



# A ROADMAP FOR ELECTRIC VEHICLES IN TENNESSEE

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STAKEHOLDER WEBINAR

JANUARY 9, 2019

Drive Electric  
 **TENNESSEE**

# AGENDA

- 1 Welcome & Overview**
- 2 Shared Vision, Mission, & Guiding Principles**
- 3 Roadmap Framework**
- 4 Roadmap Timeline**
- 5 Future Development & Next Steps**





**SECTION 1:  
WELCOME &  
OVERVIEW**

SECTION 1: WELCOME & OVERVIEW

# DRIVE ELECTRIC TENNESSEE TIMELINE

## Drive Electric Tennessee Timeline

March	April	May	June	July	August	September	October	November	December	January '19
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Develop Shared Vision

★  
Stakeholder Kickoff Call  
Webinar, July 31<sup>st</sup>

Develop Projects

★  
Drive Electric  
Tennessee Forum  
Nashville, September 13<sup>th</sup>

Develop Roadmap Timeline

★  
Final Roadmap  
Review Call - *TODAY*  
Webinar, January 9<sup>th</sup>

## SECTION 1: WELCOME & OVERVIEW

# DRIVE ELECTRIC TENNESSEE STAKEHOLDERS

The following Key Contributors and participating organizations attended events and developed & reviewed key deliverables over the past several months.

### Key Contributors:



### Participants:

- Atlas Public Policy
- Bridgestone
- BYD
- CDE Lightband
- ChargePoint
- City of Nashville
- City of Knoxville
- City of Chattanooga
- Cummins Filtration
- Draft Agency
- General Motors
- Greenlots
- GRIDSMART
- Local Motors
- Nissan
- Schneider Electric
- Sierra Club
- SoftServe
- Southern Alliance for Clean Energy (SACE)
- Southeast Energy Efficiency Alliance
- Stantec
- Tennessee Automotive Association
- University of Tennessee – Knoxville
- Vanderbilt University
- Volkswagen

SECTION 1: WELCOME & OVERVIEW

DRIVE ELECTRIC TENNESSEE STAKEHOLDER FORUM

The Stakeholder Forum event in September 2018 brought together participants to discuss projects.





**SECTION 2:  
SHARED VISION,  
MISSION, AND GUIDING  
PRINCIPLES**

## SECTION 2: SHARED VISION, MISSION, & GUIDING PRINCIPLES

### SHARED VISION & MISSION

The following Name and Vision define who we are and our outlook on Tennessee's transportation sector. The Mission describes, at a high level, how we will achieve the vision.



**Vision:** Driving Tennessee to become an electric transportation leader in the Southeast

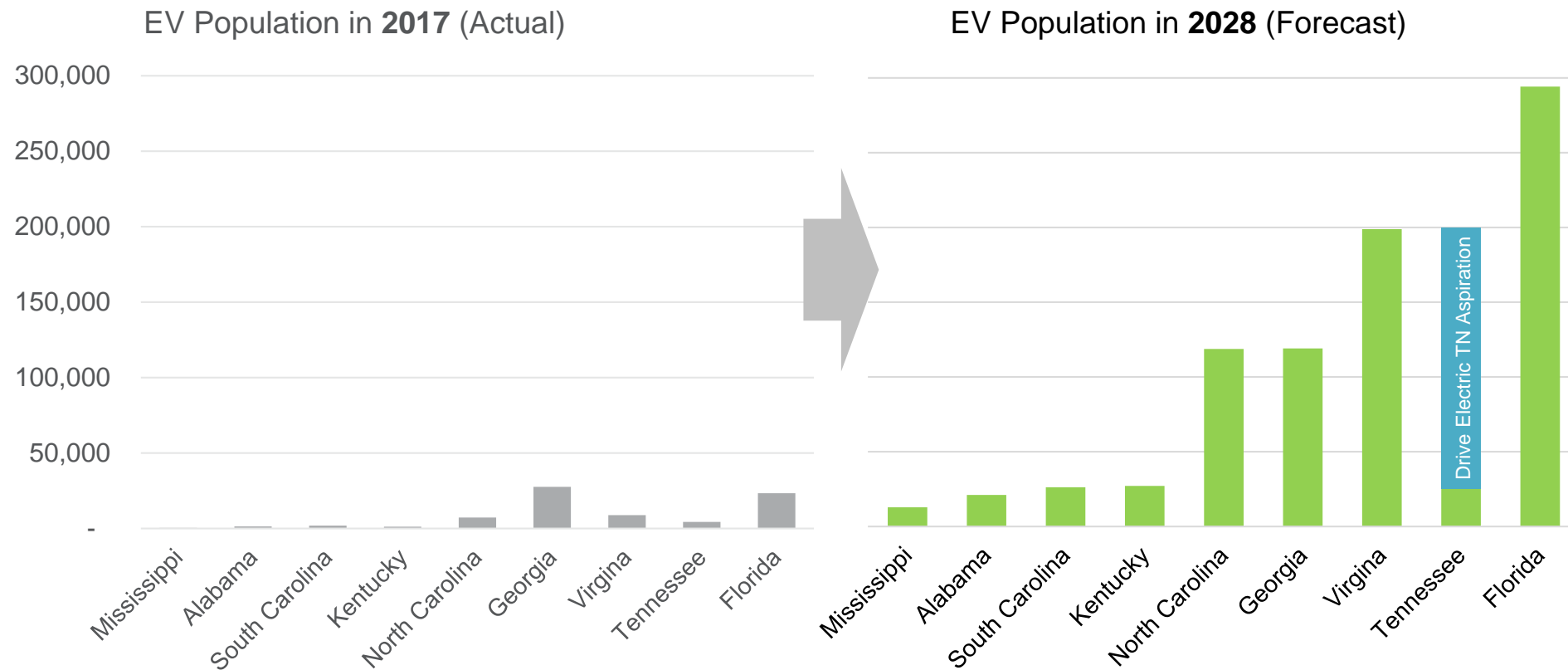
**Mission:** Collaboratively pursuing initiatives that will significantly increase EV adoption from 5,000 EVs today to 200,000 EVs by 2028, guided by shared principles that benefit all residents of Tennessee



## SECTION 2: SHARED VISION, MISSION, & GUIDING PRINCIPLES

### ASPIRATIONAL ADOPTION

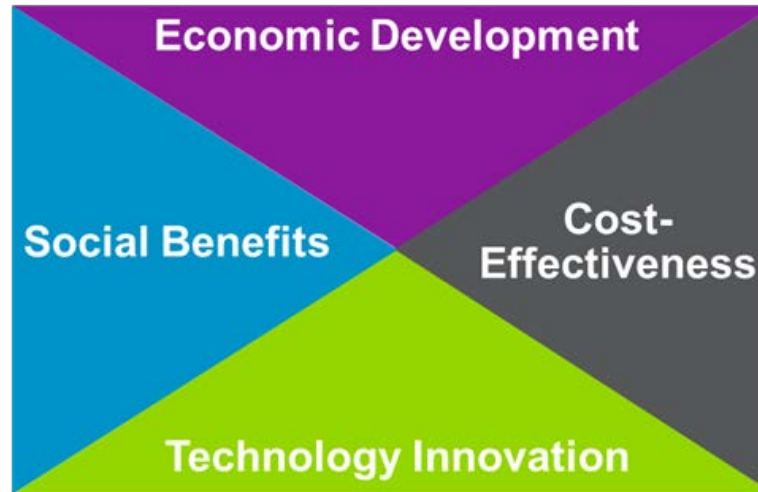
*Drive Electric TN* aims to increase the number of light-duty plug-in electric vehicles on Tennessee roads from 5,000 in 2017 to at least 200,000 EVs by 2028. This ambitious but achievable adoption goal is based on the projects outlined in the roadmap.



## SECTION 2: SHARED VISION, MISSION, & GUIDING PRINCIPLES

### GUIDING PRINCIPLES AND FRAMEWORK

Our Guiding Principles provide specific direction for our actions and help define our success.



Economic Development	Social Benefits	Cost-Effectiveness	Technology Innovation
<ul style="list-style-type: none"> <li>Promote local and regional economic development</li> <li>Be attentive to local customer preferences and needs</li> <li>Be mindful of supply chain and other resource constraints</li> </ul>	<ul style="list-style-type: none"> <li>Include social equity considerations to benefit all Tennesseans</li> <li>Reduce environmental impacts</li> </ul>	<ul style="list-style-type: none"> <li>Prioritize cost-effective investments</li> <li>Maintain safe, reliable, affordable, and continuously improving electric grid operations</li> </ul>	<ul style="list-style-type: none"> <li>Foster entrepreneurship and technical innovation in the transportation sector</li> <li>Prepare for a more connected, autonomous transportation sector</li> </ul>



**SECTION 3:  
ROADMAP  
FRAMEWORK**

## SECTION 3: ROADMAP FRAMEWORK

# OPPORTUNITY AREAS AND GOALS

Contributors established four Opportunity Areas to categorize actions described in the roadmap. **Opportunity Areas** are aligned with **Goals**.

1 Driving Charging Infrastructure Availability

Develop a charging infrastructure that enables Tennessee residents to (1) drive and charge an EV in their daily lives (home, work, and public charging) or (2) access electric public transit options

2 Driving Awareness

Increase awareness and first-hand experience of the benefits of driving an EV such that the majority of vehicle owners are aware of EVs when they begin their next purchasing process

3 Driving Innovative & Supportive Policies

Create consistent, innovative, and supportive policies across Tennessee at the state, county, city, and utility levels, inclusive of incentives, electricity rates, planning standards, and other policies and programs

4 Driving EV Availability, Offerings & Innovation

Make EV models viable, accessible, and comparable purchasing alternatives to traditional vehicles

## SECTION 3: ROADMAP FRAMEWORK INITIATIVES AND PROJECTS

Within each Opportunity Area are a set of initiatives, which focus on targeted solutions to address market gaps. Projects are specific undertakings by *Drive Electric TN* members in a set timeframe to support an initiative. The overall roadmap framework is depicted below.



# SECTION 3: ROADMAP FRAMEWORK


## PROJECT DEVELOPMENT

Detailed project profiles were developed to define key project characteristics and provide a framework for monitoring and tracking progress.

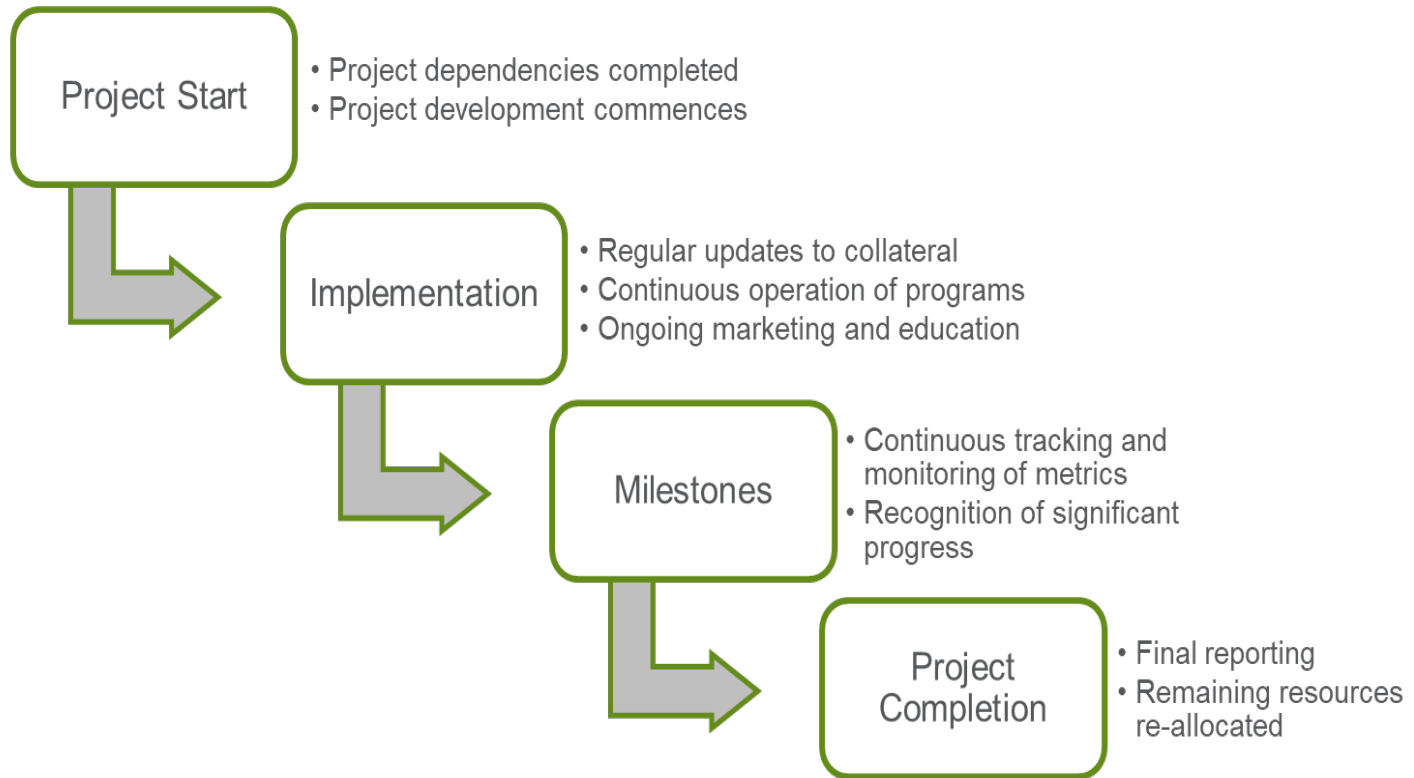
### Project Profile – Example



**Driving Charging Infrastructure Availability** Opportunity Area  
**EV Infrastructure Coordination & Planning** Initiative

<p><b>Statewide EVSE Plan</b></p>  <p>A strategic plan for the deployment of EVSE around the state that includes a needs assessment and benchmarking study. The strategic plan will evaluate charging type/locations, site host/ownership potential models and facilitate coordination between infrastructure developers.</p> <p>The plan will include specific actions to improve EVSE infrastructure and provide 5-year &amp; 10-year EVSE milestones.</p>	<p><b>Potential Collaborator(s)</b></p> <ul style="list-style-type: none"> <li>Utilities</li> <li>State departments</li> <li>Charging infrastructure providers</li> <li>Research institutes</li> </ul> <p><b>Outcomes</b></p> <ul style="list-style-type: none"> <li>Coordinated effort to improve Tennessee's EV charging infrastructure</li> <li>Ability to make cost-effective and high priority EVSE investments</li> </ul> <p><b>Metrics</b></p> <ul style="list-style-type: none"> <li>Completed plan</li> <li>Completed milestones</li> </ul>	<p><b>Timeline</b></p> <ul style="list-style-type: none"> <li><b>Wave 1</b></li> <li>2019 start</li> <li>1.5-year project duration</li> <li>Regular plan updates (i.e. biennial publication)</li> </ul> <p><b>Potential Costs: Medium</b></p> <ul style="list-style-type: none"> <li>Strategic assessment and report (by Drive Electric TN members and/or consultant)</li> </ul> <p><b>Prerequisite for:</b></p> <ul style="list-style-type: none"> <li>Repair &amp; Replace</li> <li>Equal Access Charging for Workplace</li> <li>Interstate &amp; Highway Charging Network</li> <li>Metro Area Charging Network</li> <li>Equal Access Charging for Multi-Family</li> <li>Equal Access Charging for Limited Income</li> </ul>
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### Project Lifecycle



## SECTION 3: ROADMAP FRAMEWORK

# PROJECT DEVELOPMENT

In total, 15 initiatives and 48 projects were developed under the 4 Opportunity Areas. The success of the *Drive Electric TN* Roadmap depends on the successful implementation of these initiatives and projects.

Driving Charging Infrastructure Availability	Driving Awareness	Driving Innovative and Supportive Policies	Driving EV Availability, Offerings, and Innovation
<b>EV Infrastructure Coordination &amp; Planning</b>	<b>EV Ride &amp; Drive Promotion</b>	<b>State Government Relations</b>	<b>OEM Collaboration</b>
Statewide EVSE Plan	Ride & Drive Event Guide	Statewide Policy Plan	In-State OEM Partnership + OEM-Dealership Network
MD/HD Charging Market Assessment	Statewide EV Car Share Program Design	Transportation Demand Management Collaboration	MDV/HDV Catalogue
<b>EV Infrastructure Build-Out</b>	Extended Test Drive Program Design	<b>Standardized Local Policies</b>	<b>Dealer Collaboration</b>
Repair & Replace	EV Owners Club	Local Action Plan	Dealership Incentives
Interstate & Highway Charging Network	<b>Fleet Education</b>	EVIP Parking Promotion	Dealership Education Program Design
Charging for Workplace	Fleet Case Studies	EV-Ready Buildings	Dealership Certification Program
Charging for Multi-Family & Limited Income	Corporate EV Education	<b>Corporate Policies</b>	Cross-Marketing for Local Dealers
Metro Area Charging Networks	Transit and Government Fleet Education	Workplace EV Policy Guide	Secondary Dealer Collaboration
<b>EV Infrastructure Standards &amp; Maintenance</b>	Freight Fleet Education	Commuter Benefits Education & Outreach	<b>Mobility Services Collaboration</b>
Site Host & Maintenance Guide	<b>EV Consumer Education</b>	EV 100	Rental Company Collaboration
	EV Charging Station Signage	<b>Coordinated Utility Programs</b>	Ride Share Collaboration
	Consumer Marketing & Sales Materials	Smart Charging	Mobility as a Service (future)
	Educator Training Program	EV Rates Assessment	<b>Consumer Preference Assessment</b>
	EV Marketing Channels	Renewable EV Charging Certification	Consumer Focus Groups & Surveys
		<b>EV/EVSE Incentives</b>	
		EV Purchase Rebates	
		EVSE Purchase Rebates	
<b>Initiatives</b>		Used EV Rebates	
<b>Projects</b>		Recycling & Second Life Batteries	
		EV Rewards Program	



**SECTION 4:  
ROADMAP TIMELINE**



## SECTION 4: ROADMAP TIMELINE

# DRIVING CHARGING INFRASTRUCTURE AVAILABILITY

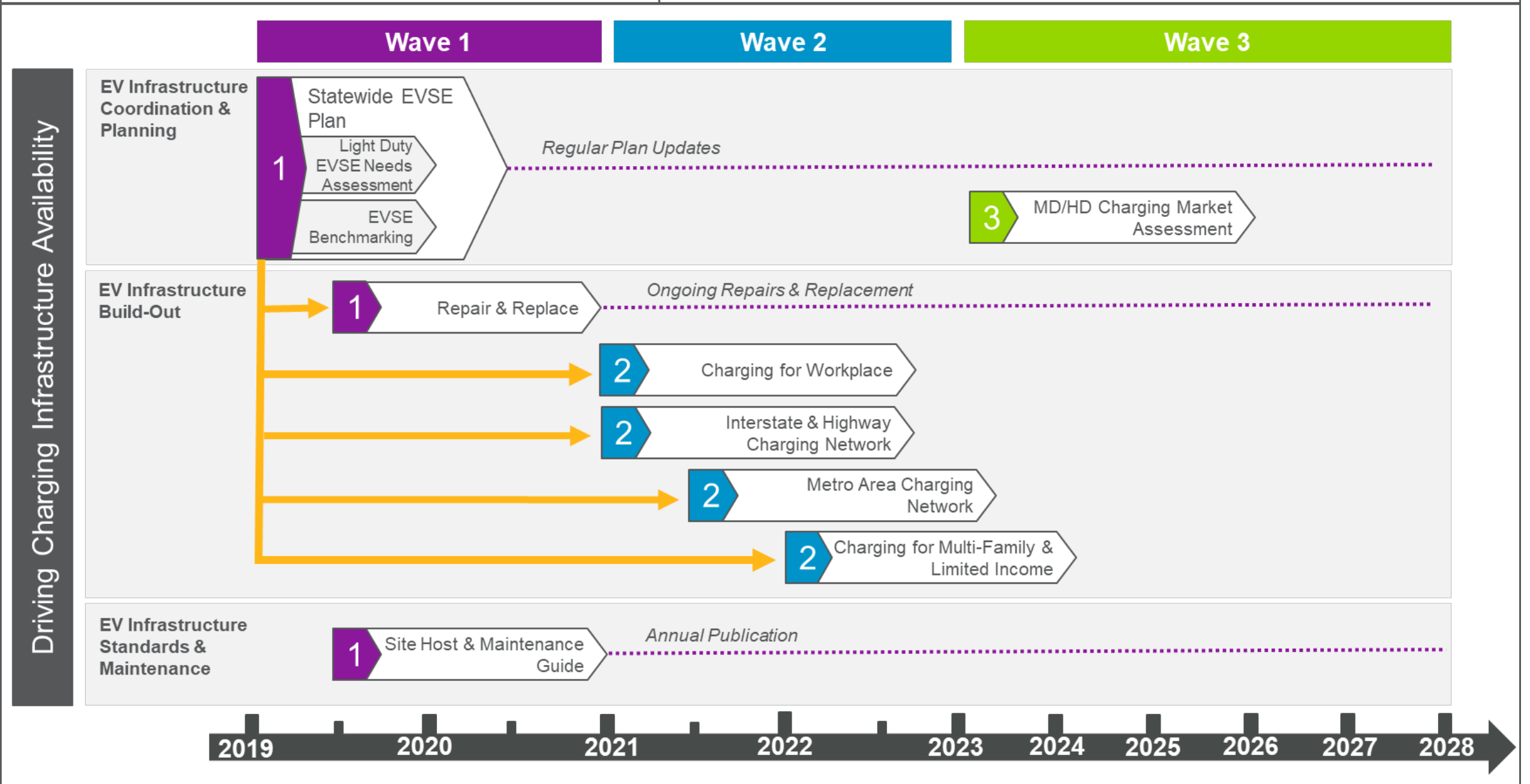
The following three initiatives support the Driving Charging Infrastructure Availability Opportunity Area:

Driving Charging Infrastructure Availability	
<b>EV Infrastructure Coordination &amp; Planning</b>	Initiative to guide coordinated future EVSE efforts including a statewide needs assessment, benchmarking, and strategic planning projects
<b>EV Infrastructure Build-Out</b>	Initiative to install public EVSE, focusing on areas identified in the EV Infrastructure Coordination & Planning Initiative
<b>EV Infrastructure Standards &amp; Maintenance</b>	Initiative to ensure the usefulness and functionality of all installed EVSE on an ongoing basis, preventing disrepair

# Opportunity Area Roadmap: Driving Charging Infrastructure Availability

**Key:**

- Direct dependency
- Critical unmet external need
- Recurring or ongoing activity
- Project already started



## SECTION 4: ROADMAP TIMELINE

# DRIVING AWARENESS

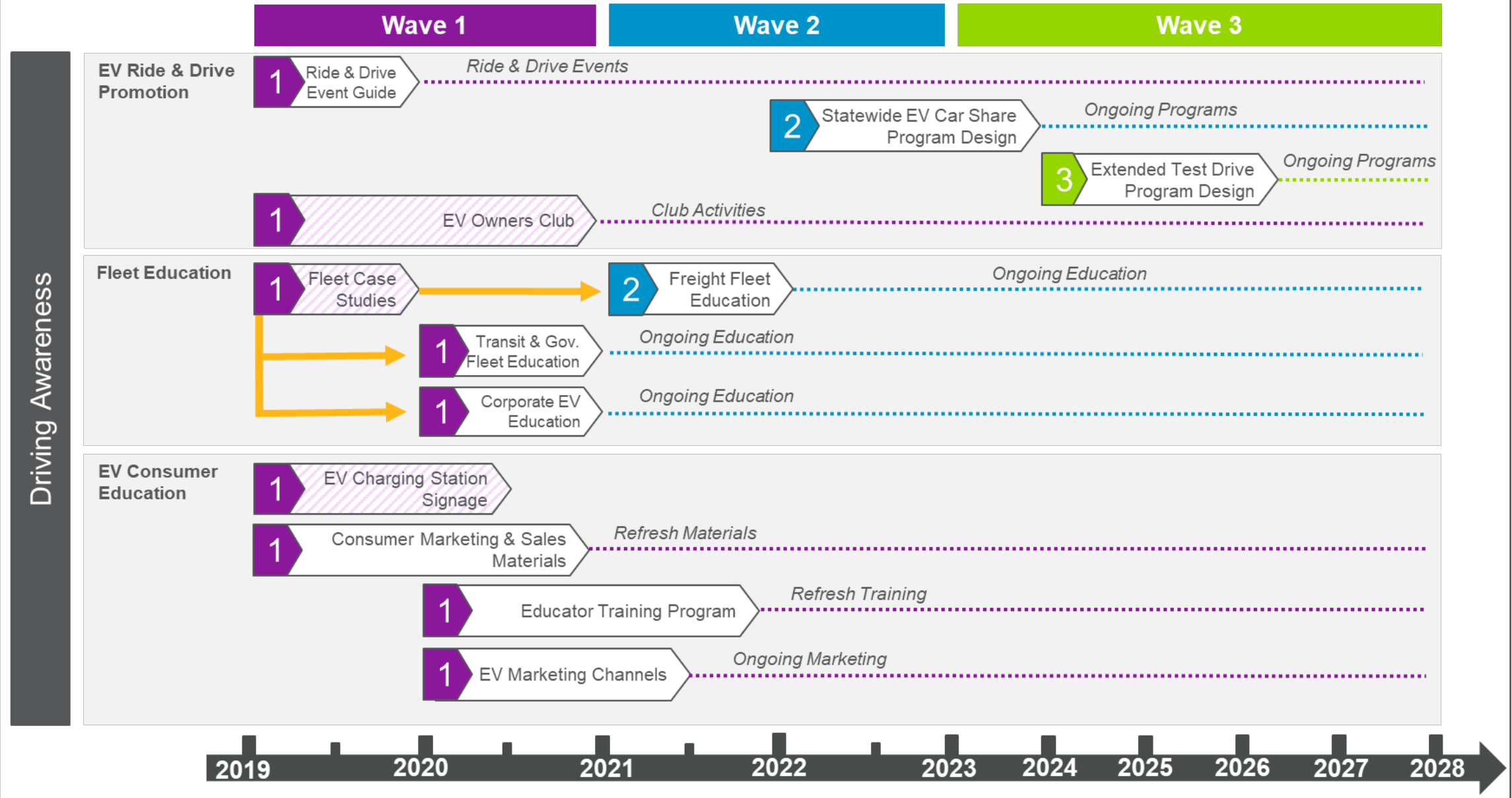
The following three initiatives support the Driving Awareness Opportunity Area:

Driving Awareness	
<b>EV Ride &amp; Drive Promotion</b>	Initiative to provide first-hand experience of riding in or driving an EV, focused on getting people in the seat and behind the wheel
<b>Fleet Education</b>	Initiative to support fleet owners in the decision to procure EVs (light-duty and medium/heavy duty such as buses and trucks)
<b>EV Consumer Education</b>	Initiative to broadly educate Tennesseans on the benefits, costs, lifestyle impacts, and all things related to owning an EV

# Opportunity Area Roadmap: Driving Awareness

**Key:**

- Direct dependency
- ⬮ Critical unmet external need
- ⋯ Recurring or ongoing activity
- ▨ Project already started



## SECTION 4: ROADMAP TIMELINE

# DRIVING INNOVATIVE AND SUPPORT POLICIES

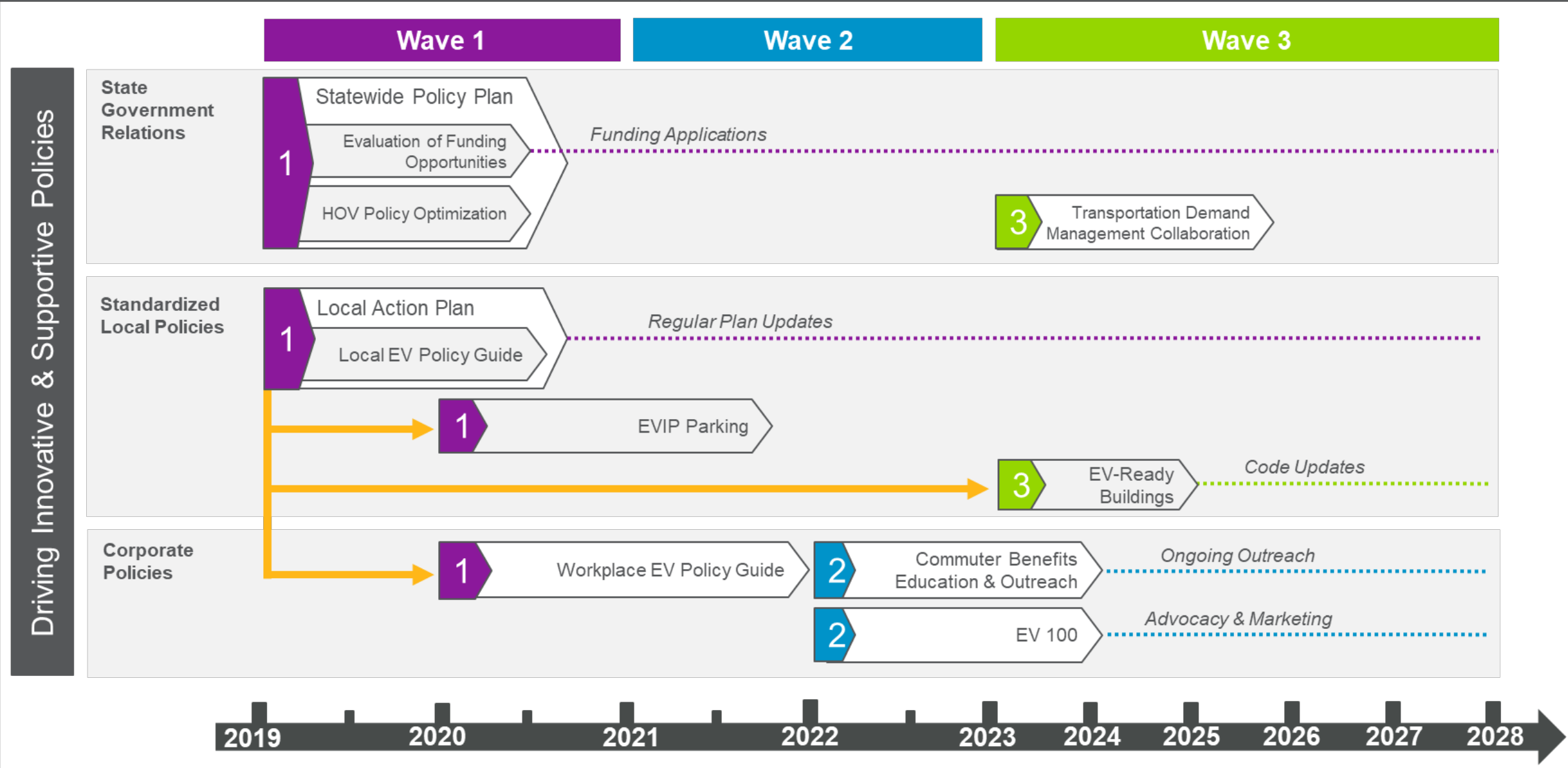
The following five initiatives support the Driving Innovative and Supportive Policies Opportunity Area:

Driving Innovative and Supportive Policies	
<b>State Government Relations</b>	Initiative to establish lines of communication about EVs across state offices and departments and among external stakeholders
<b>Standardized Local Policies</b>	Initiative to identify, design, and share best practices, policies, and programs to support EVs at the local level (city/county)
<b>Corporate Policies</b>	Initiative to identify, design, and share best practices, policies, and programs for Tennessee employers to support EVs
<b>Coordinated Utility Programs</b>	Initiative to identify, design, and share best practices, policies, and programs to support EVs for local power companies throughout Tennessee and the Tennessee Valley to support EVs
<b>EV / EVSE Incentives</b>	Initiative to support future funding for EV and EVSE incentives

# Opportunity Area Roadmap: Driving Innovative & Supportive Policies

**Key:**

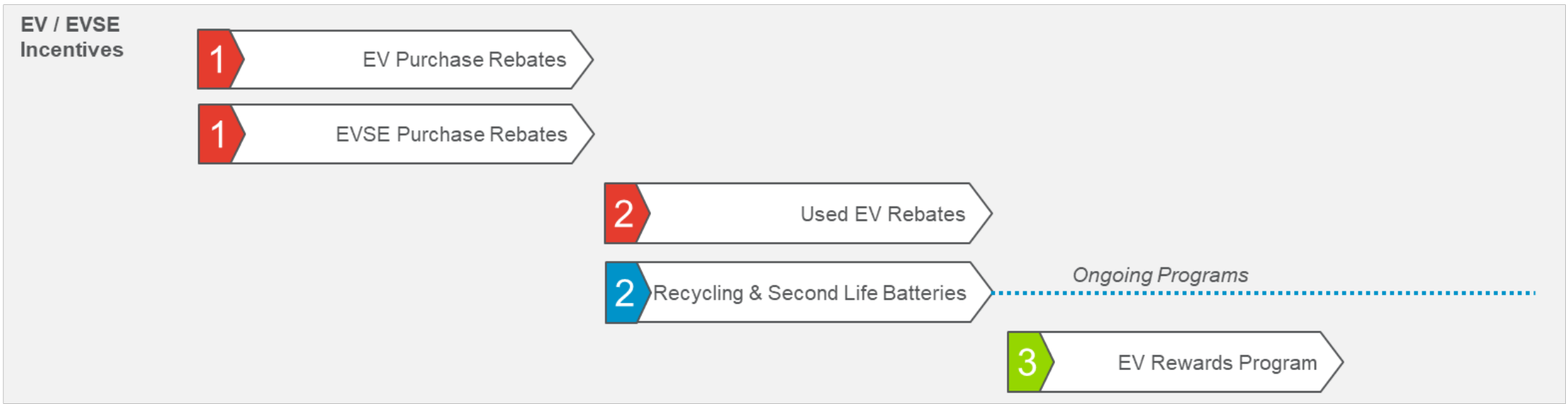
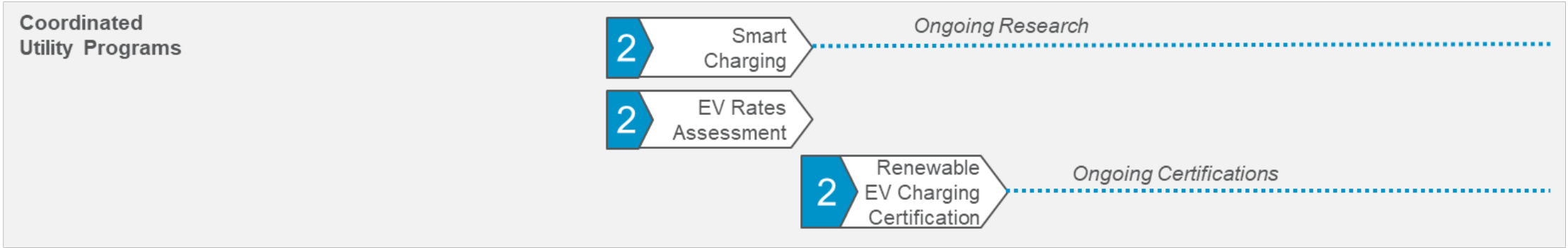
- Direct dependency
- Recurring or ongoing activity
- Critical unmet external need
- Project already started



# Opportunity Area Roadmap: Driving Innovative & Supportive Policies

**Key:** Direct dependency Critical unmet external need  
 Recurring or ongoing activity Project already started

Driving Innovative & Supportive Policies



## SECTION 4: ROADMAP TIMELINE

# DRIVING EV AVAILABILITY, OFFERINGS, AND INNOVATION

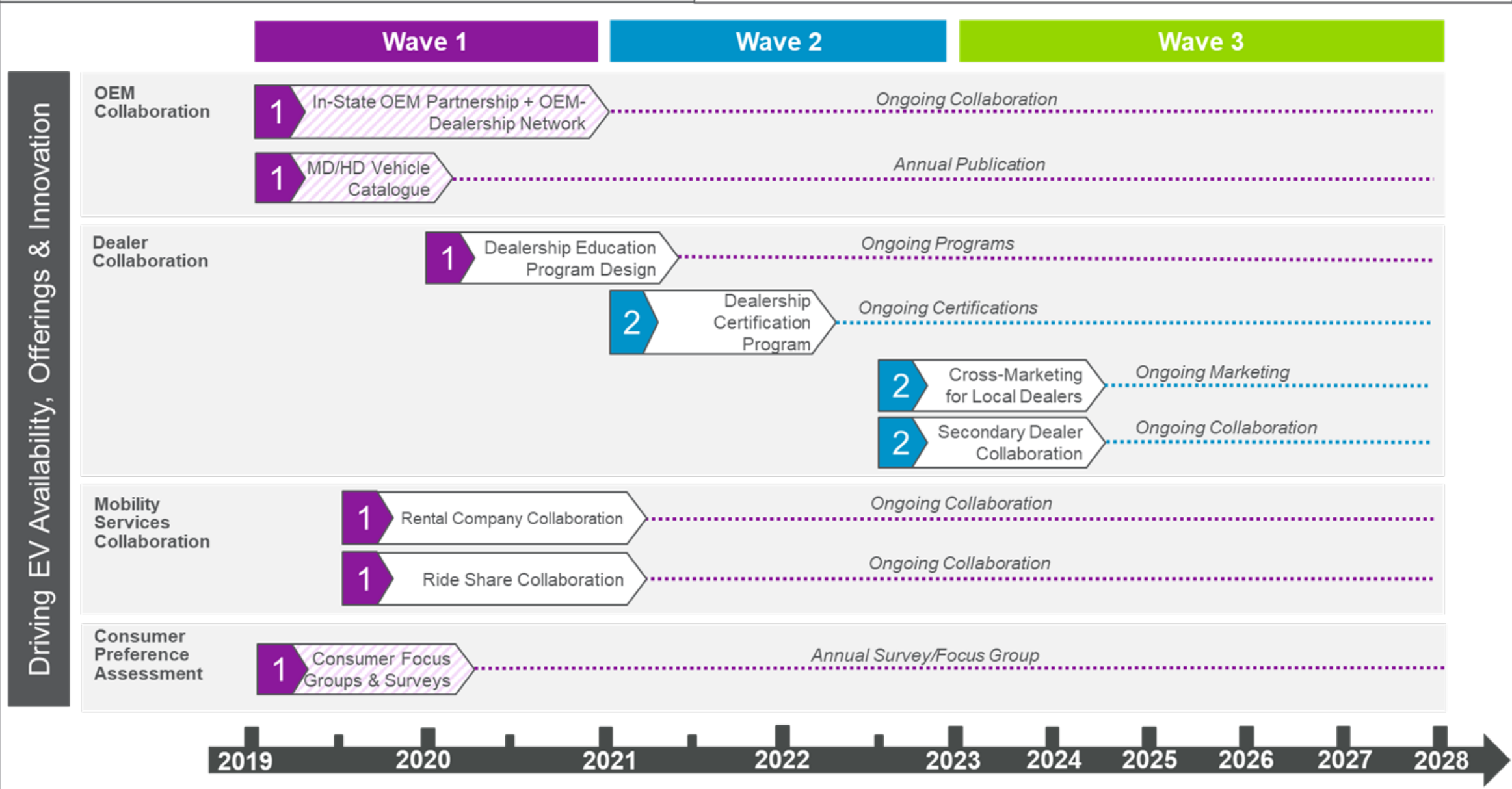
The following four initiatives support the Driving EV Availability, Offerings, and Innovation Opportunity Area:

Driving EV Availability, Offerings, and Innovation	
<b>Automaker (OEM) Collaboration</b>	Initiative to establish lines of communication among automakers and other stakeholders to bring relevant EV models to Tennessee
<b>Dealer Collaboration</b>	Initiative to work with Tennessee car dealerships (aligned with automakers) to stock, advertise, and better sell EVs
<b>Mobility Services Collaboration</b>	Initiative to explore and establish rental company and ride share EV offerings in collaboration with other stakeholders
<b>Consumer Preference Assessment</b>	Initiative to better describe the Tennessee vehicle and EV markets, based on consumer surveys and other research



# Opportunity Area Roadmap: Driving EV Availability, Offerings & Innovation

**Key:** Direct dependency Critical unmet external need  
 Recurring or ongoing activity Project already started



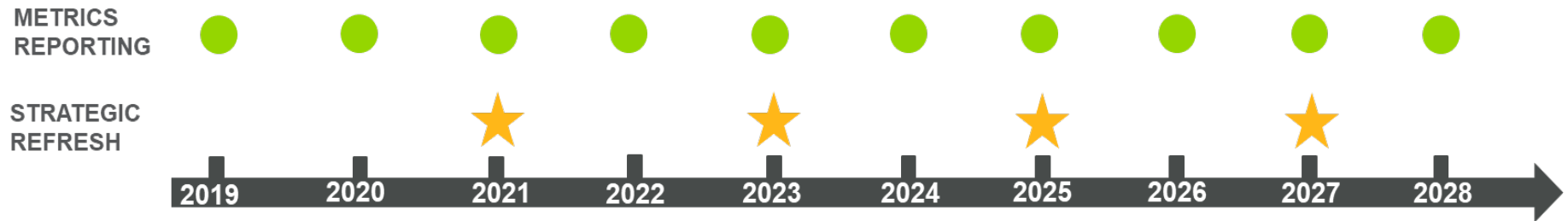
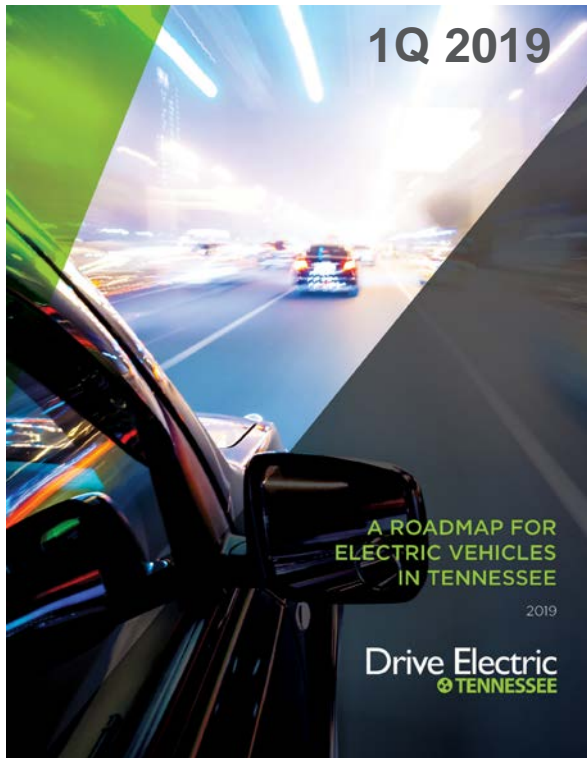


**SECTION 5:  
FUTURE  
DEVELOPMENT**

## SECTION 5: FUTURE DEVELOPMENT & NEXT STEPS

# PROGRESS TRACKING

*Drive Electric TN* will regularly review the roadmap, refresh projects, re-think the timeline, address new challenges, and report annually on metrics and accomplishments.



Because the market is developing rapidly, *Drive Electric TN* will undertake the strategic refresh every two years.

## SECTION 5: FUTURE DEVELOPMENT & NEXT STEPS

### OPERATIONAL MODEL

An operational model for *Drive Electric TN* is being proposed to coordinate stakeholder engagement going forward. A memorandum of understanding (MOU) will be issued to allow stakeholders to endorse and collaborate on projects.

Administrator / Manager Organization		All Drive Electric TN Members
Business Functions	Activities	
Administration / Implementation	<ul style="list-style-type: none"> <li>Organizational task management</li> </ul>	<ul style="list-style-type: none"> <li>Endorse via MOU</li> <li>Support or own specific business functions (as available)</li> <li>Provide funding, FTE time allocation, facility use, materials, etc. for roadmap projects (as available)</li> </ul>
Stakeholder Coordination	<ul style="list-style-type: none"> <li>Organize, facilitate, host recurring DET meetings</li> <li>Coordinate project ownership, communication</li> </ul>	
Education & Outreach	<ul style="list-style-type: none"> <li>Issue DET press releases</li> <li>Maintain DET site / brands</li> </ul>	
Roadmap Progress Tracking	<ul style="list-style-type: none"> <li>Market research</li> <li>Project tracking</li> </ul>	

## SECTION 5: FUTURE DEVELOPMENT & NEXT STEPS

### IMMEDIATE NEXT STEPS

1. The first edition of the Drive Electric TN Roadmap will be distributed to stakeholders by next week
2. Stakeholders may provide written feedback on the roadmap for immediate action (e.g., volunteering for a project) or to be incorporated in a later edition (e.g., suggested changes to document content).

#### *Guidelines for written feedback:*

- Indicate your organization's interest in supporting specific initiatives and projects
  - Indicate your organization's interest in receiving an MOU to endorse the roadmap
  - Let us know if your organization is already doing projects that should be added to the project timeline or mentioned in the document in a later edition
  - Provide ideas about project funding sources
3. Endorsements will be requested in late January / early February

*Thank You!*