



# INNOVATION IN MOTION

THE DELAWARE LONG RANGE TRANSPORTATION PLAN



Delaware Department  
of Transportation

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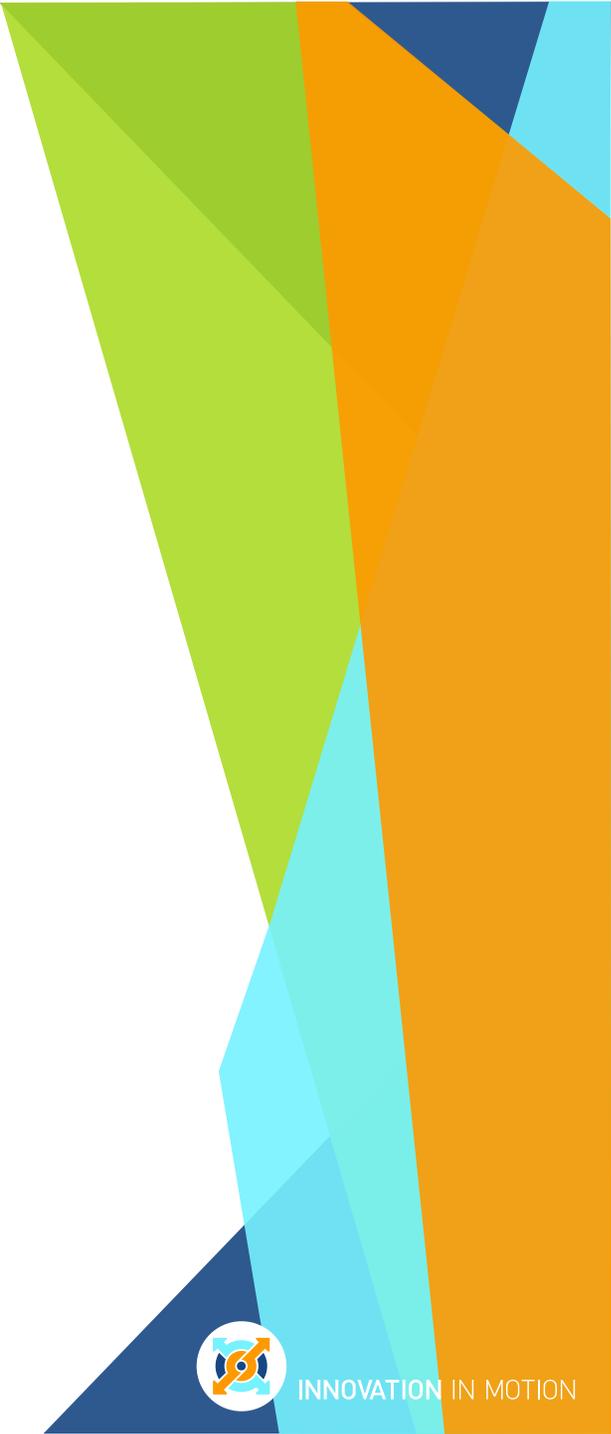


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# EXECUTIVE SUMMARY

Delaware's transportation system must continue to evolve over the next 20 years to support a growing economy, diverse communities and advancing technology. Increasing vehicle miles traveled (VMT), funding constraints and aging infrastructure are challenges that will require DelDOT to develop and implement innovative solutions.

**Innovation in Motion** outlines DelDOT's long range plan to embrace new technologies and strategies that enhance the transportation system and adapt to the ever-changing needs of our customers. This plan will define the statewide transportation goals, strategies, actions and performance measures to make our economy more competitive, our communities more vibrant, and our environment more sustainable for future generations.

## VISION STATEMENT

**Innovation in Motion** will guide DelDOT in developing a **safe, reliable and efficient** transportation system that will support a **diverse economy, vibrant communities and viable transportation options** for Delaware's citizens, visitors and customers.

## TRANSPORTATION IN DELAWARE BY 2040

Delaware's transportation system in 2040 will have some significant differences compared to today, including:

- An enhanced and connected multimodal system, including bicycle, pedestrian and transit networks
- New technologies in vehicles, infrastructure and system management
- Innovative tools for customer service and communication with the public



## CHALLENGES

**Innovation in Motion** examines the following statewide challenges and seeks opportunities to adapt the transportation system to overcome these challenges:

- Aging infrastructure requiring more maintenance
- Increasing population and Vehicle Miles Traveled (VMT)
- Decreasing public transit ridership
- Sprawling growth patterns resulting in longer commuting times to work and commercial centers
- Increasing aging population in need of costly specialized transportation services and facilities
- Changing economic conditions
- Impacts of extreme weather events and sea level rise
- Ensuring safe and efficient emergency evacuation routes
- Providing and maintaining safe and accessible routes for pedestrians and bicyclists
- Managing increasing traffic generated by special events and seasonal fluctuations
- Funding constraints

## VALUE & OPPORTUNITIES

### EXISTING PLANS & POLICIES

DelDOT's existing plans and policies set standards that ensure the agency is implementing programs effectively, efficiently and in the best interest of our customers. By connecting this plan to existing policies and plans, DelDOT will be able to work collaboratively across departments striving towards the same goals such as planned growth and strategic infrastructure spending.

### POPULATION DEMOGRAPHICS & TRANSPORTATION HABITS

The two largest population demographics by age are persons aged 65+ and millennials (persons born between 1981—2000). Each of these population demographics provides an opportunity for increased public transportation ridership with millennials often opting for alternative transportation rather than single occupancy vehicles, and the 65+ population increasingly becoming more reliant on public transportation as driving becomes less desirable. The growing 65+ population is likely to also promote growth for area job markets, particularly retail, hospitality, healthcare and services for the aging population.

### ECONOMIC GROWTH

Delaware's economy is dependent on a safe, efficient and reliable transportation network. Access to job opportunities and freight mobility are key factors in economic growth. Also, tourism serves as a major economic driver for Delaware economies. Although the majority of visitors travel to Delaware by motor vehicle, bicycling, walking and public transit are becoming more attractive transportation to visitors once they arrive at their destination.

### NEW TECHNOLOGIES

DelDOT is working on several policies embracing a variety of new technologies that could improve transportation, economic growth and quality of life. Among these new technologies are:

- Intelligent Transportation Systems (ITS) Upgrades
- Drone Aircraft
- Mobile Travel Applications
- Real-Time Travel Updates
- Connected and Automated Vehicles

## LONG RANGE GOALS

DeIDOT will implement *Innovation in Motion* by aligning plans, policies, activities, and measuring progress towards the following long range goals:

**Safety and Security** - Ensure the safe and secure movement of people and goods while limiting the potential for incidents that may cause harm or disrupt the network operations.

**Economic Vitality** - Promote and strengthen the economic vitality of Delaware with an excellent transportation network that meets the needs of a diverse and growing economy.

**Connectivity** - Improve accessibility, mobility and increase options for the movement of people and freight; enhance the integration of a multi-modal transportation system throughout the state; provide people with a choice of safe, attractive and reliable options.

**Quality of Life** - Maintain and enhance vibrant and appealing communities and support planned growth and development through a transportation network that serves the mobility needs of all Delawareans.

**System Preservation** - Preserve the transportation network to support travelers and commerce, while adapting to the future's changing needs.

**System Management and Operations** - Enhance system management and operations through innovative strategies and technology that increase the efficiency of the transportation system.

**Resiliency and Reliability** - Provide resilient and reliable transportation system that offers predictable travel times under normal conditions as well as efficient and safe use during emergency situations.

**Environmental Stewardship** - Protect and enhance the environment through sustainable best practices, integration of environmental considerations into planning and design, and responsible energy consumption.

**Travel and Tourism** - Facilitate efficient mobility options for tourist destinations that support Delaware residents, businesses, and visitors.

**Customer Service and Communication** - Conduct the highest level of customer service possible to proactively provide information and to learn from and address our customers' needs.



## PLAN COMPONENTS

### PART 1

**Part I – Introduction & Vision**, explores questions such as “Where have we been?”, “Where are we now?”, “Where are trends heading?”, and most importantly, “Where do we want to go?” Based on historical knowledge, existing data and future projections, Part I has determined the value, opportunities and challenges of Delaware’s transportation network and has defined the vision and goals as we move into the future.

### PART 2

**Part II – Implementation Strategies**, establishes our strategic approach to achieve our vision. Detailed strategies, categorized under larger **Transportation Elements**, will be implemented over time as transportation needs evolve. Performance measures and targets are included to keep us accountable in reaching our goals and to help us monitor and adjust our strategies to stay on track.

### PART 3

**Part III – New Innovations**, looks at the advancing technologies to improve mobility options and transportation management and operations. As DelDOT looks towards the future, there are many anticipated and unknown possibilities and potential consequences with advancing technologies. DelDOT is ready and staying ahead of the curve by leading efforts to develop and implement new innovations and best practices.

This plan will help DelDOT establish or revise policies and prioritize investments ensuring Delaware’s transportation network remains **safe, efficient, accessible and reliable**, while integrating the latest advancements in technology and providing our customers with excellent service.

# DELDOT IN ACTION

Each of these transportation elements are addressed within this Strategic Implementation Plan. While each element is featured individually within its own chapter, we consider each element as an integral component of our transportation network. In the following chapters, the Strategic Implementation Plan for each Transportation Element are outlined as follows:

## STRATEGIC IMPLEMENTATION PLANS FOR EACH TRANSPORTATION ELEMENT

- ✓ A unique vision for each component of the transportation network
- ✓ Funding Opportunities
- ✓ Challenges and Constraints
- ✓ Efficiencies and Innovations
- ✓ Assessment of Needs
- ✓ Implementation Partnerships
- ✓ Strategies and Action Items to Support the Long Range Goals
- ✓ Performance Measures, Baselines, and Targets
- ✓ A Plan for Monitoring Progress



# TRANSPORTATION PLANNING TOPICS

The Transportation Elements are each components of a multi-modal transportation system working for all people and the movement of goods throughout Delaware. These elements include:

			
<p><b>Planning &amp; Land Use</b></p>	<p><b>Roads, Bridges &amp; Other Assets</b></p>	<p><b>Traffic &amp; System Management</b></p>	<p><b>Bicycle Transportation</b></p>
<p>Transportation and land use are intrinsically linked and need to be considered holistically. Planning is a process that considers a balance of potential opportunities, impacts and solutions across a wide spectrum of issues. Our collaborative planning process includes internal and external stakeholders. This partnership allows us to build support and prioritize transportation investments for the communities we serve.</p>	<p>Asset management is one of DeIDOT's core functions. Roadways, structures, drainage facilities and green infrastructure are the main assets that we are responsible for planning, constructing and maintaining.</p>	<p>Managing traffic movement across the state requires a significant effort. The Department is becoming increasingly reliant on advanced technologies. DeIDOT strives to remain a national leader in the testing, development and deployment of innovative traffic management technology, which will help us adapt to the evolving transportation environment.</p>	<p>Bicycling is supported by DeIDOT as a viable transportation mode. Delaware has recently been ranked the most bicycle-friendly state on the east coast. However, there are still improvements to be made to make bicycling a safe, reliable and accessible option.</p>



**Pedestrian Transportation**

Pedestrian safety has been a challenge in Delaware, and DeIDOT is committed to improving pedestrian safety and accessibility. Our priorities are maintaining and expanding a pedestrian network that minimizes barriers and hazards that may put people at risk.

**Freight Movement**

Delaware's freight network provides critical connections for the movement of goods across the Delmarva Peninsula and nationwide. Delaware's freight network consists of roads, rail lines, port facilities, intermodal transfer centers and air carrier service facilities. The movement of freight is a critical component of our region's economy, and DeIDOT is committed to providing and enhancing freight-related transportation infrastructure.

**Aeronautics**

Aviation is a component of the transportation system that is used for personal travel, freight movement, tourism and contributes to economic growth. DeIDOT is responsible for planning, coordination and implementation of improvements to the public-use airport system within the state.

**Public Transit**

Public transit is either the preferred or the only transportation option for many Delawareans. The Delaware Transit Corporation (DTC), part of DeIDOT, manages and operates public transit statewide. DTC is continually seeking opportunities to increase transit ridership and accessibility.

# DELAWARE'S TRANSPORTATION PRIORITIES FOR THE NEXT 20 YEARS



## LAND USE AND TRANSPORTATION PLANNING

Collaborative planning between transportation and land use agencies is critical for sustainable patterns of development. DeIDOT's Transportation Improvement District Program (TID) focuses transportation investments in high-priority growth areas as identified as appropriate for development in local comprehensive plans.



## TRANSPORTATION CORRIDOR STRATEGIES

DeIDOT is developing a set of strategies to address the existing and future needs of transportation corridors throughout the state. These strategies will result in a comprehensive vision in the areas of safety, access and multimodal mobility for each corridor. Plans developed through this new approach will prioritize investments and phasing of projects over time. The plans will support statewide economic growth objectives and will streamline project development and environmental review processes. Partnerships with local land use agencies and stakeholder input will be valuable components in this effort.



## CRITICAL FREIGHT NETWORK INVESTMENTS

Delaware's economic growth is dependent on a reliable freight network, which includes roads, railroads, ports, waterways and airports. DeIDOT will continue to support operational efficiencies, investments in designated growth areas and infrastructure improvements that promote freight-related business growth. Maintaining reliable roadway connections to freight facilities and mitigating hazard impacts, such as increased roadway flooding, are important parts of DeIDOT's asset management program.



## TECHNOLOGY INTEGRATION

DeIDOT is continually looking for new ways to support and integrate new technology to improve our transportation system. Freight trucking and transit are ideal modes for testing and expanding new systems, such as autonomous vehicle technology that can improve the efficiency of moving goods and people. In anticipation of this new technology, innovative travel forecasting methods and traffic management techniques are being developed.



## PUBLIC EDUCATION AND SAFETY CAMPAIGNS

To improve driver, bicyclist and pedestrian understanding of safety, DeIDOT will continue to provide comprehensive education and outreach programs at the statewide and local levels.



### ADVANCED STREETSCAPE DESIGN

Ongoing changes in technology and DeIDOT's priorities in the areas of pedestrian and bicycle safety may change how we interact with our streetscape environment and may necessitate new roadway design guides. Connected Vehicle (CV) technology, for example, allows vehicles to communicate with other vehicles, connected devices and the world around them. This technology may require reallocation of space within the existing right-of-way to accommodate related infrastructure. The testing of new street designs, infrastructure elements and programs in a Living Laboratory Research Program will enable DeIDOT to balance advancing technology with the needs of all transportation modes.



### PEDESTRIAN NETWORK PLAN AND PRIORITY AREA PROGRAM

Pedestrian safety improvements are a critical need in Delaware, and DeIDOT is working towards a more comprehensive assessment of pedestrian routes, missing connections, barriers and priority connections. The goal of the Network Plan is to utilize existing and new facilities to improve network connectivity, enhance recreation, economic development and pedestrian safety. In support of Delaware's Complete Communities Initiative, DeIDOT is establishing a Priority Area Program that will designate targeted areas where pedestrian safety and accessibility improvements are prioritized. Targeted areas would include those with high pedestrian activity, high accident locations and low income/at-risk neighborhoods.



### BICYCLE NETWORK OF STATEWIDE IMPORTANCE AND BICYCLE DESIGN GUIDE

A comprehensive plan for bicycle transportation would designate major bicycling corridors and connections. This plan would identify preferred routes and prioritize improvements for a regional, well-connected and low-stress bicycle network. Designated routes are typically at a regional scale and span multiple jurisdictions, and they may include trails as well as on-street facilities. A return-on-investment analysis will help to gauge the effectiveness of bicycle network funding in the areas of bicycle ridership, economic development and other public benefits. A bicycle design guide will provide guidance and recommendations using best practices for integrating bicycle facilities into the road network. The guide will include recommendations for various facility types, lighting, wayfinding and maintenance of traffic flow during construction.



### IMPROVED TRANSIT SERVICE

A multifaceted approach to improving transit service and access will include providing additional transit centers and routes/express service, expanded service areas and increasing use of dedicated transit lanes. Geolocation technology in transit vehicles will improve the reliability of arrival times and other information for our customers. Automation technology will increase the efficiency of boarding and fare collection processes.



### HOMELAND SECURITY

Some cargo moving through Delaware originates from international sources, and our freight network has nationally important connections. Interagency coordination is important for managing border security, cargo screening and tracking, protecting assets and developing contingency plans. Partnerships are needed to anticipate, screen, monitor and track movement of hazardous materials, and to have contingency plans in place for addressing emergency situations.



### IMPROVED PUBLIC INPUT SYSTEM

The public has a number of mechanisms to provide DeIDOT input for project ideas, maintenance needs and general inquiries or requests. To improve our interaction with the public, DeIDOT is exploring new outreach methods, including crowdsourcing technology and other communication techniques.



### HAZARD MITIGATION AND FLOOD RESILIENCY PREPARATION

DeIDOT has developed a *Strategic Implementation Plan for Climate Change, Sustainability, and Resilience for Transportation* to help prepare for emerging climate impacts and coordinate efforts across various state agencies. Further planning is needed to identify community-specific threats and a ranking program to identify which of DeIDOT's assets are most at-risk. These at-risk assets must either be upgraded to maintain transportation connectivity, relocated outside of flood prone areas, left in place with anticipated periodic closures and detours, or abandoned.



### CONNECTED DATABASE MANAGEMENT SYSTEMS

DeIDOT has a variety of systems to assess and manage the state's transportation network. DeIDOT is integrating many of the databases that support these systems in a connected manner that will increase efficiency in decision-making and project design. Continued investments in database technology will enhance our ability to leverage information for the benefit of our customers.