

Implementation of GGRA Programs Assigned to MDOT

June 2015, Status Update



Mitigation Working Group of the
Maryland Climate Commission

June 19, 2015



Questions

- Manner of tracking and counting greenhouse gas emission reductions.
- Ability to sustain existing reduction trajectories in the face of changing environmental factors.



Questions

- Cost effectiveness and economic impact of existing programs.
- Potential opportunities to improve and/or accelerate reductions.



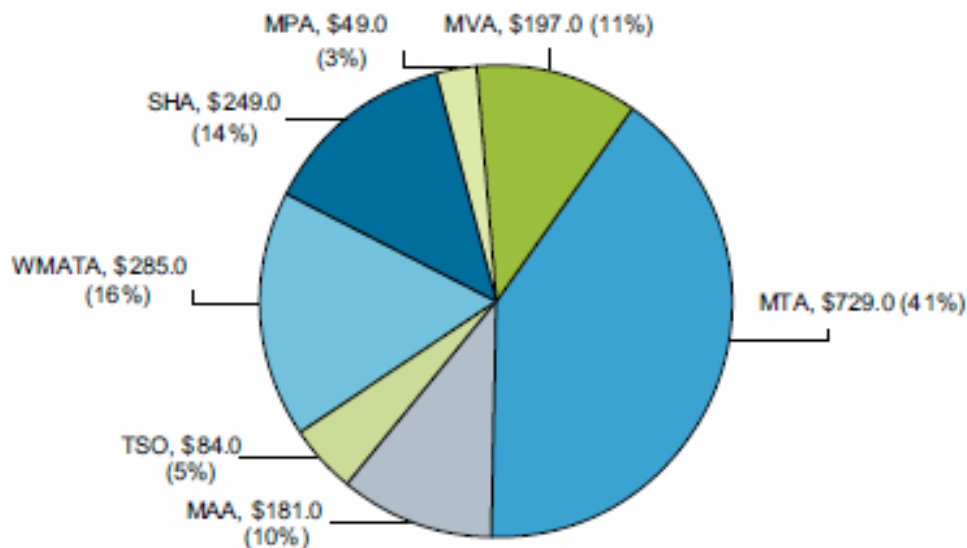
Questions

- If and how well are existing reductions and reduction trajectories positioning the state for meeting possible future reduction targets?

Budgeting & Funding - Operating

MDOT Annual Operating Budget

**MDOT Operating Budget
(Millions) FY 2015**



Total MDOT Operating Budget: \$1.77 Billion

Source: 2015 Annual Attainment Report.

- Annual operating costs related to delivering transit service in Maryland (MTA and WMATA) represent 57 percent of MDOT's annual operating budget
- Operating costs for SHA represent 14 percent
- MDTA is funded and operated through separate sources



Emission Reduction Actions

- **MDOT – The Secretary’s Office (TSO)**
 - **Bicycle and pedestrian programs** – TSO manages the Transportation Alternatives Program, Bikeways Network Program, and the Bikeshare Program.
 - In 2014, MDOT funded 23 bike network projects. These projects include on- and off-road bicycle route connections, bike route signage, bike parking racks and safety improvements.
 - Ongoing awards for the Bikeshare Program supports implementation of bikesharing systems in Baltimore City, the City of College Park, Montgomery County, and University of Maryland/City of College Park and feasibility studies of potential bikeshare stations in the City of Frederick, Howard County and Prince George’s County/ City of Greenbelt.
 - **Transportation Emission Reduction Measures (TERMs)** – Funding supports projects to reduce emissions in Maryland’s non-attainment areas.
 - **High Speed Intercity Passenger Rail Grants** – Supports engineering and NEPA documentation for Amtrak’s Susquehanna River Bridge and B&P Tunnel replacement.



Emission Reduction Actions

- **Maryland Aviation Administration (MAA)**
 - There are approximately 20 alternative fuel and bi-fuel vehicles in the State's airport maintenance fleet that use an on-site quick-fill CNG fueling station at BWI. MAA also uses CNG buses as shuttles for BWI's Consolidated Rental Car Facility.
 - BWI Marshall installed a 505 kW solar photovoltaic system on the top level of the Daily Garage. The system was designed to produce over 600,000 kilowatt hours of electricity each year.
 - BWI Marshall Airport installed electric vehicle charging stations during the spring of 2011. The eight charging stations, located in the Daily Garage and the Hourly Garage, allow travelers to charge their electric vehicles.



Emission Reduction Actions

- **Maryland Port Administration (MPA)**

- Since 2009, MPA has created 44 acres of wetlands and wildlife habitat. These areas have the opportunity to sequester carbon emissions.
- The **Dray Truck Replacement Program**, replaces older dray trucks with newer models that meet EPA engine standards. Approximately 100 dray trucks have been replaced since the launch of this program in February 2012, with funding secured for another 30 trucks.
- The **Clean Diesel Program** (2009-2011), supported retrofitting, repowering, and replacing of 79 port-related vehicles and pieces of equipment. Analysis of program emission reductions indicate an annual reduction of 375.4 tons CO₂ and a potential lifetime reduction in diesel fuel consumption of 502,065 gallons.
- To improve operational efficiencies, MPA and its tenants are reviewing truck gate efficiencies and implementing technologies, such as RFID which allows for continuous flow of trucks after security screening and reduces idling times.
- MPA maintains a cargo handling emissions inventory. The 2012 survey compared to the 2006 survey showed a 32 percent reduction in total tons of CO₂.



Emission Reduction Actions

- **Maryland Transit Administration (MTA)**
 - **MTA's bus replacement program** targets vehicles in operation more than 12 years, currently resulting in 85% of MTA's fleet using cleaner alternatives to conventional diesel
 - 49% of the fleet are hybrid buses, which operate fully on electric power below 12mph
 - 41 hybrid buses scheduled for delivery in 2015
 - **Transit Oriented Development (TOD)** - Progress continues to be made across the 16 designated TOD locations. There are currently eight sites undergoing active development, along with the 2014 groundbreaking of the Annapolis Junction Town Center, a mixed-use development at the Savage MARC Station in Howard County and the new Maryland Department of Housing and Community Development (MDHCD) headquarters at the New Carrollton MARC Station in Prince George's County.
 - **Local Operated Transit Services (LOTS)** - MTA directs funding and statewide assistance to LOTS serving each of Maryland's 23 counties, providing approximately \$113.8 million in federal and State grants in 2013.
 - **Commuter Bus** – Ongoing and planned expanded service and park-and-ride lots as part of the Southern Maryland Commuter Bus Initiative.



Emission Reduction Actions

- **Maryland Transit Administration (MTA)**
 - **MARC** - Multiple ongoing enhancements as identified in the MARC Growth and Investment Plan:
 - MTA has recently completed enhancements at the Halethorpe and Edgewood stations, with planned/ongoing expansions at the BWI MARC/Amtrak station and the West Baltimore Station
 - Weekend service on the Penn Line and additional weekday service on the Camden Line
 - MTA is procuring eight new diesel locomotives and repowering six locomotives to support continued reliable MARC operation and comply with EPA air quality emissions standards
 - Ongoing track and signal improvements to improve reliability
 - **Bus Network Improvement Program (BNIP)** - Launched first phase of the BNIP, to identify and recommend improvements to Local Bus, quick bus and express bus services that will improve service quality by reducing overcrowding, improving on time performance and travel speed, and decreasing passenger trip times.



Emission Reduction Actions

- **Maryland Vehicle Administration (MVA)**
 - MVA continues to focus planning and investments on minimizing customer wait times (and removing the need for a trip to an MVA location) through Alternative Service Delivery (ASD) methods including U.S. mail, kiosk, interactive voice response system and the Internet
 - Share of total transactions completed via ASD methods has increased from 29 percent in 2008 to 40 percent in 2014
 - The MVA will continue to refine and implement the initiatives outlined in its comprehensive ASD Plan to progressively add MVA services over the Internet
 - Starting in 2012, the MVA began providing the ability for individuals less than 40 years of age to renew their driver's license through the web and kiosk every other renewal cycle; thus increasing future ASD usage



Emission Reduction Actions

- **State Highway Administration (SHA)**
 - **Bicycle and pedestrian infrastructure** –
 - SHA continues to implement its bicycle policy which requires all projects to evaluate the inclusion of improvements for bicyclists, such as the marking of bicycle lanes or shared use lanes, and to install these improvements where feasible within the project's scope. There are 77 roadway capacity projects in the FY 2015-2020 CTP with bicycle and/or pedestrian improvements included.
 - The SHA manages the Sidewalk Construction for Pedestrian Access Program, the Retrofit Bicycle Program, and the Community Safety and Enhancement Program
 - **CHART (Coordinated Highways Action Response Team)** is the highway incident management system of SHA. CHART has five major functions: traffic monitoring, incident response, traveler information, traffic management, and severe weather and emergency operations.
 - In 2013, CHART saved motorists and commercial carriers \$1.16 billion in user costs and reduced delay on Maryland roadways by 32.7 million vehicle hours.
 - The FY2015-2020 CTP includes \$113.8 million to maintain and enhance CHART services throughout Maryland.



Emission Reduction Actions

- **State Highway Administration (SHA)**
 - **Freight efficiency** – SHA is working with MDTA to install ten virtual weigh stations. This project is funded FY 2015-2020 CTP for weigh-in-motion installation to replace static scales. The weigh-in-motion technology will improve processing time and reducing truck idling at Maryland's weigh stations.
 - **Park-and-ride lots** – SHA is planning to construct 613 new park-and-ride lot spaces in FY 2015. These spaces support MDOT sponsorship of Commuter Connections, Commuter Choice Maryland, and other local and regional transportation demand management programs that incentivize ridesharing, guaranteed ride home, and transit use.
 - **Operations and fleet** – Since 2004, SHA has reduced fuel consumption by its fleet by over 220,000 gallons as a result of flex-fuel vehicle purchases and anti-idling rules.



Emission Reduction Actions

- **State Highway Administration (SHA)**
 - **Congestion relief** – SHAs ongoing approach to managing congestion includes:
 - Implementing low cost geometric improvements on the arterial system
 - Continue working on long-term multimodal solutions that enhance safety, mobility and reliability of the arterials including some Bus Rapid Transit (BRT) projects
 - Continue signal retiming and optimization program to improve arterial operations
 - Continue to develop short-term congestion management solutions (geometric improvements, incident management, special event planning, Intelligent Transportation Strategies (ITS)) to improve traffic operations on its freeways/ expressway systems
 - Focus on the incorporation of strategies that improve reliability of the transportation system; SHA will look at implementing Transportation Systems Management and Operations (TSM&O) strategies to improve mobility and reliability



Emission Reduction Actions

- **Maryland Transportation Authority (MDTA)**
 - MDTA is investing in solar panel light fixtures for warning signs located at ramp entrances and assessing its use in other areas, including bridge lighting, where solar or LED lights also may be utilized safely.
 - Electronic toll collection systems expedite the toll collection process, reduce delays at toll plazas, and decrease emissions. GHG emissions are significantly reduced when tolls are collected electronically, due to reduced queuing and idling at toll collection plazas.
 - In 2011, MDTA reported collecting approximately 63% of all tolls electronically. In FY 2014, the system is at 77% due to the addition of the ICC which is 100 percent electronic toll collection.
 - MDTA installed electronic toll lanes (high-speed) at the Fort McHenry Tunnel and Key Bridge toll plazas.
 - MDTA opened the I-95 Express Lanes in December 2014, which is 100 percent electronic toll collection.
 - MDTA is conducting a follow-up All-Electronic Tolling and Prioritization Study which is legislatively required, with a report due to the General Assembly in January 2016.
 - MDTA is coordinating with BWI Marshall to allow payment of parking through E-ZPass® accounts at the hourly and daily garages.



Emission Reduction Actions

- **WMATA**

- MDOT provides funding for capital investments and system maintenance through a regional compact with Virginia and the District of Columbia
 - More than 121.2 million passengers used the WMATA Metrorail, Metrobus and MetroAccess system in Maryland in FY 2014. WMATA connects to many other local and regional transit modes in Maryland including Montgomery County Ride-On, Prince George's County The Bus, MARC, MTA Commuter Bus and Amtrak.
- **WMATA green operations**
 - Completed pilot to capture braking power on Metrorail
 - Replaced diesel buses with 105 new hybrid electric buses
 - Opened the Largo water treatment facility, Metro's first net-zero (energy neutral) operation
 - Launched new tracking program to improve non-revenue vehicle fleet efficiency
 - Increase use of renewable energy including renewable energy contract, station lighting upgrades, and installing on-site solar power
- MDOT and WMATA have an active partnership, in collaboration with local governments and the private sector, to plan and support joint development agreements at Metrorail stations including New Carrollton, White Flint and Branch Avenue.



Preliminary Post-2020 Analysis

- Post-2020 considerations (on-road):
 - VMT trends:
 - Adjusted BAU (1.1%) and Plans & Programs (0.5%) VMT growth rates are good high & low bounds
 - Other options could focus on VMT per capita (eg. MDP forecasts a 0.61% annual population growth from 2020 to 2030)
 - Vehicle and fuel technology trends:
 - Continued implementation of existing Federal and State programs
 - Unknowns/uncertainties –
 - Light-duty standards beyond 2025
 - Final medium/heavy duty vehicle standards beyond 2018
 - Cost and market penetration rates of EVs