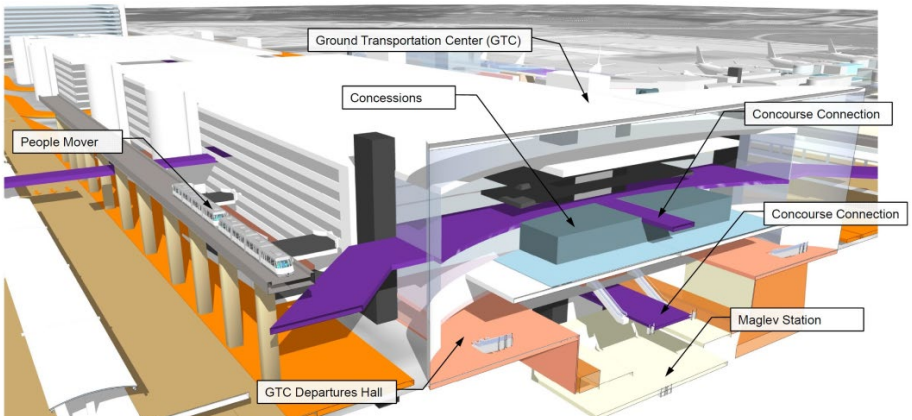
III. MERIT CRITERIA

The merit criteria outlined for RAISE align very well with the intent of the **BWI Marshall Multi-Modal GTC and APM Planning Study** (the Study), reflecting the Administration's objectives of investing in projects that *proactively address racial equity and barriers to opportunity, including the barrier of automobile dependence*, and *redress prior inequity and opportunity barriers*. The anticipated long-term Study benefits for the merit criteria are discussed in the sections below, demonstrating how implementation of Study recommendations will build upon the multi-modal potential already present in the BWI Marshall area to ultimately result in clear, direct, significant, and positive impacts to the Study area and the broader region.



Preliminary rendering depicting functional components of a GTC and APM

III.1 Criterion 1: Safety

As a multi-modal facility, MAA strives to prioritize safety of visitors and employees. The Study will include review of past studies and will more closely analyze and develop concepts to improve safety. Data, analysis and recommendations from previous studies will serve as a baseline and this study will identify solutions to meet the long-term needs of the Airport. New data on access trends will be collected, including access modes and travel patterns, to determine changes in passenger and employee behavior and projected airport congestion and safety concerns that can be addressed with longer-range investments in capital and operational projects. Coordination with Maryland Transit Administration (MTA), Maryland State Highway Administration (SHA), bus service providers and Transportation Network Companies (TNCs) (Uber/Lyft) will be conducted for data collection including a compilation of safety concerns pertaining to each access mode at the Airport.

Improvements to Protect Non-Motorized Travelers from Safety Risks

MAA's Office of Safety and Risk Management reported 22 pedestrian injuries along the curbfront roadways and eight pedestrian injuries within Airport parking garages between 2022-2023. The Study will include data collection to analyze existing conditions of the airport access and terminal roadway network including pedestrian and bicycle infrastructure, will identify deficiencies of vehicular airport access, pedestrian and bicycle facilities, terminal roadways and connecting highways, and will develop concepts to improve transportation network safety and efficiency. This will include identifying opportunities to improve roadway geometrics, including vehicle weaving and other conflict points, enhance wayfinding and separate vehicle, bus and truck traffic to enhance safety, and separate and protect pedestrians and bicyclists. Data collection specific to the Study will supplement existing data from prior studies of the area. The Study will specifically look at *improved pedestrian connections within the terminal roadway area and connectivity to any future terminal infrastructure* through grade separation, separating pedestrians from vehicles to enhance passenger and employee safety.

The Study will then consider the development of a *multi-modal ground transportation center* (GTC) and assess how the facility will help separate vehicle types and provide grade separated access to the GTC for pedestrians, removing pedestrian conflict points on the curbside to optimize curbside and roadway safety, efficiency and capacity within the terminal area. The Study will allow for expanded connectivity through development of concepts for an automated people mover (APM) from the GTC to remote airport parking lots, the off-airport rental car facility, rail stations, hotels, employment centers, and existing commuter and recreational bicycle infrastructure.

Specific Actions and Activities Identified in the National Roadway Safety Strategy

As a National Roadway Safety Strategy (NRSS) Ally in Action, MDOT is deeply committed to U.S. Department of Transportation (USDOT) NRSS goals and has expertise in implementing the improvements identified in the NRSS, including the planning and implementation of safer roadways through use of available federal funding. In addition to planning for a GTC and APM, the Study will identify safety improvements for the terminal approach roadways including enhanced wayfinding and separation of vehicle types to reduce the number of reported vehicle accidents along the curbfront. The Study will also consider improvements to re-engineer approach roads to slow down vehicles rather than relying on enforcement to manage speeding.

Prior and on-going traffic studies have analyzed the level of service (LOS) deficiencies within the terminal roadway system and have recommended or will be recommending operational and capital improvements. They include traffic analyses related to the BWI Marshall Lower-Level Inbound Roadway, International Concourse Roadway Widening Study, and an updated traffic impact study, which includes coordination with Anne Arundel County and SHA. Data from these studies will be utilized in establishing the existing conditions and site requirements for a GTC:

- The BWI Marshall Lower-Level Inbound Roadway Study completed in 2016 evaluated operational and capital improvements to alleviate peak hour congestion on the terminal and inbound roadways.
- A Traffic Impact Study (TIS) was completed for the 2020 BWI Marshall EA and Section 4(f) Determination to evaluate the potential impacts of proposed projects on 22 intersections on and adjacent to Aviation Blvd and Dorsey Rd that encircle BWI Marshall.
- On-going Airport strategic planning for landside facilities began in 2023 and includes an existing traffic analysis and development of requirements for curbside, parking, and roadway based on future airport activity levels.

Because this is a Planning Study, quantified safety benefits have not been prepared. However, the safety benefits of a multi-modal GTC, APM and roadway improvements will be analyzed as part of the Study.

Local and Regional Benefits Anticipated

- Identification of improved approach, curbside, pedestrian walkways, and local roadway geometrics and **separation of vehicle, bus, and pedestrian traffic** to enhance safety
- Identification of **opportunities to provide grade separation between pedestrians and vehicles** to improve pedestrian safety
- Analysis of **broader safety benefits resulting from roadway, multi-modal GTC, and APM development**

III.2 Criterion 2: Environmental Sustainability

MAA is committed to the betterment of our planet, our people, our community, and our economic growth. MAA recently launched a sustainability program that is organized into four pillars: environmental, economic, social, and human – pillars which showcase initiatives that guide a balanced approach to decision making and continuous improvement throughout the organization. The pillars are broken down into focus areas which are tied to specific sustainability targets supported by current and future initiatives. Within the environmental pillar, MAA focuses on three main areas: Climate, Circularity, and the Chesapeake Bay. MAA is addressing climate by developing and improving actions that reduce greenhouse gas (GHG) emissions while also adapting to the current and future effects, risks, and hazards of climate change.

As published in our Sustainability and Environmental Mission Statement, MAA will ensure that planning practices identify areas for resource efficiency and sustainable business practices during project planning, design, construction, and on-going operation and maintenance of facilities. As part of MAA's environmental justice practice, MAA is committed to transparent and fair engagement throughout project planning that result in positive social and environmental impacts.

Aligned with the State Greenhouse Gas Reduction Plan

This study would align with ongoing efforts to reduce GHGs, and support Maryland's Climate Pollution Reduction Plan that aligns to Maryland's Climate Solutions Now Act of 2022 (CSNA). The CSNA established a 60% GHG reduction target (from 2006 levels) by 2031, and net-zero emissions by 2045, one of the most aggressive climate targets in the nation. Maryland's transportation sector accounted for the largest amount of GHG by sector, representing 35% of the State's GHG emissions in 2020. Subsequently, MDOT developed a 2023 Climate Reduction Plan to support the requirements of the CSNA and specifically outlines four pillars of emission reductions – transportation technology, vehicle miles traveled (VMT) reduction, congestion mitigation, and sustainable design, materials and practices. At the Federal level, FAA has established the Airport Climate Challenge that aims to achieve net zero emissions by 2050.

In order to reach these goals, MAA was awarded $1.2 million from the FAA and $100,000 from Maryland Energy Administration (MEA) to develop a ***Decarbonization Feasibility Study and Plan***, which will provide a roadmap for MAA's pathway to eliminate scope 1 and 2 emissions and reduce scope 3 emissions. This effort will analyze the feasibility of a variety of decarbonization measures including (but not limited to) increasing renewable energy production on site, building a microgrid, electrifying fleet vehicles, reducing VMT by the traveling public and airport employees, and increasing energy efficiency. The Study will evaluate MAA's existing decarbonization practices as well as identify opportunities for improvement. The plan is expected to be substantially complete prior to the initiation of the multi-modal GTC and APM study, and

the solutions will be applied to this planning project. If built, the multi-modal GTC and APM will be a key initiative demonstrating decarbonization strategies that directly align with MAA, MDOT and Federal climate goals, including providing modal shifts to reduce VMT, electrification of vehicles, and installation of solar panels.

Reduce VMTs through Modal Shift to Transit, Rail, or Active Transportation

This Study will further MAA's decarbonization strategies including opportunities to expand connectivity and access to mass transit, including through development of an APM, and accommodation of passengers using the proposed DC-Baltimore MAGLEV. An APM offers the potential to connect on- and off-airport parking and hotel facilities, reducing VMT for shuttle buses. Coordination with individual businesses, the BWI Business Partnership, and MAA tenants providing shuttle service as part of the study team will address potential routing and help quantify existing emissions.

Incorporate Energy Efficient Investments

MAA has invested in solar power generation and has recently completed a Solar Photovoltaic (PV) Array Siting and Feasibility Study. The Study evaluated over 50 sites on the BWI Marshall campus, including the existing terminal structures. A new GTC will be designed to support the maximum number of solar panels and will include updated energy efficiency considerations including LEDs.

The Study will identify measures to achieve sustainable site design and incorporate energy efficient investments through the following measures:

- Evaluate options for PV solar panel installations as part of the GTC with consideration of placement to avoid potential reflection of sunlight causing glare that could interfere with ground and air operations.
- Opportunities to accommodate EV charging within the GTC.
- Sustainable demolition practices and materials re-use, in addition to sustainable building practices.

Since most of the environmental impacts of climate change are borne by disadvantaged communities, the Study will identify ways to address the disproportionate negative environmental impacts of transportation on disadvantaged communities, consistent with environmental justice and civil rights authorities.

Aligns with Airports Resiliency Plans

Airports are a 24/7 operation and as such are expected to be always fully operational to ensure access and to minimize delays locally and across the nation. As such, airports require redundancy in their electricity systems. The consideration for resilience has become more important as climate change causes more severe storms that may cause power failures. MAA's ***Decarbonization Feasibility Study and Plan*** will identify best practices to achieve not only GHG emissions reductions but also resiliency for the BWI Marshall campus. Microgrids will be featured in this plan to serve as a backup of fully renewable power in the event of a power outage and may replace the diesel-powered generators that currently provide MAA's electricity redundancy. These microgrids will also allow the electric vehicles to be powered in the event of a power outage. The

GTC and APM will evaluate the following resiliency solutions including solar PV systems, EV charging infrastructure, and microgrids along APM stops to promote resiliency and redundancy.

MDOT's Office of Environment and Sustainable Transportation has closely coordinated with the Federal Highway Administration in developing the state's Resilience Improvement Plan. Once approved, MAA's Study will also closely align with the resiliency improvement strategies and programs contained in the MDOT plan. The GTC and APM will be designed around these resiliency ambitions and the Study will further assist MAA in identifying additional long-term measures to reduce GHG emissions to meet MAA, MDOT and national climate goals.

Local and Regional Benefits Anticipated

- Support Maryland's Climate Change Program with a **goal of net-zero carbon emissions by 2045 and a requirement to reduce GHG emissions statewide by 60% from 2006 levels by 2031**, through evaluation of opportunities for adoption of green technologies and concepts to encourage mode shift and reduce roadway congestion
- Customizing site concepts and APM alignment to **protect regional wetlands of special state concern and support Maryland's Forest Conservation Act** and utilization of green infrastructure approach to stormwater management

III.3 Criterion 3: Quality of Life

Increase Affordable Transportation Choices, Improve Access to Daily Destinations/Jobs, and Improve Public Health by Adding New Facilities that Promote Active Transportation

The Study will include *engagement of airport employees through survey to assess travel habits, travel needs and obstacles faced in commuting, both financial and logistically*. MAA will collaborate with the MDOT Commuter Choice Program in creating a demographic profile of airport and nearby business employees. Airport area employees that would benefit from improved and more affordable transportation options and access include MAA staff, airport tenants including airlines, cargo operations, concessionaires, parking and shuttle operators, ground transport drivers (TNCs, taxis), police, firefighters, federal employees such as FAA air traffic controllers, Customs and Border Protection (CBP) agents, and Transportation Security Administration (TSA) agents. Airport positions include service-sector roles such as food service workers, custodians, security guards, ground handlers, skycaps, and wheelchair assistants.

The Study will identify concepts to *facilitate access for the population around the Airport and support growth and diversification of economic activity in disadvantaged communities adjacent to and nearby BWI Marshall, particularly in neighboring Baltimore City*. This includes the growth of jobs at the Airport, at local employers around the Airport such as Northrop Grumman, National Security Agency, and the growing warehouse, logistics and commercial developments around the Airport (see Figure 1). The Study will identify multi-modal improvements and facilitate transit access to serve Airport and Airport-adjacent employers through development of an APM.

The BWI Marshall Hiker-Biker trail (BWI Trail) encircles BWI Marshall for over 12 miles (see Figure 2), providing opportunities for both recreation and transportation, and includes a spur connecting the trail to the airport terminal, close to the MTA light rail station. To the south, the BWI Trail includes a connection to the Baltimore and Annapolis Trail, a 13.3-mile paved trail following the route of the former Baltimore and Annapolis Railroad from Glen Burnie to Annapolis. A proposed Baybrook Connector would connect south Baltimore to BWI Marshall as

part of a larger comprehensive Baltimore Greenway Trails Network. In addition to identifying needs and desires of Airport employees, the Study will include outreach and engagement with stakeholders to evaluate ways in which the GTC can provide infrastructure and support to enhance regional mobility – including for bicyclists and pedestrians utilizing the trail networks.

In addition to the BWI Trail, MAA has planned and developed opportunities to enhance public health throughout the campus. Within the terminal, passengers, visitors and employees can take advantage of the BWI Marshall Cardio Trail, two American Heart Association Walking Paths. The Study will identify opportunities to provide amenities that support commute by bicycle will be studied such as bike lockers, restrooms and changing areas.

Local and Regional Benefits Anticipated

- **Facilitate access** for the population around the Airport and **support growth and diversification of economic activity in disadvantaged communities** adjacent to and nearby BWI Marshall
- Improve affordable options to **access a range of good paying jobs** from historically underserved communities
- **Improve regional trail connectivity** and facilitate modal shifts including bicycle access

III.4 Criterion 4: Mobility and Community Connectivity

Improved Access to Transit, Micro-Mobility and Mobility On-demand

Key objectives of the Study are to *accommodate anticipated new modes of transit, and to accommodate changes in personal travel preferences, and proactively address barriers to employment opportunity through enhanced transit connectivity*.

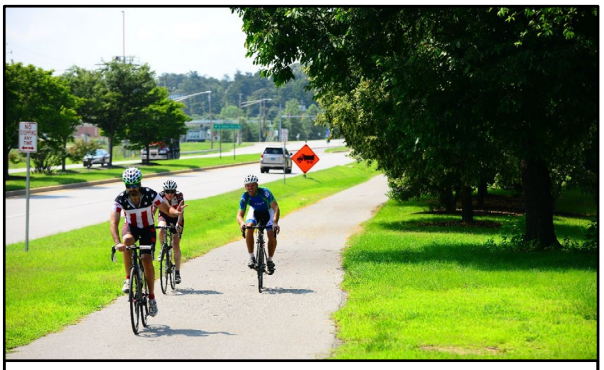
BWI Marshall is currently served by a network of interstates, regional and local roadways, rail lines, and bus routes:

- Interstate I-195 connects directly to the terminal roadway system.
- Airport loop road (Aviation Boulevard/Dorsey Road) parallels the main Airport property.
- Baltimore-Washington Parkway (MD-295) and MD-100 are located west and south of the Airport, running north/south and east/west, respectively.
- I-695 and I-97 are located north and east of the Airport, running east/west and north/south, respectively.

Amtrak/MARC rail station
1.5 miles NW of Airport terminal

- Amtrak and MARC rail includes a BWI Marshall rail station, with airport bus service.

- The Baltimore regional Light Rail services the Airport, with stations in the Terminal as well as at the Employee parking lot.
- The MTA provides bus service to BWI Marshall through two lines.
- The BWI Trail closely follows the Airport loop road and provides pedestrian and bicyclist connectivity around the Airport, and connects to the Baltimore-Annapolis trail (part of the East Coast Greenway)



BWI Trail along Aviation Blvd

The Study will develop concepts for an APM that will more efficiently connect Airport employees and users to key areas around the Airport, including remote parking lots, the BWI Marshall Amtrak station, employers, hotels and the rental car facility (See Figure 1). Implementation of an APM will reduce the reliance on personal vehicles and shuttle buses currently connecting these facilities. The BWI Business District leaders and other local leaders have voiced strong support for enhanced transportation connectivity to the Airport and potential Transit Oriented Development (TOD) opportunities.

Implement Plans based on Community Participation and Data to Address Gaps in Existing Network

The Study will include targeted public and agency engagement to assess travel habits, needs and obstacles faced by employees commuting to and from the Airport and Airport users, both financially and logistically. In collaboration with the MDOT Commuter Choice Program, the Study will include surveying Airport employees and developing an interactive webpage for employees to provide input on travel preferences, needs and obstacles they face as it relates to commuting, and surveying residents of APPs and HDCs north of the Airport in Baltimore City and Baltimore County to determine any transportation barriers preventing them from applying for work at the Airport and surrounding area. Through surveys and collaboration with stakeholders, a demographic profile of Airport and area employees will be established and will be used to inform the development of access and multi-model concepts for the GTC and APM. The interactive webpage will be utilized to solicit ongoing feedback and input on draft concepts from impacted populations.

Include Transportation Features that Increase the Accessibility for Non-motorized Travelers in Underserved Communities

In 2020, MTA developed Connecting Our Future: A Regional Transit Plan for Central Maryland (2020) for improving public transportation in the region over the next 25 years. The Plan presents goals, objectives, and initiatives to enhance transit service, support the economy, and reduce impacts to the environment. The Plan was developed by the MTA in coordination with the Central Maryland Regional Transit Plan Commission, the five jurisdictions that compose the Central Maryland region, local transit agencies, the Baltimore Metropolitan Council, and members of the public. A key aspect of the Plan is to increase access to jobs and opportunities, which includes priority bus transit routes to BWI Marshall. *The MTA Plan is directly in alignment with the*

proposed Study objective of increasing transit access for the region's residents, particularly those in historically underserved communities. For jobs directly associated with the Airport, more than 27% of employees reside in Baltimore City,[1] including census-designated APPs and HDCs. MTA, local transit agencies and the Central Maryland region jurisdictions will be key stakeholders in MAA's Study to build upon the expansion of reliable transportation choices and reduce the barriers to auto dependence with improvements to multi-modal infrastructure and identify opportunities to provide facilities that support non-motorized travel such as bike lockers, restrooms and changing areas.

Incorporate Universal Design including How the Improvements Go Beyond ADA Requirements

Concept development for the GTC and APM will incorporate Universal Design elements through a focus on equitable use and flexibility in use.

- **Equitable Use**: The Study will consider all ADA requirements in the siting and preliminary concept design for the GTC and APM and will look to expand on ADA as a minimum design standard for ensuring equitable access for all users. The Study will look at the full breadth of potential users and their needs, including mobility, hearing, sight impaired passengers and employees. The study will look at how users will access the GTC and APM and also how their needs may be better accommodated to create a seamless experience for all. As a representative example of the extent of scope this will entail, MAA has partnered with Morgan State University (MSU) for BWI Marshall to become a test site for autonomous wheelchairs. Data from testing of autonomous wheelchairs around the terminal curbside roadways and parking facilities will be considered in the development of GTC and APM concepts.
- **Flexibility**: By accommodating a wide range of personal and commuter travel preferences, plans for a GTC and APM will allow for flexibility into the future as travel preferences continue to evolve.

Local and Regional Benefits Anticipated

- Improved **local and regional connectivity** through development of the GTC and APM, and terminal roadway improvements
- Prioritized opportunities to address congestion issues on approach and terminal roadways to **provide a safer and more efficient solution for all modes of travel**
- Identify opportunity to **increase transit access** for the region's residents, particularly those in historically **underserved communities**
- A seamless experience that **meets the accessibility needs** for all passengers and employees

[1] Regional Economic Impact of BWI Marshall Airport, December 2023

III.5 Criterion 5: Economic Competitiveness and Opportunity

As the busiest airport in the Baltimore-Washington region, BWI Marshall produced a total economic impact of over $11 billion in 2023. The Airport is a major transportation asset supporting travel, trade, and business development, and links Maryland with the world. The Airport and visitors to the airport generate and support more than 107,000 jobs throughout the region. Of the more than 16,000 direct jobs (in 2023) associated with BWI Marshall,[2] over 25% of the employees reside in Anne Arundel County, while more than 27% reside in Baltimore City including census-designated APPs and HDCs. MAA strives to ensure its financial position and practices ensure economic competitiveness – related to other airports and to doing business with MAA.

Promote Long-Term Economic Growth

In addition to direct jobs, BWI Marshall also generates 12,000 indirect jobs, and 78,000 induced (visitor-generated) jobs.[3] The Study will *identify opportunities to increase transit access for the region's residents, particularly those in historically underserved communities. Providing transit that connects residents to economic opportunities ensures the region's strength and vitality.*

The Study will identify and assist in the development of a roadmap to design and implement needed multimodal improvements that will more efficiently facilitate the movement of people in and around BWI Marshall and the region. It will also assess the existing roadway deficiencies and develop opportunities to meet the growing mix of personal and commercial traffic to and through the communities surrounding BWI Marshall and major local employers (e.g., Northrop Grumman, NSA, and Amazon).

The Study will include an economic impact evaluation, including assessing potential job growth resulting from the construction and operation of the GTC and APM, as well as additional airport terminal projects proposed in the near-future that will be supported by a GTC and APM such as the C-D terminal connector and Airport hotel. The economic impact evaluation will also consider the growth of local businesses to support an increase in employees (i.e., restaurants, gas stations, shops, etc).

The Secure Maryland Wage Act (MD HB685) was signed on May 30, 2021 which impacted employees at BWI. Beginning January 1, 2022, certain employees at BWI Marshall had to be paid $13.50/hour ($1 above minimum wage for years after). These employees include but are not limited to custodial staff, non-TSA security guards, ground handlers, and skycaps. The wage law does not apply to MAA employees, airline employees, construction workers, food & retail employees, and rental car staff. However the bill required MAA to complete a study on Airport wages, In 2022, MAA completed a BWI Marshall Demographic and Psychographic Analysis which indicated available and open positions at the Airport spanned hourly rates from $14/hour (cashier, retail) to $23/hour (shuttle bus driver, engine mechanic, and professional and technical positions for MAA include salary ranges from $31,000 (maintenance mechanic) to $90,000 (supervisory positions).

[2] Regional Economic Impact of BWI Marshall Airport, December 2023
[3] Ibid.

The significance of the Study as a tool to facilitate improvements to economic competitiveness and opportunity is evidenced by the broad and diverse coalition of elected officials, DOTs, business groups, and public agencies that have provided letters of support (available here).

Facilitate Tourism Opportunities

The development of GTC and APM concepts in the Study will directly support the projected growth for BWI Marshall and improve upon MAA's motto of being the "easy come easy go" Airport. Planning and implementation of a multi-modal GTC and state of the art APM will make the Airport more attractive for users and facilitate additional tourism opportunities for the region.

Promote Local Inclusive Economic Development and Entrepreneurship

MAA establishes disadvantaged business enterprise goals for all contracting opportunities. Each of MAA's consultants currently under contract and capable of performing the Study have committed to meeting a contract goal of 22% or higher DBE participation.

Create Good-Paying Jobs and Adopt Local and Economic Hiring Preferences for the Project Workforce

The Study will include an economic impact evaluation that assesses potential job growth resulting from the construction of Airport-led projects, as well as the growth of local and Airport businesses to support an increase in passengers and employees (i.e., restaurants, shops, etc). The evaluation will include the support of employees commuting from historically underserved communities which may not have access to all the services provided in the Study Area.

A 2023 Executive Order signed by Governor Wes Moore requires consideration of a project labor agreement (PLA) for construction contracts where the State's financial commitment would exceed $20M. The order also authorizes both community hiring provisions for state construction projects over $5 million and executive branch units to require or consider the use of contractors participating in registered apprenticeship programs. Construction of an APM and GTC are expected to include consideration of PLA's.

Local and Regional Benefits Anticipated

- Identified improvements to reduce delay by eliminating bottlenecks and expanding the capacity on roadways through development of the GTC and APM, resulting in travel time savings which will **reduce operating costs for both personal and commercial traffic**
- An economic impact evaluation, including **assessing good-paying job creation** resulting from the construction and operation of the GTC and APM
- Support of increased airport operations and regional tourism as well as the **growth of local businesses both in and surrounding the airport to support an increase in passengers and employees**

III.6 Criterion 6: State of Good Repair

Restore and Modernize Existing Core Infrastructure Assets that have Met their Useful Life

The GTC will be constructed in the location of the current Hourly Garage. The Hourly Garage opened in 1991 and includes $10-20 million in deferred capital expenses that is required to maintain a state of good repair but would not increase its useable life. The Hourly Garage requires long unassisted walks for users, can no longer accommodate the growing need for additional parking and changing vehicles modes and types, and cannot support the increased demand for EV charging infrastructure. Alternatives for the most effective replacement of the Hourly Garage with the new GTC will be evaluated and screened for cost and operational impact implications to optimize the phasing of recommended improvements. Life cycle costs will be considered with regard to both capital and operating costs of proposed improvements. Additionally, the Study will evaluate concepts for adaptive re-use of transportation infrastructure as transportation needs change and new technologies emerge to reduce costs associated with replacing outdated infrastructure.

Hourly Garage in center of Terminal Loop

Improve Condition and Safety of Existing Infrastructure within Existing Footprint

The GTC is proposed to be sited within the footprint of the existing Hourly Garage at the center of the terminal core. A key purpose of the Study is to identify opportunities to optimize curbside and roadway safety, and to improve efficiency and capacity within the terminal area through separation of vehicle types with development of a GTC. MAA maintains a database of vehicle and pedestrian accident data that will further inform specific strategies and planning considerations. Additionally, with a continued increase in the usage of electric vehicles there is a growing concern around electric vehicle fires. GTC concepts developed as part of the Study will consider fire safety particularly as it relates to electric vehicles, including siting of electric charging infrastructure and emergency vehicle access across a multi-level structure.

Reinvestment in MAA infrastructure is necessary to uphold airport safety and service standards. The Study will identify improvements to existing terminal facilities and roadways that are needed to maintain and enhance level of service and to ensure the continued safety of the traveling public. MAA is committed to *operating and maintaining any federally funded transportation facilities in a state of good repair throughout the life cycle of the infrastructure*.

Reduce Construction and Maintenance Burdens through Efficient and Well-Integrated Design

MAA needs to build and maintain quality facilities and infrastructure that operate safely and efficiently and that meet the growing needs of the Airport, airlines, and our other partners. MAA works to ensure that all facilities are maintained in a state of good repair through a continued emphasis on asset management, applied across five asset classes: Facilities, Fleet, Information Technology, Pavement, and Structures. The data collected through asset management processes allows the MAA to determine the financial needs to maintain a state of good repair of all assets

and will inform the Study process. Notably, data collected through asset management has indicated increased maintenance costs associated with the 30+ year-old Hourly Garage. Through concept development, the Study will consider construction costs and maintenance costs for various GTC and APM concepts, with particular consideration given to construction phasing to enable MAA to respond to market demand more efficiently and cost effectively, and to minimize and mitigate impacts to airport users and employees.

Local and Regional Benefits Anticipated

- Identifying **opportunities to restore and modernize aging facilities** and **efficiently connect GTC and APM facilities** into existing airport facilities
- Identifying improvements to existing terminal roadways and facilities to **ensure continued safety of traveling public**
- Phasing development to **ensure full useful life of all airport facilities**

III.7 Criterion 7: Partnership and Collaboration

Collaboration with stakeholders will be encouraged throughout the Study development beginning with *stakeholder engagement during project initiation to gather input and consensus on the program and identify methods for continuing involvement of stakeholders throughout the Study development*.

MDOT is an organization comprising six sister agencies focused on the various transportation modes, including MAA. As it relates to BWI Marshall and regional connectivity, MAA maintains a close working relationship with State Highway Administration (SHA) and Maryland Transit Administration (MTA). Coordination between these agencies happens at every level of the organization including budgeting, planning, environmental justice and sustainability.

The success of BWI Marshall bears a direct relationship to the success of businesses in the region. BWI Marshall is a Granting Partner and active member of the BWI Business Partnership, a nonprofit corporation which advocates for strong transportation policy and initiatives that lead towards sustainable economic and workforce development. The partnership is comprised of members of local government, industry and academic institutions, and represents the BWI Marshall region's business interests. The BWI Business Partnership fully supports this Study.

Engage Community-Based Organizations

A Stakeholder Steering Committee will be formed as part of the Study to gather on-going input from stakeholders and consensus on the program, including multiple planning workshops: a Visioning Workshop to formulate Airport needs and source innovative ideas for the program, a Concept Development Workshop to gain consensus on GTC/APM concepts to carry forward, and a final Workshop to select a preferred concept. Additionally, MAA will collaborate with stakeholders when performing public outreach to complete surveys on the transportation needs of the community, including the traveling public and employee workforce. While MAA will provide

all of the local match funding for the Study, the numerous partners that make up the Stakeholder Steering Committee will benefit from the Study.

An interactive project website will be developed to solicit ongoing feedback and input on draft concepts from impacted populations. The website will provide project maps, current project planning information and provide links for on-going public comment and surveys. To ensure the project website is implemented equitably it will be designed to work on mobile technology (phones/tablets), follow 508 guidelines for all visuals, translated into all languages in the project impact area and include a comment form for the public to leave comments or ask questions. The project website will be updated as the project planning evolves and will be utilized as the project moves into eventual design and construction to provide the public with up to date project status.

The Study is fully supported by a broad and diverse coalition of elected officials, state agencies, business groups, and public agencies, as summarized in **Table 2: Study Stakeholders** below. Several of these agencies and organizations, and more, will be active participants in the Study stakeholder committee. Letters of support for the Study from these stakeholders and additional supporters of the Study are available here.

Table 2: Study Stakeholders

Elected Officials		
Name	**Position**	**Agency**
Wes Moore*	Governor	Office of the Governor
Pamela Beidle*	Senator	State Senate, District 32
Benjamin L. Cardin	U.S. Senator	U.S. Senate
Christopher Van Hollen, Jr.	U.S. Senator	U.S. Senate
C. A. Dutch Ruppersberger III	U.S. Representative	2nd Congressional District
John P. Sarbanes	U.S. Representative	3rd Congressional District
Steuart Pittman*	County Executive	Anne Arundel County
Pete Smith*	County District 1	Anne Arundel County
Calvin Bell*	County Executive	Howard County
State Agencies and Business Organizations		
MDOT Maryland Transit Administration		
MDOT State Highway Administration District 5		
Maryland Department of the Environment		
Maryland Department of Natural Resources		
BWI Business Partnership*		
Metropolitan Washington Council of Governments*		
Baltimore Metropolitan Council (BMC)/Baltimore Regional Transportation Board (BRTB)		
Greater Washington Board of Trade*		
Greater Baltimore Committee*		
Maryland Tourism Coalition*		
Visit Annapolis & Anne Arundel County*		
Northern Anne Arundel County Chamber of Commerce*		
Public Engagement Stakeholders		
Anne Arundel County*		
Howard County*		
Airport and Airport-adjacent Employers/Employees		
Residents surrounding the Airport		
HDC/APP communities in Baltimore City		

Note: * Denotes a letter of support was received from the listed stakeholder

Local and Regional Benefits Anticipated

- **Engaging local and community-based organizations** to inform the Study objectives, understand areas of mutual concern and interest, and provide input on development opportunities
- Success of BWI Marshall bears a direct relationship to the success of businesses in the region, and **arenas for future coordination and partnership for mutual benefit** will be a key outcome of the Study

III.8 Criterion 8: Innovation

Relevant innovative strategies and anticipated benefits related to technology, project delivery, and financing are described in the sections below.

Innovative Technologies

The Study will specifically assess new and emerging transportation technologies and opportunities to utilize them at BWI Marshall, as well as monitoring and considering the application of emerging sustainability, climate resilience, and autonomous vehicle technologies. The Study will consider all applicable FAA and DOT design standards and requirements.

Transportation technologies to be assessed in the study include, but are not limited to:

- Alternative energy sources including alternative fuels and electric including the use of PV solar panels
- Big data, big data analytics, and the use of artificial intelligence (AI) applications including collection of data through cell phone analytics to track traffic patterns and trip origins
- Connected and Autonomous Vehicles (CAVs), autonomous shuttles, Automated People Movers (APMs), Shared Autonomous Electric Vehicle (SAEV) technologies and similar combinations
- Accommodation of future Urban Air Mobility such as electric vertical takeoff and landing (eVTOL) aircraft connecting to points within the Baltimore-Washington region
- Planning for adaptive re-use of new garages and ground transportation center when transportation needs change and new technologies, such as autonomous vehicles become common, considerations may include storage for future autonomous vehicle fleets or higher floor-to-floor heights in garages to accommodate commercial uses

Rooftop solar parking canopies at PHX

Driverless shuttle pilot program at AUS

- Use of technology to assist in the decentralization of airline functions such as baggage check, ticketing and security at locations such as the GTC or other passenger access points
- Internet of Things (IoT) applications and businesses including TNCs and car/vehicle sharing
- Mobility as a Service (MaaS) trends
- Net-zero/net-positive technologies and strategies (including sustainability and resilience)
- Smart airports (smart cities)
- Smart mobility
- Vehicle-to-Infrastructure (V2I) technology and communication

Innovative Project Delivery and Financing

Early and on-going engagement of stakeholders during Study development, including elected officials, MDOT sister agencies, public agencies and business groups will provide needed input on objectives and concept development plans. This early buy in from Study partners will help to streamline later project delivery by eliminating future roadblocks as it relates to permitting, connectivity to partner agency projects and initiatives, public support, and project phasing.

The goal of the Study is to provide preliminary design direction to expedite the subsequent phases of NEPA and design, and to achieve cost efficiency over time. MAA will work with its federal partners to consider innovative agreements to ensure on-time project delivery. The Study will also look at flexible phasing of development to enable MAA to respond to market demand more efficiently and cost effectively, and minimize and mitigate impacts to airport users and employees. The Study will evaluate innovative design delivery and financing strategies, including opportunities to leverage private investment to support mutual goals, including P3, ground leases, or other cost- and risk-sharing mechanisms.

Local and Regional Benefits Anticipated

- Identifying **environmentally responsible and efficient strategies** to promote improved equitable mobility options
- Updating infrastructure for electric, connected and automated vehicles to further **improve the detection and mitigation of vehicular and pedestrian safety risks**
- Identifying **cost-saving and cost-sharing strategies** to promote improved and equitable mobility options
- Identifying **opportunities to partner** with the private sector and **encourage re-investment of revenues** realized from the community to benefit the community