North Jersey Transportation Planning Authority
Greenhouse Gas Reduction Plan

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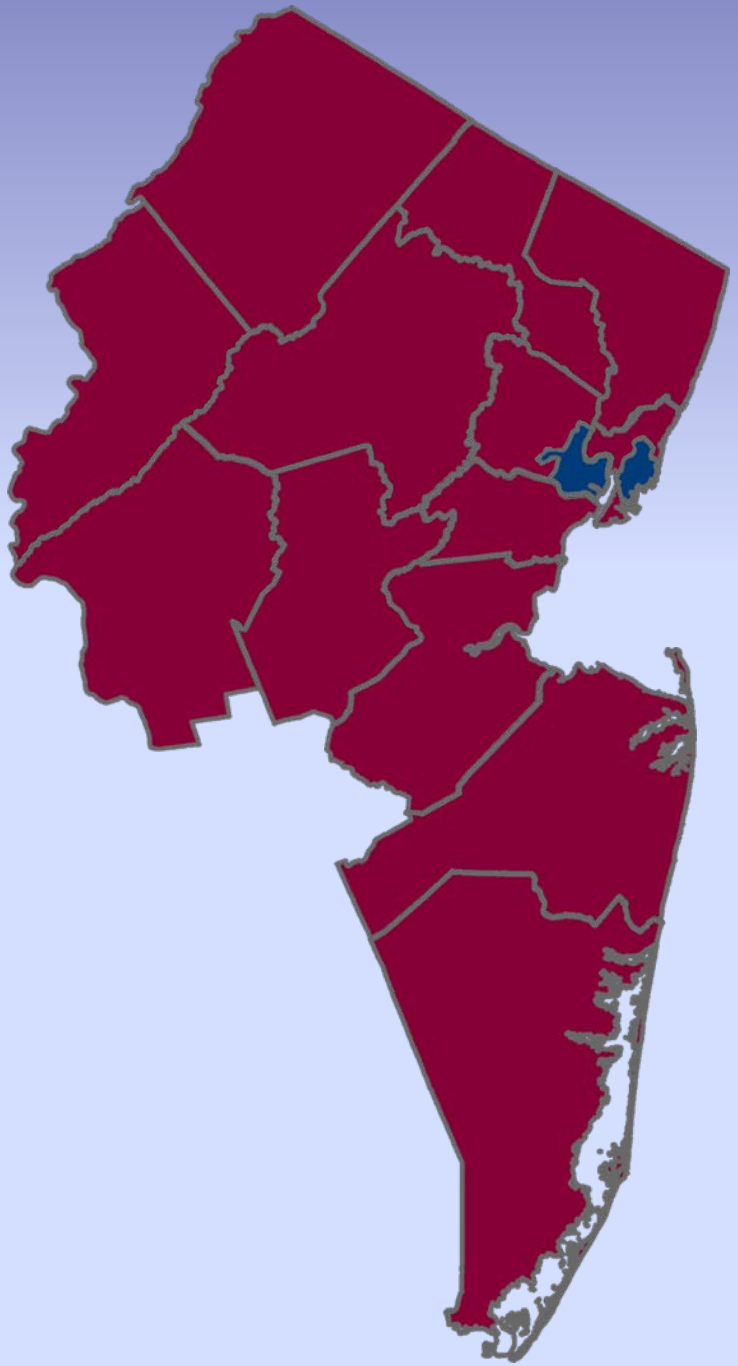
NJTPA

NJTPA Region

Bergen
Essex
Hudson
Hunterdon
Jersey City
Middlesex
Monmouth
Morris
Newark
Ocean
Passaic
Somerset
Sussex
Union
Warren



NJTPA

North Jersey Transportation Planning Authority

The Metropolitan Planning Organization for Northern New Jersey

STANDING COMMITTEES

Planning & Economic Development Committee

Project Prioritization Committee

Freight Initiative Committee

Regional Transportation Advisory Committee

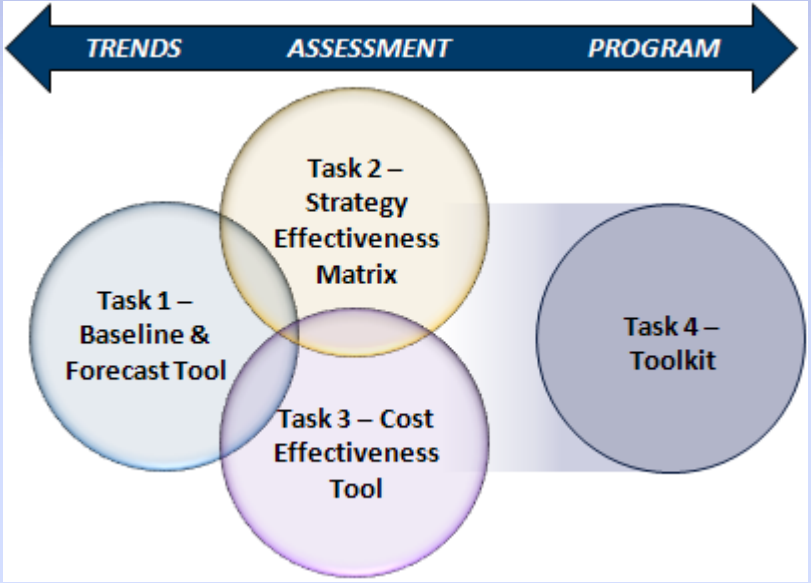
NJTPA

Project Objectives

- **Develop an on-road mobile source GHG emissions baseline through 2050 & develop alternative forecasts**
- **Develop GHG reduction strategy and strategy bundle definitions tailored to be consistent with northern New Jersey context**
- **Evaluate strategies at the regional, county, and municipal scale and present all results through the development of a Strategy Effectiveness Matrix**

Project Work Plan

- **Task 1 – Enhancing the Baseline Forecast of GHG Emissions in the Transportation Sector**
- **Task 2 & 3 – Develop Strategies and Evaluate Effectiveness and Cost Effectiveness in Reducing GHG Emissions**
- **Task 4 – Integrate GHG Reduction Recommendations in a web-based tool**



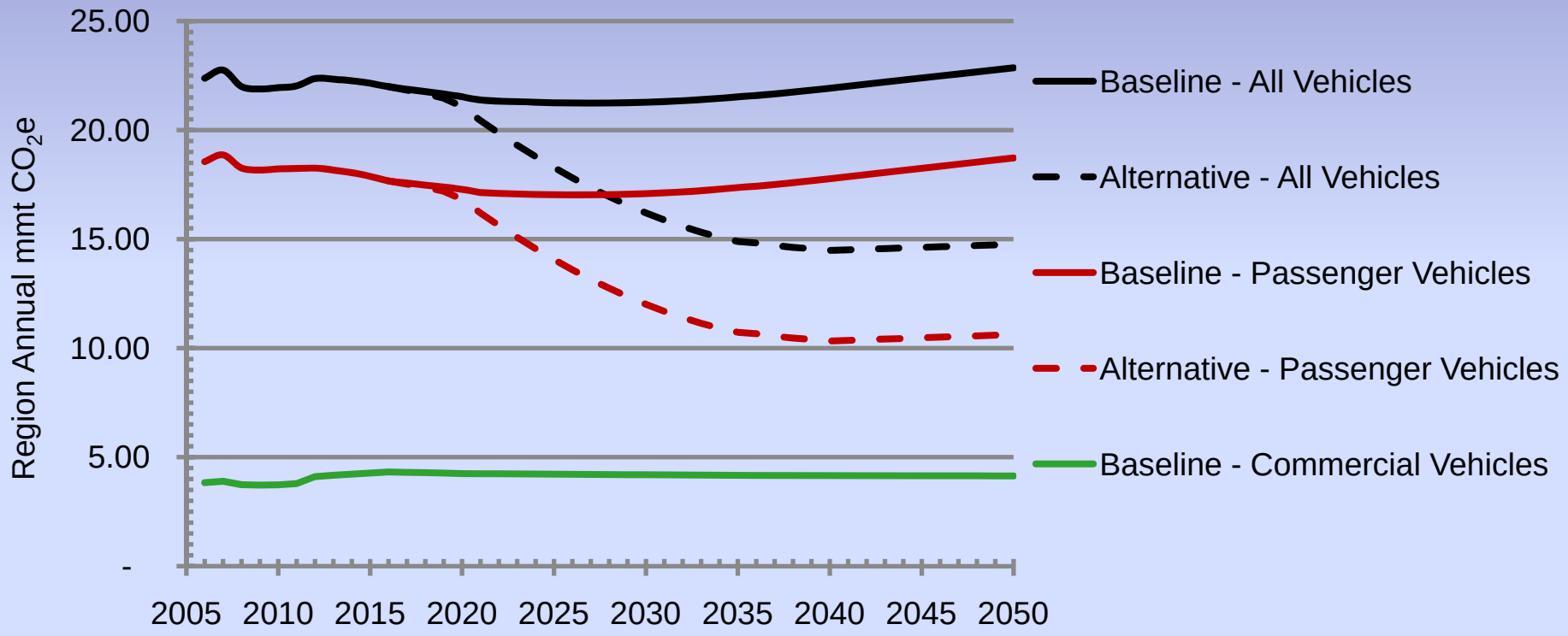
Baseline & Alternative GHG Emission Forecasts

- **Near Term Regulatory Changes**
  - ***Adopted 2017-2025 light duty vehicle (LDV)*** **fuel economy/greenhouse gas emission standards**

- **Long Term/Uncertain Regulatory and Other Market Changes**
  - **Additional 2026-2050 light duty vehicle (LDV) fuel economy/greenhouse gas emission standards**
  - **Additional 2019-2050 medium and heavy duty truck (MDV/HDV) fuel economy/ greenhouse gas standards**
  - **Increased adoption/penetration rates of hybrid and electric vehicles and/or more stringent fuel standards**

Baseline & Alternative Emissions Analysis

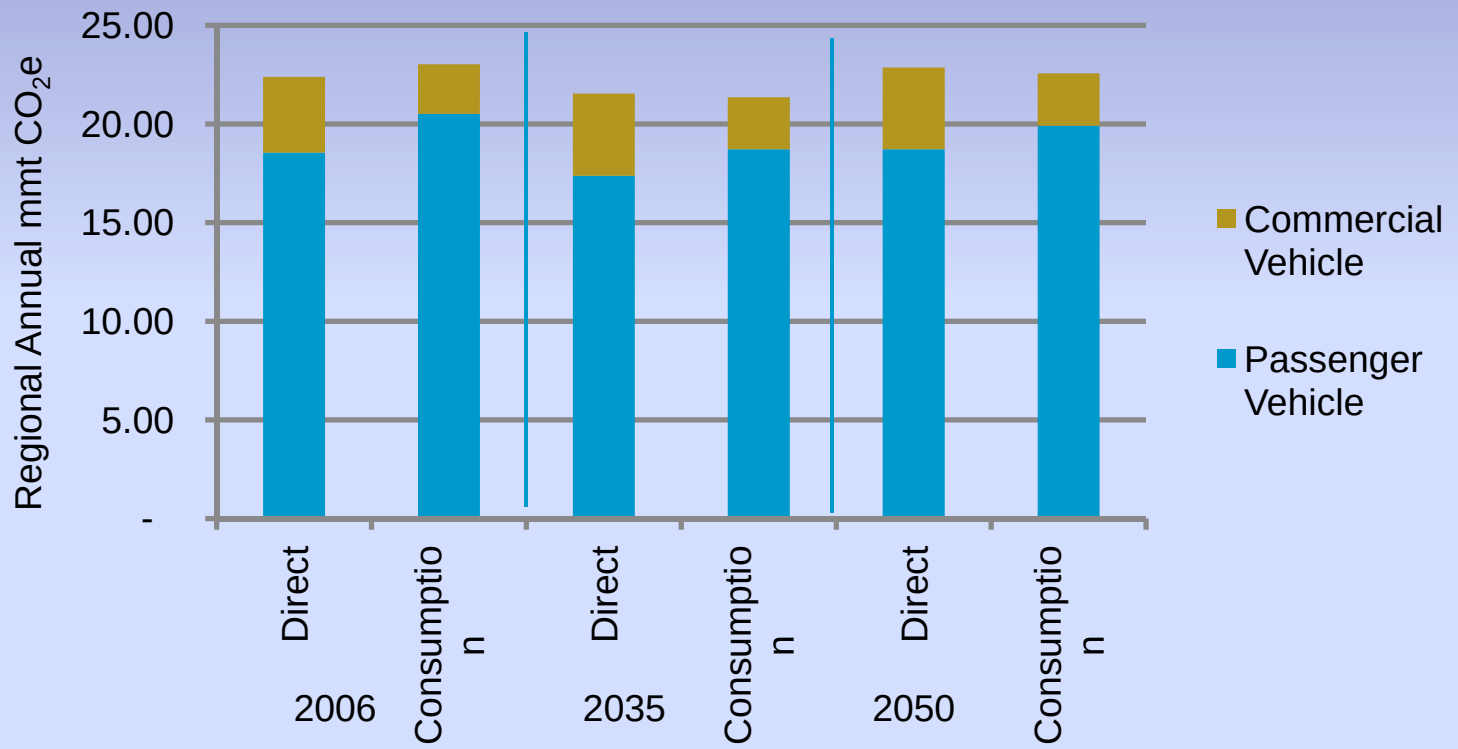
Regional Results



- **0.7% annual VMT growth rate (2006 – 2050)**
- **2050 Baseline (all) – 2% increase from 2006**
- **2050 Alternative Baseline (all) – 43% decrease from 2006**

Baseline & Alternative Emissions Analysis

Regional Results



Higher passenger vehicle consumption-based emissions (7–10% higher than direct)

Lower commercial vehicle consumption-based emissions (35–37% lower than direct)

GHG Reduction Strategies Identification

Strategy Definition, Review and Evaluation

Objective – To define and assess a set of GHG reduction strategies for the on-road mobile transportation sector that are consistent with regional and local transportation and land use goals

1. **Strategy Definition**

2. **Strategy Filtering with Stakeholder Review & Comment**

3. **Develop Evaluation Approach**

4. **Evaluate GHG Reductions & Develop Analysis Tool**

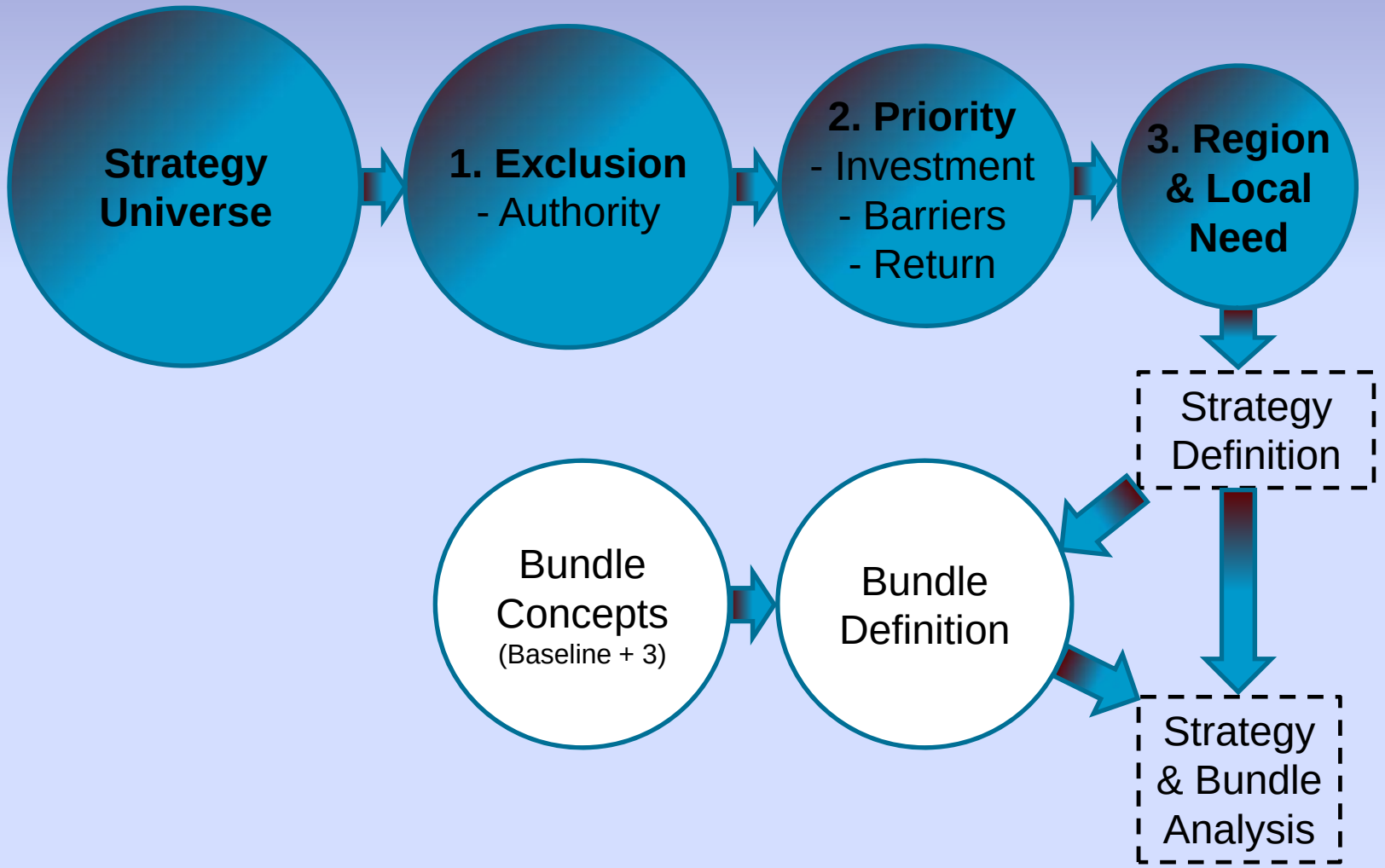
GHG Reduction Strategies Identification

Strategy Definition, Review and Evaluation

- **Strategy Definition**
  - **Appropriate level of detail to permit evaluation**
  - **Scale of evaluation (regional or local)**
  - **Levels of deployment intensity**
  - **Agency(s) responsibility for implementation**
  - **Geographic application of strategies within the NJTPA region**
  - **Barriers to implementation (regulatory, political, technological, fiscal)**
  - **Timeline for implementation (short – mid – long-term)**

GHG Reduction Strategy Screening

Strategy Identification and Evaluation Process



Strategy Identification
VMT Strategies

- Strategies target multiple approaches to reduce VMT through land use, mode shift, demand management, and pricing.
  - Transit-oriented development
  - Freight-oriented development
  - Complete streets
  - Ridesharing
  - Commuter outreach and incentive programs, TMAs
  - Telecommuting and alternative work schedules
  - Parking pricing
  - Bus and rail transit quality of service
  - VMT taxes
  - PAYD insurance

Strategy Identification
System Efficiency Strategies

- Strategies target multiple approaches to improve system efficiency and reduce delay through network management and ITS, system preservation, and strategic capacity enhancement.
  - Arterial system management
  - Active traffic management
  - Limited access system management
  - Arterial system preservation
  - Time of day truck operation policies
  - Intermodal freight center access
  - Freight rail capacity constraints

Strategy Identification
Vehicle and Fuel Technology Strategies

- Strategies target multiple approaches to reduce carbon intensity of fuels and passenger and freight travel through a combination of incentives, regulation, and partnerships.
  - » Electric vehicle planning, purchasing incentives, and support programs
  - » Incentives for AFV fleet purchasing and fueling infrastructure
  - » SmartWay program for drayage trucks and truck phase-out program
  - » Commercial vehicle truck idling

GHG Mitigation Strategies and Bundles

	Strategy	Geography	Implementation Timeline[2]	Lead Time to Full Effectiveness[3]	Travel Market
VMT Reduction	Smart Growth Incentives	Place type	Long	Long	Passenger
	Transit Oriented Development	Place type	Long	Medium	Passenger
	Freight Oriented Development (Freight Villages)	Region	Long	Long	Commercial
	Complete Streets (Bike/Transit)	Place type	Medium	Short	Passenger
	Complete Streets (Ped/Transit)	Place type	Medium	Short	Passenger
	Carpool/Vanpool Incentive Programs and Ridesharing	Place type	Short	Immediate	Passenger Commute
	Commuter Outreach/Incentive Programs (TMAs)	Place type	Short	Immediate	Passenger Commute
	Telecommuting and Compressed Work Week Targets	Place type	Short	Immediate	Passenger Commute
	TDM Mini Bundle [1]	*Place type*	*Short*	*Immediate*	*Passenger Commute*
	Parking Pricing and Supply Management	Place type	Medium	Short	Passenger Commute
	Bus Transit Quality and Reliability of Service	Place type	Medium	Short	Passenger
	Rail Transit Quality and Reliability of Service	Place	Long	Medium	Passenger
	VMT or Carbon Tax	Region	Long	Immediate	Passenger
	PAYD Insurance	Region	Medium	Short	Passenger
System Efficiency	Arterial System Management	Place type	Medium	Immediate	Arterial All
	Limited Access System Management	Place type	Medium	Immediate	Limited Access All
	Limited Access Incident Management	Place type	Medium	Immediate	Limited Access All (incident delay)
	System Preservation/Corridor Access Management	Place type	Medium - Long	Immediate	Arterial All
	Truck Route/Time-of-Day Truck Operation Policies	Place type	Short	Immediate	Commercial (Peak to Off-peak)
	Intermodal Freight Centers Access Improvement	Place type	Long	Immediate	Commercial ("Last Mile")
	Freight Rail Capacity Constraints	Region	Long	Medium	Commercial (Inter-region/state)
Fuel & Technology	PEV Readiness Plan Development and Implementation	Region	Medium	Long	Passenger Vehicle
	Clean Fuel Standard (or similar approach)	Region	Medium	Long	Passenger Vehicle
	AFV Grants & Fleet/Fueling Equipment Subsidies	Region	Medium	Short	Commercial
	PANYNJ SmartWay Trucks & Phase-Out Program	Place	Medium	Short	Commercial (Drayage trucks only)
	Commercial Vehicle Idle Reduction	Region	Medium	Short	Commercial (Extended idling only)

Note: 1) Mini-bundle accounts for overlap between programs that provide incentives for ridesharing and parking cash-out, plus alternative work schedules.
Note: 2) Time required to implement: Short (<= 1 year), Medium (2-5 years), Long (5+ years)
Note: 3) Time required for implemented strategy to reach full potential: Immediate (<3 years), Short (<10 years), Medium (10-20 years), Long (20+ years)

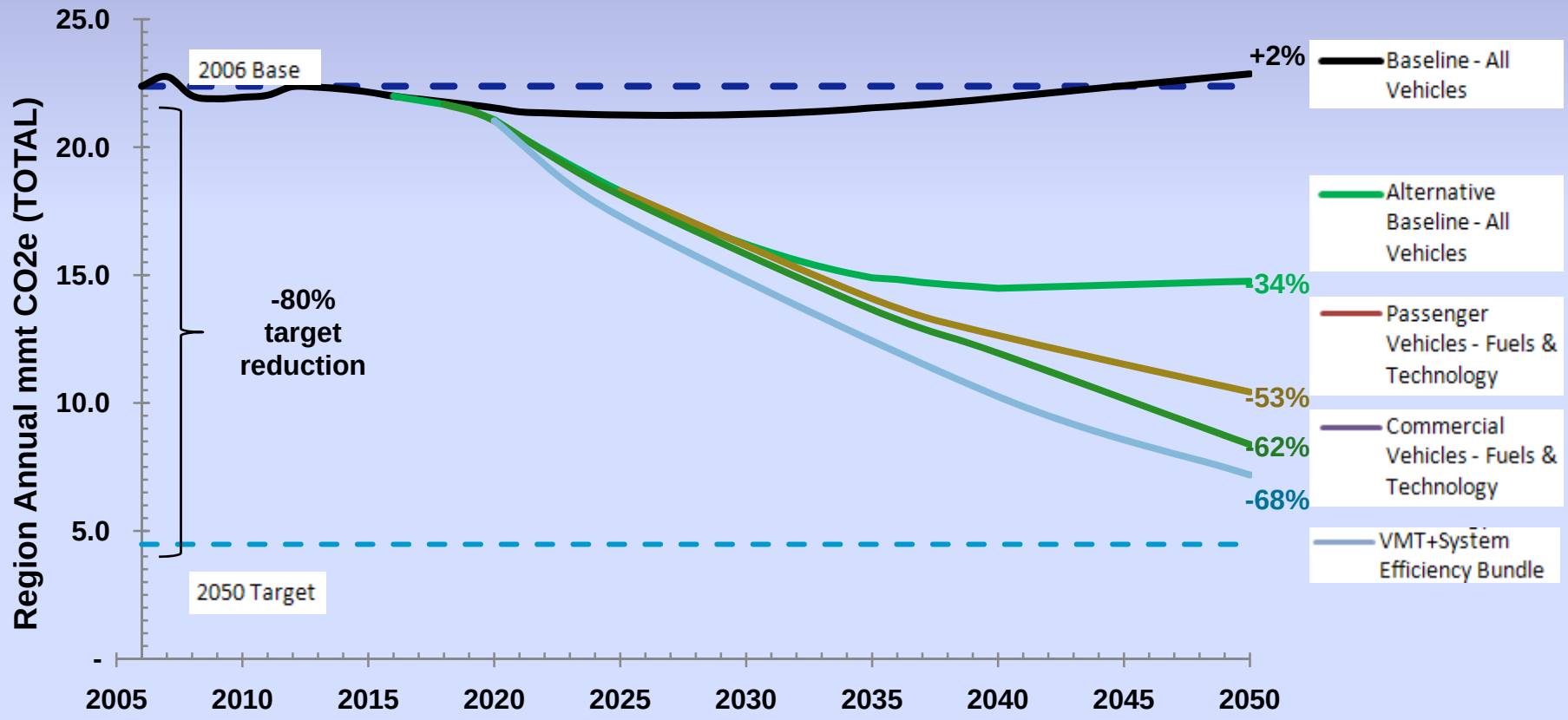
GHG Reduction Strategy Analysis

VMT Reduction Focus	GHG Emission Reduction[3]											
	2025 - Medium Range Deployment				2040 - Medium Range Deployment				2040 - High Range Deployment			
VMT Reduction Strategy Group	Urban	Metro	Suburb	Rural	Urban	Metro	Suburb	Rural	Urban	Metro	Suburb	Rural
Total Bundle Reduction (PV VMT)[1]	13.8%	11.4%	8.8%	3.8%	16.7%	15.0%	14.9%	5.0%	20.3%	21.1%	19.8%	8.0%
excluding VMT/PAYD	12.0%	10.0%	8.8%	2.0%	10.0%	8.3%	7.3%	1.7%	14.2%	15.8%	10.0%	3.2%
Total Bundle Reduction (All VMT)[1]	13.1%	10.8%	8.4%	3.6%	15.9%	14.2%	14.1%	4.7%	19.2%	20.1%	18.8%	7.6%
excluding VMT/PAYD	11.4%	9.5%	8.3%	1.9%	9.5%	7.9%	6.9%	1.6%	13.5%	15.0%	9.5%	3.0%

System Efficiency Focus	GHG Emission Reduction[3]											
	2025 - Medium Range Deployment				2040 - Medium Range Deployment				2040 - High Range Deployment			
Delay Reduction Strategy Group	Urban	Metro	Suburb	Rural	Urban	Metro	Suburb	Rural	Urban	Metro	Suburb	Rural
Total Bundle Reduction (PV Delay)[2]	17.7%	15.9%	18.7%	5.4%	14.8%	13.3%	15.6%	4.5%	15.7%	14.2%	25.4%	4.5%
Total Bundle Reduction (All Delay)	18.5%	16.4%	18.8%	5.1%	15.4%	13.7%	15.7%	4.3%	16.7%	14.9%	25.6%	4.3%

Technology and Fuels Focus		GHG Emission Reduction[3]											
		2025 - Medium Range Deployment				2040 - Medium Range Deployment				2040 - High Range Deployment			
Emission Reduction Strategy Group	Travel Market	Urban	Metro	Suburb	Rural	Urban	Metro	Suburb	Rural	Urban	Metro	Suburb	Rural
Passenger Vehicles - PEV Market	Passenger	0.0%				15.1%				27.8%			
Passenger Vehicles - Clean Fuels	Passenger	0.0%				2.8%				2.8%			
Commercial Vehicles - Incentive Programs	Commercial	2.1%				13.4%				23.0%			
Commercial Vehicles - Zero/Clean Idling	Commercial	1.9%				3.2%				3.2%			
Total Bundle Reduction (PV GHG Emissions)	Passenger	0.0%				17.8%				30.5%			
Total Bundle Reduction (CV GHG Emissions)	Commercial	4.0%				16.6%				26.2%			
Total Bundle Reduction (All Emissions)	Both	0.9%				17.5%				29.3%			

GHG Reduction Analysis – All Strategies and Bundles



Remaining Tasks

- **Complete GHG Reduction Strategy Cost-Effectiveness Matrix**
- **Evaluate GHG Reduction Strategy Co-benefits (air quality benefits)**
- **Develop web-based toolkit for counties and municipalities to obtain GHG mitigation planning guidance**

Visit the NJTPA Climate Initiative for more information

http://www.njtpa.org/Plan/Element/Climate/ClimateChangeInitiative.aspx