relevant, congestion brochures and press releases about holiday, work zone, or other special event conditions. In addition, staff will review the MDOT SHA Annual Mobility Reports to identify evaluation techniques that could be leveraged to monitor congestion on local roads. Staff will create both static maps and an interactive dashboard overlaying bottleneck locations with TIP and LRTP projects to show what is being planned to mitigate congestion in the region.

Monitoring Federal System Performance Requirements: Staff will continue to work closely with state and local partners to monitor status toward meeting regional performance targets. Work in this task will include monitoring performance for measures in PM2 and PM3 System Performance. PM3 System Performance targets will be calculated using the PDA Suite.

PRODUCTS/MILESTONES	SCHEDULE
Highway and arterial traffic counts, turning movement counts with bicycle and pedestrian data to support travel demand model and CMP	Throughout FY 2020-FY 2021
Travel data products to support the CMP	Throughout FY 2020-FY 2021
Update Online Traffic Count Map and Dashboards	Throughout FY 2020-FY 2021
Presentation and documentation materials, including Quarterly Bottleneck Report	Throughout FY 2020-FY 2021
Documentation of Asset Management Integration into the Long Range Transportation Plan	Throughout FY 2020-FY 2021
Monitor regional performance and calculate measures for 2-year target period for PM2 and PM3 System Performance	Throughout FY2020-FY2021

FY 2020 BUDGET: **$375,000**

FY 2021 EST. BUDGET: **$375,000**

FREIGHT MOBILITY PLANNING

PURPOSE: To incorporate freight movement into the regional transportation planning process by bringing together public and private sector freight stakeholders and providing data and analytical tools that help prioritize freight investments.

The Freight Movement Task Force (FMTF) serves as an advisory committee to the Baltimore Regional Transportation Board (BRTB). Its function is to provide a voice for public and private freight transportation stakeholders in the metropolitan planning process. The Task Force includes representatives from rail - CSX and Norfolk Southern, highway -Maryland Department of Transportation (MDOT), State Highway Administration (MDOT SHA), Maryland Transportation Authority (MdTA)]-, water - Maryland Port Administration (MDOT MPA), trucking - Maryland Motor Truck Association (MMTA) as well as local economic development, traffic and planning representatives.

In Fiscal Years (FY) 2018-2019, the FMTF met several times to discuss topics of regional, local and national significance. Working with the Federal Highway Administration (FHWA) and the Institute of Traffic Engineers (ITE), the FMTF organized a Downtown Delivery Symposium in March 2017. The symposiums are offered in partnership with MPOs interested in advancing the state of practice in urban freight planning, management, and project implementation. This forum facilitated discussion of urban delivery trends and noteworthy practices, tools and solutions, in-depth discussion and analysis of local freight movement issues. The FMTF and BMC also helped MDOT SHA with the Maryland Strategic Goods Movement Plan and in assigning critical urban freight corridors (CUFCs) as required under the Fixing America's Surface Transportation (FAST) Act. In FY 2019, provided data and traffic analysis to the MDOT MPA at the Dundalk Marine Terminal and to Baltimore County Department of Public Works along Wise Avenue. The Port-to-Point study conducted in FY 2017 and 2018 to determine the volume of truck traffic between the port and Tradepoint Atlantic (TPA) continues to be an active topic for discussion during FMTF meetings. It also helped build a good relationship with TPA as the region watches this 3000-acre former steel mill site being transformed into a transportation and logistics hub.

During FY 2020-2021, the FMTF will continue to meet on an as-needed basis to work on projects of local and regional significance and continue to develop partnerships with the private sector. Staff will also work collaboratively with MDOT SHA and other agencies towards developing and monitoring performance targets as required under the FAST Act.

PRODUCTS/MILESTONES	SCHEDULE
Freight Movement Task Force Meetings	As required
Collaborate with state and local agencies	Throughout Fiscal Year

FY 2020 BUDGET: **$160,000**

FY 2021 EST. BUDGET: **$160,000**

BICYCLE AND PEDESTRIAN PLANNING

PURPOSE: To strategically develop and support implementation of regional and local plans which promote opportunities for an integrated multi-modal transportation system. Development of various plans should be related to regional goals in an effort to achieve connectivity, mobility and safety.

During Fiscal Year (FY) 2018 and FY 2019, the Baltimore Metropolitan Council (BMC) facilitated the following activities on a regional level: continued support for bicycle and pedestrian safety campaigns, including a successor to the StreetSmart education program; support for Carroll County as they continued activities related to their first bicycle and pedestrian plan; reviewed the 2018-2021 Transportation Improvement Program (TIP) in relation to bike and pedestrian improvements; and organized a successful Bike to Work Day event, which drew over 1800 participants to more than forty locations throughout the Baltimore region. BMC also supported the update to Maryland's Bicycle and Pedestrian Master Plan and hosted meetings of the Pedestrian and Bicycle Emphasis Area Team. In addition, BMC's Bicycle and Pedestrian Coordinator met with bike-ped planners in each member jurisdiction in an attempt to better understand local planning issues.

In FY 2018 Bicycle Pedestrian Advisory Group (BPAG) members continued to work with the Baltimore Regional Geographic Information Systems Committee (BRGISC) discussing and coming to agreement on data to be collected and applied to a regional, electronic map of all on-road and off-road bicycle facilities in the region. There was a discussion of the frequency of updates, how they will be managed, and the possibility of creating a public facing map.

Also in FY 2018 BPAG completed the Patapsco Regional Greenway report, which was adopted by the Baltimore Regional Transportation Board (BRTB). The Patapsco Regional Greenway is a proposed 30-mile trail that would run from Sykesville in Carroll County to Baltimore's Inner Harbor. Its purposes include increasing tourism, promoting bicycle commuting, and benefiting local businesses. Staff was, and continues to be, involved in on-going discussions over next steps for the project. Local jurisdictions, the Maryland Department of Natural Resources, and the Patapsco Heritage Greenway group remained interested and engaged.

In FY 2020 and 2021, the successful development of many local bicycle and pedestrian plans will be followed with efforts to support implementation of the recommendations. BPAG will continue to advise the BRTB on bicycle and pedestrian considerations in the context of the overall regional transportation planning framework. The BPAG will track and report on progress on implementing projects from relevant plans and provide the status of planning and construction phases.

Additionally, BPAG will support related efforts such as periodic safety programs, emerging Complete Streets projects, and the regional Bike to Work Day effort. BPAG will support efforts surrounding the collection of and reporting on data related to alternative transportation options.

BMC will look to provide support in three key areas identified by members:

1. develop a menu with costs for a range of facility types.
2. provide advanced training on Complete Streets and facility design and

3. assist moving Transportation Alternative Program grants forward.

PRODUCTS/MILESTONES	SCHEDULE
Staff Bicycle and Pedestrian Advisory Group	Bi-Monthly
Coordinate B2WD events	3rd & 4th Quarters

FY 2020 BUDGET: **$130,000**

FY 2021 EST. BUDGET: **$130,000**

TRANSIT AND HUMAN SERVICE TRANSPORTATION PLANNING

PURPOSE: Support planning activities on behalf of the Baltimore Regional Transportation Board (BRTB) member governments related to transit access and mobility. The purpose is to improve transit service in the Baltimore region generally, with an emphasis on transit access to employment and services. This task will also seek to address transportation needs of the elderly and individuals with disabilities in conjunction with ongoing transit, paratransit, and community-based transportation planning activities.

During Fiscal Year (FY) 2019, staff assisted in reviewing and recommending projects funded through the Federal Transit Administration (FTA) Section MDOT MTA on developing parameters for a new state-funded Job Access and Reverse Commute (JARC) program that included endorsement by metropolitan planning organizations. Meetings were initiated to discuss BMC support to MDOT MTA for the General Assembly mandated Central Maryland Regional Transit Plan. Staff participated in the SCMaglev and Loop Interagency meetings. Worked with MDOT MTA on Tier II Targets and the Transit Asset Management Plan, staff are working on how these activities can be integrated as metrics for the long-range transportation plan and Transportation Improvement Program (TIP). Staff planned and executed a mobility summit in spring 2019 to engage partners in the discussion of new technologies and businesses. Coordinated a regional effort to match bus stops at the interface of MDOT MTA and local transit routes. This effort included a review of amenities at these transfer points and information to identify which services and routes are available at a particular location.

Moving forward, staff will continue refining work flows and products that are informed by performance measures to be integrated in a range of tasks such as the long-range transportation plan and short-range TIP. Under the direction of the voting transit representative of the BRTB, staff will work on regional transit activities through a working group consisting of representatives from MDOT MTA and the Locally Operated Transit Systems (LOTS) agencies. This can include updates to Transit Development Plans, cooperative purchasing arrangements, or farebox reciprocity agreements. This task will also lay the groundwork for future tasks such as BRT planning and transit signal prioritization in key corridors.

Continuing into FY 2020 is an update to the Regional Human Service Coordination Plan. Staff will continue participating in coordination, outreach, and technical assistance to the Maryland Department of Disabilities, Maryland Department of Aging and local Aging Agencies, Maryland Research Consortium, local governments, and community organizations that seek to enhance and extend safe mobility for the region's rapidly growing elderly population. This task will be coordinated with a consultant task examining elderly trip characteristics and patterns that can inform policy makers and planners. Federal guidance puts an emphasis on the regional coordination of investments made to improve transportation access by disadvantaged populations. This will include participation with MDOT MTA in the review and selection of grant applications for funding under the Maryland Senior Rides Program, and will provide support services to MDOT MTA related to human service transportation programs.

PRODUCTS/MILESTONES	SCHEDULE
Review state and local transit plans for consistency	Throughout Fiscal Year
Support implementation efforts from the MDOT MTA/LOTS Bus Stop Study	Throughout Fiscal Year
Review applications for funding for programs such as: 5310, MD JARC, and Senior Rides	FY 2020 2nd & 3rd Quarters FY 2021 2nd & 3rd Quarters
Complete the update to the Coordinated Human Services Transportation Plan	FY 2020 1st & 2nd Quarters
Provide support to consultant efforts around elderly trip characteristics study	Throughout Fiscal Year

FY 2020 BUDGET: **$345,000**

FY 2021 EST. BUDGET: **$345,000**

PROTECTING CURRENT & FUTURE RESOURCES

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ENVIRONMENTAL PLANNING

PURPOSE: To coordinate and facilitate the continuing relationship between planning for mobile emissions and transportation planning in the Baltimore region. To coordinate with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation as part of the long-range transportation planning process.

During FY 2020 and FY 2021, staff will chair the Interagency Consultation Group (ICG) meetings approximately six times per year and will address major steps in the air quality conformity process for the long-range transportation plan and Transportation Improvement Program (TIP). Staff will also assist with any discussion of the ICG or its working groups regarding changes in the motor vehicle emission budget (MVEB) in the state implementation plan (SIP). Staff will work with the ICG Technical Working Group to coordinate on the development of any future SIP budgets, in addition to updates to the emissions model, and inputs to conformity determination modeling.

Staff will continue to work with local jurisdictions to explore implementation potential for emission reduction projects. In FY 2018 and FY 2019, staff worked with local jurisdictions to gather information on ideal locations for electric vehicle charging. Future efforts could include electric vehicle infrastructure or idle reduction promotion. Staff will work to MDOT SHAre information with local jurisdictions on educational and grant opportunities related to air quality improvement efforts or resiliency.

Staff will coordinate with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation, as part of the development of the long range plan. Staff will perform an assessment of submitted long range transportation plans to determine their impact on environmental and cultural resources.

Air Quality Outreach: Staff will continue to support the Clean Air Partners (CAP) Program and the work activities associated with the Clean Commute public awareness initiative.

PRODUCTS/MILESTONES	SCHEDULE
Support ICG meetings	Approx. Bi-Monthly
Monitor new air quality initiatives, policies, and guidance. Research changes to environmental requirements.	Throughout Fiscal Year
Conduct air quality outreach for the metropolitan area.	Throughout Fiscal Year
Continue coordinating environmental and long range planning.	Throughout Fiscal Year
Update/educate committees and their members on significant changes to environmental requirements in transportation, or opportunities for funding environmentally-beneficial projects.	Throughout Fiscal Year

FY 2020 BUDGET: **$335,000**

FY 2021 EST. BUDGET: **$335,000**

AIR QUALITY CONFORMITY ANALYSIS

PURPOSE: To conduct a technical and public policy analysis of emissions associated with the Transportation Improvement Program (TIP) and long-range transportation plan (LRTP). To work with state agencies, local jurisdictions, and private stakeholders to develop a coordinated program of emission reduction strategies as an effective means of meeting the National Ambient Air Quality Standards (NAAQS) and reducing traffic congestion.

Transportation plans and programs are required by the federal Clean Air Act (CAA) to demonstrate that mobile source emissions generated in designated horizon years are less than or equal to the motor vehicle emission budgets established in the State Implementation Plan (SIP). These emission budgets are set for criteria air pollutants for which the region is designated "non-attainment" or "maintenance". The Baltimore Regional Transportation Board (BRTB) is required to show that implementation of the LRTP or TIP will not delay timely attainment of the NAAQS in the Baltimore region.

During Fiscal Year (FY) 2018 and 2019, staff, in coordination with the Maryland Departments of Environment (MDE) and Transportation (MDOT), developed and evaluated horizon year emissions estimates using the U.S. Environmental Protection Agency (EPA) Motor Vehicle Emissions Simulator (MOVES) model. These emissions estimates were developed separately for both the Conformity Determination of the FY 2018-2021 TIP and the amended *Maximize2040* and the Conformity Determination of the 2019-2022 TIP and the amended *Maximize2040*. Also, staff developed emission estimates to support conformity determinations for TIP and LRTP amendments.

In FY 2020, staff, in coordination with MDOT and MDE will continue to conduct the conformity determination of the 2020-2023 TIP and *Maximize2045*. Working through the Interagency Consultation Group (ICG) process and its members, staff will conduct this conformity determination using methodologies for 8-hour ozone which have been approved by EPA. In the last two quarters of FY 2020, staff will begin work on the conformity determination of the FY 2021-2024 TIP and *Maximize2045*. In FY 2021, staff will work on the conformity determination of the FY 2022-2025 TIP and *Maximize2045*.

Through the ICG Working Group, staff will continue to coordinate with MDE mobile source modeling staff and MDOT to MDOT to share and verify model inputs and parameters, and to evaluate the interface between the region's travel demand model and the EPA MOVES model to ensure conformity determinations can be conducted and verified by both Baltimore Metropolitan Council (BMC) and MDE staff.

PRODUCTS/MILESTONES	SCHEDULE
Conduct conformity analysis of the 2020-2023 TIP and *Maximize2045*	1st Quarter FY 2020
Conduct conformity analysis of the 2021-2024 TIP and *Maximize2045*	3rd & 4th Quarters FY 2020, 1st Quarter FY 2021
Conduct conformity analysis of the 2022-2025 TIP and *Maximize2045*	3rd & 4th Quarters FY 2021
Prepare memorandums on Plan and TIP amendments	Throughout Fiscal Year

FY 2020 BUDGET: **$125,000**

FY 2021 EST. BUDGET: **$125,000**

APPENDIX A

FY 2020-2021 BUDGET DETAILS

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FY 2020 UPWP BUDGET

SOURCES

	FHWA	FTA	MDOT	LOCAL	TOTAL
FY 20 Appropriations	$3,738,126	$1,298,768	$691,500	$888,200	$6,616,594
FY 19 Carryover	$1,042,034	$250,004			$1,292,038
FY 20 Funds Available	$4,780,160	$1,548,772	$691,500	$888,200	$7,908,632

USES

BMC Staff	$5,320,000
Consultants	$1,595,000
BMC Total	$6,915,000
City of Annapolis	$34,600
Anne Arundel County	$256,850
Baltimore City	$176,800
Baltimore County	$76,350
Carroll County	$57,050
Harford County	$77,400
Howard County	$247,400
Queen Anne's County	$57,050
Local Total	$983,500
TOTAL USES	$7,898,500

FY 2020 WORK PROGRAM BY TASK & FUND SOURCE
($)

	FHWA	FTA	MDOT	LOCAL	TOTAL
UPWP Management	544,204	176,596	80,000	100,200	901,000
Professional Consultant Services	1,060,020	343,980	159,500	191,500	1,755,000
Technical Analysis for State/Local Initiatives	108,720	35,280	18,000	18,000	180,000
Long-Range Planning	84,560	27,440	14,000	14,000	140,000
Transportation Improvement Program	82,869	26,891	12,000	15,440	137,200
Public Participation and Community Outreach	147,980	48,020	24,500	24,500	245,000
Transportation Equity Planning	66,440	21,560	11,000	11,000	110,000
GIS Activities	230,305	74,735	37,000	39,260	381,300
Demographic/Socioeconomic Forecasting	273,310	88,690	25,500	65,000	452,500
Development Monitoring	160,060	51,940	26,500	26,500	265,000
Analysis of Regional Data and Trends	169,120	54,880	28,000	28,000	280,000
Maintenance of Current Simulation Tools	211,400	68,600	35,000	35,000	350,000
Simulation Tools Applications/Analysis	181,200	58,800	30,000	30,000	300,000
Safety Planning and Analysis	96,640	31,360	16,000	16,000	160,000
TSMO Planning	93,620	30,380	15,500	15,500	155,000
Emergency Preparedness Planning	72,480	23,520	12,000	12,000	120,000
System Performance: Monitoring/Adapting	226,500	73,500	37,500	37,500	375,000
Freight Mobility Planning	96,640	31,360	16,000	16,000	160,000
Bicycle and Pedestrian Planning	94,526	30,674	13,000	18,300	156,500
Transit and Human Service Plannning	208,380	67,620	34,500	34,500	345,000
Environmental Planning	202,340	65,660	33,500	33,500	335,000
Air Quality Conformity Analysis	75,500	24,500	12,500	12,500	125,000
Anne Arundel County Subarea	120,800	39,200	0	40,000	200,000
Baltimore City Subarea	60,400	19,600	0	20,000	100,000
Howard County Subarea	102,680	33,320	0	34,000	170,000
Total	4,770,694	1,548,106	691,500	888,200	7,898,500

FY 2020 FUNDING BY TASK AND PROJECT SPONSOR

WORK TASKS	BMC SHARE	ANNAPOLIS SHARE	ANNE ARUNDEL COUNTY SHARE	BALTIMORE CITY SHARE	BALTIMORE COUNTY SHARE	CARROLL COUNTY SHARE	HARFORD COUNTY SHARE	HOWARD COUNTY SHARE	QUEEN ANNE'S COUNTY SHARE	TOTAL
UPWP Management	800,000	10,000	12,600	12,600	12,600	14,000	12,600	12,600	14,000	$901,000
Professional Consultant Services	1,595,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	$1,755,000
Technical Analysis for State/Local Initiatives	180,000									$180,000
Long-Range Planning	140,000									$140,000
Transportation Improvement Program	120,000	700	1,550	5,100	1,550	1,550	2,600	2,600	1,550	$137,200
Public Participation and Community Outreach	245,000									$245,000
Transportation Equity Planning	110,000									$110,000
GIS Activities	370,000	1,350	1,350	1,350	1,350	1,600	1,350	1,350	1,600	$381,300
Demographic/Socioeconomic Forecasting	255,000		18,800	35,200	38,300	14,300	38,300	38,300	14,300	$452,500
Development Monitoring	265,000									$265,000
Analysis of Regional Data and Trends	280,000									$280,000
Maintenance of Current Simulation Tools	350,000									$350,000
Current and Future Simulation Tools	300,000									$350,000
Safety Planning and Analysis	160,000									$160,000
TSMO Planning	155,000									$155,000
Emergency Preparedness Planning	120,000									$120,000
System Performance: Monitoring/Adapting	375,000									$375,000
Freight Mobility Planning	160,000									$160,000
Bicycle and Pedestrian Planning	130,000	2,550	2,550	2,550	2,550	5,600	2,550	2,550	5,600	$156,500
Transit and Human Service Plannning	345,000									$345,000
Environmental Planning	335,000									$335,000
Air Quality Conformity Analysis	125,000									$125,000
Anne Arundel County Subarea			200,000							$200,000
Baltimore City Subarea				100,000						$100,000
Howard County Subarea								170,000		$170,000
TOTAL	6,915,000	34,600	256,850	176,800	76,350	57,050	77,400	247,400	57,050	7,898,500

FY 2020 SUBAREA ANALYSIS - LOCALS PROJECTS & FUND SOURCE

WORK TASKS	FHWA	FTA	MDOT	LOCAL	TOTAL
Anne Arundel County Feasibility Study for Additional Ramps to Truman Park n Ride ($100,000) BRT Feasibility Study MD 32 ($100,000)	$120,800	$39,200	$0	$40,000	$200,000
Baltimore City High Crash Reduction Plan ($100,000)	$60,400	$19,600	$0	$20,000	$100,000
Howard County MD 103, MD 108, MD 104 Strategic Corridor Studies ($100,000) US 1 Traffic Modeling/Land Use Scenarios ($70,000)	$102,680	$33,320	$0	$34,000	$170,000
SUBAREA TOTALS	$283,880	$92,120	$0	$94,000	$470,000

FY 2021 UPWP BUDGET

SOURCES

	FHWA	FTA	MDOT	LOCAL	TOTAL
FY 21 Appropriations	$3,738,126	$1,298,768	$611,000	$646,350	$6,294,244
FY 20 Carryover	$0	$0			$0
FY 21 Funds Available	$3,738,126	$1,298,768	$611,000	$646,350	$6,294,244

USES

BMC Staff	$5,320,000
Consultants	$790,000
BMC Total	$6,110,000
City of Annapolis	$7,300
Anne Arundel County	$18,425
Baltimore City	$28,400
Baltimore County	$28,175
Carroll County	$18,525
Harford County	$28,700
Howard County	$28,700
Queen Anne's County	$18,525
Local Total	$176,750
TOTAL USES	$6,286,750

FY 2021 WORK PROGRAM BY TASK & FUND SOURCE
($)

	FHWA	FTA	MDOT	LOCAL	TOTAL
UPWP Management	505,197	175,203	80,000	90,100	850,500
Professional Consultant Services	469,260	162,740	79,000	79,000	790,000
Technical Analysis for State/Local Initiatives	106,920	37,080	18,000	18,000	180,000
Long-Range Planning	83,160	28,840	14,000	14,000	140,000
Transportation Improvement Program	76,388	26,492	12,000	13,720	128,600
Public Participation and Community Outreach	145,530	50,470	24,500	24,500	245,000
Transportation Equity Planning	65,340	22,660	11,000	11,000	110,000
GIS Activities	223,136	77,384	37,000	38,130	375,650
Demographic/Socioeconomic Forecasting	210,128	72,873	25,500	45,250	353,750
Development Monitoring	157,410	54,590	26,500	26,500	265,000
Analysis of Regional Data and Trends	166,320	57,680	28,000	28,000	280,000
Maintenance of Current Simulation Tools	207,900	72,100	35,000	35,000	350,000
Simulation Tools Applications/Analysis	178,200	61,800	30,000	30,000	300,000
Safety Planning and Analysis	95,040	32,960	16,000	16,000	160,000
TSMO Planning	92,070	31,930	15,500	15,500	155,000
Emergency Preparedness Planning	71,280	24,720	12,000	12,000	120,000
System Performance: Monitoring/Adapting	222,750	77,250	37,500	37,500	375,000
Freight Mobility Planning	95,040	32,960	16,000	16,000	160,000
Bicycle and Pedestrian Planning	85,091	29,510	13,000	15,650	143,250
Transit and Human Service Plannning	204,930	71,070	34,500	34,500	345,000
Environmental Planning	198,990	69,010	33,500	33,500	335,000
Air Quality Conformity Analysis	74,250	25,750	12,500	12,500	125,000
Total	3,734,330	1,295,071	611,000	646,350	6,286,750

The total budget column reflects a combination of funds for BMC tasks as described throughout the main body of the document, as well as funds for local jurisdictions as described in Appendix B.

FY 2021 FUNDING BY TASK AND PROJECT SPONSOR

WORK TASKS	BMC SHARE	ANNAPOLIS SHARE	ANNE ARUNDEL COUNTY SHARE	BALTIMORE CITY SHARE	BALTIMORE COUNTY SHARE	CARROLL COUNTY SHARE	HARFORD COUNTY SHARE	HOWARD COUNTY SHARE	QUEEN ANNE'S COUNTY SHARE	TOTAL
UPWP Management	800,000	5,000	6,300	6,300	6,300	7,000	6,300	6,300	7,000	$850,500
Professional Consultant Services	790,000									$790,000
Technical Analysis for State/Local Initiatives	180,000									$180,000
Long-Range Planning	140,000									$140,000
Transportation Improvement Program	120,000	350	775	2,550	775	775	1,300	1,300	775	$128,600
Public Participation and Community Outreach	245,000									$245,000
Transportation Equity Planning	110,000									$110,000
GIS Activities	370,000	675	675	675	675	800	675	675	800	$375,650
Demographic/Socioeconomic Forecasting	255,000		9,400	17,600	19,150	7,150	19,150	19,150	7,150	$353,750
Development Monitoring	265,000									$265,000
Analysis of Regional Data and Trends	280,000									$280,000
Current and Future Simulation Tools	650,000									$650,000
Freight Mobility Planning	160,000									$160,000
System Performance: Monitoring/Adapting	375,000									$375,000
Safety Planning and Analysis	160,000									$160,000
Operations Planning	155,000									$155,000
Emergency Preparedness Planning	120,000									$120,000
Bicycle and Pedestrian Planning	130,000	1,275	1,275	1,275	1,275	2,800	1,275	1,275	2,800	$143,250
Transit and Human Service Plannning	345,000									$345,000
Environmental Planning	335,000									$335,000
Air Quality Conformity Analysis	125,000									$125,000
TOTAL	6,110,000	7,300	18,425	28,400	28,175	18,525	28,700	28,700	18,525	6,286,750

CHART DEPICTING PARTICIPANTS WITH EACH TASK

FY 2020-2021 WORK PROGRAM PARTICIPANTS

	Baltimore Metropolitan Council	City of Annapolis	Anne Arundel County	Baltimore City	Baltimore County	Carroll County	Harford County	Howard County	Queen Anne's County	MDOT and Modes	MD Dept. of Planning	MD Dept. of Environment	Consultant Support	Public & Private Stakeholders
Program Management & Coordination														
UPWP Management	x	x	x	x	x	x	x	x	x	o				x
Professional Consultant Services	x	x	x	x	x	x	x	x	x	o			x	
Technical Analysis in Support of State Initiatives	x									o				
Planning Context														
Long-Range Planning	x	o	o	o	o	o	o	o	o	o	o	o		o
Transportation Improvement Program	x	x	x	x	x	x	x	x	x	o				o
Promoting Inclusiveness & Cooperation														
Public Participation & Community Outreach	x	o	o	o	o	o	o	o	o	o	o	o	o	o
Transportation Equity Planning	x	o	o	o	o	o	o	o	o	o				o
Gathering & Analyzing Data														
GIS Activities	x	x	x	x	x	x	x	x	x		o			
Demographic & Socioeconomic Forecasting	x		x	x	x	x	x	x	x		o			
Development Monitoring	x	o	o	o	o	o	o	o	o					
Analysis of Regional Data & Trends	x													
Current Simulation Tools	x									o				
Expanding the Region's Toolset	x									o				
Safety & Security														
Safety Planning & Analysis	x	o	o	o	o	o	o	o	o	o				o
Operations Planning	x	o	o	o	o	o	o	o	o	o				o
Emergency Preparedness Planning	x									o				
Mobility, Accessibility & Connectivity														
System Performance: Monitoring & Adapting	x				o					o				
Freight Mobility Planning	x									o				o
Bicycle & Pedestrian Planning	x	x	x	x	x	x	x	x	x	o	o	o		o
Transit & Human Service Transportation Plannin	x									o				o
Protecting Current & Future Resources														
Environmental Planning	x									o		o		o
Air Quality Confomity Analysis	x									o		o		o
Regional Partners in Planning														
Subarea Analysis	x		x	x				x		o			x	o

x = receives funding
o = helps to coordinate activity

APPENDIX B

LOCAL PARTICIPANTS: CORE PROJECTS

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UPWP MANAGEMENT

PURPOSE: This task involves managing, coordinating, and guiding the various technical activities related to the UPWP and the regional transportation planning process.

These work efforts are carried out through a variety of means including direct involvement in planning activities and support to the multi-disciplined and multi-agency committees essential to a coordinated process. These activities specifically include management of the current fiscal year work program and budget, preparation of detailed work programs, and preparation of quarterly progress reports.

FY 2020-2021 PERFORMANCE OBJECTIVES:

1. Manage involvement of each local member of the BRTB in the local and regional transportation planning process.
2. Prepare quarterly reports and invoices.
3. Prepare future UPWP grant applications and associated contracts in conjunction with all pertinent federal, state, and local agencies.
4. As necessary, participate in seminars, workshops, and short courses designed to develop technical skills and broader perspectives on transportation-related subjects.

PRODUCTS/ MILESTONES	SCHEDULE
Quarterly progress reports, invoices, audit preparation and other financial reports for the FY 2020-2021 UPWP	Throughout Fiscal Year
Budget amendments for FY 2020-2021	As Necessary
Future UPWP submittal by each local BRTB member	2nd Quarter
Completion of formal grant acceptance process for FY 2020-2021 UPWP	4th Quarter

PARTICIPANTS:		
	City of Annapolis	$10,000
	Anne Arundel County	$12,600
	Baltimore City	$12,600
	Baltimore County	$12,600
	Carroll County	$14,000
	Harford County	$12,600
	Howard County	$12,600
	Queen Anne's County	$14,000

FY 2020 BUDGET: **$101,000**

BICYCLE AND PEDESTRIAN PLANNING

PURPOSE: Provide local assistance in integrating bicycle and pedestrian considerations into the overall planning and programming processes of the state, regional and local jurisdictions.

Local jurisdiction members of the BRTB will assist the Bicycle and Pedestrian Advisory Group in the identification of appropriate opportunities to integrate bicycle and pedestrian travel options within a regional framework. The members will examine opportunities to incorporate bicycle and pedestrian uses along local roads, greenways and other non-motorized corridors. Promotional and educational efforts will also be used to increase awareness for bicycle and pedestrian opportunities and to promote safety and accessibility for non-motorized travelers, including those with disabilities.

FY 2020-2021 PERFORMANCE OBJECTIVES:

1. Support Bicycle and Pedestrian Advisory Group in reviewing regional opportunities, monitoring regional progress, and MDOT sharing best practices and lessons learned.
2. Ensure that adequate pedestrian and bicycle accommodations are included in proposed TIP projects, and that pedestrian and bicyclist safety is considered in all phases of design.
3. Enhance planning for greenways and trails, including compliance with relevant federal and state design standards.
4. Support regional pedestrian and bicycle safety education programs, and implement coordinated education and enforcement activities at the local level.

PRODUCTS/MILESTONES	SCHEDULE
Joint activity on work programs and other efforts related to the regional bicycle and pedestrian activities	Throughout Fiscal Year
Other studies and analyses to support regional efforts	Throughout Fiscal Year

PARTICIPANTS:	City of Annapolis	$2,550
	Anne Arundel County	$2,550
	Baltimore City	$2,550
	Baltimore County	$2,550
	Carroll County	$5,600
	Harford County	$2,550
	Howard County	$2,550
	Queen Anne's County	$5,600

FY 2020 BUDGET: **$26,000**

REGIONAL GIS COORDINATION

PURPOSE: To coordinate and assist with the various technical and outreach activities in conjunction with the Baltimore Region Geographic Information Systems Committee and other BMC initiatives.

The Baltimore Region Geographic Information Systems Committee (BRGISC) was established in 2011 and is staffed by the BMC. Its membership consists of GIS managers of the Cities of Annapolis and Baltimore and the Counties of Anne Arundel, Baltimore, Carroll, Harford, Howard, and Queen Anne's. The committee was formed to provide a forum for communication among jurisdictions on national, state and local GIS applications and resources. The BRGISC has accomplished many regional projects including an emergency data sharing protocol, guiding regional training efforts, and collaboration on creating regional data sets such as addressing and bike trails. The BRGISC meets quarterly to discuss topics of common interest to local government. The group also meets with state and national agencies as well as utilities and private enterprises.

Through the BRGISC and other committees, local jurisdictions coordinate on GIS projects of regional interest. These projects harness local expertise to create regional data whose utility expands beyond the boundaries of each jurisdiction. Recent examples include creating a regional bicycle trails layer, Census 2020 boundary delineation, and collaborating on GIS data and system changes in preparation for Next Generation 911.

FY 2020-2021 PERFORMANCE OBJECTIVES:

1. Attend BRGISC Meetings.
2. Provide data and work efforts toward regional projects.
3. Review and comment on materials as presented.

PRODUCTS/MILESTONES	SCHEDULE
Attend BRGISC Meetings	Throughout Fiscal Year

PARTICIPANTS:	City of Annapolis	$1,350
	Anne Arundel County	$1,350
	Baltimore City	$1,350
	Baltimore County	$1,350
	Carroll County	$1,500
	Harford County	$1,350
	Howard County	$1,350
	Queen Anne's County	$1,500

FY 2020 BUDGET: **$113,000**

DEMOGRAPHIC AND SOCIOECONOMIC FORECASTING

PURPOSE: To generate socioeconomic and demographic data for the regional forecasting process. To provide technical input to the Cooperative Forecasting Group (CFG) that is responsible for reporting updates to changes in local land use patterns and associated developments in the region.

During Fiscal Years (FY) 2018 and 2019, the CFG continued to meet on a bi-monthly basis, and developed the Round 9 population, household, and employment forecasts for each jurisdiction and Transportation Analysis Zone. On June 26, 2018 the Baltimore Regional Transportation Board endorsed the Round 9 cooperative forecasts. In the coming two fiscal years the CFG will maintain and update (as appropriate), the cooperative forecasts related to each of their jurisdictions.

FY 2020-2021 PERFORMANCE OBJECTIVES:

1. Prepare updated socio-economic and demographic jurisdictional forecasts at the level of transportation analysis zones for 2015 – 2045.
2. Provide updates where necessary on major new developments or facilities that impact existing forecasts.
3. Prepare documentation on population, household and employment forecast methodologies.

PRODUCTS/MILESTONES	SCHEDULE
Review and report on forecasts for population, households and employment	2nd Quarter
Document methodologies used to generate forecasts	3rd Quarter
Provide updates on major new developments that affect existing forecasts	Throughout Fiscal Year

PARTICIPANTS:	Anne Arundel County	$18,800
	Baltimore City	$35,200
	Baltimore County	$38,300
	Carroll County	$14,300
	Harford County	$38,300
	Howard County	$38,300
	Queen Anne's County	$14,300

FY 2020 BUDGET: **$197,500**

TRANSPORTATION IMPROVEMENT PROGRAM

PURPOSE: This project develops the annual component of the Transportation Improvement Program (TIP) for each local member of the BRTB.

Additionally, members are responsible for revisions to their component of the TIP and to review and comment on the regional TIP. The task also includes review and comment regarding proposed TIP amendments during the fiscal year.

FY 2020-2021 PERFORMANCE OBJECTIVES:

1. Develop the annual submission of the TIP including assessment of all federally funded projects.
2. Review and comment on Draft TIPs.
3. Revise and correct TIP submissions as needed.
4. Review and comment on all TIP amendments as submitted throughout the fiscal year.

PRODUCTS/MILESTONES	SCHEDULE
Review and comment on proposed TIP amendments	As Needed
Receive training for TIP web-based software if needed	As Needed
Submit local TIP component of 2020-2023 and 2021-2024 documents	3rd Quarter
Revise local TIP component per comments and review draft TIP document	3rd Quarter
Final revisions to annual TIP	4th Quarter

PARTICIPANTS:

City of Annapolis	$700
Anne Arundel County	$1,550
Baltimore City	$5,100
Baltimore County	$1,550
Carroll County	$1,550
Harford County	$2,600
Howard County	$2,600
Queen Anne's County	$1,550

FY 2020 BUDGET: **$17,200**

APPENDIX C
LOCAL PARTICIPANTS: SUBAREA PROJECTS

ANNE ARUNDEL COUNTY

BALTIMORE CITY

HOWARD COUNTY

REGIONAL

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ANNE ARUNDEL COUNTY SUBAREA

Feasibility Study For The Additional Ramps To Truman Park-&-Ride

PURPOSE: The purpose of this study is to improve access to MD 665, which would help to alleviate traffic volumes along MD 665 and support vehicle and transit access to the Truman Park-and-Ride.

Explore the possibility of providing an access from MD 665 directly into Truman Park-and-Ride. Different options may include an all vehicle access, an only transit vehicle option to help facilitate a more circulatory movement of traffic to elevate some of the congestion along Riva Road. This study will explore: Capacity Improvements, Regional access needs; and Transit improvements.

FY 2020 PERFORMANCE OBJECTIVES:

1. Develop a work program and RFP to select successful consultant to undertake the work program.
2. Develop feasibility options for locations, facilities and funding.
3. Host a public meeting to share information and receive feedback. Also, solicit feedback on proposals.
4. Prepare a final report with changes recommended by public, develop design and requirement metrics.

PRODUCTS/MILESTONES	SCHEDULE
Send out RFP and select a successful candidate.	1st Quarter
Have consultant develop options for locations, facilities and funding.	2nd Quarter
Hold a public hearing to present preliminary findings and to gather feedback.	3rd Quarter
Complete planning study with recommendations for a development plan.	4th Quarter

FY 2020 BUDGET: $100,000

ANNE ARUNDEL COUNTY SUBAREA

BRT Feasibility Study For MD 32

PURPOSE: Explore the possibility of providing enhanced transit service from MD 32 near Annapolis / Parole Area to Savage MARC / Arundel Mills via the National Business Park and Odenton.

In 2012, the Anne Arundel County Corridor Growth Management Plan (CGMP) gave guidance and detail on the feasibility and preliminary impacts of building and operating Premium Bus or Bus Rapid Transit (BRT) along MD 32 from the Annapolis / Parole area to Clarksville in Howard County, Maryland. The County believes that this segment could constitute a minimum operating segment (MOS), but considers that there is greater value in terms of ridership and attractiveness to change mode choice if the facility is extended into employment centers in the area via Arundel Mills, National Business Park and Odenton. The feasibility study would provide a structured approach to what the needs and service parameters should be based on the base level information of the CGMP.

FY 2020 PERFORMANCE OBJECTIVES:

1. Develop a work program and RFP to select successful consultant to undertake the work program.
2. Develop feasibility options for locations, facilities and funding.
3. Host a public meeting to share information and receive feedback. Also, solicit feedback on proposals.
4. Prepare a final report with changes recommended by public, develop design and requirement metrics.

PRODUCTS/MILESTONES	SCHEDULE
Send out RFP and select a successful candidate.	1st Quarter
Have consultant develop options for locations, facilities and funding.	2nd Quarter
Hold a public hearing to present preliminary findings and to gather feedback.	3rd Quarter
Complete planning study with recommendations for a development plan.	4th Quarter

FY 2020 BUDGET: $100,000

BALTIMORE CITY SUBAREA

Baltimore Region High-Crash Reduction Plan

PURPOSE: To analyze available data in order to identify crash types and locations with high rates of crashes, especially those resulting in an injury or fatality. To analyze available crash report data to assess quality and establish performance measures; to also establish and test a pilot data quality management process to evaluate and improve the timeliness, completeness, and accuracy of the crash data. This process will be available to all members of the Baltimore Metropolitan Council (BMC).

The Baltimore region experiences a large number of traffic related crashes resulting in serious injuries and fatalities. The types of crashes vary, but there are many similarities in the land use patterns, roadway design, and driver behavior issues specific or unique to the region. The Baltimore Region High-Crash Reduction Plan will consist of a study that selects non-interstate corridors and intersections that experience the highest number of crashes resulting in serious injuries and fatalities. The study will separate crashes by type and identify the commonalities between intersections and corridors that experience each type of crash. The outcomes of this study will support the development of a Local Strategic Highway Safety Plan (SHSP).

Maryland is preparing to undergo a National Highway Traffic Safety Administration (NHTSA) Traffic Records Assessment in late 2019 and quality control management programs for each traffic records data system will be assessed. At this time, there is no formal, comprehensive quality control program for crash data at the state level; however, several performance measures have been established and front-end edit checks are incorporated into the Automated Crash Reporting System (ACRS). In addition to supporting the Assessment effort, developing a crash data quality program will benefit all data managers, agency or state-level, in constantly monitoring and improving the data system. This project will result in performance measures and associated metrics for data timeliness, completeness, and accuracy being identified and evaluated. This would entail: 1) developing the performance measures ($\geq$1 for each category), 2) identifying baseline, goal, and target metrics using crash data analysis, and 3) evaluating those metrics at a set timepoint (six months) to understand any natural trends in the data quality.

FY 2020 PERFORMANCE OBJECTIVES:

1. Identify regional non-interstate study locations with high rates of crashes resulting in serious injury and fatality.
2. Separate crashes by type and identify common traits between intersections that experience each crash type.
3. Produce data summary outputs from those analyses exploring person, vehicle, crash, and environmental factors.

4. Develop crash data quality measures to include developing the performance measures (≥1 for each category) and identifying baseline, goal, and target metrics using crash data analysis.
5. Evaluate the crash report data at six months post-baseline to identify any natural trends in data quality and develop recommendations for improvement.

PRODUCTS/MILESTONES	SCHEDULE
Develop data analysis plan for identifying high-crash locations.	1st Quarter
Review crash database and identify data fields to be used in quality performance measures.	1st Quarter
Analyze data and establish baseline, goal, and target metrics for each performance measure (>1 for timeliness, completeness, and accuracy).	2nd Quarter
Conduct analyses to identify locations and characterize crash types.	2nd and 3rd Quarters
Finalize data summary reports.	4th Quarter
Evaluate performance measures at six months and document results and recommendations for improvement.	4th Quarter

PARTICIPANTS: Baltimore City
Baltimore Metropolitan Council
MDOT MVA-Highway Safety Office

FY 2020 BUDGET: $100,000

HOWARD COUNTY SUBAREA

MD 103, MD 108, MD 104 Strategic Corridor Studies

PURPOSE: These roads have experienced significant residential growth in the last 10-15 years and are now bounded by communities with good internal bike and pedestrian infrastructure, however the corridor continues to face significant challenges in connecting these communities along the corridor and to destinations.

The study will include an existing conditions analysis and a future conditions analysis based on land use changes and development along the corridor and scenarios designated to address safety, transit demand, bicycle and pedestrian facilities including the feasibility of shared use pathway/protected bike lanes and access to destinations. The analysis will take a complete streets approach and address each mode, while also focusing on strategies to deliver projects to user groups to ensure success.

FY 2020 PERFORMANCE OBJECTIVES:

1. Identify access, circulation, connection challenges and opportunities
2. Develop planning level projects
3. Model impacts
4. Develop implementation strategy, including cost elements

PRODUCTS/MILESTONES	SCHEDULE
Develop and finalize scope of work Identify stakeholders and project partners Identify and refine corridor sections	Quarter 1
Identify access, circulation, connection challenges and opportunities. Develop planning level projects Model impacts Hold public meeting	Quarter 2
Model impacts Develop implementation strategy, including cost elements	Quarter 3

PARTICIPANTS: Howard County $20,000
Consultant Office $80,000

FY 2020 BUDGET: **$100,000**

HOWARD COUNTY SUBAREA

US 1 Traffic Modeling / Land Use Scenarios

PURPOSE: The project will measure and model the transportation impacts, at both a local and regional level, of the land use scenarios developed as part of the Rt. 1 Corridor Master Plan. The Rt. 1 Corridor Master Plan will be proposing transportation, infrastructure, land use and economic development implementation strategies to improve vibrancy and livability throughout the Route 1 corridor.

This project will test the land use scenarios against local and state transportation measures, including bike/pedestrian access, transit impacts, freight movement, safety and SHA's Smart Signal System

FY 2020 PERFORMANCE OBJECTIVES:

1. Identify and refine all network mode in nodes
2. Develop traffic generation in nodes
3. Model impacts on local and regional network
4. Develop implementation strategy, including cost elements

PRODUCTS/MILESTONES	SCHEDULE
Develop and finalize scope of work Identify stakeholders and project partners Initiate study	Quarter 1
Model impacts	Quarter 2
Develop draft report	Quarter 3
Finalize Report	Quarter 4

PARTICIPANTS: Howard County $14,000
Consultant Office $56,000

FY 2020 BUDGET: $70,000

REGIONAL SUBAREA

Patapsco Regional Greenway Planning Advancement: Elkridge To Guinness

PURPOSE: To advance the planning of a segment of the Patapsco Regional Greenway.

The Patapsco Regional Greenway Concept Plan calls for a new paved pathway segment between River Road or Levering Avenue in Elkridge and the Guinness brewery in Relay. This pathway segment would be a critical link in the Greenway and would also be a significant improvement in pedestrian and bicycle connectivity in the area, because it would allow for safe and convenient travel across four major barriers: the Patapsco River, I-895, US 1, and I-195. In addition, it would provide new or enhanced pedestrian and bicycle access to important destinations such as the Avalon area of Patapsco State Park, Main Street in Historic Elkridge, and the Guinness brewery.

Therefore, Howard County proposes to advance this segment of the pathway to a feasibility study and preliminary engineering level. This project would assess options for crossing the barriers noted above and would identify a preferred alignment for the pathway that would maximize access to destinations while minimizing conflicts with vehicular traffic. The project would then develop a preliminary cost estimate for the preferred alignment—a step critical to future pathway development and potential jurisdictional cost MDOT sharing.

PARTICIPANTS: BMC, MDOT SHA, Howard County, Baltimore County

FY 2020 BUDGET: 150,000

APPENDIX D
FOCUS AREAS

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ELDERLY TRIP CHARACTERISTICS AND PATTERNS

PURPOSE: With the increasing demographic shift towards a larger population of elderly (individuals 65 years and older), it is essential for policy makers and planners to have an understanding of transportation issues that affect the elderly. These issues include livability of the community, factors impacting travel behavior and mobility, transportation safety, etc.

The study will to:

- identify locations of concentrations of the elderly in the region and trends that may suggest future population concentrations,
- conduct an examination of travel behaviors and identify patters and trends in travel,
- identify specific policy implications and mitigation plans to address current and future needs.

The study should also review and provide best practice suggestions for:

- Potential increases in aging in place
- Service delivery for aging in place and in concentrated areas/facilities
- Site and Traffic Impact Study Review methodologies for elderly facilities (Including trip generation)
- Special transportation safety accommodations including items such as signal timing

The study will include working with partner agencies such as AARP and County aging agencies. The study should also provide insights for the update to the Baltimore Regional Human Service Coordination Plan.

PARTICIPANTS: BMC, Consultant

FY 2020 BUDGET: $100,000

REGIONAL TRAFFIC IMPACT STUDY GUIDELINES

PURPOSE: The purpose of a Traffic Impact Study (TIS) is to review impacts of a proposed development on the surrounding transportation network. The Maryland Department of Transportation State Highway Administration (MDOT SHA) and many local jurisdictions in the Baltimore region have traffic impact study guidelines or requirements, some governed by their local Adequate Public Facilities Ordinances (APFO).

The purpose of this effort is to:

- document and review the current traffic impact study guidelines/requirements of different regional agencies,
- review new research and best practices for improved impact studies that also potentially include multi-modal impacts and specifically review the current use of level of service criteria,
- provide suggested regional best practice improvements for these studies.

The study should also review and provide best practice suggestions for:

- TIS requirement thresholds
- study area,
- site, pass-by and background trip generation/distribution,
- analysis time frame,
- analysis methodology,
- mitigation measures including transportation demand management.

The study will include staff participation from each jurisdiction to understand current practices and to review potential improvements.

Potential products could include: Review of Current Regional TIS Guidelines/Requirements, Review of Research of Best Practices and New Analysis Methodology, Recommendations of Potential Regional TIS Best Practices.

PARTICIPANTS:	City of Annapolis	$10,000
	Anne Arundel County	$10,000
	Baltimore City	$10,000
	Baltimore County	$10,000
	Carroll County	$10,000
	Harford County	$10,000
	Howard County	$10,000
	Queen Anne's County	$10,000
	Consultant	$100,000
FY 2020 BUDGET:		**$180,000**

DEVELOPMENT REVIEW PRACTICES FOR CHANGING MOBILITY

PURPOSE: With the advent of new mobility solution companies like:;Transportation Network Companies (TNCs, Uber/Lyft, etc.), Car MDOT sharing Companies (Zip Car, etc.), Bike MDOT share and Scooter (Lime/Bird) Rentals, there is a growing competition for curb space and sidewalk space both on public roadways and within private development plans.

Typically the new mobility company comes into a jurisdiction or to a developer and tells them their typical footprint and the jurisdictional reviewer has very little experience or knowledge of how to manage these requests for curb or sidewalk space or to measure the impacts to vehicular and bicycle/pedestrian traffic.

The purpose of this study effort is to identify:

- typical requested requirements by new mobility companies for curb/sidewalk space including other associated site impacts.
- Best practice review/comment techniques for local jurisdictional plan reviewer staff
- Review the potential to shift away from curb use focused on street parking to more flexible allocation that includes pick-up and drop-off zones for passengers and freight.

The study will include interviews with local jurisdictional transportation/site review staff to understand how and where in their current process reviews of potential new mobility options occur and recommend potential improvements to the process for each of our eight jurisdictional members.

Potential products include: Summary of research into requested requirements by new mobility companies, Best practices for local jurisdictional plan review staff, and Recommended improvements to processes and specific site/road plan review templates for new mobility for each BRTB jurisdiction.

PARTICIPANTS:	City of Annapolis	$10,000
	Anne Arundel County	$10,000
	Baltimore City	$10,000
	Baltimore County	$10,000
	Carroll County	$10,000
	Harford County	$10,000
	Howard County	$10,000
	Queen Anne's County	$10,000
	Consultant	$100,000
FY 2020 BUDGET:		**$180,000**

PEDESTRIAN SAFETY AND ROUNDABOUTS

PURPOSE: To analyze available data to characterize safety concerns for pedestrians in traffic roundabouts. To identify crash trends and develop recommendations for improving the design of roundabouts and increasing safety for non-motorists.

The Maryland Department of Transportation State Highway Administration (MDOT MDOT SHA) has reported a 60 percent reduction in all crashes and over 75 percent reduction in injury crashes at locations where intersections were replaced by roundabouts. These figures are similar to other research findings nationally and infer an increased level of safety for road users in roundabouts as compared to signalized intersections.

A design feature of roundabouts is the reduction of traffic lanes that a pedestrian is made to cross. Typically, pedestrians will cross several lanes of through and turning traffic at a signalized intersection, as well as vehicles not obeying the traffic signals. However, at a roundabout, the pedestrians will cross at entry points to the circle which are typically reduced to two lanes of one-way slower moving traffic.

Roundabouts were added to the Maryland crash report in 2016, so it is difficult to analyze crash trends prior to that. In 2016 and 2017, there were 231 crashes reported to occur in roundabouts in the Baltimore region and five of those involved a pedestrian on-foot. Three occurred in Baltimore County and two in Baltimore City; one pedestrian was seriously injured and none were killed. These are small samples of data from which to draw conclusions or make recommendations.

The proposed project will be beneficial as more roundabouts are installed throughout the Baltimore region and data collection becomes more detailed. It is estimated that pedestrians will represent close to one-quarter of all traffic fatalities in Maryland, so evaluating and considering their safety is imperative to any infrastructure improvement.

Tasks:

- Obtain/analyze available crash data at existing roundabouts in the Baltimore region
- Identify roundabout locations with moderate to heavy pedestrian activity
- Collect pedestrian and vehicle volume data (weekday, weekend, AM, mid-day, PM peak periods)
- Pilot study at specific locations (based on data) to identify/analyze safety concerns for pedestrians and non-motorists.
- Develop recommendations to improve design and safety at roundabouts

PARTICIPANTS: BMC, MDPT MHSO, Consultant

FY 2020 BUDGET: $100,000

CONGESTION MANAGEMENT PROCESS

PURPOSE: To create a step-by-step congestion management process for the region, based on the federal guidelines and customized based on current regional processes and procedures.

The Baltimore region is required to have a Congestion Management Process to identify recurring and non-recurring congestion and develop strategies to improve travel safety and reliability for people and goods. The U.S. DOT has developed a process and guidelines to assist regions with the development of their regional CMP.

The BMC is looking to hire a consultant to work with staff, as well as local, state, and federal partners, to create a step-by-step congestion management process for the region, based on the federal guidelines and customized based on current regional processes and procedures. The customized CMP should also include how it supports the long-range transportation plan and regional performance monitoring. The work will include: documenting existing current regional CMP activities and interviewing CMP partners; surveying other regions to identify good practices that could be adopted in the Baltimore region; and developing a more detailed and implementable congestion management process for the Baltimore region. In addition to the creation of a regional CMP, BMC is looking to study various corridors in the region. To support this effort, consultant support will also include the development of a template to be used by staff to conduct corridor studies that: identify goals for the corridor, document existing conditions and trends, and identify potential low-cost congestion management strategies. The template should include recommendations on what data to use and where to get it and how to develop potential congestion management strategies.

One major part of the current CMP work is the development of quarterly and annual Congestion Bottleneck Reports. The scope of work for this task may also include graphic design support for these reports and/or other CMP reports that may be recommended to be developed.

PARTICIPANTS: BMC, MDOT, MDOT SHA, MDOT MTA, local jurisdictions, Consultant

FY 2020 BUDGET: $200,000

APPENDIX E

PUBLIC REVIEW PROCESS

PRESS RELEASE
COMMENTS
RESPONSE TO COMMENTS

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PRESS RELEASE

BALTIMORE METROPOLITAN COUNCIL

BRTB SEEKS PUBLIC COMMENTS FOR DRAFT FY 2020-2021 BUDGET & WORK PROGRAM

FOR IMMEDIATE RELEASE
CONTACT: Laura Van Wert
Communications Officer
(410) 732-9564

BALTIMORE, MD (Tuesday, February 12, 2019) - The Baltimore Regional Transportation Board (BRTB) seeks public comments on its draft Budget & Work Program for Fiscal Years 2020-2021 through Thursday, March 14.

The BRTB is scheduled to vote on the final Budget & Work Program on **Tuesday, April 23.**

What is the UPWP?
The BRTB's Budget & Work Program is known as the *Unified Planning Work Program (UPWP) for Transportation Planning.* It is a federal requirement that details projects, studies and other activities to be completed by BRTB members and staff of the Baltimore Metropolitan Council (BMC.)

The UPWP includes both local and regional activities. The BRTB develops a list of regional transportation planning activities every two fiscal years. This plan includes **$7.89 million** in funding for FY 2020 and **$6.28 million** in funding for FY 2021 for planning activities from July 1, 2019 through June 30, 2021.

View the Budget & Work Program

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The Baltimore Metropolitan Council (BMC) works collaboratively with the chief elected officials in the region to create initiatives to improve the quality of life and economic vitality. BMC, as the Baltimore region's council of governments, hosts the Baltimore Regional Transportation Board (BRTB), the federal metropolitan planning organization (MPO), and supports local government by coordinating efforts in a range of policy areas including emergency preparedness, housing, cooperative purchasing, environmental planning and workforce development.

BMC's Board of Directors includes the executives of Anne Arundel, Baltimore, Harford and Howard counties, the mayor of the City of Baltimore, a member of the Carroll County and Queen Anne's County boards of commissioners, a member of the Maryland State Senate, a member of the Maryland House of Delegates, and a gubernatorial appointee from the private sector.

Baltimore Metropolitan Council
1500 Whetstone Way, Suite 300, Baltimore, MD 21230

BMORE INVOLVED ENEWSLETTER TO INTERESTED PARTIES

Thank you for subscribing to B'More Involved! B'more Involved promotes civic engagement in local and regional transportation, planning, environmental justice, and equity. This important information - also posted on Facebook and Twitter - is a great way for you to learn more, stay up-to-date on important events and news, and, of course, let you know how you can B'More Involved!

BRTB SEEKS COMMENTS ON BUDGET AND WORK PLAN

The Baltimore Regional Transportation Board (BRTB) welcomes comments through March 14, 2019 on its proposed Budget & Work Program for Fiscal Year 2020-2021, otherwise known as a Unified Planning Work Program (UPWP).

The UPWP lists the transportation studies and tasks to be performed by the BRTB and BMC staff during the coming fiscal year. This draft outlines a budget of $7.89 million for FY 2020 and $6.28 million for FY 2021 for staff, consultant activities, and local projects.

New local and regional projects include:

- Elderly trip characteristics and patterns
- Developing regional guidelines for traffic impact studies
- Best practices related to new mobility (automated vehicles, car sharing, bike share, etc.)
- Data analysis of pedestrian related crashes in traffic roundabouts and recommendations for improving the design of roundabouts to increase safety for non-motorists.

Download the Budget and Work Plan

COMMENTS

From: Arjan van Andel <arjan@theflyingdutchman.org>
Sent: Wednesday, March 06, 2019 12:15 AM
To: Monica B. Haines Benkhedda; Eric Norton <enorton@cmtalliance.org>; Weeks, Jennifer L. <JLWeeks@nas.edu>
Subject: Re: March PAC Meeting (03-06-19)

Good evening Monica, Jennifer and Eric,

As mentioned, I will not be able to attend tomorrows meeting. I have a few remarks and suggestions for the UPWP Focus areas:

Regional Traffic Impact Study guidelines

- I would request to include the impact on multiple modes. Typical impact analysis shows performance on biking and pedestrians, but more from a capacity point of view. It would be good when Impact Studies will have to highlight the accessibility to bike lanes and side walks, how transit will be reachable within walking distance.
- Also multi-modal analysis taking into account possible mode shifts for larger projects could demonstrate how the sharing could be promoted over single occupancy vehicle use. This means that the trip distribution and trip allocation can become a function of mode choice characteristics.

Developing review practices for changing mobility

- I would advise that the impact of new mobility requests will have to be demonstrated via road capacity impact analysis at locations with already stressed traffic conditions. Road pick-up and drop off and disruptors of road and lane capacity and should be accounted for in capacity analysis
- Also, pricing for pick-up and drop-off should be considered: where a person would pay $3-$10 on parking this revenue source is going to TNC's, while the road authorities have to bear the cost for the accommodation of the infrastructure. I suggest that curb pricing should be a topic to be evaluated to pay for infrastructure use.

Pedestrian safety and roundabouts

- As mentioned in the UPWP pedestrian safety highly depends on speed difference. Next to considering roundabouts, I would suggest to add "speed reducing infrastructure design". There were pedestrians cross traffic lanes without signalization, the infrastructure design should force traffic to slow down. So more options rather than only roundabouts should be recommended.

Congestion management process

- I recommend that the congestion management process should include a multi-modal integrated demand and capacity evaluation method. Factors like mode shift from Single Occupancy Car to TNC, to other shared modes, implementation of Park&Rides, possible road pricing or pricing of delivery of goods at peak hours could provide various scenarios for new policies.
- I would also recommend to run a few scenarios where shared mobility services will take a certain share of private cars. Some scenarios could be: OnDemand service to and from Fort Meade and BWI airport. An example: what service is required to bring 50% of the fort Meade employees to their work with OnDemand service?
- Another important congestion management process is to incorporate through traffic on 95 and 50 and specifically provide strategies to reduce congestion on these roads through either shared services or road price in peak times

In regards to Max 2045:
I would request that the advisory committee can propose/suggest KPIs to support the goals and strategies.

I am sorry I will not participated in the meeting. The agenda looks really interesting.

Thank you for the consideration of my remarks,

Arjan

BRTB PAC Resolution #2019-01

**A RESOLUTION REGARDING THE
FY 2020-2021 UNIFIED PLANNING WORK PROGRAM (UPWP)
BY THE PUBLIC ADVISORY COMMITTEE (PAC) OF THE BRTB**

WHEREAS, the BRTB, the Metropolitan Planning Organization for the Baltimore region responsible for transportation planning and policy making for the Baltimore region; and

WHEREAS, the PAC serves as an advisory body to the BRTB, charged with providing independent, region oriented citizen advice to the BRTB on issues related to the development of the Baltimore Regional Transportation Plan, Unified Planning Work Program (UPWP), Transportation Improvement Program (TIP) and amendments that affect the region's conformity with federal air quality requirements, the public involvement process, regionally significant land use issues, and other regional transportation-related issues, as appropriate, promotes public awareness and participation in the regional transportation planning process and promotes equity in the regional transportation planning process; and

WHEREAS, the PAC has reviewed and discussed the draft FY 2019-2020 Unified Planning Work Program (UPWP) for transportation planning;

THEREFORE, be it resolved, the PAC submits the following recommended additional studies be added to this document that specifically address the growing importance of advances in transportation services, vehicles and infrastructure that will have profound impacts on the Baltimore regional transportation system in the near and long term future:

- **Ride Sourcing as a Supplement and/or Alternative to Traditional Paratransit Services** – The PAC recommends that the BRTB study the potential to serve paratransit customers and trips with trips provided by Ride Sourcing companies (also knowns as Transportation Network Companies), such as Uber and Lyft. The study should focus on the potential for increased efficiencies and cost savings in paratransit while also studying the costs and benefits to paratransit customers. A number of cities in the United States have initiated contracts with Uber and Lyft for these purposes. This study would draw lessons learned from those examples and consider the specific service needs and conditions of Maryland Locally Operated Transit Systems and the paratransit communities within the Baltimore region. The report would identify specific recommendations for the Counties and City of Baltimore transit systems based on what is learned, and include any recommendations for statewide legislation or other policy modifications, as appropriate.
- **Study of Revenue Options for Electric Vehicles** – The PAC believes that the conflict in policies at the State level that both support ownership and operation of Electric Vehicles (EV) and the continued use of the gas tax collected from operators of vehicles with internal combustion engines (ICE), including hybrid vehicles, as the principle source of revenue for the Maryland Transportation Trust Fund should be addressed. Specifically, they propose a study that examines different alternatives for capturing revenues from all types of vehicle owners and operators while maintaining the current

policies favoring the purchase and operation of clean fueled vehicles. The study should do a comprehensive assessment of the costs of providing EV specific infrastructure as well as the share of general costs that this small portion of operators contributes today and could contribute under different scenarios of EV and ICE ownership and operation. The study should similarly examine different revenue options and estimate their potential contributions towards the Transportation Trust Fund in the State of Maryland.

- **Study of the Effects of Adopting Automation and Connectivity on the Port of Baltimore** – This study would address the potential benefits and costs of adopting connected and automated vehicle technologies on the freight activity at and to/from the Port of Baltimore. The Port is a critical transportation resource that includes multimodal access to and from the Port in the transfer of good to and from markets in the Baltimore region and beyond. This study would at a minimum examine the following:
  - Potential applications of automation at the Port of Baltimore
  - Potential impacts on congestion
  - Potential impacts on communities adjacent to the Port
  - Air quality and other environmental considerations.

BE IT FINALLY RESOLVED, the PAC thanks the BRTB for this opportunity to participate by sharing comments on these amendments. The PAC thanks the BRTB staff for facilitating its participation.

Submitted by:

Eric Norton, Chair, BRTB Public Advisory Committee

RESPONSE TO COMMENTS

BRTB Baltimore Regional Transportation Board

Response to comments on FY 2020-2021 UPWP

1. **Study of Revenue Options for Electric Vehicles: The PAC** believes that the conflict in policies at the State level that both support ownership and operation of Electric Vehicles (EV) and the continued use of the gas tax collected from operators of vehicles with internal combustion engines (ICE), including hybrid vehicles, as the principle source of revenue for the Maryland Transportation Trust Fund should be addressed. Specifically, the PAC proposes a study that examines different alternatives for capturing revenues from all types of vehicle owners and operators while maintaining the current policies favoring the purchase and operation of clean fueled vehicles.

   The study should do a comprehensive assessment of the costs of providing EV specific infrastructure as well as the share of general costs that this small portion of operators contributes today and could contribute under different scenarios of EV and ICE ownership and operation. The study should similarly examine different revenue options and estimate their potential contributions towards the Transportation Trust Fund in the State of Maryland.

   BRTB Response: The comment focuses on the Maryland Highway Trust Fund that is administered by the State of Maryland. MDOT reports that they are always monitoring the "costs of providing EV specific infrastructure" as a State agency, and they have a good background on the "alternatives for capturing revenues from all types of vehicle owners and operators while maintaining the current policies favoring the purchase and operation of clean fueled vehicles". This kind of study would likely best be conducted at a higher level than the Baltimore Metropolitan area. That said MDOT further advised the BRTB:

   "Through participation in regional and national organizations and committees, such as the American Association of State Highway and Transportation Officials (AASHTO) and the I-95 Corridor Coalition, the Maryland Department of Transportation (MDOT) is monitoring the potential impacts of increased corporate average fuel economy (CAFE), including the economic impacts of alternative fuel vehicles such as electric vehicles. The current and projected population of electric vehicles is a very small percentage of the fleet population. In fact, electric vehicles will comprise less than one percent of the light-duty vehicle fleet population in 2020. Any comprehensive study related to the relationship between the adoption of alternative fuel vehicles and the impacts on revenue generation would be best conducted at the national, regional, or State level.

2. **Ride Sourcing as a Supplement and/or Alternative to Traditional Paratransit Services**: **The PAC** recommends that the BRTB study the potential to serve paratransit customers and trips with trips provided by Ride Sourcing companies (also known as Transportation Network Companies), such as Uber and Lyft. The study should focus on the potential for increased efficiencies and cost savings in paratransit while also studying the costs and benefits to paratransit customers. A number of cities in the United States have initiated contracts with Uber and Lyft for these purposes. This study would draw lessons learned from those examples and consider the specific service needs and conditions of Maryland Locally Operated Transit Systems and the paratransit communities within the Baltimore

region. The report would identify specific recommendations for the Counties and City of Baltimore transit systems based on what is learned, and include any recommendations for statewide legislation or other policy modifications, as appropriate.

BRTB Response: MDOT MTA regularly reviews and monitors our complementary paratransit service, MobilityLink, to enhance customer service and efficiency. Currently, MDOT MTA is evaluating their taxi access program, Call-a-Ride, and the potential benefits and cost implications of partnering with Transportation Network Companies (TNCs) to provide greater flexibility and choice to MobilityLink passengers. In addition, MDOT MTA submitted an application for a Human Services Coordination Research (HSCR) grant from the FTA, requesting the ability to procure software that would display additional choices for passengers including TNC options if applicable.

MDOT MTA indicated that they will be happy to share the findings with locally-operated transit systems, many of whom operate similar paratransit services.

They indicated they are in the initial stages of the evaluation, but by the Fall they will be far enough along to have some findings to share with PAC.

3. **Study of the Effects of Adopting Automation and Connectivity on the Port of Baltimore: The PAC** suggests a study to address the potential benefits and costs of adopting connected and automated vehicle technologies on the freight activity at and to/from the Port of Baltimore. The Port is a critical transportation resource that includes multimodal access to and from the Port in the transfer of good to and from markets in the Baltimore region and beyond. This study would at a minimum examine the following:
    - Potential applications of automation at the Port of Baltimore
    - Potential impacts on congestion
    - Potential impacts on communities adjacent to the Port
    - Air quality and other environmental considerations.

    BRTB Response: The Freight Movement Task Force held a meeting on March 20 at the offices of the Maryland Port Administration. The primary focus of the meeting was on the potential use of Connected and Autonomous Vehicle (CAV) technologies inside port terminals as well as landside. At this time, the FMTF recommends to the BRTB that the suggestions by the PAC are already being considered by the Maryland Connected and Automated Vehicles (CAV) Working Group and this work should continue.

    Maryland has an active CAV working group led by MVA Administrator, Chrissy Nizer. Additionally, a CAV-freight working group has also been meeting regularly and toured the Dundalk and Seagirt Marine Terminals in 2018 to discuss potential deployment of CAV technologies. BMC staff are represented on both groups.

    The BRTB remains supportive of the activities already underway in Maryland and feel it is better to work under their umbrella due to the complexities surrounding terminal and landside operations as well as labor and union regulations. Progress can be viewed online or reported periodically to the PAC.

4. **From Arjan van Andel**: Regarding the following consultant-led activities.

   Regional Traffic Impact Study guidelines: I would request to include the impact on multiple modes. Typical impact analysis shows performance on biking and pedestrians, but more from a capacity point of view. It would be good when Impact Studies will have to highlight the accessibility to bike lanes and sidewalks, how transit will be reachable within walking distance.

   Also, multi-modal analysis taking into account possible mode shifts for larger projects could demonstrate how the sharing could be promoted over single occupancy vehicle use. This means that the trip distribution and trip allocation can become a function of mode choice characteristics.

   Developing review practices for changing mobility: I would advise that the impact of new mobility requests will have to be demonstrated via road capacity impact analysis at locations with already stressed traffic conditions. Road pick-up and drop off and disruptors of road and lane capacity and should be accounted for in capacity analysis.

   Also, pricing for pick-up and drop-off should be considered: where a person would pay $3-$10 on parking this revenue source is going to TNC's, while the road authorities have to bear the cost for the accommodation of the infrastructure. I suggest that curb pricing should be a topic to be evaluated to pay for infrastructure use.

   Pedestrian safety and roundabouts: As mentioned in the UPWP pedestrian safety highly depends on speed difference. Next to considering roundabouts, I would suggest to add "speed reducing infrastructure design". Where pedestrians cross traffic lanes without signalization, the infrastructure design should force traffic to slow down. So more options rather than only roundabouts should be recommended.

   Congestion management process: I recommend that the congestion management process should include a multi-modal integrated demand and capacity evaluation method. Factors like mode shift from Single Occupancy Car to TNC, to other shared modes, implementation of Park&Rides, possible road pricing or pricing of delivery of goods at peak hours could provide various scenarios for new policies.

   I would also recommend to run a few scenarios where shared mobility services will take a certain share of private cars. Some scenarios could be: OnDemand service to and from Fort Meade and BWI airport. An example: what service is required to bring 50% of the Fort Meade employees to their work with OnDemand service?

   Another important congestion management process is to incorporate through traffic on 95 and 50 and specifically provide strategies to reduce congestion on these roads through either shared services or road price in peak times.

   BRTB Response: Many of the suggestions here are either included in the BRTB's current thinking or will be discussed by the Technical Committee as they review the proposed Requests for Proposals when they are written by BMC staff.

APPENDIX F

ADDITIONAL PLANNING STUDIES

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CITY OF ANNAPOLIS

Transit Development Planning: The City of Annapolis Department of Transportation, which plans and operates Annapolis Transit, is updating its 2010 Transportation Development Plan (TDP). This update is funded by a technical assistance grant from the Maryland Transit Administration. KFH Group, Inc. is preparing the current update.

The current update covers a comprehensive review of the existing services to identify any service gaps and areas for improvement in the performance and organizational efficiency of the existing transit services. The combined results of the existing service analysis and the transit needs analysis will serve as the basis for developing service and organizational recommendations. The project is expected to be completed in 2019.

CARROLL COUNTY

Transit Development Planning: The TDP was last updated in 2013 by KFH Group, Inc. The current update will be prepared by KFH and will be completed by the end of calendar year 2019. MDOT MTA and Carroll County are funding various aspects of the Plan. The TDP will serve as a guide for transit services in Carroll County and will provide a roadmap for implementing service and organizational improvements, including potential service expansion, during the next five years.

BALTIMORE CITY

Comprehensive Transportation Plan: The Baltimore City Department of Transportation seeks to develop a Comprehensive Transportation Plan for the City of Baltimore that is informed by a long-term vision for transportation in Baltimore that considers a variety of users and needs, baseline data, demographic forecasts, community input, and projected and desired conditions arrived upon by using scenario planning to establish the end state that Baltimore's transportation network will serve. This project consists of three phases: Phase I is a Baseline study of existing conditions and is available on the Baltimore City DOT website for review; Phase II consists of education about the Comprehensive Transportation Plan to city stakeholders and the public; Phase III pertains to this request and is the full development of the Comprehensive Transportation Plan. The effort will be getting underway in mid-2019 and will likely be completed in two years. This will use federal STBG funds with the match from Baltimore City.

Transportation Studies: The Baltimore City Department of Transportation often has to be flexible in planning around a changing transportation environment, needing a fund dedicated to transportation studies that can address issues that arise and propose solutions for engineering and design. This project is to provide funding for transportation studies related to, but not limited to, crash studies, traffic circulation studies, bicycle and pedestrian studies, and safety studies. This will use federal STBG funds with the match from Baltimore City.

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APPENDIX G

LIST OF ACRONYMS

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ACRONYMS / ABBREVIATIONS	
3-C	Continuing, Cooperative and Comprehensive
ABM	Activity Based Model
ACS	American Community Survey
ADA	Americans With Disabilities Act
APFO	Adequate Public Facilities Ordinance
B2WD	Bike 2 Work Day
BMC	Baltimore Metropolitan Council
BPAG	Bicycle & Pedestrian Advisory Group
BPDS	Building Permit Data System
BRGISC	Baltimore Region Geographic Information Systems Committee
BRSS	Baltimore Region Safety Subcommittee
BRT	Bus Rapid Transit
BRTB	Baltimore Regional Transportation Board
BWI	Baltimore Washington International Thurgood Marshall Airport
CAA	Clean Air Act
CAP	Clean Air Partners
CATT	Center for Advanced Transportation Technology
CBD	Central Business District
CFG	Cooperative Forecasting Group
CFR	Code of Federal Regulations
CHART	Coordinated Highways Action Response Team
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Process
CSA	Combined Statistical Area
CTPP	Consolidated Transportation Planning Package
CUFC	Critical Urban Freight Corridors
DBE	Disadvantaged Business Enterprise
DNR	Department of Natural Resources
DOIT	Department of Information Technology (MD)
DOT	Department of Transportation
DTA	Dynamic Traffic Assignment
DTS	Data Transfer Solutions LLC
EAT	Emphasis Area Team
EPA	Environmental Protection Agency
EJ	Environmental Justice
EMS	Emergency Medical Services

FAST Act	Fixing America's Surface Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMIS	Financial Management Information System
FMTF	Freight Movement Task Force
FTA	Federal Transit Administration
FY	Fiscal Year
GIS	Geographic Information System
HUD	Housing and Urban Development
ICG	Interagency Consultation Group
ICM	Integrated Corridor Management
InSITE	Initiative to Simulate Individual Travel Events
ISIP	Intersection Safety Implementation Plan
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
ITS MD	Intelligent Transportation Society of Maryland
JARC	Job Access and Reverse Commute
LEP	Limited English Proficiency
LOS	Level of Service
LOTS	Locally Operated Transit Service
LRTP	Long-Range Transportation Plan
LUCA	Local Update of Census Addresses
MAP-21	Moving Ahead for Progress in the 21st Century
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MDP	Maryland Department of Planning
MDTA	Maryland Transportation Authority
MEF	Master Establishment File
MHSO	Maryland Highway Safety Office
MMTA	Maryland Motor Truck Association
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator
MPA	Maryland Port Administration
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSGIC	Maryland State Geographic Information Committee

MSTM	Maryland Statewide Travel Model
MDOT MTA	Maryland Transit Administration
MSP	Maryland State Police
MTS	Maryland Travel Survey
MVA	Motor Vehicle Administration
MVEB	Motor Vehicle Emissions Budget
MWCOG	Metropolitan Washington Council of Governments
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHI	National highway Institute
NHS	National Highway System
NHTS	National Household Travel Survey
NSC	National Study Center
OD	Origin Destination
P2P	Port-to-Point
PAC	Public Advisory Committee
PB-EAT	Pedestrian Bicycle - Emphasis Area Team
PDA	Probe Data Analytics
PDF	Portable Document Format
PEA	Planning Emphasis Area
PM1	Performance Measures for safety
PM2	Performance Measures for bridge and pavement
PM3	Performance Measures for system performance, freight, and air quality
POPGEN	(Synthetic) Population Generator
PPP	Public Participation Plan
$PM_{2.5}$	Fine Particulate Matter
PSAP	Participant Statistical Area Program
RFP	Request for Proposals
MDOT SHA	State Highway Administration
SHRP	Strategic Highway Research Program
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SRTS	Safe Routes to School
STIC	State Transportation Innovation Council
STP	Surface Transportation Program
TAM	Transit Asset Management
TAM	Transportation Asset Management
TAMP	Transportation or Transit Asset Management Plan

TAP	Transportation Alternatives Program
TAZ	Transportation Analysis Zone
TBM	Travel Based Model
TC	Technical Committee
TDM	Transportation Demand Management
TIM	Traffic Incident Management
TIMBR	Traffic Incident Management (Committee) for the Baltimore Region
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TOD	Time of Day
TPA	TradePoint Atlantic
TPB	Transportation Planning Board
T&PW	Transportation & Public Works Committee
TRCC	Traffic Records Coordinating Committee
TSMO	Transportation Systems Management & Operations
TZD	Toward Zero Deaths
UAS	Unmanned Aerial Systems
UASI	Urban Area Security Initiative
UAWG	Urban Area Work Group
UPWP	Unified Planning Work Program
U.S. DOT	United States Department of Transportation
VISSIM	**V**erkehr**I**n**S**tädten – **SIM**ulationsmodell
VOT	Value of Time
VMT	Vehicle Miles Traveled
VPI	Vulnerable Population Index
VPP	Vehicle Probe Project
WILMAPCO	Wilmington Area Planning Council
WMATA	Washington Metropolitan Area Transit Authority