

Work Group Plan

Medium- and Heavy-Duty ZEV

Medium- and Heavy-Duty ZEV

Work Group Plan | 3.30.2023

Each work group plan is divided into four main sections, including:

NCCTP Background and Key Recommendations

The background section provides an overview of the stakeholder process that led to the preparation of the North Carolina Clean Transportation Plan (NCCTP). This section summarizes the key recommendations that must occur to collaboratively advance the work of the NCCTP.

Work Group Supporting Strategies

In support of the NCCTP focus areas, the work groups will continue to meet, collaborate and dedicate time and energy to advance the supporting strategies outlined in this plan. This section highlights the specific ways the work group can continue to support the initiatives of the NCCTP and move the work forward. The strategies are organized to reflect the ideas generated by each work group under the four thematic focus areas and include a consolidated list of strategies that reflects the recurring ideas heard from multiple work groups. Individual work group strategies can be found following the consolidated list of strategies.

Work Group Strategy Tables

The strategy tables are a collection of the strategies proposed by the work group during the NCCTP planning process. For every proposed strategy, additional detail is provided on 1) the key stakeholders best positioned to help move the strategy forward, 2) whether the strategy contributes directly or indirectly to equitable outcomes and 3) other beneficial information to consider when initiating the strategy.

Work Group Next Steps

This section provides a general framework for how the work groups can continue to participate in the achievement of the NCCTP goals. The work groups are encouraged to continuously revise and update the work group plans as progress is made.

NCCTP Background and Key Recommendations

Background

The North Carolina Clean Transportation Plan (NCCTP) is a guidance document that provides a coordinated strategy for accelerating decarbonization in the transportation sector. The plan outlines how North Carolina can prepare for a clean transportation future and provide equitable outcomes for everyone. The NCCTP was co-created with local, regional and state agencies; transportation providers; non-profit organizations; social justice and equity focused groups; environmentally focused groups; academic partners; clean cities coalitions; advocacy groups; utility providers; and private companies. While clean transportation efforts are happening all around our state, Executive Orders (E.O.) 80, 246, and 271 all encouraged a more coordinated strategy. In particular, E.O. 246 establishes goals for a 40 percent emission reduction and reaching 1.25 million zero-emission vehicles (ZEVs).

Why We Need a Plan

Transportation Impacts – According to the 2022 North Carolina Department of Environmental Quality (NCDEQ) Green House Gas (GHG) Inventory, transportation emissions in North Carolina accounts for 36 percent of total GHG emission—the largest contributor in the state. 88 percent of these emissions are attributed to on-road vehicles, including passenger cars, delivery vehicles and freight trucks.

Transportation Challenges – Existing transportation system challenges and constraints, such as a rapidly growing population and demographic disparities in transportation availability, must be identified to understand how to equitably achieve reductions in transportation emission.

Transportation Options—The Deep Decarbonization Pathways Analysis demonstrated that a variety of transportation options, including reducing vehicle miles traveled, zero emission vehicles, and decarbonized fuels, can be used together to result in significant greenhouse gas reduction.

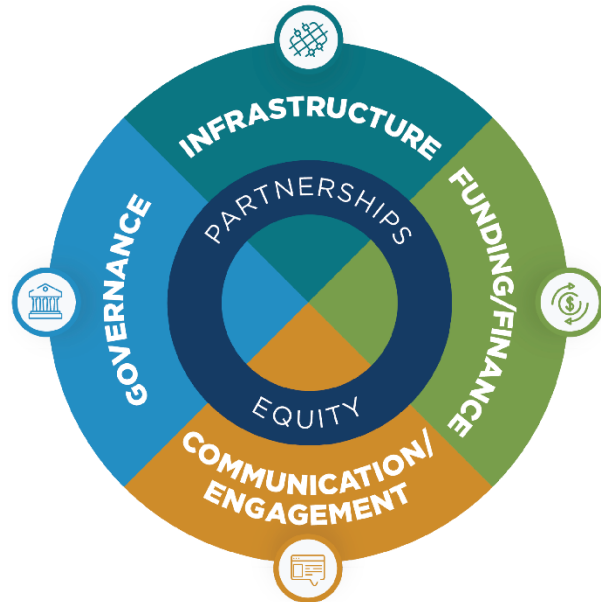
Different Places have Different Needs— Given North Carolina’s mix of geographies, our approach to clean transportation must be versatile and include options for rural, suburban and urban places. This requires an integrated strategy that reflects the needs and opportunities of each of these contexts.

New and Emerging Funding—New funding—including federal legislation, such as the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA)—create opportunities to advance clean transportation.

While NCDOT supported the planning process and many of the strategies will require the department’s leadership or participation, the NCCTP also offers public and private entities, as well as state, regional and local governments, a roadmap to activities for achieving an equitable clean transportation system for North Carolina. This work group plan represents a specific set of activities that the work group stakeholders might choose to move forward.

Key Recommendations

The NCCTP identifies near-term strategies and actions organized around four focus areas: **Infrastructure**, **Funding and Finance**, **Communications and Engagement** and **Governance**. In addition, the NCCTP process identified key partnerships required to accelerate North Carolina’s clean transportation transition and elevate the importance of creating equitable outcomes. Key recommendations from the focus areas include:



Create a dedicated clean transportation team—

This group will be dedicated to advancing the NCCTP objectives, implementing the plan and tracking progress.

Align statewide policy through an interagency task force—This taskforce will coordinate across state agencies to ensure internal alignment of North Carolina policies and reduce barriers to NCCTP implementation.

Increase equitable outcomes in transportation planning projects—Introducing new opportunities, empowering traditionally underserved communities in transportation decision-making and focusing on maximizing key indicators like improved access will lead to more equitable outcomes.

Ensure access and affordability to clean transportation—Policies and programs that promote access and affordability to clean transportation options will prioritize infrastructure investments for traditionally underserved communities.

Evaluate and update project prioritization programs—Bring opportunities identified in the NCCTP to the existing NCDOT Strategic Prioritization Office (SPOT) work group for consideration in the project evaluation process.

Partner with utilities to promote clean transportation—Partnering with electric utilities to promote clean energy and clean transportation options will ensure we’re “energy ready” and will promote effective pricing.

Maximize existing funding to support clean transportation outcomes—Modifying our approach to existing funding programs, such as the Congestion Mitigation and Air Quality (CMAQ), Carbon Reduction Program (CRP) and Diesel Emissions Reduction Act (DERA), can ensure existing dollars do as much as possible to support the clean transportation transition.

Evaluate and apply for new funding that advances clean transportation outcomes—The Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) can be used to advance the priority strategies identified in the NCCTP.

Evaluate and deploy clean transportation infrastructure to support all types of fleet vehicles and applications—Investing in zero- and low-emission fueling infrastructure for all types of fleet vehicles makes possible the transition of fleets to clean transportation options.

Expand transportation demand management strategies—Applying transportation demand management programs as described in the VMT reduction toolkit will lessen our reliance on driving and support NCCTP goals.

Establish a coordinated clean transportation communication strategy—NCDOT will seek dedicated funding to support a coordinated communication strategy. Coordinated communications will increase awareness, help align resources and promote partnerships to advance the clean transportation initiative.

Work Groups

The NCCTP planning process was intentionally inclusive. Throughout the NCCTP process, NCDOT was committed to the co-creation of the plan. While NCDOT and the NCDEQ served as support staff to five subject-matter work groups, over 220 state and national stakeholders participated in the process. These volunteer groups were composed of the wide variety of public and private stakeholders listed earlier in this section. The work groups worked collaboratively over six months through a series of meetings to develop ideas leading to the creation of these focused work group plans that address known challenges and leverage opportunities. This allowed the content of the plan to be largely driven by the experience, expertise and perspectives of a variety of interests and allowed participants to explore solution sets without limitations.

This work group plan focuses on the efforts conducted by the medium- and heavy-duty (M/HD) zero emission vehicle (ZEV) work group. While summaries of all the work groups are included below, the specific challenges addressed by fleet transition work group are included at the end of this section.

Light-Duty Zero Emission Vehicles (ZEVs)

These are generally smaller vehicles, including personal cars and trucks that have zero-emission characteristics. These may include vehicles from a range of fuel types, such as electric or hydrogen fuel cell. The focus of this group included:

- Accelerating the pace of transition from conventional gas-powered vehicles to ZEVs.
- Increasing ZEV availability and increasing consumer awareness.
- Advancing ZEV incentives and improving affordability.

Vehicle Miles Traveled (VMT) Reduction

Managing travel demand and reducing vehicle miles traveled on North Carolina roads can be accomplished through a coordinated approach to transit, rail, bike, pedestrian and other non-motorized travel as well as land development considerations. The focus of this group included:

- Advancing the work of the VMT Reduction Task Force.
- Connecting planning efforts related to transit, bike/pedestrian, passenger rail and other non-vehicle transportation modes to clean transportation objectives.

Fleet Transition

Fleet transition includes ways to switch large fleet operations from gasoline- and diesel-powered vehicles to zero- and low-emission fleet vehicles. The focus of this group included:

- Accelerating the pace at which state and local public entities transition to zero- or low-emission vehicles.
- Working with private entities to transition their fleets to zero- or low-emission vehicles.
- Increasing the number of zero- or low-emission school buses in use.

Clean Transportation Infrastructure

North Carolina needs sufficient EV and alternative fuel infrastructure to support the private and public fleet transition to zero- and low-emission vehicles. The focus of this group included:

- Improving electric vehicle charging infrastructure, through existing programs such as the National Electric Vehicle Infrastructure program.
- Improving infrastructure associated with alternative fuels.
- Supporting future infrastructure improvements through mapping, siting and identification of gaps.

Medium- and Heavy-Duty (M/HD) ZEVs

The M/HD ZEV work plan focuses on creating a transition plan for M/HD ZEVs. The main objectives of the M/HD ZEV work group were to develop a plan to transition vehicles through education and outreach, innovative financing, workforce development and utility needs.

The NCCTP identified a set of strategies to continue to the work of the M/HD ZEV work group with a focus on the following:

- Educating potential users about the unique needs of and supportive infrastructure for M/HD ZEVs.
- Increasing the availability and the pace of adoption of M/HD ZEVs.

Identified Barriers

Each subject matter work group met six times and discussed the potential objectives, needs and opportunities centered around a series of six cross-cutting themes: equitable access to clean transportation options, education and outreach opportunities, incentives and finance options, transportation influences on public health, economic and workforce development and recommended revisions to NC requirements and guidance. At the outset of this process, the M/HD ZEV work group was asked to identify barriers and challenges to advancing M/HD ZEV in the state of North Carolina. Through this discussion, the following barriers were identified:

- Lacking regulations or policies to support the transition to M/HD ZEVs
- Difficulty acquiring M/HD ZEVs due to affordability and lack of technical support to secure funding
- Lacking current charging infrastructure to support all types of M/HD ZEVs
- Increasing the availability and pace of adoption of M/HD ZEVs

The focus of the work groups over the six months was to develop a set of strategies and actions that were needed to overcome these barriers. To maintain the momentum of the work group to identify and overcome barriers, continued support and continued cooperation of work group participants and stakeholders is needed. Maintaining momentum will require a coalition of support and continued cooperation. Therefore, the work groups are expected to continue their collaborations beyond the plan, with a renewed focus on advancing their individual work group plans.

Participants

The NCCTP benefitted greatly from the time and energy provided by its work group members. The following groups, agencies and organizations were represented as part of the MHD ZEV reduction work group.

Advanced Energy Economy	NC Dept of Transportation (NCDOT) – Ferries
Alamance Community College	NC Dept of Transportation (NCDOT) – Ports
Alliance for Transportation Electrification	NC Dept of Transportation (NCDOT) – Rail
Brunswick Electric	NC Governor's Office
CALSTART	NC DENR
Chargepoint	Nikola Motor
City of Charlotte	North Carolina Department of Environmental Quality (NCDEQ) EJ Board
City of Wilmington	Piedmont Electric
Clean AIRE NC	PlugIn NC
Clean Cities Coalitions	PowerSmiths Socomec Group
Cyclum Renewables	Rocky River Rural Planning Organization (RPO)
Daimler Truck NC	Senior Advisor for Climate Change Policy
Duke Energy	Senior Policy Advisor for Clean Energy Fuel
Electrification Coalition	Siemens
Environmental Defense Fund (EDF)	Southeast Energy Efficiency Alliance (SEEA)
Environmental Justice (EJ) Policy Advisor	Southern Alliance for Clean Energy (SACE)
EV Hybrid Noire	Southern Energy Efficiency Alliance
EV Structure	Southern Environmental Law Center (SELC)
Freedm Systems Center	State Fleet (DOT)
HipHop Caucus	Thomas Built Bus / Daimler
Hitachi Energy	Triangle J Council of Government (TJCOG)
Mecklenburg County	UAW Local 3520
NC Clean Energy Technology Center	United Auto Workers (UAW)
NC Conservation Network	UPS
NC Dept of Environmental Quality (NCDEQ)	Volvo
NC Dept of Health and Human Services (NCDHHS)	

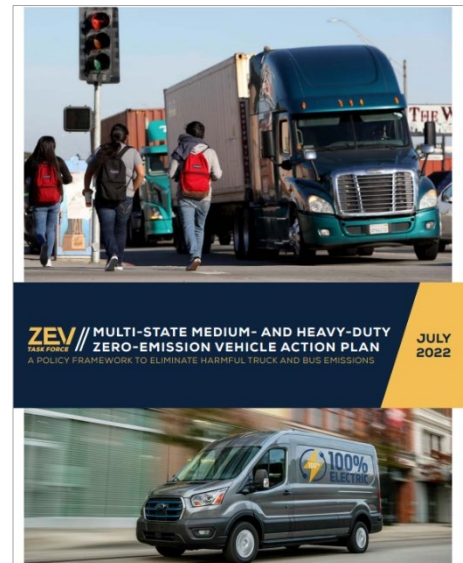
Background

In the United States, the transportation of freight and people is one of the largest sources of GHGs. In North Carolina, medium- and heavy-duty diesel and gas vehicles are the second largest source of transportation-related greenhouse gas emissions (GHG). According to the 2022 NCDEQ Greenhouse Gas (GHG) Inventory, transportation emissions in North Carolina account for 36 percent of total greenhouse gas emissions—the largest contributor to GHG emissions in the state—while M/HD vehicles represent 16 percent of the transportation sector’s emissions.¹ M/HD vehicles include large pickup trucks and vans, school and transit buses, box trucks, and long-haul delivery trucks. These vehicles are responsible for the emissions of nitrogen oxides (NOx), particulate matter (PM), and other hazardous air pollutants. To mitigate climate change and improve public health outcomes, the electrification of M/HD vehicles is paramount to North Carolina’s success.

Aligned Initiatives

Multi-State Medium- and Heavy-Duty ZEV Action Plan

As part of a memorandum of understanding signed in 2019, North Carolina has been participating in a multi-state zero-emissions vehicle task force established to develop an [Action Plan](#) for M/HD ZEV to transition to zero-emission trucks and buses.² In 2022, this task force produced an action plan identifying opportunities for the rapid electrification of trucks and buses. The action plan provides recommendations for ensuring the equitable transition to zero-emissions trucks by identifying sector-wide opportunities to transition the market, and coordinating with state policymakers and key partners. While the recommendations of the action plan focus broadly, the plan acts as a solid foundation for the strategies identified by the M/HD ZEV work group.



¹ <https://deq.nc.gov/media/27070/download?attachment>

² <https://www.nescaum.org/documents/multi-state-medium-and-heavy-duty-zev-action-plan-dual-page.pdf>

Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding

The [Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding](#) (MOU) pledges to achieve 30 percent sales of new M/HD ZEVs by 2030 and 100 percent by 2050.³ The MOU as signed in July 2020 by 19 jurisdictions in the United States and Canada. The jurisdictions in the United States collectively represent 36 percent of the nation’s M/HD vehicles.⁴ The MOU directs participating jurisdictions to develop Multi-State M/HD ZEV Action Plans to outline policy options to cultivate a market for zero emission M/HD vehicles.



Member Jurisdictions

North Carolina Deep Decarbonization Pathways Analysis

According to the 2022 NCDEQ GHG Inventory, transportation emissions in North Carolina account for 36 percent of total GHG emissions—the largest contributor to GHG emissions in the state.⁵ The [Deep Decarbonization Pathways Analysis](#) showed that transportation must reduce GHG emissions by between 79 and 87 percent for the state to achieve net zero by 2050.⁶ The analysis identified five priority action areas:



Buildings



Transportation



Clean Electricity



Decarbonize Fuels



Carbon Sequestration

While North Carolina can achieve 2030 and 2050 climate targets in multiple ways, the Pathways Analysis highlights the similarities across all scenarios that would benefit the state:⁷

- Accelerate a transition to ZEVs and electric heat pumps in buildings
- Rapidly decarbonize electricity generation by scaling up renewable electricity sources and battery storage

³ <https://www.nescaum.org/documents/mhdv-zev-mou-20220329.pdf>

⁴ <https://www.nescaum.org/documents/multi-state-medium-and-heavy-duty-zev-action-plan.pdf>

⁵ <https://governor.nc.gov/media/3583/open>

⁶ <https://governor.nc.gov/issues/environment>

⁷ <https://governor.nc.gov/media/3572/open>

- Encourage high levels of energy efficiency, such as adoption of efficient appliances and vehicles, improvement of building shells and reduction in VMT
- Support commercialization of decarbonized fuels—at minimum—to green hydrogen for industry and large trucks and explore pilots for advancing biofuels using sustainable biomass feedstock
- Reduce non-energy GHG emissions from industry, agriculture, waste and oil and gas systems
- Prioritize sustainable management of natural and working lands to enhance the critical role of carbon sequestration in helping achieve net-zero emissions
- Reduce fuel combustion while decarbonizing the economy to create co-benefits for air quality improvement

The M/HD ZEV work group should leverage the findings and strategies in the Pathways Analysis to advance the goals of the NCCTP as they relate to transitioning vehicles to zero- or low-emissions.

Executive Order 271

Executive Order (E.O.) 271 was signed in October 2022 and positions North Carolina to benefit from the global market transition to zero-emission vans, buses and trucks by ensuring that new vehicle technologies will be available to businesses across the state. It directs state agencies to pursue strategies and investments that will support the affordable, equitable and reliable growth of the ZEV market. Executive Order 271 calls for North Carolina to:

- Propose a NC Advanced Clean Trucks rule by May 2023
- Develop and prioritize statewide complementary strategies, such as those identified in the NCCTP
- Complete a ZEV Infrastructure needs assessment

Work Group Supporting Strategies

Work Group Supporting Strategies

While the focus areas, described in the previous section, broadly consider the efforts needed to advance the goals of the NCCTP by the state of North Carolina, the specific ways in which the M/HD ZEV work group can engage with the advancement of the NCCTP in the near term are organized below under the four focus areas. A more detailed list of work group strategies can be found in the next section. These supporting strategies can be used in support of the eleven key recommendations that can be found in the [NCCTP Summary Report](#).

Updating Governance Activities

Governance activities include guidance that could occur at any level of government (local, regional, state or federal) including legislation, policy codes, ordinances and mechanisms that promote equitable outcomes.

Enhanced standards and guidance will provide a framework for the transition to clean transportation options. M/HD ZEV work group members may:

- Coordinate with other work groups to create a climate, health, equity and VMT reduction rating system for use in planning and analysis.
- Ensure alignment to meet respective work group strategies and ongoing M/HD ZEV state initiatives, including the Advanced Clean Trucks rule to be established as part of Executive Order 271.

Modernizing Funding and Finance Programs

These programs include financial resources (public and private), funding programs (ex. State Transportation Improvement Program, grants, municipal Capital Improvement Plans) and financing tools that support equitable outcomes and implementation.

Funding and financing incentives can support the implementation of the clean transportation system. M/HD ZEV work group members may:

- Evaluate and identify incentives for M/HD clean transportation projects proposed in traditionally underserved communities.
- Strategize how to remove different barriers to M/HD ZEV acquisition and financially incentivize leasing options.

Technical assistance is essential to support the transition to clean transportation solutions especially for underserved communities. M/HD ZEV work group members may:

- Assist or support businesses with gathering technical resources and providing technical support to secure grants or pursue other financial opportunities for M/HD ZEV advancements.

Implementing More Clean Transportation Infrastructure

Capital investment resulting in the equitable implementation of increased capacity and connectivity of our transportation system including EV charging, modernization of electric grid, active transportation and transit supportive infrastructure.

To encourage fleet conversion to clean transportation options, M/HD ZEV work group members may:

- Identify potential areas to designate as zero-emission delivery zones in vulnerable traditionally underserved communities.

The implementation of publicly available charging and fueling infrastructure is essential for support of an expanding zero-emission vehicle fleet. M/HD ZEV work group members may:

- Support the investment in charging stations that can accommodate M/HD ZEVs.

Communicating the Plan and Engaging People

Methods to increase equitable engagement and empower public, private, and non-profit effectiveness AND methods to directly engage and involve stakeholders, general public and traditionally underserved demographic cohorts.

A coordinated Clean Transportation Communication Campaign will help achieve statewide objectives through increased understanding and access to information. M/HD ZEV work group members may:

- Assist or support the creation of a coordinated statewide communication campaign and web portal with publicly accessible resources and tools for educators and local planners to use for education and planning projects. These resources and tools include:
 - A clean transportation and ZEV education and outreach toolkit, with model education curricula and an Activities Guide for equitable engagement. This toolkit should be developed in coordination with the light-duty ZEV and fleet transition work groups.
 - A repository of fleet electrification and M/HD ZEV funding opportunities along with public facing progress reports (dashboards) with clear benchmarks and mechanisms for public feedback. This resource should be developed with the fleet transition work group.
- Focus on media and education efforts to highlight fleet transition and M/HD ZEV benefits to community members and disadvantaged business enterprises.

New training opportunities will accelerate the pace of clean transportation transitions and generate new workforce opportunities. M/HD ZEV work group members may:

- Coordinate with the clean transportation infrastructure, light-duty ZEV, and fleet transition work groups to develop a zero-emission vehicle workforce development strategy. This strategy should aim to provide targeted EV maintenance and electrical infrastructure training programs for traditionally underserved communities. Virtual options should be considered where possible.
 - The M/HD work group will focus on strategizing training programs for M/HD ZEV repair and maintenance.
- Participate in the identification of resource materials to inform tailored training materials surrounding M/HD ZEV operations, repair, and maintenance.
- Contribute to the development of training materials tailored to traditionally underserved communities.
- Participate in training activities as appropriate.

Accelerating North Carolina's pace of transition to clean transportation options will require state agencies to collaborate with a variety of groups. M/HD ZEV work group members may:

- Assist with identifying key partnership opportunities and making connections.

- Work with community-based organizations (CBOs) and community champions to help bridge communication gaps and ensure traditionally underserved communities experience clean transportation benefits.
- Assist with connecting key entities with coordinated communication plan opportunities.
- Serve as an ambassador to the NCCTP by representing key messaging at appropriate functions and industry events.

Work Group Strategy Tables

Work Group Strategy Tables

Orientation

The following pages contain the proposed strategies identified by the work group. The various strategies listed are not directly endorsed by state agencies and do not necessarily represent a consensus proposal by the work group participants or the NCCTP Advisory Committee. Not all strategies listed are necessarily supported by all work group participants or all members of the NCCTP Advisory Committee. The work group plan organizes and reflects the ideas generated by the work group under the four thematic focus areas: **Governance**, **Infrastructure**, **Funding and Finance** and **Communications and Engagement**. The strategies listed in each table are specific to each group’s work group plan.

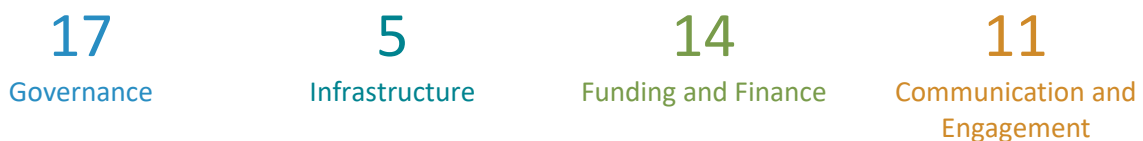
For every strategy, additional detail is provided on 1) the key stakeholders best positioned to help move the strategy forward, 2) if the strategy contributes directly or indirectly to equitable outcomes, and 3) what actions are required to initiate the strategy. The ideas are listed in no particular order.

Example Table

Governance				
ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-3	Incentivize the creation of M/HD manufacturing jobs.	Local Government, Corporations, Non-Profits	Indirect	Identify economic development incentives with clean transportation and supporting market sectors.

Strategy Table Summary

This work group has identified the following strategies:



Governance				
ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-1	Adopt a standardized tool for GHG emission assessment for transportation projects.	NCDOT, NCDEQ	Indirect	Establish consistent, repeatable approach to assessing GHG.
MHD-2	Require GHG emission assessment for transportation projects and add GHG emissions to existing and future capital funding prioritization criteria.	Legislative, NCDOT, NCDEQ, MPOs/RPOs	Indirect	Develop a meaningful approach to measuring GHG related emissions for capital projects and assign appropriate values in prioritization activities.
MHD-3	Incentivize the creation of M/HD manufacturing jobs.	Local Government, Corporations, Non-Profits	Indirect	Identify economic development incentives with clean transportation and supporting market sectors.
MHD-4	Create a ZEV workforce development strategy.	NCDOT, Other State Agencies, Corporations, Non-Profits	Indirect	Partner with institutions and workforce advocates to generate ZEV workforce opportunities.
MHD-5	Create a model curriculum for STEM programs and K-12 schools on EVs.	NCDOT, MPOs/RPOs, Local Government	Direct	Invest in the future through early engagement with NC youth to cultivate understanding and opportunities.
MHD-6	Create a climate and health rating system for use in planning and analysis.	Legislative, NCDOT, NCDEQ, MPOs/RPOs, Local Government	Indirect	Adopt a consistent method/tool of addressing climate and health evaluations.
MHD-7	Require health impacts to be considered when evaluating and prioritizing funding program projects.	Legislative, NCDOT, NCDEQ, MPOs/RPOs, Local Government	Indirect	Define the role and metrics for health associated impacts in evaluation criteria.
MHD-8	Supplement level of service with vehicle miles traveled, greenhouse gas, and health analyses during any required transportation and land use projects evaluations.	Legislative, NCDOT, NCDEQ, MPOs/RPOs, Local Government	Indirect	Update analysis requirements and evaluation metrics of plans and programs by requiring equity, health, GHG, and VMT considerations.
MHD-10	Create design guidance for electric vehicle charging sites that integrate active transportation and transit and requires resiliency.	NCDOT, MPOs/RPOs, Local Government, Private Developers	Indirect	Establish consistent agreed upon design guidance to help streamline design, review, and permitting activities.
MHD-11	Modernize statewide procurement procedures to eliminate barriers to/promote electric vehicle purchases.	NCDOT, Other State Agencies	Indirect	Identify legislative and departmental policy barriers and seek appropriate revisions.
MHD-12	Perform a statewide clean transportation policy diagnostic and modernization effort to ensure alignment across departments and divisions.	NCDOT, Other State Agencies	Direct Indirect	Inventory and evaluate existing policy to reveal conflicts and modernization opportunities.
MHD-13	Create model ordinance language for M/HD vehicle idling that can be adopted by local jurisdictions.	NCDOT, MPOs/RPOs	Indirect	Support the creation of NC best practices that includes a comprehensive set of best practices and model codes in support of clean transportation goals.
MHD-14	Provide low/no cost public transit via state subsidies to offset fare losses.	NCDOT, Local Transit Agencies	Direct	Pilot programs exist and may serve as a future model.
MHD-15	Allow municipalities to establish road designs for state-maintained streets within their jurisdiction.	NCDOT, MPOs/RPOs, Local Government	Direct Indirect	Reduce barriers to implementing complete streets on state-maintained streets.
MHD-16	Draft model codes that would require development to include charging infrastructure.	NCDOT, MPOs/RPOs, Local Government	Indirect	Support the creation of NC best practices that includes a comprehensive set of best practices and model codes in support of clean transportation goals.

Governance

ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-17	Investigate potential policies such as Advanced Clean Trucks, Heavy Duty Omnibus, EV-first state fleet procurement, etc.	NCDOT, NCDEQ	Indirect	Identify legislative and departmental policy barriers and seek appropriate revisions.

Infrastructure

ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-18	Prioritize the creation of zero emission delivery zones in traditionally underserved communities.	MPOs/RPOs, Local Government, Private Developers	Direct	A future web accessible data interface that provides consistent/easy access to equity populations will help with the achieving of this action.
MHD-19	Invest in the power grid to accommodate ZEV.	NCDOT, Other State Agencies, Local Government, Utility Providers, Private Developers	Indirect	This will require public and private investment and the identification of appropriate funding sources.
MHD-20	Invest in and plan for charging stations to accommodate larger trucks.	NCDOT, Local Government, Utility Providers, Private Developers, Corporations, Non-Profits	Indirect	This will require public and private investment and the identification of appropriate funding sources.
MHD-21	Support implementation of EV charging in traditionally underserved areas.	NCDOT, Local Government, Private Developers, Corporations, Non-Profits	Direct	Investing in traditionally underserved areas to enhance conditions and offer emerging opportunities that result in more equitable outcomes.
MHD-22	Anticipate potential externalities resulting from increased charging activities in traditionally underserved areas (ex. particulates, unsafe roads)	NCDOT, NCDEQ, MPOs/RPOs, Local Government	Direct	This will require monitoring trends, researching impacts, and enhanced engagement activities.

Funding/Finance

ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-23	Adopt EV incentives for rideshare and rental car fleets.	NCDOT, Other State Agencies, Corporations, Non-Profits	Indirect	Industry cooperation, legislative actions and policy revisions are likely required.
MHD-24	Create incentives to upgrade the electrical grid and TDM measures (travel demand management).	NCDOT, NCDEQ, Utility Providers, MPOs/RPOs, Local Government	Indirect	This will require public and private investment and the identification of appropriate funding sources.
MHD-25	Identify finance incentives for DBE, MWBE, and HUBs to transition managed fleets to ZEV.	NCDOT, Other State Agencies, MPOs/RPOs, Local Government	Direct	Industry cooperation, legislative actions and policy revisions are likely required.
MHD-26	Remove barriers and financially incentivize leasing options for M/HD ZEVs.	NCDOT, Other State Agencies, Corporations, Non-Profits	Indirect	Industry cooperation, legislative actions and policy revisions are likely required.
MHD-27	Create incentives and advantages for clean transportation projects proposed in traditionally underserved areas.	NCDOT, MPOs/RPOs, Local Government	Direct	Investing in traditionally underserved areas to enhance conditions and offer emerging opportunities that result in more equitable outcomes.

Funding/Finance				
ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-28	Prioritize investment for MD/HD trucks at ports and airports that are in traditionally underserved areas or EPA Nonattainment or Maintenance areas.	NCDOT, Other State Agencies, MPOs/RPOs, Local Government, Port and Airport Authorities	Direct	Industry cooperation, legislative actions and policy revisions are likely required.
MHD-29	Prioritize investment in the state fleet first to create awareness and lead by example.	NCDOT, Other State Agencies	Indirect	Examples include school bus, NCDOT, law enforcement, and other state funded fleets.
MHD-30	Transition from a fuel tax to a vehicle use tax to fund transportation.	Legislative, NCDOT	Indirect	Continued support of the NC First Commission should reinforce the importance of VMT reduction and equitable outcomes.
MHD-31	Identify funding for agencies to hire and retain employees needed to administer and implement upcoming federal funds.	NCDOT, MPOs/RPOs, Local Government	Indirect	A human resources inventory would assist with understanding the scale of this investment and likely ROI.
MHD-32	Create a state carbon tax to serve as a new revenue source and reward the use of clean vehicles.	Legislative, NCDOT	Indirect	This topic should be researched and considered in NC as a potential method to incentivize clean transportation options.
MHD-33	Provide public assistance to small fleet owners in making the transition to ZEVs.	NCDOT, Other State Agencies, Local Government, Corporations, Non-Profits	Indirect	This will require public and private investment and the identification of appropriate funding sources.
MHD-34	Create incentives and advantages for clean transportation projects proposed in traditionally underserved areas.	Legislative, NCDOT, MPOs/RPOs, Local Government	Direct	Investing in traditionally underserved areas to enhance conditions and offer emerging opportunities that result in more equitable outcomes.
MHD-35	Increase clean transportation procurement incentives for HUB/MWSBE/DBE.	NCDOT, Other State Agencies, MPOs/RPOs, Local Government	Direct	This requires revisions to internal procurement practices.
MHD-36	Identify partners and organizations that are already engaging effectively and prioritize funds to these entities for continued success.	NCDOT, MPOs/RPOs, Local Government, Non-Profits	Indirect	Adding a "history of success" criteria to prioritization of existing and emerging funding programs.

Communication/Engagement				
ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-37	Create a repository of funding opportunities for M/HD ZEVs.	NCDOT, MPOs/RPOs	Indirect	A centralized "one-stop-shop" hub has been discussed.
MHD-38	Promote awareness on the value of M/HD electrification in rural and traditionally underserved communities with legislators.	Legislative, NCDOT, NCDEQ, Corporations, Non-Profits	Direct	This is a critical ingredient of a coordination communication strategy.
MHD-39	Create awareness on the value of M/HD ZEV to our economy, health, and energy security.	NCDOT, NCDEQ, MPOs/RPOs	Indirect	This is a critical ingredient of a coordination communication strategy.
MHD-40	Educate voters on the diversity of clean energy options.	NCDOT, NCDEQ, Other State Agencies, MPOs/RPOs, Local Government	Indirect	This is a critical ingredient of a coordination communication strategy.

Communication/Engagement

ID	Strategy	Key Stakeholders	Contributes to Equitable Outcomes	Notes
MHD-41	Create more M/HD ZEV training opportunities for owners/operators.	NCDOT, NCDEQ, MPOs/RPOs, Local Government, Corporations, Non-Profits	Indirect	Investigate existing model programs from around the country and tailor to NC.
MHD-42	Host public and industry specific events to create M/HD ZEV awareness.	NCDOT, NCDEQ, MPOs/RPOs, Local Government, Corporations, Non-Profits	Indirect	This is a critical ingredient of a coordination communication strategy.
MHD-43	Promote success stories via social media, newsletters, etc.	NCDOT, Other State Agencies, MPOs/RPOs, Local Government, Corporations, Non-Profits	Indirect	This is a critical ingredient of a coordination communication strategy.
MHD-44	Educate owners/operators on funding opportunities for M/HD ZEV.	NCDOT, MPOs/RPOs, Local Government, Corporations, Non-Profits	Indirect	This is a critical ingredient of a coordination communication strategy.
MHD-45	Identify champions within rural and traditionally underserved communities that can help bridge the communication gap.	NCDOT, MPOs/RPOs, Local Government, Non-Profits	Direct	This is a critical ingredient of a coordination communication strategy.
MHD-46	Collaborate with traditionally underserved and rural communities to align their identified needs with electrification efforts including health, workforce mobility, and economic development.	NCDOT, NCDEQ, MPOs/RPOs, Local Government, Utility Providers	Direct	Investing in underserved areas to enhance conditions and offer emerging opportunities that result in more equitable outcomes.
MHD-47	Invest in outreach to HUB/MWSBE/DBE.	NCDOT, Other State Agencies, MPOs/RPOs, Local Government	Direct	This is a critical ingredient of a coordination communication strategy.

Next Steps

Next Steps

This work group plan offers the beginnings of what will be an ongoing effort to carry forward the goals of the NCCTP. The work groups are anticipated to continue their work beyond completion of the NCCTP. The following actions act as the preliminary steps for work groups:

- The newly proposed NCDOT Clean Transportation Team will serve as a resource to all five work groups.
- The work group will choose a chair from among its members.
- The work group will establish a calendar for Work Group Plan activities.
- The work group will identify an agreed upon schedule for meeting (early expectations include meeting on a quarterly basis).
- The work group will solidify work group membership, which may extend beyond previously engaged work group members to include additional individuals or groups.
- On occasion, the work group will provide continued leadership for combined work group activities.
- The work group will develop an approach for supporting the NCCTP focus areas and provide updates to the NCDOT Clean Transportation Team and Interagency Task Force for annual reporting purposes.