2023 MDOT Climate Pollution Reduction Plan - Strategy Evaluation and Implementation

Maryland Commission on Climate Change Mitigation Working Group

3.20.24

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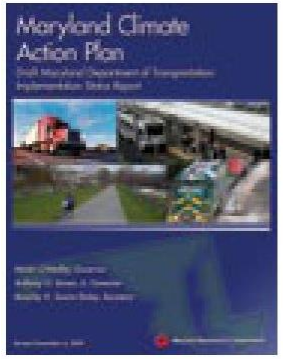
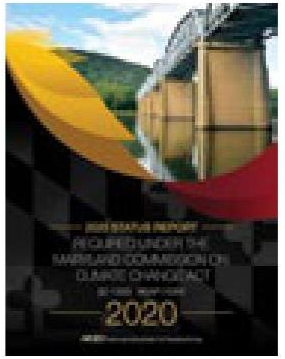
Presentation Overview

- MDOT CPRP Construct – Approach Overview
- Transportation Sector Emissions Reduction Strategies
- VMT Reduction Trends and Projections
- Implementation Considerations
- Next Steps and Recommendations

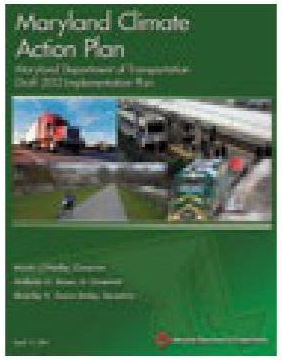
MDOT's GHG Planning



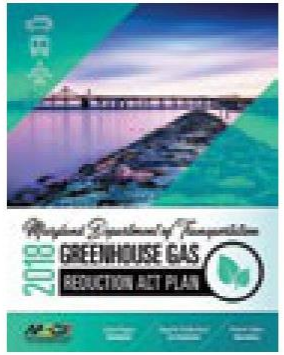


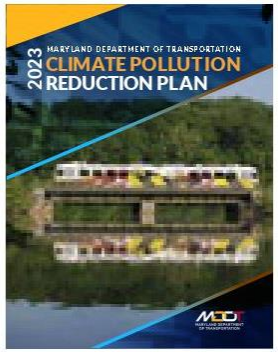
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

MDOT Plans



Annual Agency Reports

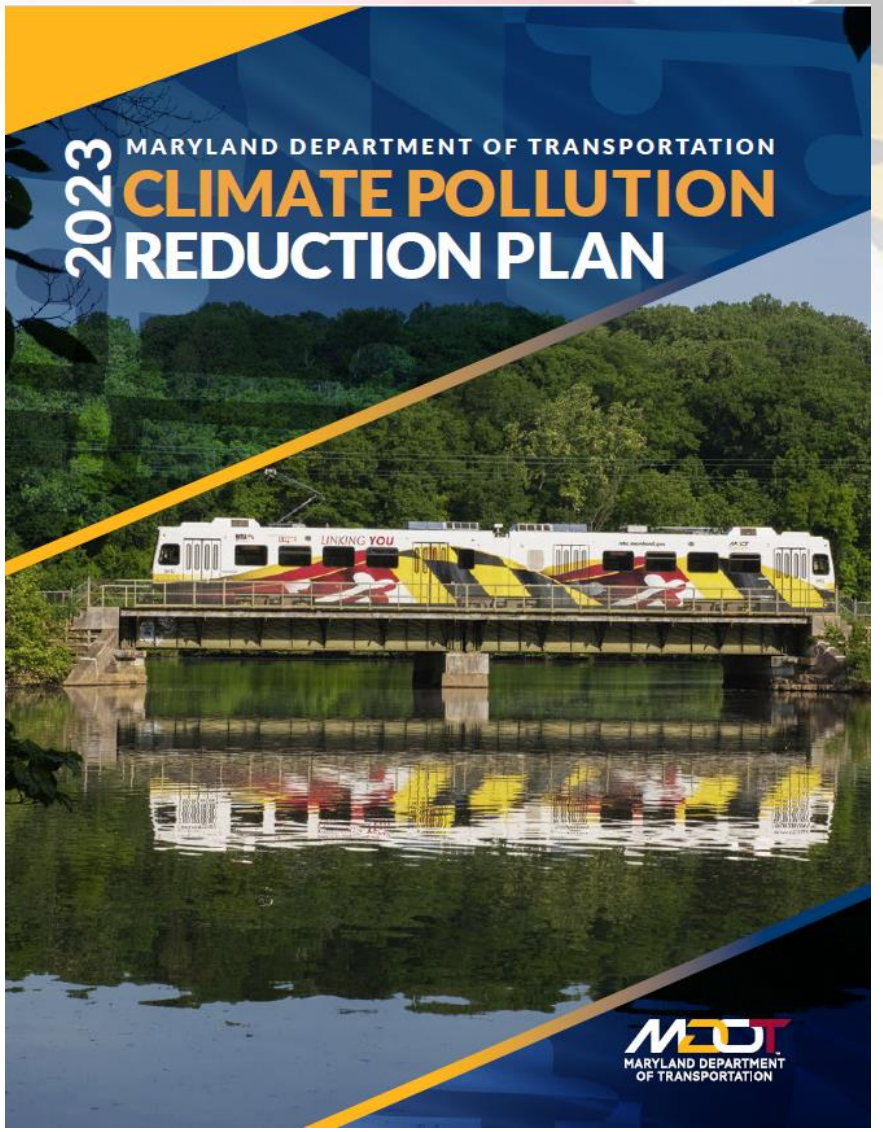




CPRP Background and Purpose

- MDOT Climate Pollution Reduction Plan
  - **Complementary** sector-specific plan
  - **Bottom-up approach** to develop **sector-specific strategies**
  - **Blueprint** for reducing transportation sector GHG emissions

- Provides MDOT with information on:
  - **Inventory** (Progress-to-date) and **projections**
  - Emissions **reduction potential** of sustained funding
  - Emissions reduction **strategies** to support CSNA targets (associated uncertainties)
  - **Assumptions** – opportunities, coordination, implementation.



Transportation Sector Emissions Reduction Strategies

Strategies and Scenarios

Committed Strategies and Policies

Standards & Current VMT Growth (SCVG)

Projected VMT growth and vehicle standards

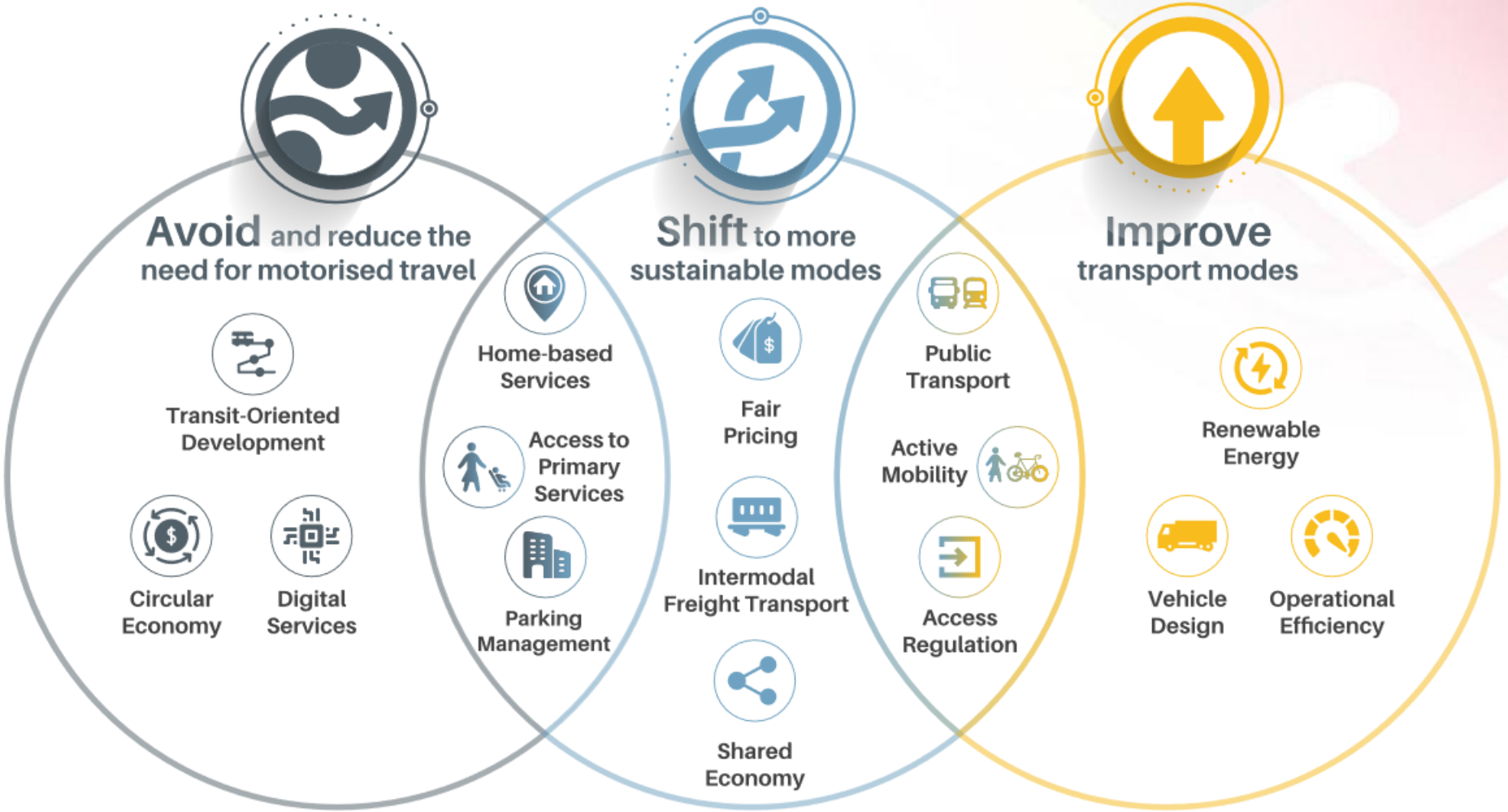
Strategies in Progress (SP)

State and MPO funded programs and EV market share projections

Potential New Initiatives (PNI)

Unfunded programs and innovative transportation partnerships and technologies

Reducing Transportation Emissions - Avoid-Shift-Improve



*The A-S-I diagramme presents a non-exhaustive list of measures for illustrative purposes only.

Source: Sustainable Low-Carbon Transport (SLoCaT)

Types of Strategies Considered

VMT Reduction:
Reducing trips by carbon intensive modes of transportation, such as driving alone, by providing alternatives to single occupancy vehicles.

18* Strategies **Avoid/Shift**

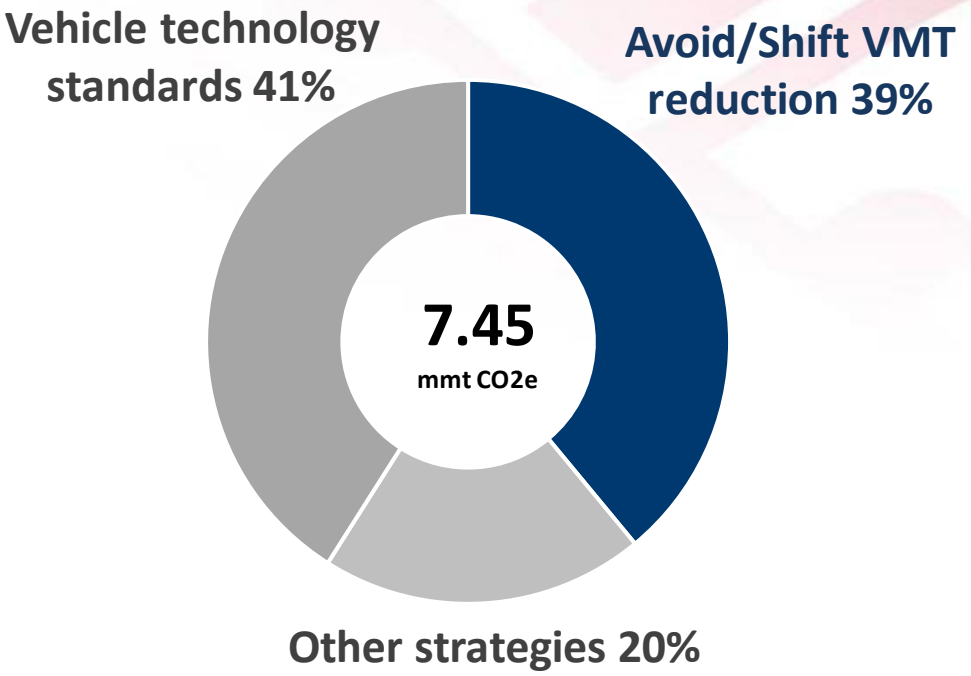
Transportation Technology:
Lowering the consumption of fossil fuel per mile traveled by promoting vehicle and alternative fuel technologies.

15 Strategies **Improve**

Congestion Mitigation:
Reducing congested and unreliable travel leading to more efficient travel with lower emissions.

7 Strategies **Improve**

Sustainable Design, Materials and Practices:
Advancing clean energy, the use of sustainable construction materials and ensuring that the transportation system is resilient.



Other strategies include congestion mitigation, system efficiency, and other technology impacts

** Carbon Reduction Strategy addresses all types of emissions reduction*

Maryland Transportation Plan - Climate Mitigation

Promote Environmental Stewardship | Deliver System Quality | Enhance Safety and Security | Serve Communities and Support the Economy

Mission

Minimize fossil fuel consumption, reduce greenhouse gas emissions, and improve air quality

Strategies

- Incentivize and execute Travel Demand Management (TDM) to reduce vehicular trips.
- Implement policies and incentives to encourage mode shift.

Relevant Measure

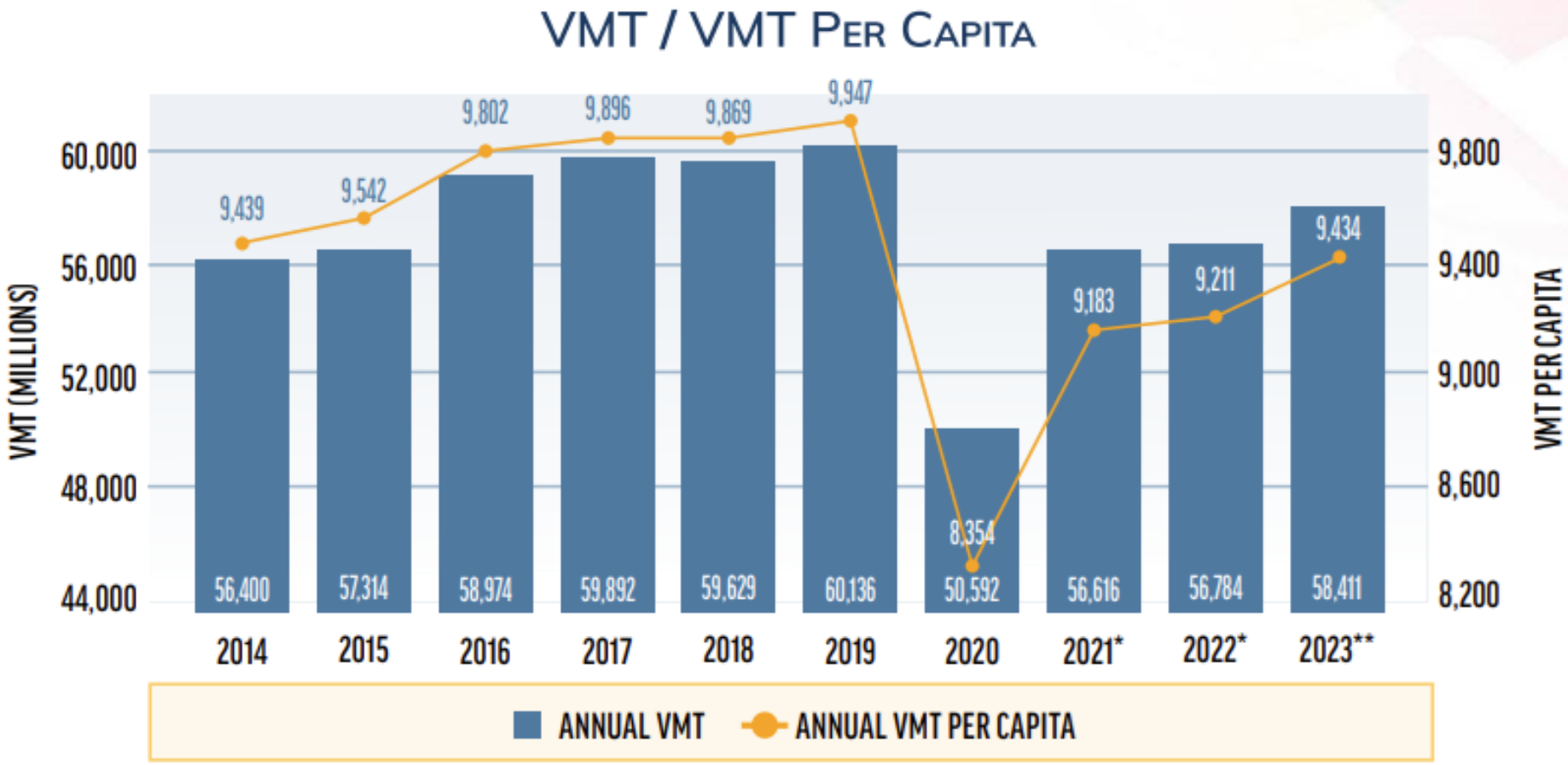
VMT/VMT per capita

Target

20% reduction from 2019 in Vehicle Miles Traveled (VMT) per capita by 2050

VMT Reduction Trends and Projections

Current VMT/ capita Trends

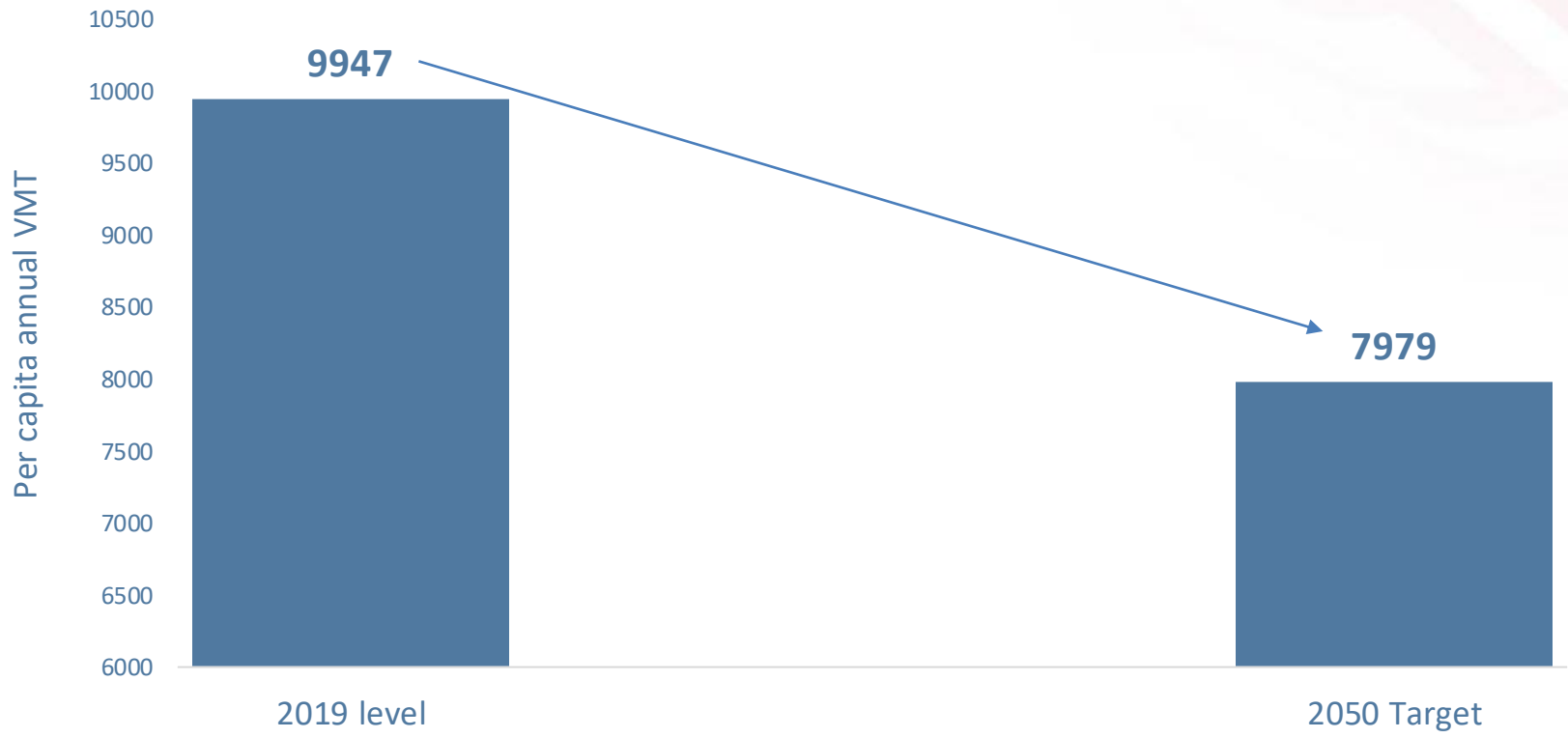


Post-COVID Rebound:

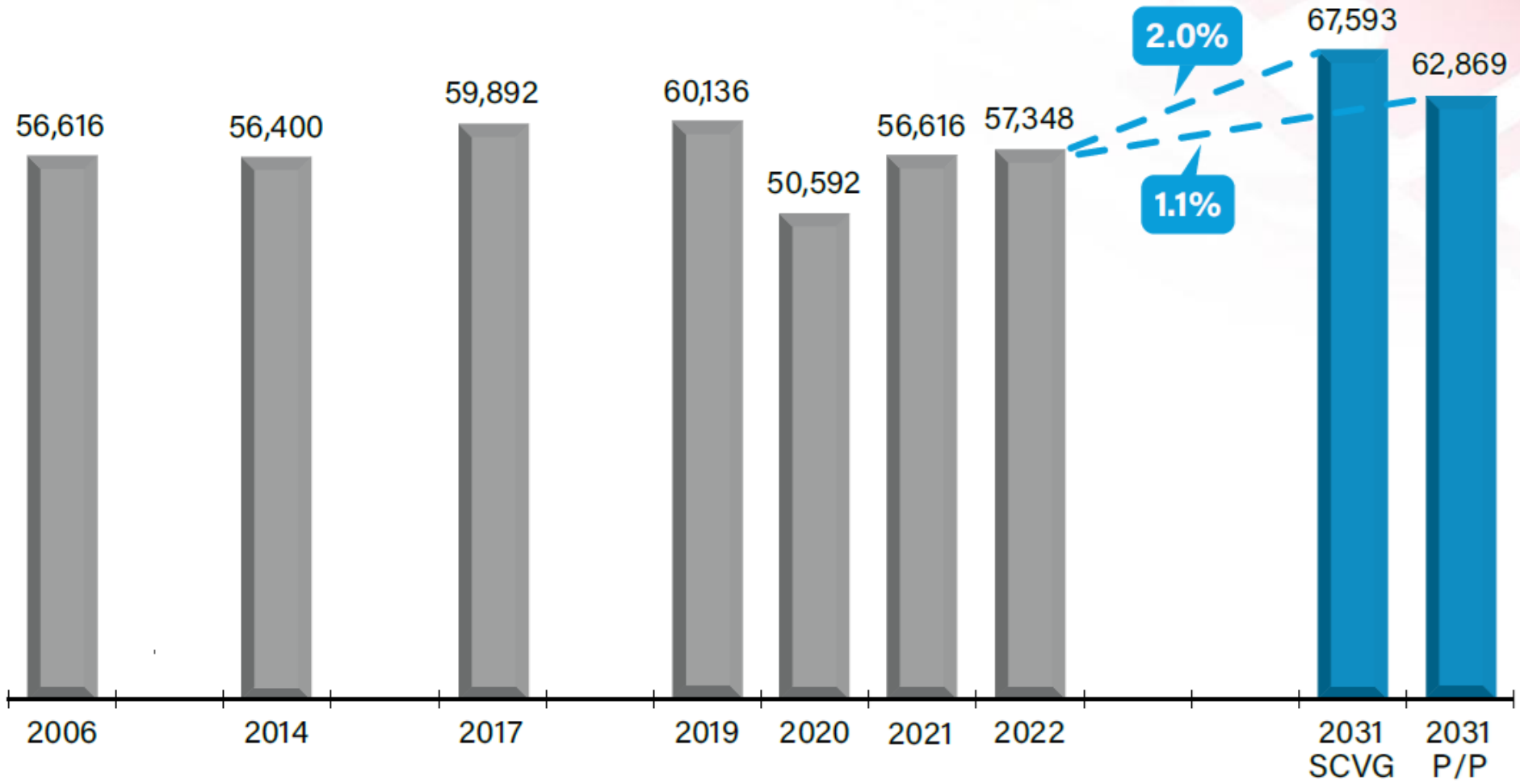
- **Telework**
- **Driver's Licenses**

VMT Reduction - MTP Target

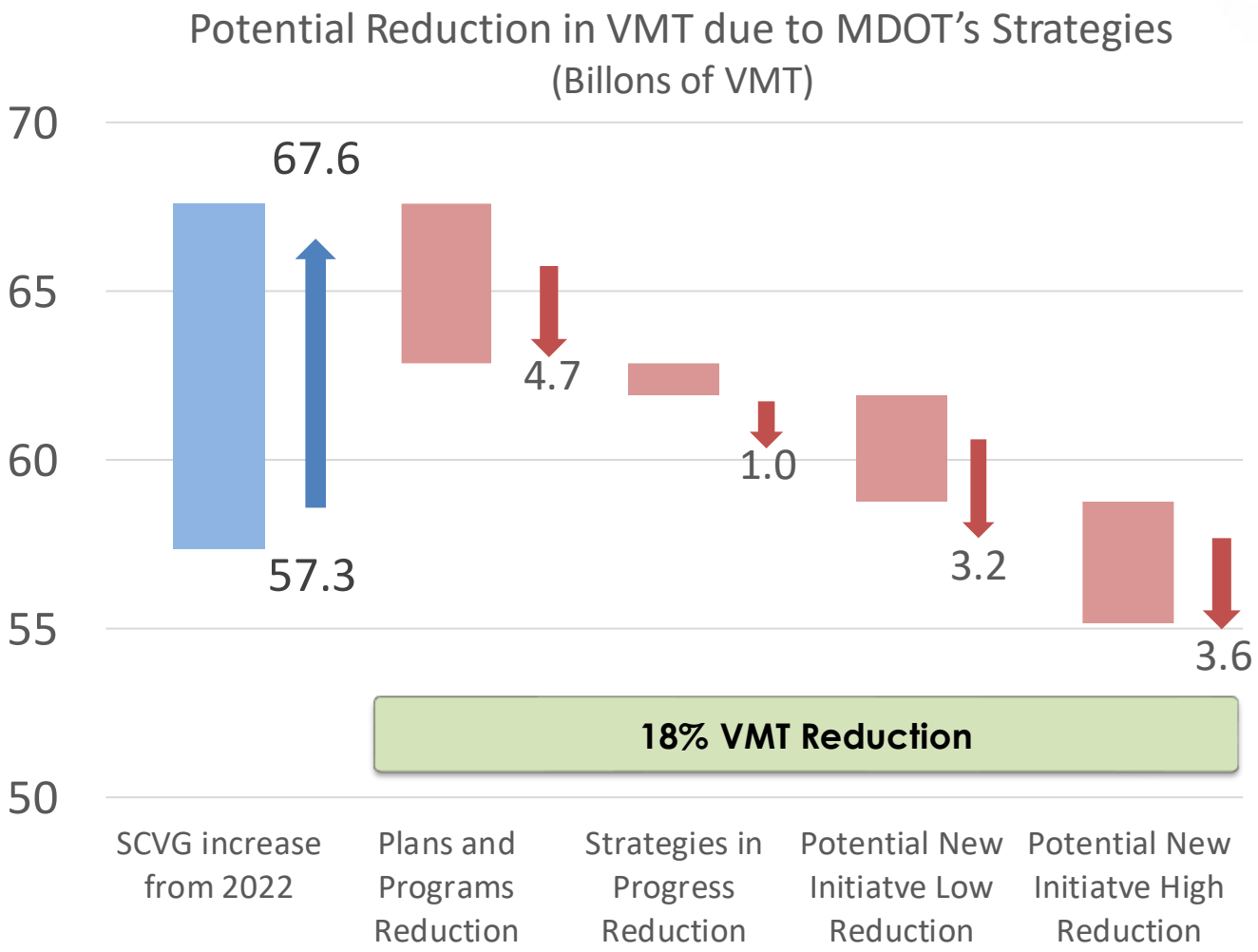
MTP Target: 20% reduction by 2050 *(from 2019 levels)* – Per capita annual VMT



VMT – Trends and Projections



VMT Reduction



Avoid - Trip reduction

- Transportation demand management, parking pricing initiatives, and telework

Avoid - Trip consolidation

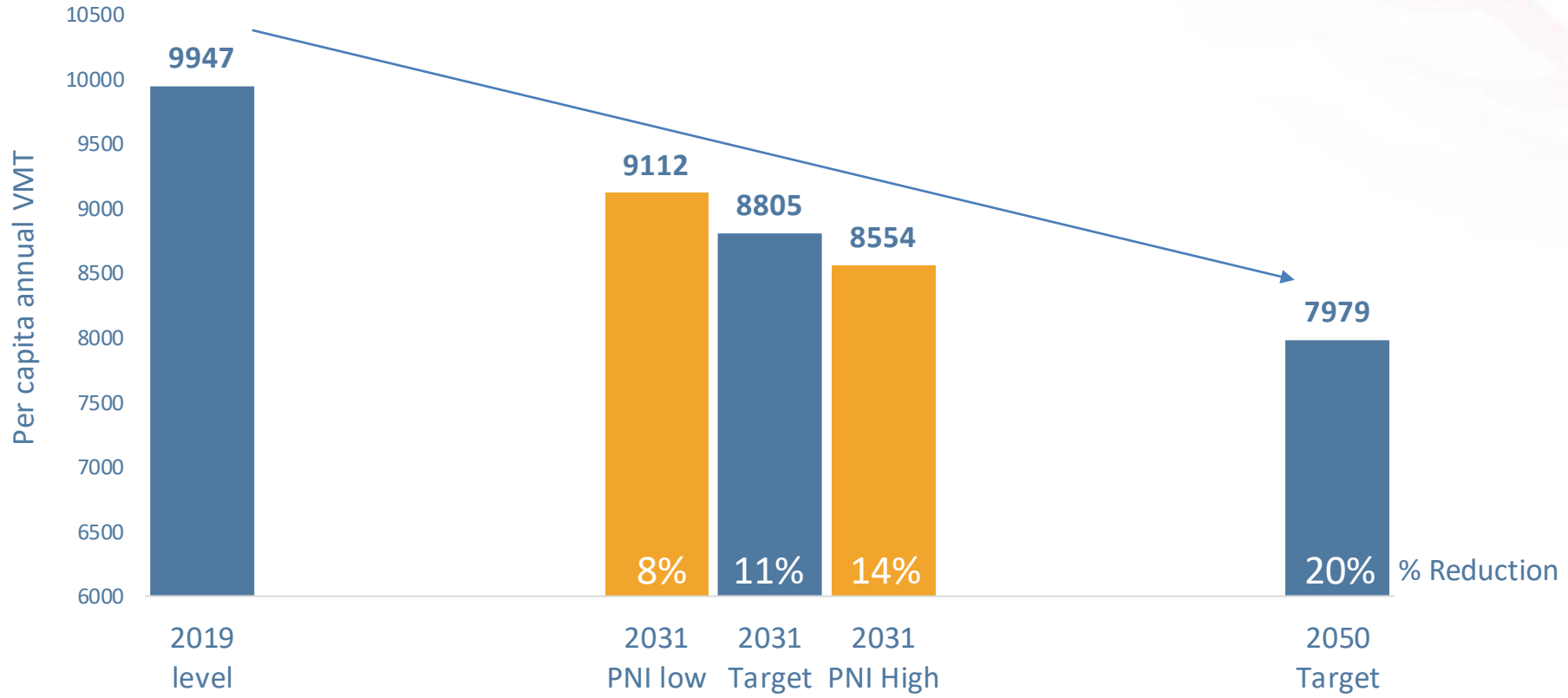
- Carpooling, vanpooling, trip chaining, freight consolidation.

Shift - Mode shift

- Transit (bus, rail, and intercity transit), bicycle and pedestrian infrastructure, freight rail

VMT Reduction

MTP Target : 8 - 14% reduction by 2031 *(from 2019 levels)* – Per capita VMT



VMT Reduction Strategies - Implementation Considerations

Consideration for Strategy Inclusion

High Feasibility

Factors estimated (quantified):

- **GHG Reduction Potential**
- **Cost Effectiveness**

1. **Funding -** currently funded - (All SP strategies)
2. **Authority** - Within MDOT control - e.g., Expanded Bike Ped
3. **Technological maturity** - e.g., electronic tolling
4. **Timeline** for Completion – e.g., Transportation Demand Management (TDM)

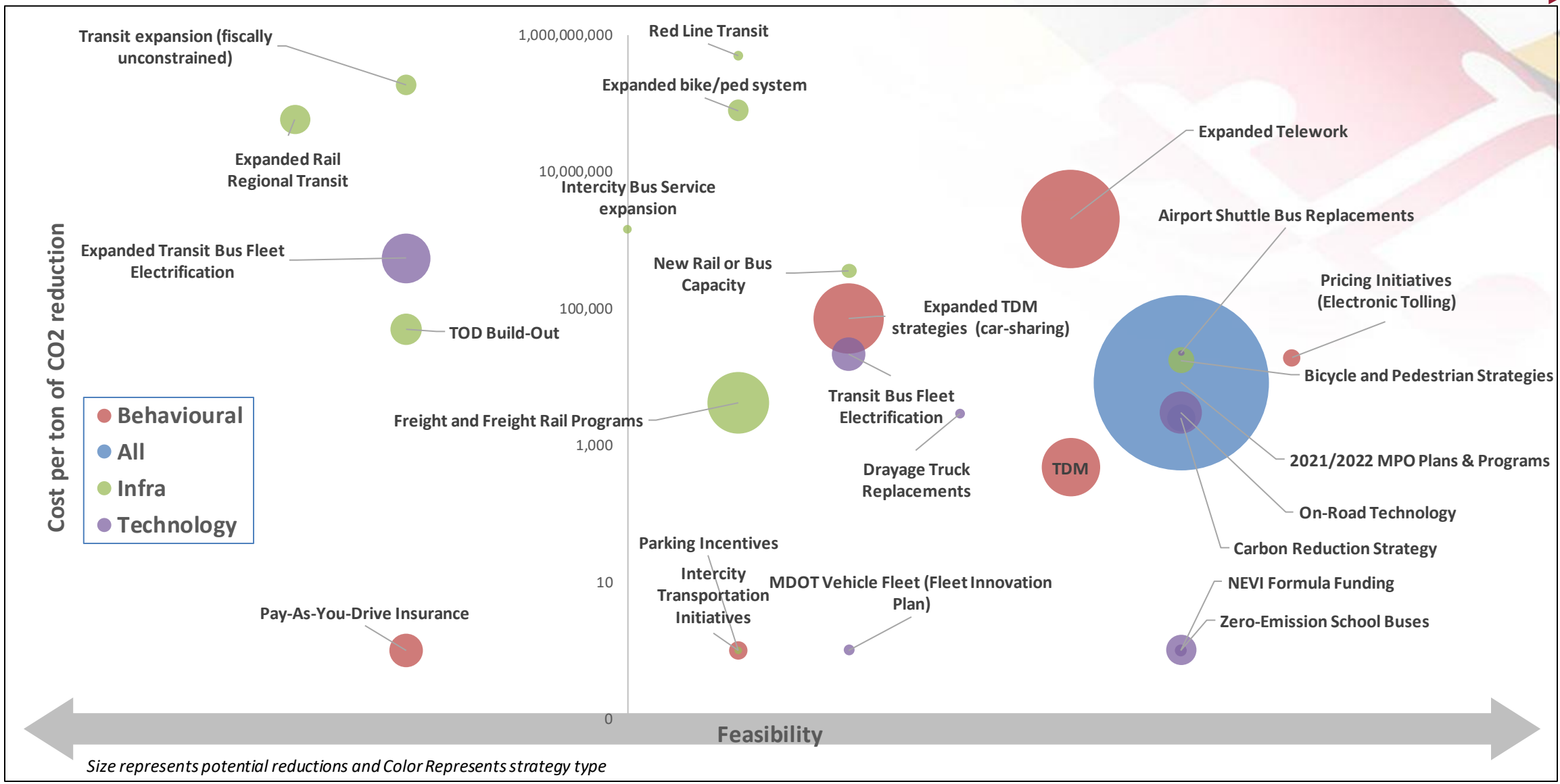
1. **Funding** - currently unfunded
2. **Authority** – Limited MDOT control - e.g., Pay-as-you-Drive Insurance
3. **Technological maturity** - e.g., Transit bus Electrification
4. **Timeline** for Completion – e.g., Transit-Oriented Development (TOD)

Low Feasibility

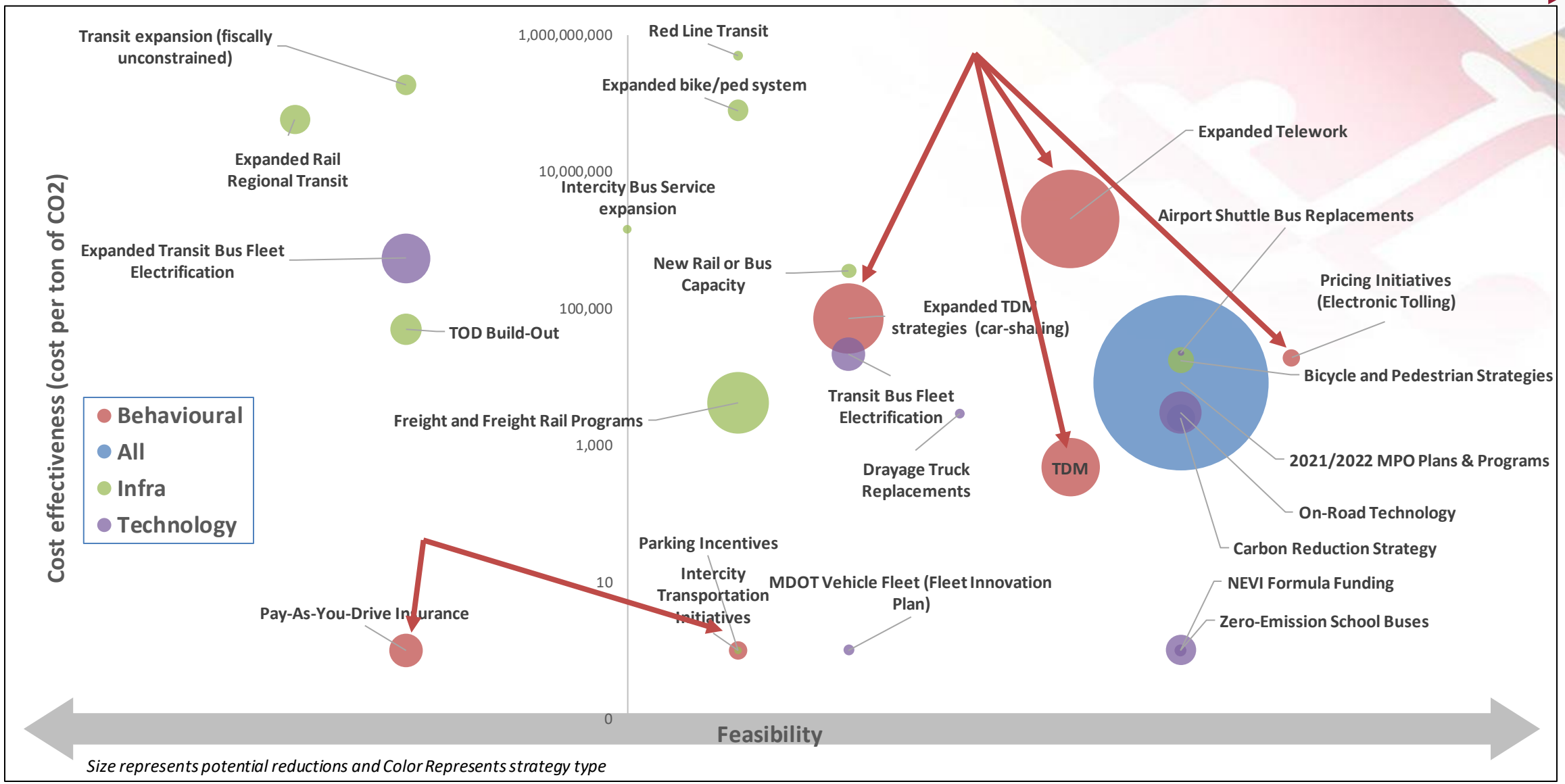
Factors requiring further study:

- Land use
- Enabling policy
- Community readiness

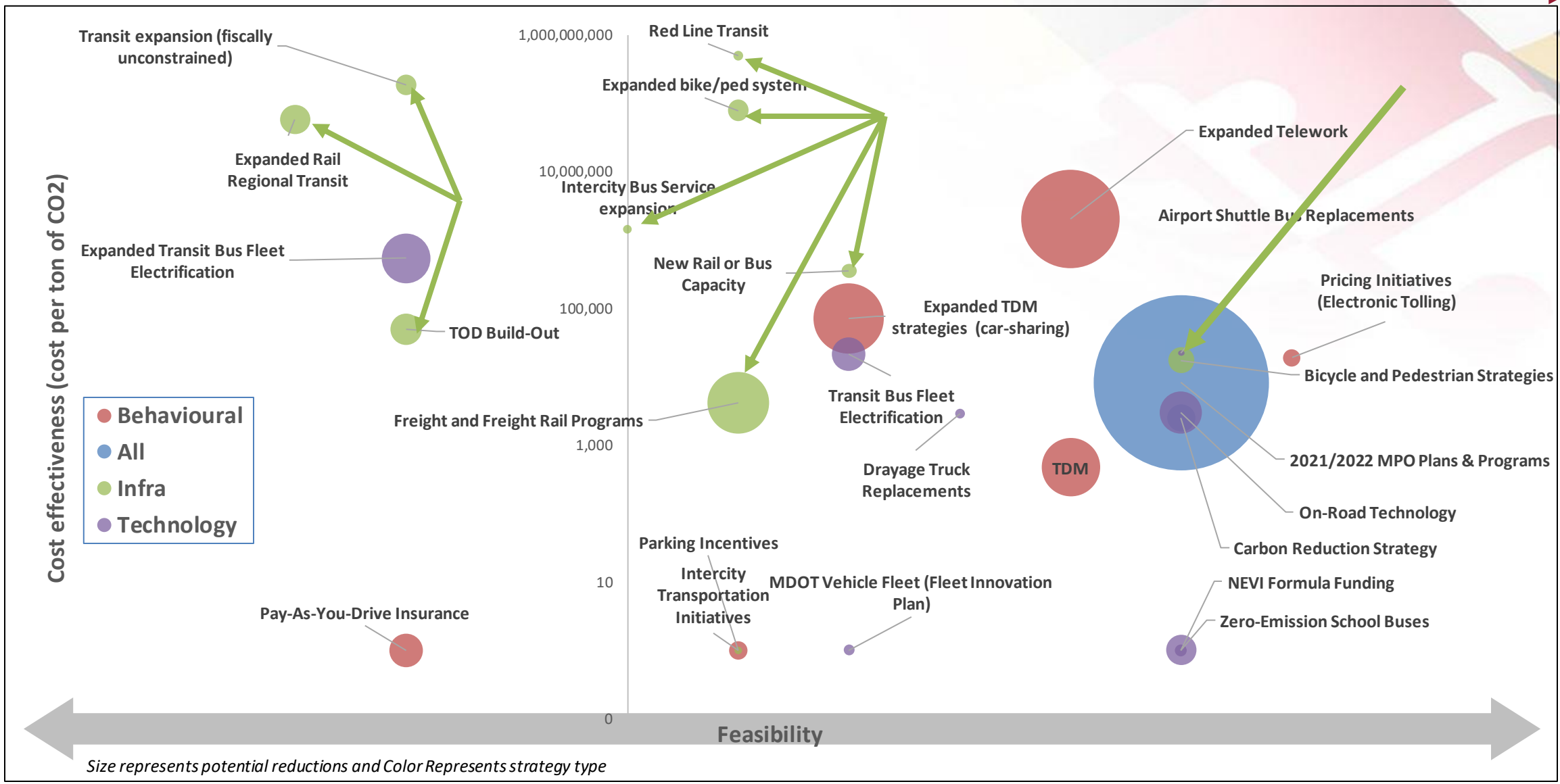
Feasibility vs Cost-effectiveness



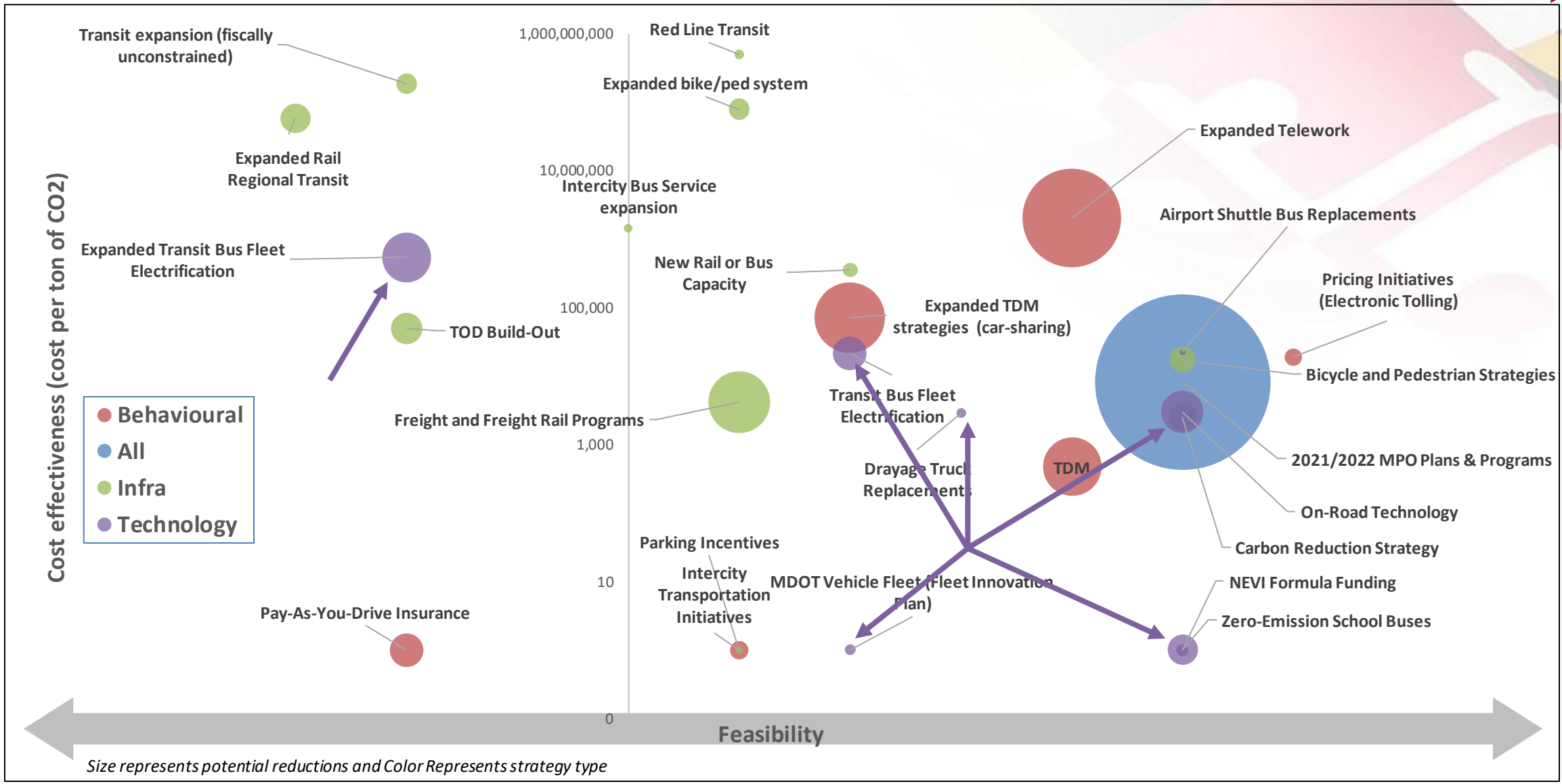
VMT Reduction Strategies - Behavioral



VMT Reduction Strategies - Infrastructure



VMT Reduction Strategies - Technology



Next Steps and Recommendations

- Continued Efforts in Understanding:
  - Land-use and transportation interactions
  - Community readiness for strategy implementation (place-type, equity)
  - Enabling Policy – partnerships, incentives, legislation, etc.
  - Impacts of e-VMT
    - VMT as a measure
    - Impacts on congestion – productivity and quality of life
    - Particulate Matter (PM) emissions
    - Roadway maintenance and state of good repair

- Synergies – geographic (context, place-type, and corridor) and temporal synergies (phasing, incremental building-out).

- Pilot studies and incorporating into MWG recommendations

Thank you!