Implementation of GGRA Programs Assigned to MDOT

June 2015, Status Update

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Mitigation Working Group of the Maryland Climate Commission

June 5, 2015

Maryland Department of Transportation

MDOT Mission and Goals

MDOT's Vision and Mission

Provide a well-maintained, sustainable and multimodal transportation system that facilitates the safe, convenient, affordable, and efficient movement of people, goods, and services within and between population and business centers.

Safety & Security – Enhance the safety of transportation system users and develop a transportation system that is resilient to natural or man-made hazards

System Preservation – Preserve and maintain the State's existing transportation infrastructure and assets

Quality of Service – Maintain and enhance the quality of service experienced by users of Maryland's transportation system

Environmental Stewardship – Ensure that the delivery of the State's transportation infrastructure program conserves and enhances Maryland's natural, historic and cultural resources

Community Vitality – Provide options for the movement of people and goods that support communities and quality of life

Economic Prosperity – Support a healthy and competitive Maryland economy.

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State Reports on Transportation

➢ The **2035 MTP** (2014) establishes the agency's vision, mission and goals. The MTP is updated every 4-5 years and spans 20 years.

➢ The **CTP** (FY2015-2020) is the six-year capital investment program identifying funding based on the framework and priorities in the MTP

➢ The **Attainment Report** serves as an annual statewide report on "Transportation System Performance" exploring how MDOT and its modal agencies are progressing towards achieving goals and objectives of the MTP.

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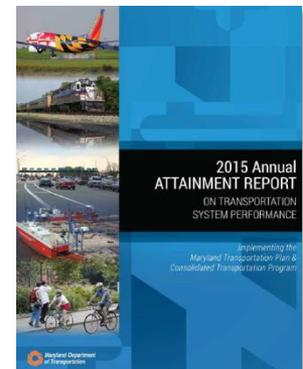
Presentation Agenda

1. Transportation Sector Summary

2. MDOT Process

   – History

   – Ongoing and planned efforts supporting GGRA

3. MDOT GGRA Programs

   – Program snapshots **[DRAFT EMISSIONS AND COST UPDATES]**

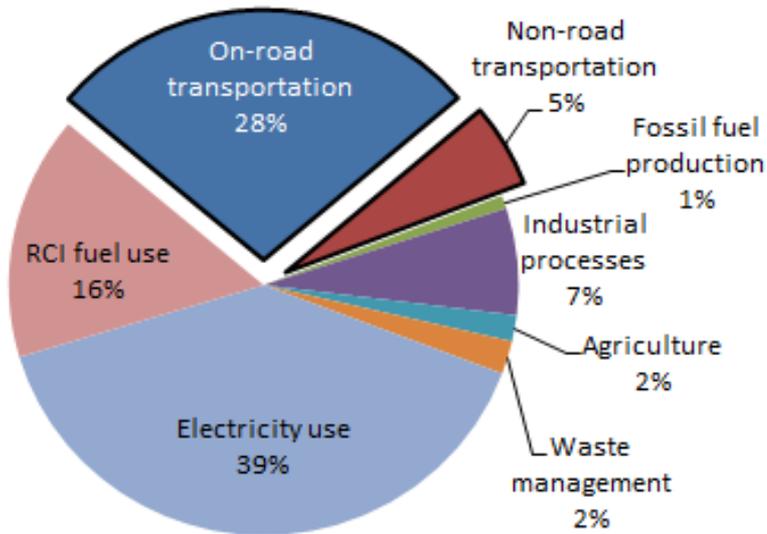4. New Analysis & Next Steps

5. Trends & Challenges

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2006 Baseline

Statewide Inventory

Transportation: 33%, 35.5 mmt CO_2e

Transportation Inventory

On-road: 84%, 29.7 mmtCO_2e
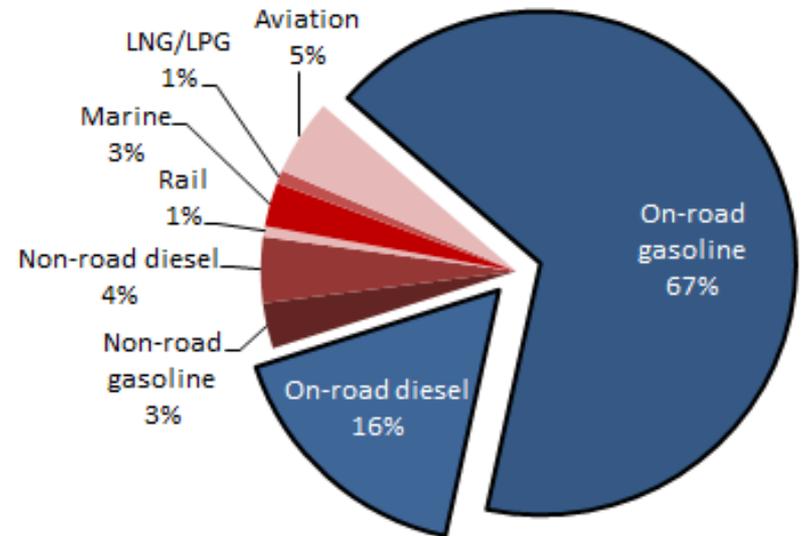
Other: 16%, 5.8 mmt CO_2e

Source: Maryland's Greenhouse Gas Reduction Act Plan, October 2013.

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Maryland Consolidated Transportation Program (CTP)

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TOTAL CAPITAL PROGRAM LEVELS
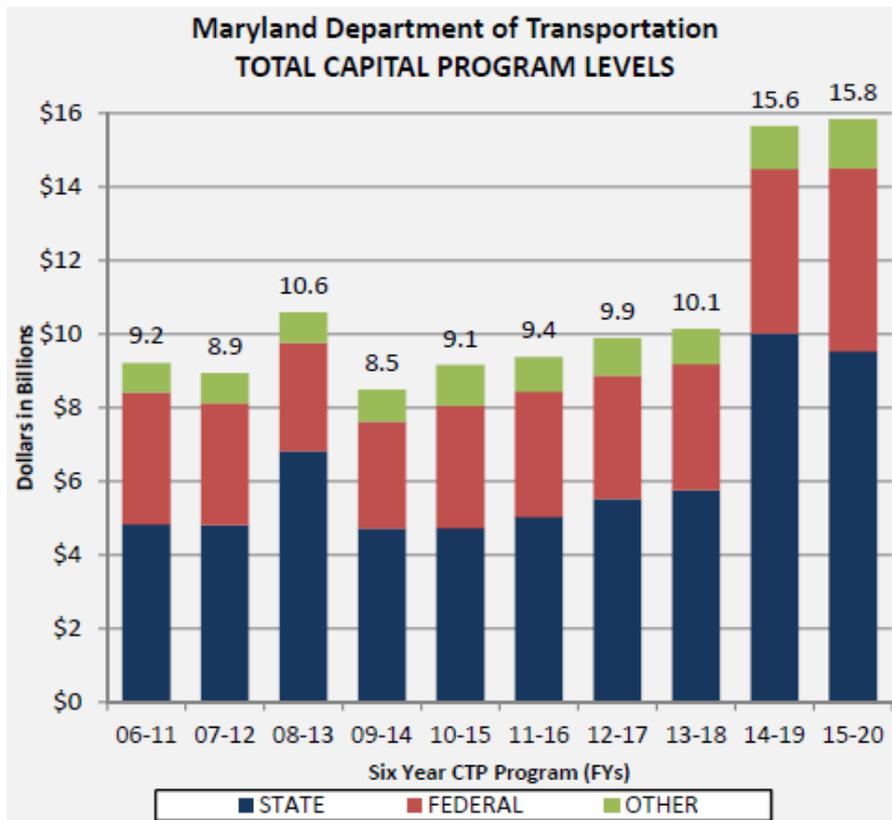
- **$7 billion in investment through 2020 (44% of CTP) on GHG beneficial projects.**

- **Remainder of CTP is primarily spent on system preservation and safety projects.**

Source: FY 2015-FY 2020 Consolidated Transportation Program, 2015.

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Vehicle Miles Traveled

Annual Number of Vehicle Miles Traveled (VMT) and VMT per Capita

2014 data is preliminary and subject to change.

Source: 2015 Annual Attainment Report.

2006 composite emission rate (VMT weighted) = **542 g/mi**

1 mmt CO_2e = 1.84 billion VMT

2020 composite emission rate (VMT weighted) = **427 g/mi**

1 mmt CO_2e = 2.12 billion VMT

Would have to reduce 2020 VMT by 3.5% to achieve 1 mmtCO_2e reduction

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2. Tracking and Other Efforts Supporting GGRA

- Support of StateStat

- Annual Attainment Report

- NEPA: SHA project level assessment (qualitative)

- Adaptation/resiliency planning and analysis

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- Updating the MDOT Implementation Plan (Green Book) – Much Has Changed

  (to inform the 2015 GGRA Update)

  - On-Road: new model (MOVES2014), new CTP (2015-2020), updated MPO long-range plans, new SHA/MDTA activities, updated planning assumptions

  - Multimodal: MTA, MPA, MAA activities

  - Evolving funding situation (Federal & State)

  - New federal vehicle and fuel standards

  - Economic growth and VMT trends

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Maryland Annual VMT (millions) vs. year

- 70,844 — BAU – 2013 Report (2020)
- 65,442 — Adjusted BAU – 2015 Status (2020)
- 60,544 — Plans & Programs – 2015 Status (2020)
- 56,618 (2006)

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3.12 mmt CO_2e
(Adjusted BAU or "True Up")

2.62 mmt CO_2e
(Plans & Programs)

Legend:
- BAU – 2013 Report
- Adjusted BAU – 2015 Status
- Plans & Programs – 2015 Status

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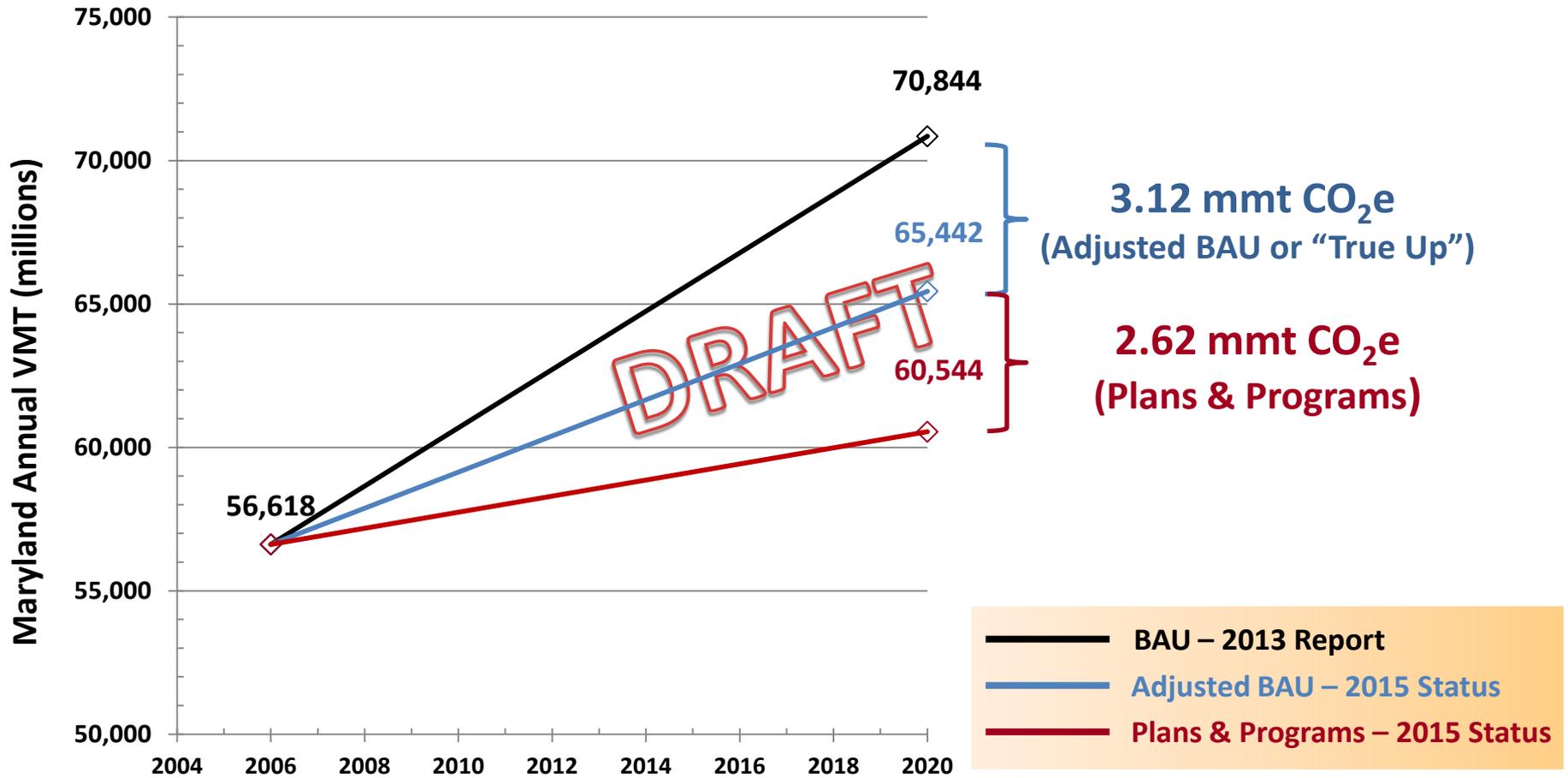
3. MDOT GGRA Programs

- **Four broad categories (GGRA Policy IDs [E-H]):**
  - Transportation technology (E)
    - Vehicle emission and fuel standards
    - Multimodal technologies
  - Public transportation (F)
    - Maryland's transit systems and intercity transportation
  - Pricing initiatives (G)
    - Tolling, transportation demand management
  - Other innovative strategies (H)
    - Evaluate GHG Impact of Major Transportation Projects
    - Bicycle and pedestrian

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Emissions Summary

| 2013 Report | 13.29 - 16.58 mmtCO$_2$e | 2015 Status | 13.84 mmtCO$_2$e |

Policy (Program)	2013 (Initial)	2013 (Enhanced)	2015 (Funded)
Forecasted VMT Related Reduction (True-Up)	**2.78**	**2.78**	**3.12**
E.1 Motor Vehicle Emissions & Fuel Standards	7.72	7.72	5.57
E.2 On Road, Airport, Port, and Freight/Freight Rail	0.38	0.62	0.38
E.3 Electric & Low Emitting Vehicles	**0.00**	**0.27**	**0.25**
F Public Transportation	2.00	2.89	2.57
G Pricing Initiatives	**0.41**	**2.30**	**1.95**
Estimated Total	**13.29**	**16.58**	**13.84**

- "Initial" 2013 were funded projects. "Enhanced" 2013 were unfunded.
- 2015 represents actual funding through 2020
- MOVES Model Update
- Cleaner Vehicles

Maryland Department of Transportation

Motor Vehicle Emission and Fuel Standards (E.1)

2013 Report   **7.72 mmtCO$_2$e**

Policy ID	Policy (Program)	mmt CO$_2$e
E.1	**Total**	**7.72**
E.1.A	Maryland Clean Car[1]	4.33
E.1.B	CAFE 2008-2011	2.27
E.1.C	National M/HDV[2]	0.88
E.1.D	Fed. Renewable Fuels	0.24

1. **The Maryland Clean Car Program Includes**:
   - Maryland Clean Car
   - National Program (2012-2025)
2. **National M/HDV 2014-2018**

2015 Status   **5.57 mmtCO$_2$e**

Policy ID	Policy (Program)	mmt CO$_2$e
E.1	**Total**	**5.57**
E.1.A	Maryland Clean Car[3]	5.06
E.1.B	CAFE 2008-2011[3]	NA
E.1.C	National M/HDV[4]	0.28
E.1.D	Fed. Renewable Fuels	0.24

3. **The Maryland Clean Car Program Includes**:
   - Maryland Clean Car
   - Tier 3 (Fuels Only)
   - 2007-2025 National Standards – includes 2008-2011 CAFE
4. **National M/HDV 2014-2025**

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3. Transportation Technologies

On-Road, Airport, Port, and Freight/Freight Rail (E.2)

2013 Report	**0.38 – 0.62 mmtCO$_2$e**

- CHART
- Telework
- BWI Charging Stations
- BWI Utility Master Plan
- Dray Truck Replacement (Port)
- Port of Baltimore Clean Diesel
- APUs for existing locomotives

2015 Status	**0.38 mmtCO$_2$e**

- ✓ CHART
- ✓ Telework / Employer Outreach
- ✓ BWI Charging Stations
- ✓ BWI Utility Master Plan
- ✓ Dray Truck Replacement (Port) (over 100 trucks replaced to date, with 30 more funded this year)
- ✓ APUs for existing locomotives

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Electric and Low-Emitting Vehicle Initiatives (E.3)

2013 Report — 0.27 mmtCO$_2$e

- Electric Vehicle Infrastructure Council (EVIC)

- 60,000 EVs on the road in MD by 2020

- Electric Vehicle Infrastructure Program – install more than 80 public EV charging stations

2015 Status — 0.25 mmtCO$_2$e

- ✓ 5,000 EVs on the Road

- ✓ 610 EV Chargers in 259 Locations

- ✓ 32 Chargers Installed at MDOT Locations Since 2011

- ✓ 45 Installed at University System Locations since 2011

- ✓ 26 DC Fast Charge Stations in 20 locations, supplementing 10 existing

- ✓ MTA adding 17 new chargers at 8 new locations

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3. Public Transportation

Public Transportation Initiatives (F.1)

2013 Report	2.00 – 2.89 mmtCO$_2$e

- ➢ New Transit Service (Purple Line, CCT, Red Line)

- ➢ Locally Operated Transit Systems (LOTS)

- ➢ Commuter Choice

- ➢ Transit Oriented Development (TOD)

- ➢ Ridesharing / Guaranteed Ride Home

2015 Status	2.57 mmtCO$_2$e

- ✓ New Transit Service Highlighted in GGRA will not be open in 2020

- ✓ TOD

- ✓ Ridesharing Programs / GRH

- ✓ LOTS

- ✓ MTA Bus Replacement (85% of MTAs fleet uses cleaner alternatives to conventional diesel)

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3. Public Transportation

Intercity Transportation Initiatives (F.2)

2013 Report	Included in F.1

- ➢ MARC Infrastructure Improvements
- ➢ MARC Growth & Investment Plan
- ➢ National Gateway
- ➢ Northeast Corridor Improvements in MD

2015 Status	Included in F.1

- ✓ MARC Growth & Investment Plan
- ✓ MARC Weekend Service
- ✓ MARC Night Service
- ✓ National Gateway
- ✓ Northeast Corridor Improvements
- ✓ Crescent Corridor

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3. Pricing

Pricing Initiatives (G)

2013 Report	0.41 – 2.30 mmtCO$_2$e

- ➢ Electronic Toll Collection ICC and I-95 ETL
- ➢ Commuter Connections
- ➢ Park and Ride Lots
- ➢ TDM Strategies

2015 Status	1.95 mmtCO$_2$e

- ✓ Enhanced Electronic Toll Collection ICC and I-95 ETL
- ✓ Commuter Connections
- ✓ Park and Ride Lots (over 1,000 new spaces under construction or planned in 2015/2016)
- ✓ TDM Strategies

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3. Other Innovative Programs

Evaluating GHG Emissions Impacts of Transportation Projects (H.1)

2013 Report	**Included in F.1**

➤ NEPA

2015 Status	**Included in F.1**

✓ Since 2012, EIS documents performed under NEPA include qualitative GHG considerations

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3. Other Innovative Programs

Bike and Pedestrian Initiatives (H.2)

2013 Report **Included in F.1**

- ➢ Bike/Ped Enhancements

- ➢ Bike Racks on Transit

- ➢ Construction of Bike Lanes and Paths

- ➢ Cycle Maryland

- ➢ East Coast Greenway

2015 Status **Included in F.1**

- ✓ Bicycle and Pedestrian accommodations within projects account for an additional 77 projects in the CTP

- ✓ Bikeways and Bikeshare Programs

- ✓ Cycle Maryland

- ✓ East Coast Greenway

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Emissions Summary

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3. GGRA Transportation Sector

Economic Summary

Policy ID	Policy (Program)	Jobs (GGRA, 2013)	Net Economic Benefit ($ millions) (GGRA, 2013)	Total Investment ($ millions) (MDOT, 2013)	DRAFT Total Investment * ($ millions) (MDOT, 2015)
E	Transportation Technologies	466	-$2,556	$1,010	$192
F	Public Transportation	15,132	$1,793	$13,439	$6,335
G	Pricing Initiatives	366	$559	$1,598	$216
H	Other Innovative Strategies/Programs	1,330	$911	$2,202	$241
	Transportation Total	17,294	$708	$18,249	$6,985

*Only includes total costs for all projects with funding programmed in the FY 2015-2020 CTP.

- Costs expended beyond 2020 are not included (e.g., completion of Red and Purple Lines).

- 100 percent locally funded projects are not included.

- Unfunded projects/programs or enhancements are not included.

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- Update 2011 Green Book to Inform 2015 Reports:
  - Refine Results Presented Here (Emissions and Costs)
  - Unquantifiable Vision and Strategies
  - Emerging Technologies
  - Status of Federal Programs
  - Policy, Planning, Regulatory, Fiscal Actions
  - Trends and Challenges

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4. Contact Information

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MDOT Planning Documents: www.mdot.maryland.gov

MDOT Climate Action Implementation Plan

(The Green Book):

http://www.mdot.maryland.gov/Office_of_Planning_and_Capital_Programming/Environmental_Planning.html

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