

# Maine Climate Council

## Transportation Working Group Meeting

### Co-Chairs:

Jeff Crawford, Maine Department of Environmental Protection

Joyce Taylor, Maine Department of Transportation



GOVERNOR'S OFFICE OF  
Policy Innovation  
and the Future



MAINE DEPARTMENT OF  
Environmental Protection



March 13, 2024

# TWG Meeting Topics and Schedule

## Priority Conversations:

- 1) Supporting electric vehicle (EV) and EV charging infrastructure expansion (meeting 2/26)
- 2) Transitioning from single occupancy vehicles in rural and urban/suburban areas - reduce VMT (meeting 3/13)
- 3) Investigating alternative fuels - informed by medium- and heavy-duty roadmap (meeting 4/10)
- 4) Adaptation and resilience (meeting TBD)

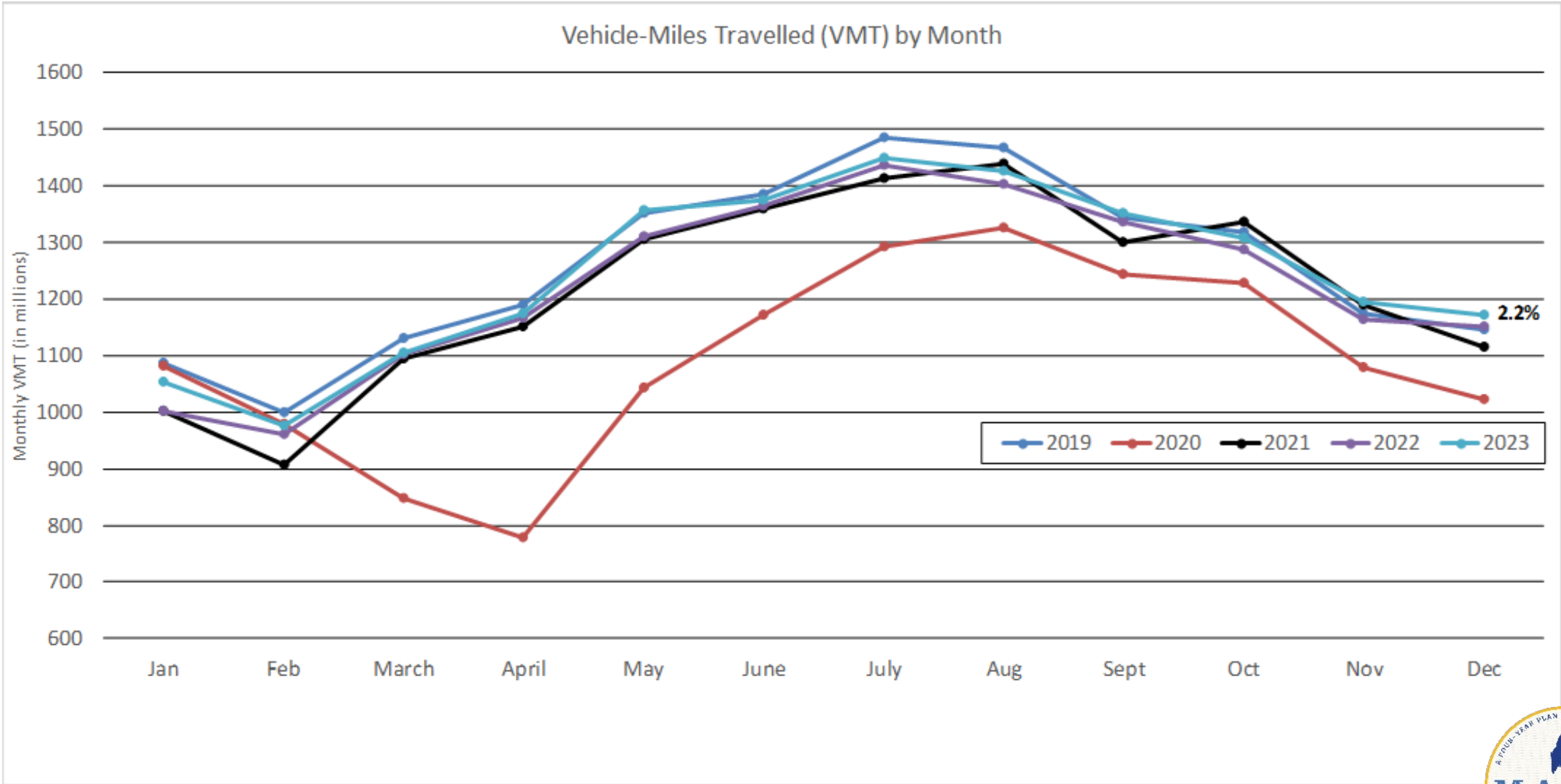
## Cross Cutting issues for further discussion:

- 1) Construction materials
- 2) Land-use
- 3) Marine emissions
- 4) Electricity demand management

# Meeting Agenda

1. Center ourselves in the data
  - Review Maine Won't Wait goals and actions
  - Recap of completed and ongoing work
  - Review existing VMT studies and tools
2. Develop recommendations for Maine's updated Climate Action Plan
  - Plenary and small group conversation
3. Consolidating our thinking
4. Finish by 3:45pm to check out some EVs outside

# VMT by Month



# Reducing Vehicle Miles Traveled (VMT)

- Modeling for Maine Won't Wait showed we needed significant VMT reduction.
- VMT actions included:
  - Reduce light-duty VMT by 20% by 2030.
  - Reduce heavy-duty VMT by 4% by 2030.
  - By 2024, establish state coordination, strengthen land-use policies, and use state grant programs to encourage development that supports the reduction of VMT
  - Goals for broadband and public transportation

# Equity Goal: Expand access to affordable, efficient, and safe active, shared, and public transportation for disadvantaged populations

- Innovative Clean Transit Pilots
- Public education on shared rides and health
- Provide access to transit and active transportation baseline data

# Completed & Ongoing Work

- Many state and local plans, policies, and pilot programs support VMT reduction goal
- Implementation and results ongoing
- Reference the handout with comprehensive information on various incentives



# Data on Benefits of VMT Reduction Strategies

- There is no silver bullet; we are data poor
- Some studies show relative benefits and cost effectiveness of different VMT reduction strategies
  - SHRP 2 Report - Incorporating Greenhouse Gas Emissions into the Collaborative Decision-Making Process (2012)
  - Rhode Island Clean Transportation & Mobility Innovation Rhode Report (2020)
  - Vermont Transportation Carbon Reduction Strategy (2023)
  - RMI Minnesota - Analysis: Minnesotans Would Save up to \$91 Billion for Climate-Smart Transportation
  - RMI Smarter MODES Calculator (doesn't distinguish btw strategies)



# 2012 SHRP 2 Report

- Useful information on GHG benefit, cost effectiveness, and feasibility for:
  - Transportation system design and operations
  - Land use
  - Pricing
  - Travel Demand Management
  - Public Education
- Comprehensive list of strategies
- Data is dated (report is 12 years old)
- Does not provide VMT reduction by strategy

# Rhode Island Clean Transportation Report

Table 6. Cost-Effectiveness of Clean Transportation Strategies

Strategy	GHG	PM2.5	New non-SOV trips	Jobs	Health benefits
Light duty EVs	+++	+++	-	+	++
Electric transit buses	+++	+++	-	+	+++
Electric school buses	+++	+++	-	+	++
Electric trucks	+++	+++	-	++	++
Hydrogen trucks	+++	+++	-	++	++
Shared ride incentives	+	+	+++	+	+
Micromobility: Shared e-scooters & e-bikes	+	+	++	+	++
Micromobility: E-bike ownership	++	++	+++	+	++
Land use/smart growth	+++	++	-	++	++
Bicycle investment	++	++	+++	++	+++
Pedestrian investment	+	+	+++	++	+++
Travel demand & mobility management	++	++	+++	++	++
Bus rapid transit	+	+	+++	++	+
Commuter/intercity rail	+	+	++	++	+
Bus service: Expansion	+	-	++	+++	+
Bus service: Efficiency	++	+	++	+++	++
Electric microtransit	+	+	+++	++	+
Traffic flow improvements	+++	-	-	+++	-

Table 5. Benefits Key

Benefits Range	GHG tons/\$M	PM2.5 lbs/\$M	New non-SOV trips per \$M	New jobs per \$M	Value of health benefits per \$M
-	<10	<1	<1,000	<1	<\$0.1M
+	10 – 100	1 – 10	1,000 – 50,000	1 – 10	\$0.1 – \$0.25M
++	100 – 1,000	10 – 100	50,000 – 250,000	10 – 20	\$0.25M – \$2.5M
+++	>1,000	>100	>250,000	>20	>\$2.5M

Note: A typical car emits about 4 to 5 tons of GHG per year, so 100 tons is equivalent to taking 20 cars off the road, and 1,000 tons is equivalent to taking 200 cars off the road.

Electrification, land use and traffic flow improvements have greatest cost-effectiveness for emissions reductions

Source: Rhode Island Clean Transportation and Mobility Innovation Report (2020)



# Vermont Transportation Carbon Reduction Strategy

Table 3-6 Evaluation of Potential GHG Reduction Strategies

Strategy	Implementation Assumptions	CO <sub>2</sub> Reduction (2030 metric tons)	% of 2030 Gap Closed	Estimated Cost Through 2030 (\$M)
Bicycle and pedestrian network expansion	Build an additional 150 directional miles of new bicycle lanes and shared use paths and 150 directional miles of widened shoulders statewide (outside Chittenden County); build out proposed bicycle facilities from Chittenden County Active Transportation Plan to roughly double the amount of bicycle infrastructure in the county; increase sidewalk coverage across the state. Complete half of the buildout by 2030.	220	0.1%	55.7
Transit service expansion	Increase Green Mountain Transit Bus Service from 20 to 15-minute frequencies (30% service increase). Expand rural fixed-route bus service to include weekend service (34% service increase).	690	0.1%	44.0

Table 3-8 Combined Strategy Effects

Scenario	Strategies	CO <sub>2</sub> Reduction (2030 metric tons)	% of 2030 Gap Closed	Estimated Cost Through 2030 (\$M)
1	Transportation investment and services	6,500	1.6%	\$141.8
2	Transportation + land use + broadband	17,600	4.3%	\$333.5
3	Transportation + land use + broadband + Advanced Clean Fleets + feebates	73,000	17.8%	\$412.8
	<b>Gap</b>	<b>450,000</b>		

Table 3-9 Cost-Effectiveness and Co-Benefits of Carbon Reduction Strategies<sup>a</sup>

Strategy	GHG Emissions	Air Quality (particulate emissions)	Mobility (new non-SOV trips)	Health (cost savings)
Bicycle and Pedestrian Network	++	++	+++	+++
Transit: Service Expansion	+	-	+++	+
Micromobility	++	++	+++	++
Travel Demand Management	++	++	+++	++
Transit: Vehicle Electrification	+++	+++	-	++
Telework	++	+++	-	-
Land Use	+++	++	-	+++
Advanced Clean Fleets	+++	+++	-	++
Feebates	+++	-	-	-

<sup>a</sup>More "+" signs means a higher cost-effectiveness, based on public sector implementation costs. See Appendix D, Section D.10 for a legend and description of the co-benefits analysis.

Similar results to RI study...

Source: Vermont Transportation Carbon Reduction Strategy (2023)



# Analysis: Minnesotans Would Save up to \$91 Billion from Climate-Smart Transportation

- High level article
- Highlights co-benefits of reducing VMT (operating costs, injuries, health)

# Rocky Mountain Institute (RMI) Smarter MODES Calculator: Smarter Mobility Options for Decarbonization, Equity and Safety

- The tool looks at the impact of different VMT reduction and electrification scenarios on carbon emissions and other co-benefits
- Shows co-benefits of strategies
- Only covers light-duty vehicles
- Tool does not look at the effects of individual VMT reduction measures

# Key takeaways from existing tools and studies

- Existing tools, reports, and studies give an indication of the most cost-effective strategies to reduce emissions and achieve other benefits
- They do not calculate VMT reduction for individual strategies

# Likely recommendation for an updated Maine Won't Wait:

- Conduct a VMT Reduction Roadmap that addresses data gaps and sets short-, medium- and long-term data-informed priorities
- Pursue immediate actions that achieve progress and generate data:
  - Pursue active transportation options by prioritizing first and last mile infrastructure; filling gaps in the network; supporting demonstration and pilot programs
  - Improve transit service and accessibility through small, cost-effective projects and pilots
- Other Potential Policies?
- Public education and awareness campaigns

# VMT Reduction Roadmap?

**Goal:** to conduct analysis and implementation of VMT reduction strategies in Maine to address data gaps and set short-, medium- and long-term data-informed priorities. Priorities would be set through review of emissions benefits, cost, implementation effort, feasibility, etc.

## Key Questions:

- What data gaps should be addressed?
- What levers (i.e., VMT reduction strategies and policies) should be included in the roadmap?
- What immediate actions can be pursued that achieve progress and generate data?



# Clean Transportation Roadmap

## Strategies Reviewed:

- Infill development
- Transit expansion
- Telecommuting
- Bicycle and pedestrian infrastructure
- Pricing

## Recommendations:

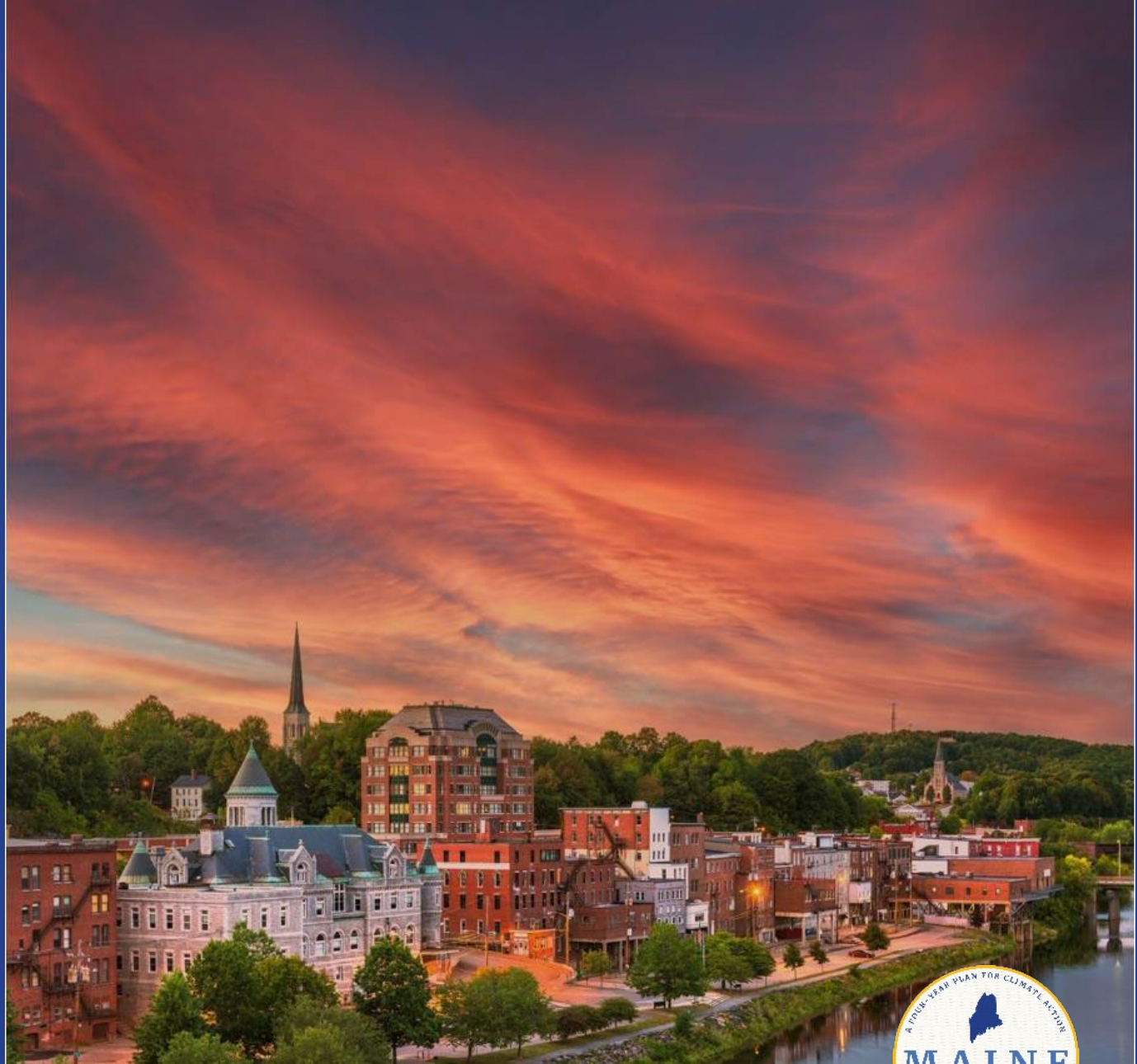
Local Programs	Goal	Rationale
Transit Village to Encourage Transit Oriented Development (TOD)	VMT Reduction & Mode Shift	Reduces VMT, boosts transit ridership, and reduces need for traditional road infrastructure.
Bicycle & Pedestrian Investment	VMT Reduction & Mode Shift	Ensures prioritization of nonmotorized modes and facilitates support of emerging micro-mobility technologies, such as e-bikes and e-scooters.



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# Next Steps and Adjournment

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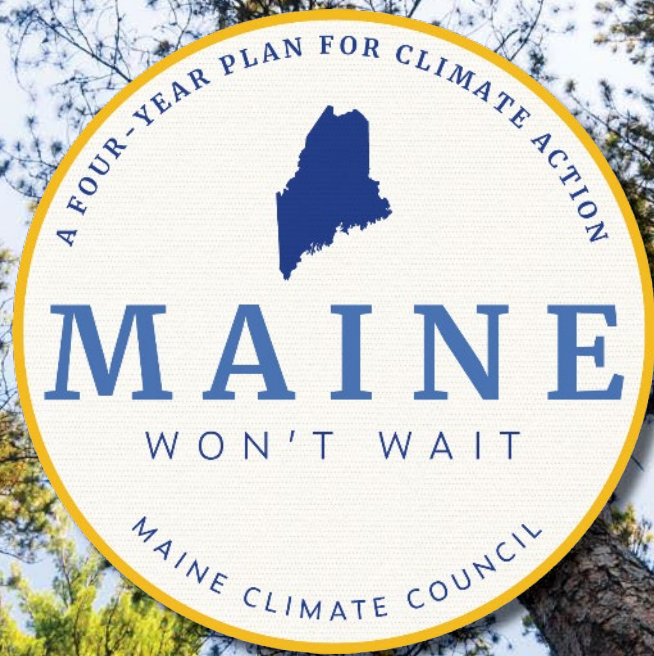
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# Resources

- [Maine Emissions Analysis \(Nov 2020\)](#)
- [Maine Won't Wait Report \(Dec 2020\)](#)
- [Clean Transportation Roadmap \(Dec 2021\)](#)





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