

FINAL REPORT

NORTH CAROLINA CLEAN TRANSPORTATION PLAN



April 2023

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If you speak a language other than English, qualified interpreters or information written in other languages are available, free of charge, by calling 1-800-481-6494.



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Glossary

2022 NCDEQ Greenhouse Gas (GHG) Inventory

The North Carolina Department of Environmental Quality produces a statewide inventory of greenhouse gas (GHG) emissions that represents North Carolina’s “carbon footprint.”

Alternative Fuels

These fuels include gaseous fuels, such as hydrogen, natural gas, and propane; alcohols, such as ethanols, methanol, and butanol; vegetable and waste-derived oils; and electricity.

Clean Cities Coalitions

As part of the U.S. Department of Energy’s (DOE) Vehicle Technologies Office (VTO), Clean Cities coalitions foster the nation’s economic, environmental, and energy security by working locally to advance affordable, domestic transportation fuels, energy efficient mobility systems and other fuel-saving technologies and practices. More than 75 active coalitions serve as the foundation of Clean Cities, including three coalitions in North Carolina.

Clean Transportation

Clean transportation refers to means of travel that produces low or zero greenhouse gas emissions. Examples include low- and zero-emission vehicles, energy efficient vehicles, transit, and active transportation modes, such as walking, biking, etc.

Community-Based Organization (CBO)

The North Carolina Healthcare Association defines a community-based organization (CBO) as a public or private nonprofit organization of demonstrated effectiveness that is representative of a community or significant segments of a community; and provides educational or related services to individuals in the community.

Disadvantaged Business Enterprise (DBE)

The USDOT defines Disadvantaged Business Enterprise as a for-profit small business concern where socially and economically disadvantaged individuals own at least 51 percent interest and also control management and daily business operations. These can include African American, Hispanic, American Indian, Asian-Pacific and Subcontinent Asian Americans, and women. Others can qualify on a case-by-case basis.

Electric Vehicle (EV)

An electric vehicle (EV) uses a battery-powered electric motor instead of an internal combustion engine.

First-Mile and Last-Mile

For transit and package-delivery trips, First-Mile/Last-Mile refers to the general distance between a traveler’s origin/destination and a transit stop.

International Brotherhood of Electrical Workers (IBEW)

The International Brotherhood of Electrical Workers (IBEW) is a labor union representing nearly 800,000 electrical industry workers and retirees.

Metropolitan Planning Organization (MPO)

A metropolitan planning organization (MPO) is the policy board of an organization created and designated to carry out the metropolitan transportation planning process for urbanized areas (UZAs) with populations over 50,000, as determined by the U.S. Census. North Carolina has 19 MPOs.

NC Advanced Clean Trucks Rule

Executive Order 271 initiated the rulemaking process for an Advanced Clean Trucks (ACT) program. The program will position North Carolina to benefit from the global market transition to electric vans and trucks by requiring manufacturers to sell an increasing percentage of zero-emission vehicles over time while providing flexibility, through credits, trading and other features, as segments of the market grow at different speeds. The sales targets would also drive investment in other zero-emission technologies including charging and fueling infrastructure.

NCDOT Strategic Transportation Investments (STI)

Passed in 2013, the Strategic Transportation Investments (STI) law equips the N.C. Department of Transportation to use funding efficiently and effectively to enhance infrastructure while supporting economic growth, job creation and a higher quality of life. The process encourages thinking from a statewide and regional perspective while also providing flexibility to address local needs. The STI law establishes the Strategic Mobility Formula, which allocates available revenues based on data-driven scoring and local input. It is used to develop the State Transportation Improvement Program (STIP), which identifies the projects that will receive funding during a 10-year period. In North Carolina, the STIP is updated every two years.

Rural Planning Organization (RPO)

Although organized and tasked in a manner similar to MPOs, North Carolina's 20 rural planning organizations (RPOs) are grounded in state law and are intended to address and improve rural area transportation planning processes.

Single-Occupant Vehicle (SOV)

A single-occupant vehicle (SOV) refers to a private vehicle whose only occupant is the driver, regardless of the purpose of the trip.

State Transportation Improvement Program (STIP)

The State Transportation Improvement Program (STIP) is a 10-year state and federally-mandated plan that identifies the construction funding for and scheduling of transportation projects.

Title VI

Title VI is the federal law that protects individuals and groups from discrimination on the basis of race, color, and national origin in all programs, services, and activities of a federal-aid recipient. The law specifically states: "No person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." (Title VI, the statute, is codified at 42 U.S.C. 2000d). Other related laws have expanded the program to protect against discrimination based on age, sex, limited English proficiency (LEP), income-level, disability and creed/religion (where applicable). The intent of the program is to remove barriers and conditions that prevent minority, low-income, LEP, and other disadvantaged persons from accessing, participating in, and benefiting from programs and activities of federal-aid recipients.

Traditionally Underserved Community

These communities can be defined by a variety of metrics but typically refer to groups that are socioeconomically disadvantaged, people with limited English proficiency, geographically isolated or educationally disenfranchised people, people of color as well as those of ethnic and national origin minorities, and women and children.

Transportation Demand Management (TDM)

The Federal Highway Administration defines TDM as the process of providing travelers—regardless of whether they drive alone—with transportation choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability.

Vehicle Miles Traveled (VMT)

Vehicle miles traveled (VMT) measures the demand for vehicle travel along a given roadway segment by adding the total miles traveled for all motor vehicles.

Zero-Emission Vehicle (ZEV)

Zero-emission vehicles (ZEVs) are battery-powered and plug-in-hybrid vehicles that must be plugged in to be recharged.

Why We Need a Plan

Transportation Impacts—According to the 2022 NCDEQ Greenhouse Gas (GHG) Inventory, **transportation emissions in North Carolina account for 36 percent of total GHG emissions**—the largest contributor in the state. Eighty eight percent of these emissions are attributable 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 emissions.

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.

Details regarding expectations for clean and equitable outcomes can be found on page 6 of the NCCTP Report.

Executive Summary

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 50 percent emission reduction, reaching 1.25 million zero-emission vehicles (ZEV) by 2030 and achieving net-zero emissions by 2050.

Work Groups

The following subject matter work groups supported the creation of the NCCTP. These volunteer groups included a wide variety of public and private stakeholders. Their efforts centered on identifying strategies to advance the following:

Light-Duty Zero Emission Vehicles (ZEVs)

Generally smaller vehicles, including personal cars and trucks with zero-emission characteristics.



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

Heavier than light-duty vehicles and typically include school buses, public transit buses, freight vehicles and other fleet vehicles.



Fleet Transition

Strategies to transition business or government fleet operations towards more zero- and low-emission vehicles.



Vehicle Miles Traveled (VMT) Reduction

Can be accomplished through a coordinated approach to transit, rail, bike (including e-bikes), pedestrian and other non-motorized travel as well as land development considerations.



Clean Transportation Infrastructure

Strategies supporting ZEV and alternative fuel infrastructure expansion to support the private and public fleet transition to zero- and low-emission vehicles.



More detail regarding the NCCTP Work Groups can be found on page 18 of the NCCTP Report.

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 task force 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), the National Electric Vehicle Infrastructure (NEVI) Program and Diesel Emissions Reduction Act (DERA), can ensure existing dollars do as much as possible to support the clean transportation transition.

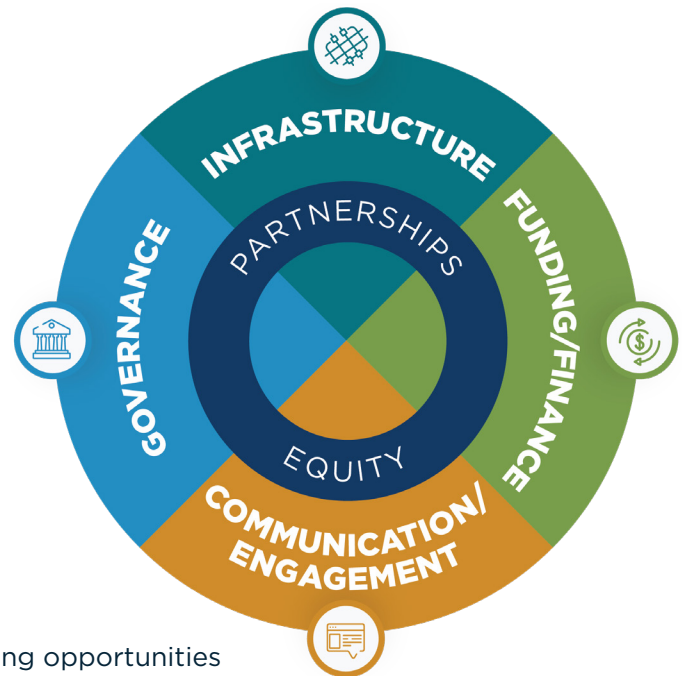
Evaluate and apply for new funding that advances clean transportation outcomes—The Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) can be used to advance the priority strategies identified in the NCCTP.

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.

More detail regarding the NCCTP Key Recommendations can be found on page 22 of the NCCTP Report.





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Introduction

Our state's continued commitment to the economy, equitable outcomes, the environment and public health has led to a better understanding of the impact of greenhouse gas emissions on the health and well-being of North Carolina's residents. These emissions are largely a result of the use of fossil fuels to power everything from our electricity-producing power plants, manufacturing, agriculture and transportation.

According to the 2022 North Carolina Department of Environmental Quality (NCDEQ) Greenhouse Gas (GHG) Inventory, transportation emissions in North Carolina account for 36 percent of total GHG emissions—the largest contributor to GHG emissions in the state.

Therefore, achieving statewide emission reduction goals will require our transportation system to reduce reliance on fossil fuels and accelerate the pace of low- and zero-emission travel.

If we are to make real progress, North Carolina must prioritize the removal of barriers that have slowed—and in some cases prohibited—the transition to cleaner transportation options. The transition will require cooperation among public agencies, fleet operators, the energy sector and the public to advance cleaner alternatives in an equitable way.

The North Carolina Clean Transportation Plan (NCCTP) is a coordinated strategy 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. Working together, these stakeholders leveraged technical expertise and public input to identify strategies that will inform near-term actions.

The planning process was supported by the N.C. Department of Transportation and implementation will require the department's leadership or participation. However, the N.C. Clean Transportation Plan represents a coordinated strategy, offering public and private entities as well as state, regional and local governments a roadmap to guide actions aimed at achieving an equitable clean transportation system for North Carolina.

Origins

While clean transportation efforts are happening all around our state, Executive Orders (E.O.) 80, 246, and 271 all encourage a more coordinated strategy. The NCCTP supports these three executive orders that point the state toward a cleaner, more equitable transportation future. All of the executive orders reinforce the importance of acknowledging disproportionate impacts on traditionally underserved communities and identifying strategies to mitigate these impacts.

Executive Orders



Executive Order 80 (2018)
The origins of the NCCTP date back to an Executive Order signed in 2018 (E.O. 80), which placed an increased focus on the state's efforts to create a cleaner, more equitable energy

future and placed specific targets on a range of metrics, such as economy-wide emissions, registered zero-emission vehicles (ZEVs) and energy consumption. In the years that followed, the state launched several planning efforts to identify specific ways to meet the directive of E.O. 80, including the [North Carolina ZEV Plan](#) and the [North Carolina Motor Fleet ZEV Plan](#). Executive Order 80 establishes goals for North Carolina to:

- Reduce economy wide emissions by **40% below 2005 levels by 2025**
- Increase total number of registered ZEVs to at least **80,000 by 2025**
- Reduce energy consumption in state-owned buildings by **40% below 2002-2003 levels**



Executive Order 246 (2022)
E.O. 246 was signed in January 2022 and put a spotlight on 2030 and 2050 milestones, with increased metrics tied to emissions and the volume of ZEVs traveling the roads

of North Carolina. E.O. 246 not only directed the development of the NCCTP, but also placed a strong focus on bringing equity and environmental justice into clean transportation decision-making. Executive Order 246 outlined strategies to:

- Reduce economy wide emissions by **50% below 2005 levels by 2030 and achieve net-zero emissions no later than 2050**
- Increase total number of registered ZEVs to at least **1.25 million by 2030**
- Increase the sale of passenger ZEVs so that **50% of in-state sales are zero-emission by 2030**



Executive Order 271 (2022)
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***



The Transportation Sector's Role

To advance the goals of Governor Roy Cooper's E.O. 246, NCDOT led the preparation of the NCCTP and facilitated a broad stakeholder engagement process. Among its many objectives, the NCCTP considers the transportation sector's role in reducing emissions, improving public health, advancing economic opportunities, and developing equitable outcomes. The NCCTP recognizes the importance of identifying near-term strategies and actions, and takes into consideration supportive federal legislation and emerging clean technologies.

Expectations

From the start, the planning process was guided by four tenets that state the NCCTP should **be a plan for all of North Carolina; advocate for public, private and non-profit participation; consider all layers of governance; and focus on equitable outcomes.** The NCCTP is a plan for North Carolina's residents and businesses. There is an expectation that the state find meaningful ways to hold ourselves accountable by tracking our progress. Annual reporting will increase awareness, promote transparency and create accountability. This expectation is derived from the executive orders and was expressed by participants as being critical to our success. Information will be made available through a regularly maintained online dashboard.

NCDOT worked with a diverse group of stakeholders to develop the plan by exploring what's in place today and the challenges and opportunities of potential future actions. These meetings, held virtually to extend the reach of the process across the state, were highly interactive, using the latest digital collaboration tools. With support from stakeholders, the project team identified several **key objectives for the NCCTP process.**

The North Carolina Clean Transportation Plan will result in:

1

Sharing of best practices and increasing awareness of the current landscape of clean transportation initiatives in North Carolina.

2

Tracking of progress, such as ZEV registrations, ZEV sales, vehicle miles traveled (VMT) reduction per capita, equity and workforce development.

3

Development of actionable strategies, with an emphasis on near-term action that will support achieving the goals in E.O. 246 and any other goals developed as part of the NCCTP process.

4

Assessment of the opportunities, challenges and considerations of creating a more equitable clean transportation system in the state, with a specific focus on the potential impacts on traditionally underserved communities.

Aligned Initiatives

While the NCCTP is a first-of-its-kind effort for the state, the process aligned with numerous recent and ongoing initiatives to accelerate the pace of change and more effectively respond to the plan's goals. Notable initiatives included

The [North Carolina Zero-Emission Vehicle Plan](#) was developed as part of E.O. 80 to accelerate the transition to ZEVs by outlining best practices to increase the adoption of ZEVs and expand the deployment of EV charging infrastructure in North Carolina. (October 2019)

[NC Moves 2050](#) is a strategic transportation plan that focuses on connecting communities and creating a more responsive, diverse and inclusive transportation system for keeping people and freight moving safely and efficiently. (February 2021)

The [NCDOT Vehicle Miles Traveled \(VMT\) Reduction Study](#) identifies ways to reduce VMT in urban, rural and regional areas through a process that included researching VMT trends and testing potential transportation demand management (TDM) strategies. A companion [VMT toolkit](#) was developed to assist local governments with deploying TDM strategies in their communities. (April 2021)

The [Multi-State Medium- and Heavy-Duty ZEV Action Plan](#) was a collaborative effort between 17 U.S. states, the District of Columbia and the Canadian province of Quebec to produce an Action Plan for accelerating a transition to zero-emission trucks and buses. (July 2022)

The [U.S. National Blueprint for Transportation Decarbonization](#) (Blueprint) guides how the nation can address GHG emissions to provide better transportation options, expand affordable access and transition to zero-emission vehicles and fuels. The Blueprint provides a holistic approach to transforming the transportation sector through a coordinated interagency call to action. (January 2023)

The [North Carolina Electric Vehicle Infrastructure Deployment Plan](#) is the state's proposed roadmap to maximize federal National EV Infrastructure (NEVI) Formula Program investment in EV charging infrastructure to support an equitable and swift transition to ZEVs. (August 2022)

The [2022 NC Motor Fleet ZEV Update](#) is the annual update to increase ZEV vehicles in the state's motor fleet. The plan identifies several actions to bring awareness to ZEV options, expand engagement on setting ZEV priorities and align infrastructure and policies to fully embrace ZEV technology. (October 2022)

The [North Carolina Deep Decarbonization Pathways Analysis](#) informs the potential role of transportation in achieving the state's near- and long-term climate targets, specifically ways to use technology, policy and planning to achieve greenhouse gas targets through the year 2050. (February 2023)



Peer Success Stories

A national scan of best practices for decarbonization initiatives related to the NCCTP work group topic areas focused on efforts either in place or underway by peer agencies. Facilitated discussions between NCDOT staff and these peer agencies offered helpful insight into who is leading the effort, the origin of the program, the resources it requires and specific challenges faced when getting the program off the ground.

Deep Decarbonization Pathways Analysis

The Deep Decarbonization Pathways Analysis identified technologically feasible GHG emissions reduction pathways to achieve North Carolina's economy-wide 2030 and 2050 GHG targets (50 percent reduction by 2030 and net-zero by 2050). The study considers all significant emission sources, including those from the transportation sector.

Seven Key Findings:

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



Clean and Equitable Transportation

A commitment to clean and equitable transportation solutions creates a future where all North Carolinians can enjoy shared prosperity.

The planning process created the opportunity to reflect on the impacts of past decisions, listen to the needs of traditionally underserved communities and work to ensure that the externalities of the past are not carried forward into the future. In North Carolina (as with other states), transportation decisions have often negatively and disproportionately impacted traditionally underserved communities and have contributed to generational harms.

Traditionally underserved communities generally include those identified in the NCDOT Title VI Nondiscrimination Policy (shown on the next page) and include:

- *People of Color, Black or African American, Hispanic, Asian American & Pacific Islander and Indigenous*
- *People who do not speak English or speak English as a Second Language (ESL)*
- *Single-parent households*
- *People experiencing homelessness*
- *Socioeconomically disadvantaged*
- *Geographically isolated*
- *Educationally disenfranchised*
- *American Indian and Tribal Communities*

The history of actions and policies, such as urban renewal and redlining, and the displacement of indigenous people from their ancestral lands making it difficult to sustain traditional ways of living, have isolated communities along physical, social, racial and economic lines. The outcomes of these actions include higher rates of serious injury and fatalities, disproportionate adverse health among traditionally underserved communities and disproportionate exclusion from economic opportunities.

Acknowledging past harms requires the NCCTP to address lack of transportation options for these communities and to promote equitable access to clean, safe and reliable transportation choices. A commitment to clean and equitable transportation solutions creates a future where all North Carolinians can enjoy shared prosperity. The planning process allowed for connection with members of traditionally underserved communities from across the state and intentional focus on the development of equitable outcomes. While this effort attempted to be as inclusive as possible, more can still be done to continue listening, learning and responding to the needs and priorities of traditionally underserved communities.

As we decarbonize our transportation system, we need to seek meaningful communication and engagement with communities who are typically underserved in public processes in order to develop solutions that increase low-cost, clean and reliable transportation options for everyone. Some main challenges include:

- *Lacking two-way communication and trust with traditionally underserved communities*
- *Insufficient inclusion of traditionally underserved communities in the clean transportation transition*
- *Financial and resource barriers to clean transportation transition*
- *Many communities experiencing the largest air quality pollution burdens are traditionally underserved*

The work group plans will contain more information on strategies that were considered during the planning process.

NCDOT Title VI Nondiscrimination Policy Statement

*“It is the policy of the North Carolina Department of Transportation (NCDOT) to ensure that no person shall, on the ground of race, color, national origin, limited English Proficiency, income-level, sex, age, or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any NCDOT program or activity, including, where applicable, religion, as provided by **Title VI of the Civil Rights Act of 1964**, United States Department of Transportation (DOT) Order 1050.2A, Title 49 Code of Federal Regulations (CFR) Part 21, the Civil Rights Restoration Act of 1987, and other pertinent nondiscrimination authorities.”*



Transportation Options

Vehicle miles traveled—or VMT—per capita is the total annual miles of vehicle travel, divided by the total population. The [VMT Reduction Study](#) reports that between 2003 and 2019, the annual VMT in the United States grew by 13 percent, from 2.89 trillion to 3.26 trillion. During that same period, VMT in North Carolina grew from 93.7 billion to 123.1 billion, an overall increase of 31 percent.

As a metric, VMT is used to evaluate the impact of new development projects on the transportation network. Historically, transportation impacts were measured using level of service (LOS), which used travel speeds and throughput to evaluate the impact of new projects. Recently, a shift towards an analysis of VMT per capita has helped reframe how we think about and measure the impacts of new projects on greenhouse gas emissions, congestion and air quality.

There are several factors that contribute to the level of VMT, including population growth, the mixture of land uses, the available transportation network and societal factors. An effective strategy to mitigate growing VMT per capita rates and meet the state's goals is leveraging transportation demand management (TDM) strategies. TDM is a set of strategies that provides travelers with transportation choices. These transportation options can include walking, scootering and biking (including e-bikes), taking public transportation or carpooling. The continued investment in a variety of safe and affordable modes of transportation will provide options for people of all ages and abilities.

Non-highway transportation, including airports, rail and ferries account for 9 percent of greenhouse gas emissions in the transportation sector. An example of exploring the economic and technical feasibility of non-highway electrification is the [Vessel Electrification Investigation Analysis](#) for the NCDOT Ferry Division Fleet. The results of the study will support the integration of infrastructure improvements and vessel modification into long-range budget and operations plans.

Rail freight is another important component of the state's transportation network. The most recent standards adopted by the Environmental Protection Agency (EPA) create multiple tiers of emission standards related to rail fleet. While the emissions reduction from upgrades have not yet been quantified for the NCDOT Rail fleet, the EPA expects an annual emissions reduction of nitrogen oxides by about 800,000 tons and particulate matter emissions by about 27,000 tons in the United States by 2030.

Communities around North Carolina are already pursuing TDM strategies, including investing in [Complete Street](#) solutions, defining regulations in Unified Development Ordinance (UDO), creating mixed-use spaces and educating community members. To achieve equitable outcomes, the intentional investment into traditionally underserved communities must be prioritized. To help North Carolina achieve its emission goals, identifying context-specific strategies to reduce VMT will be essential.

Investments in multimodal infrastructure is closely related with VMT reduction in three ways.

- 1. Safety.** In North Carolina, many communities are committed to Vision Zero, a statewide program that aims to eliminate roadway fatalities and injuries. By providing separated, dedicated infrastructure for various modes of transportation, North Carolina can cultivate safer communities while reducing VMT. For example, a painted buffered bicycle lane promotes safety by clearly designating bicycles from automobiles while allowing both to travel at preferred speeds.
- 2. Maintenance Costs.** Like other states across the nation, North Carolina's transportation infrastructure needs repair and maintenance. With a diverse transportation network made up of roadway, bridges, ports, ferries and trains, the multimodal network facilitates the efficient and safe movement of people and goods. The investment and financial resources needed to maintain the transportation network are finite and must be prioritized to maintain the transportation network. Providing mode choices can reduce congestion, alleviate the strain on roadway maintenance efforts and expand transportation options for traditionally underserved communities who might not have access to a personal vehicle.
- 3. Land Use Policy.** Land use patterns have a direct impact on VMT. Street networks and development designs that provide safe connectivity between locations and accommodate non-vehicular travel are essential to reduce VMT. In relation to housing, VMT strategies must be considered in tandem with the siting and development of affordable housing options. In areas with no access to transit or other active transportation facilities, people will most likely drive to get to and from their destinations. A mixture of land uses not only creates more vibrant communities, but also can complement TDM strategies to reduce VMT. At a local level, leveraging public private partnerships can help divide the cost of implementing new facilities, like sidewalks, bicycle lanes, or transit stops.



Context Matters

Rural



Given North Carolina's unique mix of geographies, our approach to clean transportation must be versatile and include relevant options for rural, suburban and urban places. This requires an integrated strategy that reflects the needs and opportunities of each of these distinct contexts.

Most of North Carolina is made up of rural communities, even though most people (57 percent) live in urban areas. These lower density places often observe longer commutes and a reliance on travel by car, but access to health care, employment, higher education higher education, workforce training and small business and small business opportunities can be inconsistent. Clean transportation strategies in this context will need to consider more than just personal travel but also include opportunities for the agriculture sector, while promoting enhanced connectivity to workforce training, business and economic growth opportunities in our changing economy.



All of these context areas include traditionally underserved communities that have experienced disproportionately negative impacts from past transportation decisions. This pattern of past harm must be overcome as a part of our clean transportation future and our combined efforts should promote shared prosperity, health and safety for all of North Carolina's citizens.



Suburban



Our state is full of vibrant suburban communities. These places enjoy proximity to our cities and have become a preferred location for many to raise families while enjoying moderate commutes. Most travel in these areas is accomplished by driving and a reliance on arterial streets and freeways results in congestion. Clean transportation strategies in this context will need to accommodate increased travel electrification and increased travel options as well as promote future growth that results in shorter trip lengths making more non-driving travel possible.

Urban



These are the places with the greatest concentration of jobs and densest housing patterns. As a result, our cities have the potential to provide multimodal travel options that make car-light and car-free lifestyles possible. They are also the places where we should expect some of the greatest emission reductions to occur. Clean transportation strategies in this context will need to include significant fleet transitions to zero-emission vehicles, concentrations of clean transportation infrastructure and enhanced travel options that promote transitioning to clean modes of transportation.



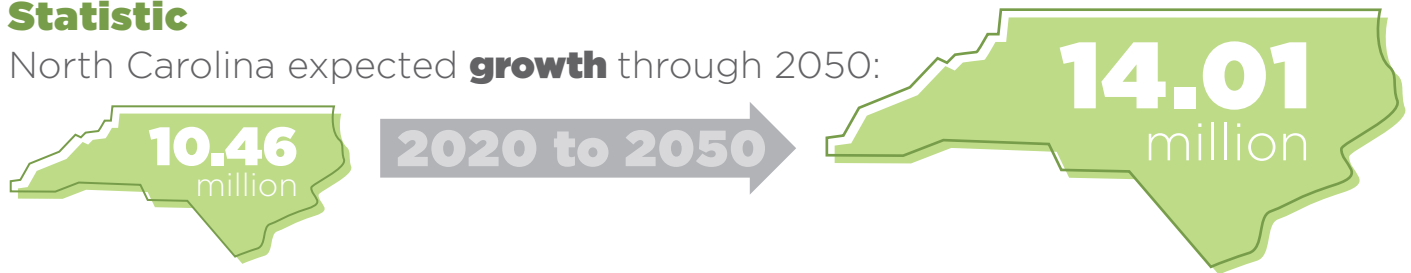
Community Characteristics

Given the diverse geographies and jobs across the state, North Carolina has a diverse group of travelers. Even a brief glimpse into the tendencies of our travelers shows how the way we move—whether by choice or necessity—influences the health and well-being of our people and our environment.

North Carolina’s population continues to grow rapidly.

Statistic

North Carolina expected **growth** through 2050:



Source: NC Office of State Budget and Management

North Carolina is home to a unique mix of urban, suburban, exurban and rural areas, but trends continue to point to a more urban future. How fast certain areas in the state are growing versus others illustrates this.

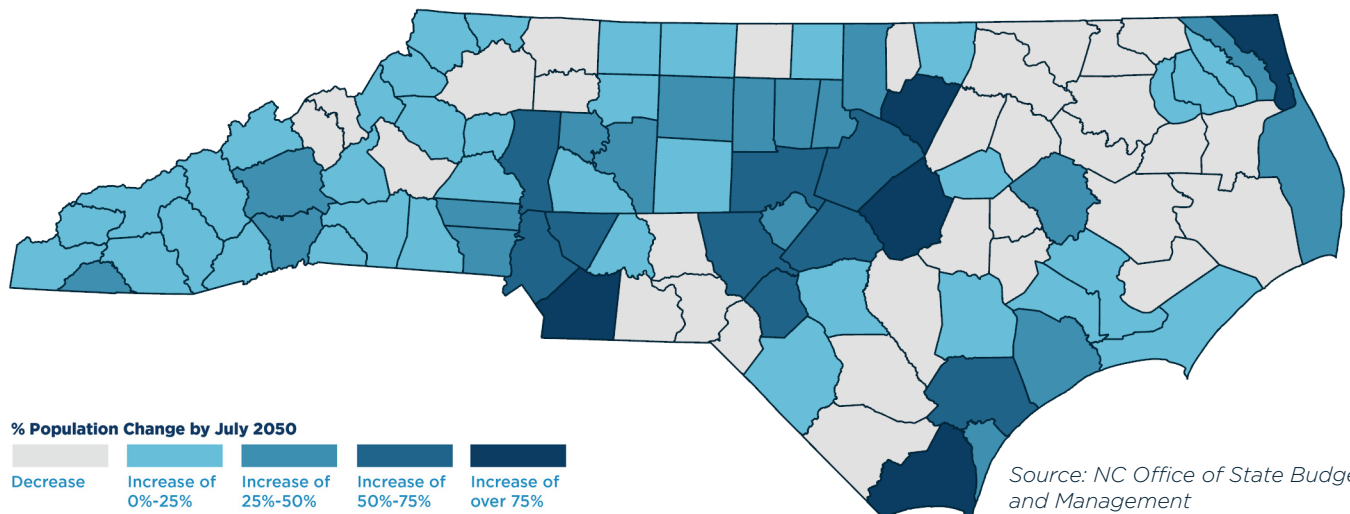
How Urban Are We Now

Over **half the population** currently lives in 13 counties (all within metropolitan areas).

99%

of population growth is projected between 2021-2050 in counties located in metropolitan/micropolitan areas.

Source: NC Office of State Budget and Management



Source: NC Office of State Budget and Management

North Carolinians overwhelmingly drive single occupancy vehicles as their primary mode of transportation.

Less than one-third of North Carolinians use multimodal travel options. One factor pushing residents to rely on single-occupancy vehicles is a lack of infrastructure and programs to support multimodal travel.



Source: 2021 Statewide American Community Survey (ACS) 5-Year Estimates
 *An additional 10.3% work from home and 1.1% use other means of transportation

The types of transportation choices available to the residents of North Carolina may vary based on their demographic group.

Improving infrastructure and programs that support different modes of travel and reduce reliance on single-occupancy vehicles will provide more travel options for transportation disadvantaged households.

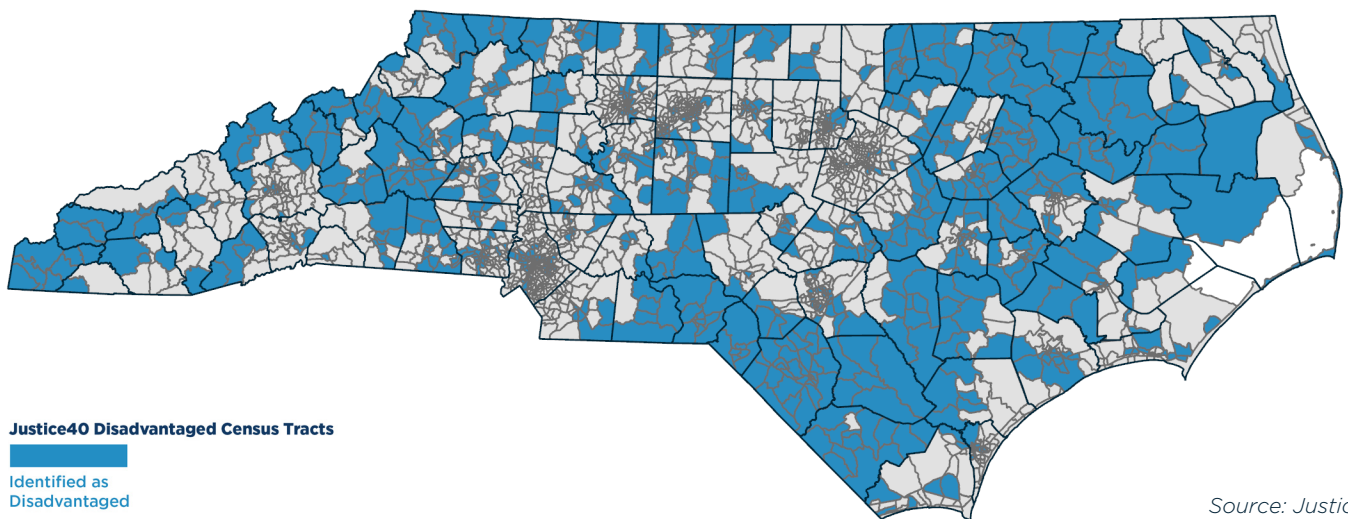
Percent of NC Households Without Access to a Vehicle By Race



In North Carolina, 30% of census tracts are considered transportation disadvantaged.

Source: 2019 National Equity Atlas

Justice40 Disadvantaged Census Tracts



Source: Justice40

Justice40 is a federal program designed to address gaps in transportation infrastructure and public services by working toward the goal that 40 percent of benefits from grants, programs, and initiatives will flow from USDOT to traditionally underserved communities.

Our tendency to travel by personal automobile is reflected in the number miles of we travel.

How Many Miles We Log



Source: US Energy Information Administration

The more miles we travel, the more crashes that occur.

NC Crashes in 2021



Source: NC Division of Motor Vehicles
* Crashes per 1 million Vehicle Miles Traveled (MVMT)

We will not achieve emission goals if we don't address transportation.

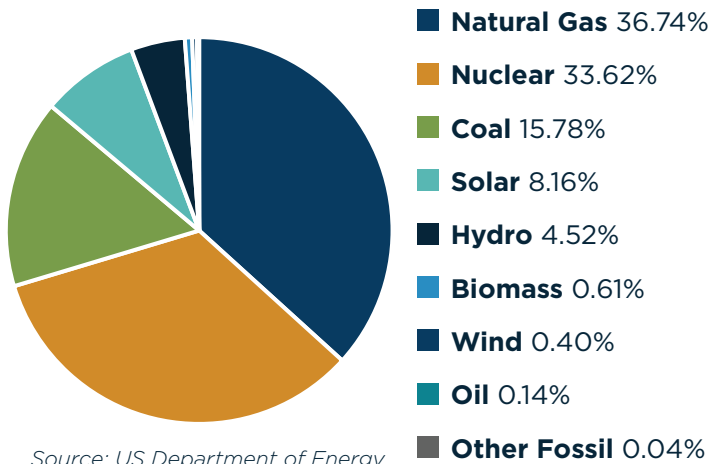
Transportation and Greenhouse Gases Emissions



Source: NC Department of Environmental Quality

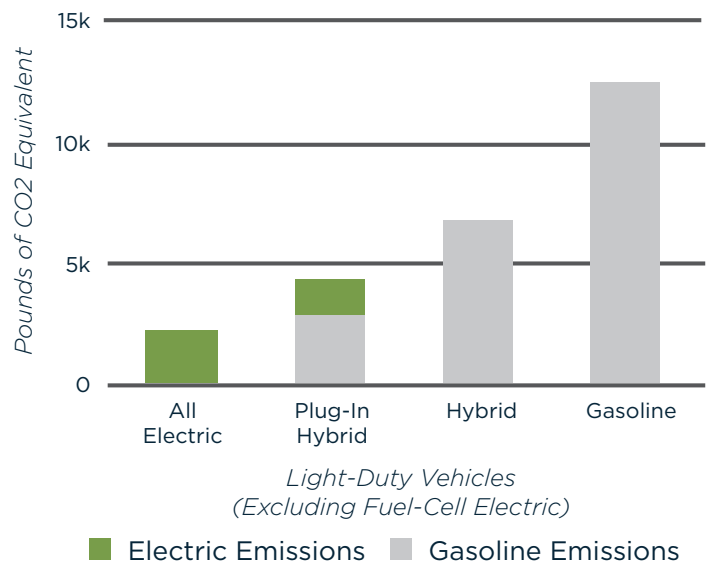
Nearly half of North Carolina’s electricity generation is from low- or zero-emission sources. This lowers emissions from all electric and plug-in hybrid vehicles even more.

Electricity Sources*



Source: US Department of Energy
* Data based on assumptions with 2021 data

Annual Emissions Per Vehicle



Light-Duty Vehicles
(Excluding Fuel-Cell Electric)

■ Electric Emissions ■ Gasoline Emissions
Source: US Department of Energy

We need to work together to reduce GHG emissions across all modes of transportation.

NCDOT is responsible for maintaining the second highest number of state-owned highway miles in the country. While light-duty vehicles account for the majority of GHG emissions in the transportation sector, medium- and heavy-duty vehicles and non-highway transportation (for example, airports, rail and ferries) account for 16% and 9% of emissions, respectively.

To reduce transportation emissions, the state will continue to provide support to non-highway and multimodal transportation network. This includes support of the state’s public transit systems, bicycle and pedestrian facilities and the future of transportation options like micro-mobility and autonomous vehicles.

A Co-Creation Planning Process

The NCCTP planning process was intentionally inclusive. Throughout the NCCTP process, NCDOT was committed to the co-creation of the plan with other state agencies and external stakeholders. While NCDOT and the N.C. Department of Environmental Quality (NCDEQ) served as support staff to five subject matter work groups and the NCCTP Advisory Committee, over 220 state and national stakeholders participated in the process. 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.

Advisory Committee

A 20-person Advisory Committee was formed to help guide plan development. The Advisory Committee was formed at the outset of the planning process in order to ensure representation in the planning process from a diverse set of priorities and expertise. The committee met eight times starting in March 2022 to provide planning oversight, discuss ways to draw other perspectives into the process and vet actionable strategies that came from the work groups. Specifically, the Advisory Committee guided a process rooted in the belief that each stakeholder group offered value to the process. The Advisory Committee helped ensure the resulting plan remained inclusive and actionable without losing sight of the broader purpose of the NCCTP. Members of the Advisory Committee also participated in the subject matter work groups. A list of Advisory Committee members can be found in the acknowledgments section of the plan.

Public Information Sessions

The NCCTP emerged through the collaborative efforts of stakeholders with diverse viewpoints and unique ideas. A series of four virtual public information sessions increased public awareness, encouraged broad accessibility to the process and extended the reach of other ongoing initiatives. In these virtual sessions, participants learned about the development of the NCCTP and other supportive plans and were encouraged to ask questions and engage with work groups to learn more about areas of specific interest. Information collected during these sessions was shared with work groups and Advisory Committee members for consideration in the final NCCTP report.



Inclusive Partnerships

Clean transportation practices and technologies change rapidly. To understand this, the NCCTP collaborated with a diverse group with a wide range of interests. These partnerships exist between local, regional, state and federal entities tasked with various responsibilities. The partnerships extend to industry groups and non-governmental organizations that align with desired outcomes.



Work Groups

The following subject matter work groups supported the creation of the NCCTP. 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 focused Work Group Plans that address known challenges and leverage opportunities. More information on the content contained within the Work Group Plans, as well as a list of work group participants, can be found on the [NCDOT website](#).

Maintaining momentum will require a coalition of support and continued cooperation. Therefore, the work groups are expected to continue their collaborations beyond the plan. The NCDOT Clean Transportation Team will coordinate with work groups and external stakeholders to assist with implementing the supporting strategies in the Work Group Plans.

More than 3,300 ideas were collected across the five work groups and the strategies that comprise the NCCTP are derived from these ideas.

Light-Duty 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*

Medium- and Heavy-Duty ZEVs

These vehicles are heavier than light-duty vehicles and typically include school buses, public transit buses, freight vehicles and other fleet vehicles. Gasoline- and diesel-powered medium- and heavy-duty vehicles only account for a small portion of registered vehicles, but are responsible for significant greenhouse gas emissions and cause significant amount of air pollution. The focus of this group included:



- *Educating potential users about the unique needs of and supportive infrastructure for medium- and heavy-duty ZEVs*
- *Increasing the availability and the pace of adoption of medium- and heavy-duty ZEVs*

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*

Vehicles 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 to be reconvened by the NCDOT*
- *Connecting planning efforts related to transit, bike/ped, passenger rail and other non-vehicle transportation modes to clean transportation objectives*

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 EV charging infrastructure, including the NEVI Program*
- *Improving infrastructure associated with alternative fuels*
- *Supporting future infrastructure improvements through mapping, siting and identification of gaps*

Cross-Cutting Themes

Each subject matter work group met six times and discussed the potential objectives, needs and opportunities related to the following cross-cutting themes to ensure that many different perspectives were considered in the final set of recommended strategies.

Equitable Access to Clean Transportation Options

Improve access for all, with a focus on traditionally underserved populations

Education and Outreach Opportunities

Promote ideas to improve clean transportation awareness, benefits and opportunities

Incentives and Finance Options

Establish opportunities for clean transportation alternatives to overcome economic barriers and increase demand

Transportation Influences on Public Health

Improve public health and safety outcomes

Economic and Workforce Development

Maximize economic and workforce development opportunities

Recommended Revisions to NC Requirements and Guidance

Identify necessary legislative, regulatory and programmatic changes to achieve targets



Focus Areas

The combined efforts of all the work groups generated a thoughtful set of priority strategies that can be organized into the following focus areas: **Governance, Infrastructure, Funding and Finance** and **Communications and Engagement**. These four focus areas can also serve as organizing themes for all recommended actions and each emphasizes equity and developing partnerships.

One or more key recommendations have been identified for each focus area. Some actions are critical and should be accomplished within the next 0-2 years; others will require more time and have mid-term timeframes of 2-5 years; some will begin now and continue through the near- and mid-terms. These key recommendations represent important steps that must be taken by North Carolina and supported by a variety of partners. A more complete set of the strategies discussed within each work group can also be found in the NCCTP work group plans.

Partnerships

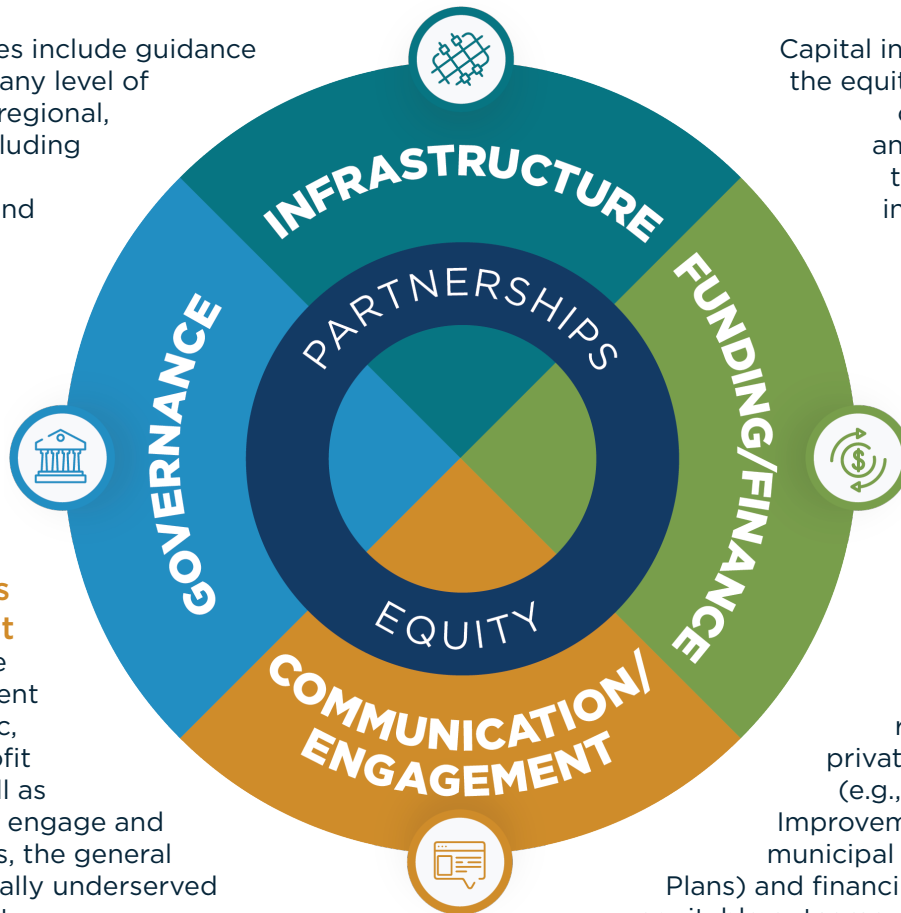
Bringing government, industry, advocates and the public together to advance clean transportation solutions.

Governance

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.

Infrastructure

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



Communications and Engagement

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

Funding and Finance

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

Equity

Improving access to clean transportation and equitable outcomes for all with a focus on traditionally underserved populations.

NCCTP Key Recommendations

Governance Activity

Timeframe: Near-Term



Create a dedicated clean transportation team

Why this is Important

A dedicated Clean Transportation Team housed within NCDOT will be critical to successfully implement the NCCTP. The new unit can establish a clear work plan with staff focused on NCCTP implementation, creating a new resource and point of contact for work groups, NCDOT business units and state agencies that can accelerate and track clean transportation progress.

State Action

NCDOT should establish a Clean Transportation Team to:

- *Advance the implementation of the NCCTP, with emphasis on near-term key recommendations and supporting strategies*
- *Track and communicate implementation of the NCCTP objectives to the public, focusing on key recommendations and supporting strategies*
- *Track and report annually on key metrics, including E.O. goals, greenhouse gas emission reductions, equity objectives, VMT reduction targets and other metrics as appropriate*
- *Apply for and support disbursement of applicable federal grant programs with key partners*
- *Collaborate with and support all NCDOT business units and other state agencies in the implementation of the plan's clean transportation recommendations*
- *Convene and facilitate the Interagency Task Force (outlined on the next page) to make recommendations for plan implementation and track progress*
- *Convene and support public stakeholder work groups*
- *Include and support traditionally underserved communities on clean transportation priorities, including engaging with communities to identify community-level transportation needs and priorities and aligning those needs with available state and federal funds*
- *Serve as a conduit between the public stakeholder work groups and the Interagency Task Force*
- *Continue to identify and remove barriers to clean transportation implementation and align statewide initiatives, as appropriate*

Supporting Strategies

The new Clean Transportation Team will lead, support or partner in the remaining key recommendations and support strategies, as appropriate.

Governance Activity

Timeframe: Near-Term



Align statewide policy through an interagency task force

Why this is Important

Many North Carolina agencies influence our opportunity to achieve clean transportation goals. Accelerating the transition to clean transportation will only be accomplished through internal alignment within state administration as well as tapping into external partnerships.

State Action

NCDOT will convene a Clean Transportation Interagency Task Force comprised of representatives from the Governor's Office, NCDEQ, North Carolina Department of Commerce (NCDOC), North Carolina Department of Health and Human Services (NCDHHS), North Carolina Department of Administration (NCDOA) and other organizations. The task force will (1) clarify responsibility, resource, and coordination needs to implement NCCTP strategies, (2) encourage agencies to align related policies and 3) remove barriers to implementation of the NCCTP recommendations. The task force will support the Clean Transportation Team's efforts to implement key recommendations and supporting strategies, as appropriate, and will:

- *Promote efforts to identify and support traditionally underserved communities and ensure their inclusion in clean transportation opportunities*
- *Continue modernization of procurement procedures and support state efforts to transition to ZEVs, such as the school bus replacement process and the NCDOA's efforts to transition the state motor fleet to ZEVs*
- *Review existing policies to identify potential conflicts and opportunities*
- *Anticipate emerging needs and recommend new policies to achieve statewide goals and equitable outcomes*

Governance Activity

Timeframe: Near- to Mid-Term



Increase equitable outcomes in transportation planning projects

Why this is Important

It is important to acknowledge the past harms caused by transportation decisions. It also is important to learn from the past and to take steps to ensure future investments in clean transportation do not negatively impact traditionally underserved communities. North Carolina will take steps to increase access to clean transportation options in traditionally underserved communities and create economic opportunities as the transition occurs.

State Action

NCDOT and the Interagency Task Force will work to enhance existing environmental justice efforts and promote equitable outcomes by:

- *Involving Environmental Justice partners to inform implementation of the NCCTP*
- *Identifying equity metrics to incorporate into projects and promote accountability. This includes metrics for 1) target population identification 2) investment decision-making 3) progress-tracking and 4) program impact assessment*
- *Partner and consult with CBOs, stakeholder groups, and appropriate experts when developing equity metrics to help ensure the transition to clean transportation technology occurs in ways that do not inadvertently harm or leave behind traditionally underserved communities*
- *Track progress over time on the Clean Transportation Plan goals and objectives in coordination with the MPO and RPOs*

Supporting Strategies

Supporting partners will be asked to:

- *Assist with creating new engagement and decision-making processes that reflect the priorities of traditionally underserved communities, fostering partnerships between government agencies, non-profit organizations and community based organizations (CBOs)*
- *Partner with healthcare, economic development and workforce training institutions to align initiatives, connect people with opportunities and train the next generation workforce through trade programs and apprenticeships*
- *Work with communities to listen to and address concerns in areas with CTP-related investments, including areas near emerging market/ industrial sites*
- *Explore the creation of zero-emission delivery zones in traditionally underserved communities or areas with existing air quality concerns*

Governance Activity

Timeframe: Near- to Mid-Term



Ensure access and affordability to clean transportation

Why this is Important

Investing in clean transportation needs to include equitable access, where everyone can choose from various affordable clean transportation options and benefit from clean transportation—regardless of socioeconomic status, race, or background. Without goals of shared prosperity, intentional inclusivity efforts and a focus on equitable outcomes, we risk leaving people behind and causing unintended impacts.

State Action

NCDOT will develop policies and programs that promote access and affordability to clean transportation options and will prioritize infrastructure investments for traditionally underserved communities. This includes:

- *Addressing Justice40 targets and including access and affordability principles into federal procurement processes, including the National EV Infrastructure (NEVI) program*
- *Incorporating access to and affordability of charging and fueling infrastructure in the ZEV Infrastructure needs assessment pursuant to E.O. 271*
- *Pursuing competitive grant resources under the federal “Grants for Charging and Fueling Infrastructure” program (authorized under the IIJA) and will consider input from the Clean Transportation Infrastructure Work Group in developing an application*
- *Providing technical assistance and partnership to businesses and fleet owners through NCDEQ’s Environmental Stewardship Initiative to assist the transition to ZEVs, including M/HD vehicles.*

Supporting Strategies

The NCDOT Clean Transportation Team and the NCCTP Work Groups will need to continue researching the best ways to:

- *Create incentives and advantages for clean transportation projects proposed in traditionally underserved communities*
- *Deploy rebates, incentives or other support to enable traditionally underserved populations to affordably own or lease clean transportation vehicles*
- *Provide technical support to local communities and employers to secure grants and third party funding to support clean transportation advancements*

Governance Activity

Timeframe: Near-Term



Evaluate and update project prioritization programs

Why this is Important

State government processes include numerous prioritization practices that extend across capital programs, including NCDOT's Strategic Transportation Investments (STI) program. A review of these existing prioritization practices should be performed, and recommendations identified to accelerate the advancement of clean transportation projects and programs.

State Action

The STI Law allows NCDOT to maximize North Carolina's existing transportation funding to enhance the state's infrastructure and support economic growth, job creation and high quality of life. NCDOT will bring opportunities identified in the NCCTP to the existing Strategic Prioritization Office (SPOT) work group for consideration in the project evaluation process and engage the North Carolina General Assembly as appropriate.

- *Review best practices for how GHG emission evaluations are used in other prioritization processes*
- *Evaluate how the Regional and Division prioritization processes can improve equity, VMT per capita reduction and climate and health impacts*
- *Research project evaluation and funding prioritization programs to consider criteria—such as equity, VMT per capita reduction, climate and health impacts and clean transportation investments—that result in the greatest social and economic benefit*
- *Research the STI normalization process to evaluate the benefits and program delivery requirements of providing a higher percentage of funding for non-highway projects that meet transportation needs and promote clean transportation strategies*
- *Coordinate with MPOs and RPOs to align with the Clean Transportation Plan goals*

Supporting Strategies

The NCCTP work groups will continue researching the best ways to accomplish the following:

- *Review land use policies and work with local governments to support multimodal travel modes, including walking, biking, transit and other emerging mobility options*
- *Remove barriers to funding standalone multimodal projects and advocate for legislative action*

Governance Activity

Timeframe: Near- to Mid-Term



Partner with utilities to promote clean transportation

Why this is Important

Partnerships between the state and electric utilities will be a key factor in North Carolina's transition to clean transportation and will encourage clean transportation adoption, remove barriers to implementation and improve experiences for utility customers.

The pace toward a clean energy and clean transportation future requires coordination with the state's electric grid. To prepare the grid, utility providers must focus on the bulk electric system, the distribution grid and hyperlocal transportation electrification—all of which may have unique capacity constraints and needs. A combination of infrastructure improvements, managed charging options and public education will be needed to prepare the grid for a clean transportation future.

State Action

The Interagency Task Force will partner with electric utilities to promote clean energy and clean transportation options, support fueling infrastructure deployment, encourage consumer and fleet adoption, understand power capacity needs, manage peak loads and promote effective pricing.

- *Representatives from NCDOT and the Interagency Task Force will provide updates to the North Carolina Utilities Commission (NCUC) regarding implementation of the NCCTP and facilitate ongoing coordination between the NCUC, investor-owned utilities, electric membership co-ops and municipal utilities on NCCTP implementation*
- *The Interagency Task Force will partner with electric utilities to encourage statewide access to—and funding for—clean energy and clean transportation infrastructure as well as to enable equitable consumer and fleet adoption*

Supporting Strategies

Stakeholders will work together to review best practices and update policies and procedures to facilitate, expedite and standardize clean transportation and utility related infrastructure.

- *Develop a clearinghouse of best practices and other resources for local governments to expedite charging infrastructure permitting and review including coordination with electric utilities*
- *Collaborate with the energy sector on transportation electrification strategy development including topics like managing increased demand requirements, ensuring effective price signals and facilitating distribution system upgrades to support charging infrastructure*
- *Work with the North Carolina Building Code Council, utilities and other partners to ensure building codes support the cost-effective deployment of clean transportation infrastructure (e.g. EV ready codes)*
- *Expand utility programs (e.g. make-ready programs) that promote the growth of charging infrastructure*
- *Enhance energy storage infrastructure to support electrification*
- *Identify specific needs and opportunities to expand charging infrastructure for M/HD vehicles*

Funding and Finance Activity

Timeframe: Near-Term



Maximize existing funding to support clean transportation outcomes

Why this is Important

To fully capitalize on federal funding and mobilize NCCTP recommendations, the North Carolina General Assembly, along with other state decision-makers and stakeholders, should expand dedicated revenue sources that support clean transportation efforts, focusing on equitable outcomes, electrification, reduction of VMT rate per capita, and mode shift. Clean transportation outcomes and objectives should also be considered as part of broader transportation system revenue deliberations.

State Action

NCDOT and NCDEQ will evaluate current funding programs—including Congestion Mitigation and Air Quality (CMAQ), Carbon Reduction Program (CRP), National Electric Vehicle Infrastructure (NEVI) Program and Diesel Emissions Reduction Act (DERA)—to maximize potential for funding to support the goals of E.O. 80, E.O. 246 and E.O. 271.

- *Prioritize funding incentives and advantages for clean transportation projects proposed in traditionally underserved communities*
- *Work with Interagency Task Force and other stakeholders to notify traditionally underserved communities of funding opportunities*
- *Prioritize investment in other modes of travel, transportation demand management strategies, or electric vehicles and supporting infrastructure for all discretionary federal funding opportunities*
- *Explore investments in clean transportation infrastructure for M/HD vehicles*
- *Incorporate strong requirements for workforce development and Justice40 into application process for federal programs*

Supporting Strategies

- *Provide technical assistance for traditionally underserved communities to navigate the funding application process and secure funding*

Funding and Finance Activity

Timeframe: Near-Term



Evaluate new funding that advances clean transportation outcomes

Why this is Important

With the passage of recent federal legislation, North Carolina has the opportunity to leverage more revenue streams dedicated to clean transportation than ever before.

State Action

NCDOT and the Interagency Task Force will evaluate applicable federal funding opportunities under the IRA and IIJA to the extent those opportunities can further the priority strategies identified in the NCCTP.

- *NCDOT will work with the Clean Transportation Interagency Task Force and external stakeholder work groups to prioritize and pursue funding opportunities*
- *The Office of State Budget and Management (OSBM) and the Governor's Office will work with NCDOT and members of the Interagency Task Force to identify, track and pursue funding opportunities*
- *When applying for discretionary federal grants, NCDOT will evaluate opportunities to advance the priorities identified in the NCCTP*
- *NCDOT will work with partners to provide technical support to help small businesses and local governments better understand the availability and use of clean transportation funding sources*

Supporting Strategies

- *State agencies should partner with green banks and other financial institutions to support implementation of NCCTP priorities, including through disbursement of the Greenhouse Gas Reduction Fund.*
- *Stakeholders should identify effective funding and strategies to promote small and disadvantaged business electrification. This includes current funding opportunities under IRA and IIJA as well as funding programs and opportunities through the Community Development Financial Institutions Fund (CDFI) and small business tax credits.*
- *Financially incentivize options for leasing or buying new and used clean transportation technology and infrastructure*
- *Pursue financial policies that support removing high-emitting older vehicles from the road*
- *Develop incentive programs for developments or projects that support VMT per capita reduction, shared mobility or the use of non-auto travel modes*
- *Provide technical support to local communities and employers to secure grants and third-party funding to support clean transportation advancements*
- *Identify funding for agencies to hire and retain employees needed to administer federal clean transportation and related funds*

Infrastructure Activity

Timeframe: Near- to Mid-Term



Evaluate and deploy clean transportation infrastructure to support all types of fleet vehicles and applications

Why this is Important

Investment in zero- and low-emission fueling infrastructure is critical to the clean transportation transition. This includes infrastructure for all types of vehicles, including light-, medium- and heavy-duty vehicles.

State Action

NCDOT is developing a ZEV Infrastructure needs assessment as part of E.O. 271. This assessment will evaluate the charging and fueling needs to support the goals of E.O. 271 and the achievement of 1.25 million ZEV adoption targets in E.O. 246.

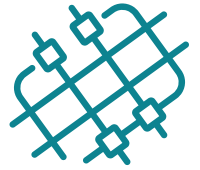
- *The assessment will include an evaluation of the number, type, distribution and cost of chargers and other fueling stations needed to achieve North Carolina's ZEV goals*
- *The assessment will strive to identify the greatest opportunities to expand the charging network in traditionally underserved communities*
- *The assessment will consider the infrastructure needs of larger vehicles, including trucks and buses*
- *This assessment should evaluate the infrastructure needs for current and planned park and ride facilities*

Supporting Strategies

- *Consider infrastructure needs of residents in multi-unit dwellings and for consumers lacking off-street parking*
- *Create a process for continued statewide planning of clean vehicle charging and fueling infrastructure*
- *Fund, prioritize and support the transition of school and transit bus fleets and supporting infrastructure to clean transportation alternatives*
 - » *The state will continue to seek funding opportunities to replace school buses with zero- to low-emission alternatives*
 - » *NCDOT's Integrated Mobility Unit will continue to advocate for transit electrification and multimodal options that reduce the use of single occupancy vehicles*

Infrastructure Activity

Timeframe: Near- to Mid-Term



Expand transportation demand management strategies

Why this is Important

VMT reduction is beneficial not only for reducing greenhouse gas emissions, but also for a variety of social, economic and health reasons. The VMT reduction toolkit highlights transportation demand management strategies to reduce VMT. This toolkit provides proven TDM methods that can be used to reduce VMT, and includes resources like potential grant programs to fund the implementation of the TDM measures. The toolkit can be used by state agencies, MPOs, RPOs and municipalities to assist their efforts in reducing VMT throughout the state.

State Action

NCDOT should reconvene the VMT Reduction task force and support and promote the transportation demand management programs outlined in the VMT reduction toolkit, including:

- *Expanded infrastructure for non-motorized mobility, rail and public transit, including first- and last-mile infrastructure*
- *Increased access to broadband to facilitate working from home and other travel choices, including support from the North Carolina Dig Once Policy*
- *Implement planned complete streets elements, including leveraging maintenance activities to add complete street improvements*
- *Incentivize state employees for using VMT-reducing modes of travel (e.g. carpool, bus, bike)*

Supporting Strategies

- *Improve quality of crash data and exposure data for rural and urban contexts*

Communication and Engagement Activity

Establish a coordinated clean transportation communication strategy

Why this is Important

Advancing a clean transportation initiative requires greater awareness, understanding and opportunities to collaborate. An immediate step includes designing and implementing a coordinated communication strategy. This strategy should be tailored to specific audiences and leverage the communication networks of public, private and nonprofit entities. This strategy should also encourage direct partnerships and communication with environmental justice groups, non-profit organizations, CBOs and advocacy groups.

State Action

NCDOT and the Interagency Task Force will seek dedicated funding opportunities to support a coordinated communication strategy. This strategy will include:

- *Identifying resources, staff and partnerships to develop and implement an education and awareness campaign*
- *Creating a communications plan promoting North Carolina as a clean transportation friendly environment to invest, live and work*
- *Establishing a central repository for transition resources (e.g., funding opportunities, benefits, incentives, technical assistance, best practices, testimonials)*
- *Creating easy-to-understand educational guidance (how, what, why) and addressing EV and other clean transportation myths regarding concerns about the environmental integrity, cost, and charging availability (partnering with NCDEQ and other organizations)*
- *Providing links to existing resources for clean transportation charging and fueling locations*
- *Offering testimonials that serve as a proof of concept, communicate relevancy and promote positive experiences*
- *Establishing model programs for fleet transition, highlighting benefits, opportunities and technical resources*
- *Issuing regular social media postings and informational newsletters (e.g., benefits, opportunities, ease of use)*
- *Conducting workshops in coordination with local leaders designed to educate and assist with navigating funding programs and securing grants for clean transportation advancements*
- *Developing tailored and accessible messaging in multiple languages for all communities*
- *Disbursing educational materials and campaigns through existing networks, including MPOs, RPOs, Clean Cities Coalitions and other partners*
- *Expanding and updating current communication methods (including bringing in diverse speakers and local leaders) to support education about clean transportation within traditionally underserved communities*

Timeframe: Near-Term



- *Coordinating with each state agency to include clean transportation initiatives within their annual Public Participation Plans*
- *Providing materials to aid stakeholders in their engagement of elected officials and the legislative process.*

Supporting Strategies

- *Develop training materials to further educate and engage stakeholders. These can include:*
 - » *Webinars and curriculum designed for fleet owner/operators*
 - » *Affordable EV infrastructure training (e.g., through the International Brotherhood of Electrical Workers [IBEW]) and apprenticeships*
 - » *Innovative workforce training solutions utilizing varying platforms*
 - » *Targeted workforce training opportunities for traditionally underserved communities*
- *Develop publicly available tools and dashboards that improve transparency and access to information*
- *Work with non-profit groups and other partners, such as Plug-In NC, the Clean Cities Coalitions and the NC Clean Energy Technology Center, to connect clean transportation messaging and resources with a diversity of demographic cohorts*
- *Promote and provide outreach for electric vehicle demonstrations and other events*
- *Coordinate with the MPOs and RPOs on local outreach to community members*
- *Ensure equitable access to transportation events and public participation opportunities by:*
 - » *Holding events after business hours*
 - » *Holding events at venues in underserved communities*
 - » *Ensuring events are free or affordable*
 - » *Providing online access to live meetings*

Work Group Plans

While the NCCTP highlights state actions and supporting strategies for the key recommendations in this report, the work groups identified a more comprehensive set of strategies and opportunities that can continue to be developed by work group members and utilized by the NCDOT team and Interagency Task Force. In support of this, a series of tailored work group plans have been created. The five work group plans offer the beginnings of what will be an ongoing effort, centering future work group activities.

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

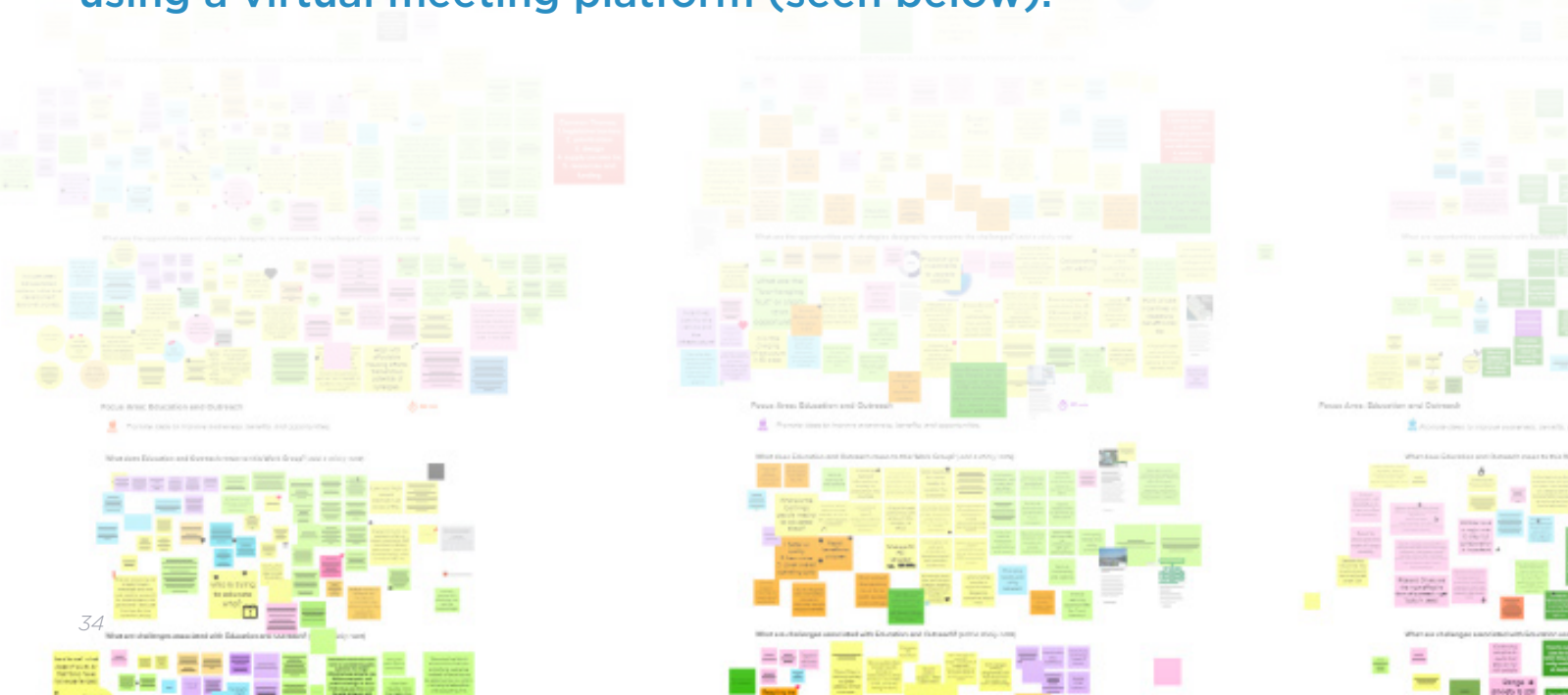
Background and NCCTP Focus Areas

The background section provides an overview of the executive orders that led to the preparation of the NCCTP. This section outlines how the focus areas were identified to advance the NCCTP's goals and concludes with the strategies that will help to advance the NCCTP's goals.

Work Group Support

In support of the NCCTP focus areas, the work groups will continue to meet, collaborate and dedicate time and energy to advance the strategies outlined in this report. The five work group plans organize and reflect the ideas generated by each work group under the four thematic focus areas. Under each focus areas, there is a consolidated list of strategies that reflects the recurring ideas heard from multiple work groups. This section highlights the specific ways the work group can continue to support the initiatives of the NCCTP.

Individual comments were collected by work group participants using a virtual meeting platform (seen below).



Visit the [NCDOT website](#) to access the individual work group plans for each group.

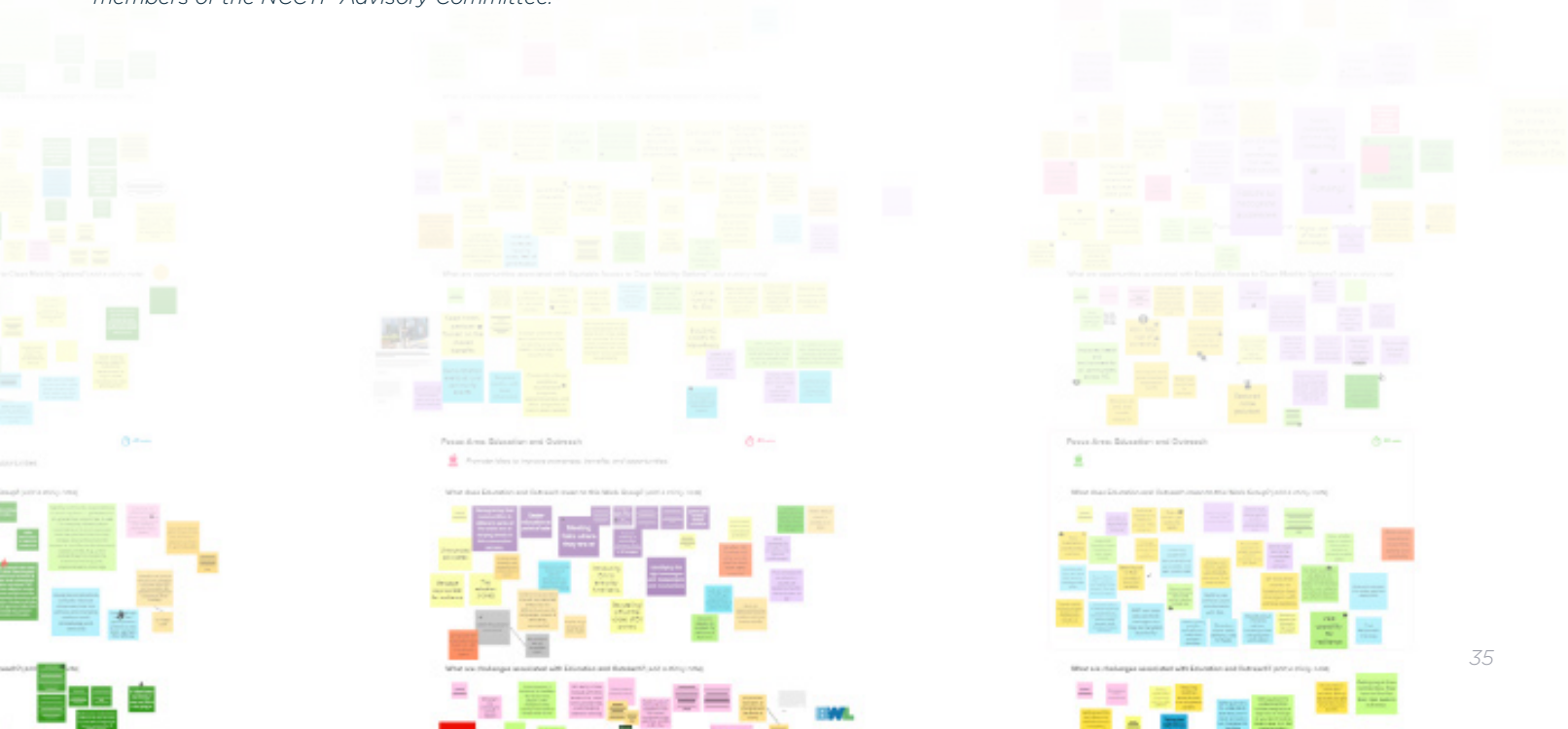
Work Group Strategy Tables*

The strategy tables are a collection of ideas generated by participants of the work group. For every 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. The initial ideas for strategies can be found following the consolidated list of strategies. The strategies listed in each table are specific to each work group plan.

** The various strategies listed do not necessarily represent a consensus proposal by the work group participants or the NCCTP Advisory Committee and not all strategies listed are necessarily supported by all work group participants or all members of the NCCTP Advisory Committee.*

Work Group Next Steps

The next steps provide a general framework for how the work groups can continue to collaborate with NCDOT and the Clean Transportation Team to achieve the NCCTP goals. The work groups are encouraged to continuously revise and update the work group plans as progress is made.



Our Transportation Legacy

The NCCTP represents the first step towards a coordinated clean transportation future. As we move into the implementation of the NCCTP, we must consider the legacy of our decisions.

Increased awareness comes with a responsibility to act.

North Carolina's largest contributor to GHG emissions is the transportation sector—accounting for 36 percent of total GHG emissions. Therefore, reducing statewide GHG emissions will require our transportation system to lessen its reliance on fossil fuels and accelerate the pace of low- and zero-emission travel.

We cannot and will not do it alone.

Our clean transportation future relies on a series of partnerships amongst government, industry, non-profits and, most of all, our communities. There is a shared understanding that the solution sets contained within the NCCTP are only effective if they are supported and advanced by our statewide leadership in government and the private sector.

Our success will be inclusive.

The story of our success will include contributions from all over our state—rural, suburban and urban. It will modernize our policies and make clean transportation infrastructure investments. It will create new opportunities for our economy and our workforce. Our clean transportation future will be inclusive and can be accomplished without leaving anyone behind.

The time is right, and N.C. is preparing for action.

Our state has been preparing for this moment. Over the last three years we have:

- *Developed a statewide transportation plan (NC Moves 2050)*
- *Identified ways to reduce VMT through the North Carolina VMT Reduction Study*
- *Created a Multi-State Medium- and Heavy-Duty ZEV Action Plan*
- *Authored the North Carolina Electric Vehicle Infrastructure (NEVI) Deployment Plan*
- *Produced a North Carolina Motor Fleet ZEV Update*
- *Completed the North Carolina Deep Decarbonization Pathways Analysis*





Maintaining Momentum

Over the last year, a diverse set of stakeholders have come together to develop a coordinated strategy to achieve an equitable clean transportation system for North Carolina. The NCCTP outlines 11 key recommendations that are critical to advancing the clean transportation transition. But the work does not stop here. All state, industry and community leaders must maintain the momentum created during the planning process.

When formed, the NCDOT Clean Transportation Team and the Interagency Task Force will guide the state's efforts to implement the key recommendations, working in partnership with external players. These state-led teams will strive to ensure the work moves forward and that appropriate metrics are in place to measure our success.

The NCCTP work groups will transition their efforts beyond the plan's completion to become standing groups that will continue to advance the identified actions and strategies, while supporting the state to progress the key recommendations. The continuation of the work groups will be guided by the work group plans and supported by the NCDOT Clean Transportation Team.

Most importantly, the development and implementation of a statewide communication strategy will create awareness of clean transportation opportunities and encourage all North Carolinians to take advantage of the social, health and economic benefits that the clean transportation transition can provide.



NORTH CAROLINA
CLEAN TRANSPORTATION PLAN

