New Visions 2050
Environment & Technology White Paper
Summary

The Environment & Technology White Paper explores transportation planning strategies and actions for preserving the natural environment and building a more resilient transportation system. It also evaluated emerging technologies, how they could shape travel behaviors and future infrastructure as well as how they can be leveraged to improve mobility, or the ability of Capital Region residents to get where they need to go, most efficiently. This document reviews the status of the New Visions 2040 performance measures and goals, outlines the region’s accomplishments and completed tasks that have contributed to those goals. Major themes throughout the paper include the anticipated effects of a changing climate, building for resiliency, creating equitable access to the transportation system, and using technology for everything from decision-making to managing traffic. It also explores the three revolutions in transportation: automation, electrification, and shared mobility and how they might (and already are) converge to disrupt the transportation systems.

The New Visions planning and investment principles regarding environment and technology were amended as follows:

**Preserve the Environment – transportation choices should improve our environment, not harm it.**
Environmental stewardship is crucial to the success of and quality of life in this region. Transportation investments must improve or preserve the region’s cultural and natural environment. Transportation investments will not encourage development in environmentally sensitive areas and will help to preserve rural character. Transportation investments will support alternative fuel vehicles and greenhouse gas reduction. Environmental best practices will be incorporated into all projects.

**Leverage Technology – we must plan for new, smarter, better, rapidly-changing transportation technology.**
Advancements in technology, such as self-driving cars, self-adjusting traffic signals, smart phone apps, ridesharing, carsharing, and bikesharing will have tremendous and wide-reaching impacts on future transportation. These impacts include, but are not limited to, decreasing congestion, providing transportation to more seniors and people with disabilities, reducing traffic crashes, and more.

Below are the action items recommended to implement the plan. A review of the draft white paper will also find a funding plan and evaluation of how four different future scenarios could impact performance measures, such as greenhouse gas emissions.

Recommended Action Items:

1. **Build a virtual forum for cross-disciplinary coordination and network.** The CDTC Smart Communities Task Force is a forum for the public and private sector to meet, network, and coordinate the integration of technology in the transportation system. The rapid changes brought about by technology impact a diverse array of sectors and organizations in the Capital District. The multi-dimensional nature of these impacts requires coordination and integration among these groups in order to maximize available resources and develop a shared vision and framework for how technology can improve mobility, accessibility and equity, and what metric should be used to evaluate the region’s progress. This action is broken into two subtasks: 1) create a virtual forum that can lay the groundwork for the development of a Smart Mobility Innovation lab for the Capital Region and 2) explore the feasibility of developing an open data portal.

2. **Develop a climate resiliency plan and vulnerability assessment tool.** Guidance on maintenance and construction of infrastructure in the face of the climate crisis will reduce vulnerabilities and make the region more resilient. This might include strategies for integrating green infrastructure into federally-funded local transportation projects and/or innovative construction techniques and materials.
3. **Identify and prioritize “Smart Corridors.”** Integrating and implementing new mobility and emerging technology requires the consideration of all modes of transportation, adjacent land uses, and connections within the street network(s). The corridor approach that CDTC promotes through the Transportation and Community Linkage Program can be modeled to identify and plan for connected, smart corridors that respect and enhance the natural and human environments, are consistent with New Visions goals, and support mobility. For example, the region might identify a frequently congested major arterial that could benefit from smart signals and other technology & mobility concepts discussed in this paper to move people faster and easier. This might be an existing or potential bus rapid transit route.

4. **Develop AV-readiness guidance for municipalities.** The transportation revolution is at the Capital District’s doorstep. The combination of electrification, automation, and shared mobility could be the key to reducing GHG emissions and slowing the impacts of the climate crisis. It is exciting and full of both opportunity and potential as it opens up mobility solutions to populations who have long been excluded from driving like the disabled, elderly and youth. CDTC must develop a regional vision for how C/AV technology will be adopted and supported. This vision should identify existing transportation gaps that create barriers to jobs, services, and other opportunities, and explore how C/AV technology can address them. How can towns, cities, and villages working to pass or implement Complete Streets legislation consider C/AVs and what policies are needed to ensure they are safe, efficient, and help achieve regional sustainability, economic, and safety goals.

5. **Adopt new technologies and tools for virtual public involvement.** Virtual public involvement (VPI) includes a host of tools and platforms that can efficiently be made accessible to communities, at a low cost, to communicate essential project information and collect comments. CDTC should research and evaluate available VPI tools and how they can be used to develop quick videos, crowdsourced data and information, conduct polls, visualize projects, and build a social media following. Better public engagement also means cultivating relationships with unconventional partners and stakeholders, such as local bloggers and media that can help expand CDTC’s reach.

6. **Compile GHG emissions data from transportation.** There is currently no single source of up-to-date GHG emission from transportation data to compare and evaluate progress the region has made. CDTC should coordinate with CDRPC to compile GHG data, at least for transportation, regularly.

7. **Adopt the MEP metric.** The USDOE has developed the Mobility Energy Productivity (MEP) to address the challenge of measuring how mobility impacts a person’s quality of life. CDTC should explore the feasibility of integrating MEP into its model to measure new transportation projects and services.

New Visions 2050 Environment & Technology Performance Measures:

<table>
<thead>
<tr>
<th>Measure</th>
<th>Date Source</th>
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<tbody>
<tr>
<td>Greenhouse Gas Emissions from Transportation*</td>
<td>TBD</td>
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<tr>
<td>Energy use from Transportation</td>
<td>TBD</td>
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<tr>
<td>Percent of TIP that invests in projects with a positive impact on GHG emissions</td>
<td>TIP/STIP</td>
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<tr>
<td>Volatile Organic Compounds (VOCs) &amp; Nitrogen Oxide (NOx)</td>
<td>NYSDEC</td>
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<tr>
<td>Petroleum Displacement</td>
<td>CDCC Annual Fleet Survey</td>
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*Primary performance measure*