

August 2020



Supplemental Report



Delaware Department  
of Transportation

# INNOVATION IN MOTION

THE DELAWARE LONG RANGE TRANSPORTATION PLAN  
2020 Annual Supplement



# Introduction



**INNOVATION IN MOTION**, the 2019 Long Range Transportation Plan (LRTP), outlined 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. **Innovation in Motion** defined the statewide transportation goals, strategies, actions, and performance measures to make the Delaware economy more competitive, communities more vibrant, and the environment more sustainable for future generations.

This annual supplement continues the vision statement of **Innovation in Motion** and serves as a reporting mechanism and snapshot of DelDOT's progress in achieving the goals, policies, and priorities outlined in the original Plan. DelDOT continues to work in collaboration with communities, businesses, and

partners across the state to identify future transportation needs and develop effective solutions to anticipated challenges.

## GOALS

**Innovation in Motion** identified long range goals and pledged to align plans, policies, activities, and performance metrics towards achieving the following:

**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 a 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.





## TRANSPORTATION ELEMENTS

**Innovation in Motion** identified eight transportation elements as components of a multi-modal transportation system working for all people and the movement of goods throughout Delaware. Beginning with this annual supplement, DelDOT will combine bicycle transportation and pedestrian transportation to create a new element, “Non-Motorized Transportation.”

### Planning & Land Use

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.

### Roads, Bridges & Other Assets

Asset management is one of DelDOT’s core functions. Roadways, structures, drainage facilities, and green infrastructure are the main assets that we are responsible for planning, constructing, operating, and maintaining.

### Traffic & System Management

Managing traffic movement across the state requires a significant effort. The Department is becoming increasingly reliant on advanced technologies. DelDOT 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.

### Non-Motorized Transportation

While bicycling in Delaware has grown to be a viable mode of transportation within the state, pedestrian safety remains

a challenge. DelDOT is committed to improving pedestrian safety and accessibility. DelDOT is prioritizing maintaining and expanding the local system network to minimize barriers and hazards that may put those on the local system 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 DelDOT 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. DelDOT 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 DelDOT, manages and operates public transit statewide. DTC is continually seeking opportunities to increase transit ridership and accessibility.



# A Year in Review



Since **Innovation in Motion** was formally adopted in September 2019, the transportation sector has continued to change and evolve. DeIDOT has responded and adapted to continuing changes in the areas of industry, technology, and consumer trends.

## ADVANCING TECHNOLOGY

Part III of **Innovation in Motion** was dedicated to highlighting advancing technologies aimed at improving mobility options, transportation management, and operations. Throughout the year, DeIDOT has researched and procured two automated shuttle buses anticipated to run at the DeIDOT Dover Administration Campus. The deployment of the shuttles into a live-traffic environment will not only position Delaware to be

one of the earliest adopters and innovators of automated shuttle deployment, it will also allow Delaware an opportunity for real-time research and analysis of automated vehicle technology. This collaborative effort is part of a multi-phased deployment with the goal of integrating automated busses/shuttles into DART's passenger and paratransit fleets.

Ride-hailing services like Uber and Lyft have shifted the face of transportation across the globe. Delaware is no exception. DART has developed a free commuter service program called RideShare Delaware to respond to the rise in ride-hailing services. RideShare Delaware works with employers, employees, colleges, and students to improve air quality and reduce traffic congestion by championing clean commutes through:

- Transit
- Carpooling & Vanpooling
- Walking
- Biking
- Teleworking
- Compressed Work Weeks

A fully connected transportation system is one reason why Delaware was one of the twenty-six states to participate in the American Association of State Highway (AASHTO) Signal Phasing and Timing (SPaT) Challenge in 2018-2020. The challenge was for state and local public sector transportation Infrastructure Owners & Operators to deploy Dedicated Short Range Communication (DSRC) infrastructure with SPaT broadcasts on at least one corridor or network (approximately 20 signalized intersections). During this challenge, Delaware upgraded traffic signal controllers and installed DSRC roadside units (RSU) along US 13 in Smyrna and Dover. On-board units will be installed in DeIDOT owned vehicles.

DeIDOT received federal funding as part of the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) grant to develop and implement Artificial Intelligence (AI) software into Transportation Management Center (TMC) operations to support transportation system operations including traffic signal operations and incident management. Starting in late 2019, this project is anticipated to last for three years.



# Transportation Planning Element Updates



## PLANNING & LAND USE

### Transportation Improvement Districts (TIDs)

As of May 2020, there are now four Transportation Improvement Districts (TIDs) in Delaware. A TID is a geographic area defined for the purpose of securing required improvements to transportation facilities in the area. TIDs foster sustainable development by providing transportation improvements necessary for land development in locations identified as appropriate for development in local Comprehensive Plans. TIDs utilize private-sector impact fees to equitably distribute the cost of growth-related transportation improvements.

The Eastown TID (in Middletown) agreement, analysis, and project identification were completed this year. The other three

are in Hyetts Corner, Southern New Castle County (SNCC), and Westown, which is also in the Town of Middletown. Both SNCC and Westown will have updated traffic analysis completed within the next 6 to 9 months.

Additional TIDs are in various stages of development. Traffic analysis for the Southeast Milford TID was completed this year. The identification of needed improvements is currently underway and the TID is anticipated to be operational within the next year. DeIDOT and the City of Newark also entered into a TID agreement this year and traffic analysis is near completion. A committee of city stakeholders and residents is meeting monthly to guide its development. This TID is also expected to begin operating within the next 12 months. Discussions are underway regarding the development of the US 13/ Bay Road Corridor TID in Dover,

a potential Cheswold-area TID, and the proposed Henlopen TID in Sussex County.

## Strategic Corridor Program

The Strategic Corridor Program was developed by DeIDOT as a comprehensive evaluation program to aid with long-term capital investment decisions, provide greater transparency and predictability to its stakeholders, and provide a guide for future economic decisions related to transportation within the State of Delaware. This program leverages existing data, connects with the Transportation Corridor Strategies (TCS) program and uses routes identified in the 2019 LRTP. Through the identification of safety and security, mobility, connectivity, and economic vitality metrics, this program is centered around the importance of moving people, goods, and services throughout the state.

This program is based on a phased approach starting from a broad, statewide analysis during **Phase 1**, progressing into a county wide, more in-depth analysis during **Phase 2**, and concluding with specific roadway recommendations in **Phase 3**. This multi-level system approach was developed to provide an objective, quantitative, and repeatable process to develop the Strategic Corridor network and provide a measurable framework for the future.

**Phase 1** (Statewide analysis) includes corridor identification and prioritization at a corridor-wide level throughout the state, identifying and weighting 17 criteria and ranking all corridors into a high, medium, or low priority as related to the movement of goods and services. This effort was completed in fiscal year 2020 (FY20).

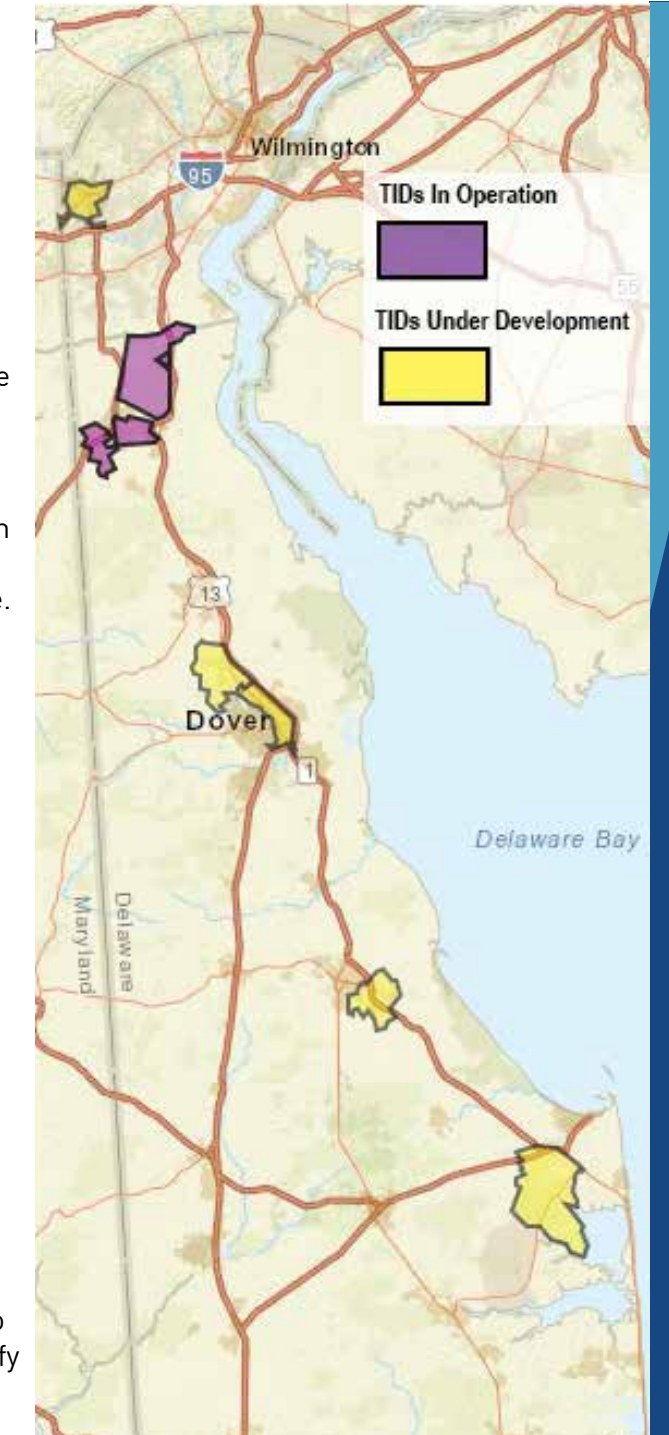
**Phase 2** (Countywide analysis) evaluates specific corridor segments by county using 32 criteria for a more in-depth analysis. During FY20 US 9 and SR 404 in Sussex County were selected by DeIDOT and the project team as a starting point. Route segments were divided at critical points where overall character or Average Annual Daily Traffic (AADT) changes.

**Phase 3** (Specific roadway recommendations) will follow the completion of **Phase 2** and will eventually include recommendations made by DeIDOT and the project team for corridor improvements and incorporation into LRTP and Capital Programs.

Rating criteria ranged from traditional traffic operation metrics such as functional class, number of lanes, AADT and crash information; to planning metrics such as Transportation Analysis Zones (TAZ), population, points of interest, social justice, and people connectivity.

## AERONAUTICS

DeIDOT Aeronautics has partnered with the Delaware Aviation Advisory Council to actively engage with Delaware Prosperity Partnership (DPP) to develop strategies for opportunities to grow the aviation industry in Delaware. These continued conversations are in efforts to identify future economic development opportunities and identify specific resources available.





DelDOT Aeronautics is working to develop a Priority Rating System to prioritize capital funds for aviation projects as part of **Phase II** of the State Aviation System Plan. The Aviation System plan is on a five-year update cycle. **Phase I** is scheduled for completion in Summer 2020 and **Phase II** is anticipated for completion in Winter 2021.

Recently, DelDOT implemented a new three-year initiative to hire aviation interns through Delaware State University's Aviation program. This program will provide DelDOT with two interns, a great start for building a continuous partnership with Delaware State University through staffing growth and future research opportunities.

The Economic Impact Assessment of Delaware Airports is updated every five years with the last one completed after the completion of **Innovation in Motion**. The Economic Impact Assessment of Aviation in Delaware provides the output data

to aviation stakeholders and policy makers for use in decision-making and can be found on the DelDOT Aviation webpage.

DelDOT Aeronautics is excited for the new partnership with the Dover Air Force Base (DAFB) and the City of Dover to complete a Land-Use Compatibility Study. This study is anticipated to be completed within the next five years.

## ROADS, BRIDGES, & OTHER ASSETS

The Transportation Asset Management Plan (TAMP) was completed in June 2019. DelDOT Leadership made a commitment to develop a TAMP that not only aligned with its vision, mission, goals, and strategic plan, but also would serve as a "business plan" or guide for how the organization should manage its infrastructure assets. The TAMP serves as a process framework to support broader, on-going efforts within DelDOT and allows DelDOT to manage critical assets across the entire



Group that is investigating the resiliency of pavement technologies from planning through design, construction, and maintenance. This effort aims to reduce long term maintenance and potential urban heat island effects.

DelDOT Planning is working with FHWA to establish a formal DelDOT Mitigation Banking policy and program.

## PUBLIC TRANSIT

DART First State and DTC, an operating division of DelDOT, is committed to the mission of designing and providing the highest quality public transportation services that satisfy the needs of the customer and the community. Currently, DART is improving the lighting at passenger facilities and equipping the entire fleet with systems that identify poor driving techniques and assist in the avoidance of crashes.

Keeping with their mission for providing high quality public transportation services with accessible facilities, DART is working to complete the design for the North Middletown Park & Ride in 2020. The Newark Regional Transportation Center is estimated for completion Spring/Summer 2020. The Wilmington Transit Center opened for transit operations in May 2020. DART has begun conceptual plan development for the New Castle County Regional Transit Center in Christiana. A design-build team is working on the design elements for the future Regional

network for which it is responsible.

Climate change effects was a large part of the TAMP and there are current efforts to develop a framework to review and address climate change impacts. Additionally, climate resiliency considerations were included in the Project Development, Traffic Design, and Bridge Design Manuals. The Road Design Manual 2020 update will include resiliency considerations as well all other manuals as they are reviewed and updated.

Currently, there is an effort underway to develop a comprehensive assessment of state roadways and bridges to assess the needs and risks. DelDOT Planning is engaging stakeholders during Spring/Summer 2020 to discuss the expansion of a more comprehensive assessment of state infrastructure, needs, risks, and tracking system. The expansion will serve as a companion to the Federal TAMP.

The Federal Highway Administration (FHWA) has erected a Sustainable Pavements Technical Working





Transportation Center in Claymont with plans for construction to begin in 2020. A new maintenance facility in Lewes is scheduled to open in 2020 to respond to the increased services in eastern Sussex County. To help alleviate the overcrowding at the Monroe Street complex, design plans are being finalized for the consolidation of Wilmington paratransit services to the Beech Street facility. To respond to the increased services of DART, a new travel training center at DTC's Administrative offices in Wilmington is in the design phase.

DART has been installing digital displays at major bus stops and hubs to provide real-time transit information to riders and promote the newly rolled out mobile applications.

**The DART Transit app allows users to:**

- Use the trip planner
- Get real-time bus information
- Sign up for rider alerts
- Check paratransit ETAs

**The DART Pass app allows users to:**

- Use mobile device to pay fares
- One-Way Ride
- Reduced Fare One-Way Ride
- Daily Pass
- 7-Day Pass
- 30-Day Pass
- Paratransit



DART is utilizing these mobile apps and the DART social media presence to promote DART services and push real-time urgent transit service updates. DART continues to expand public outreach efforts and emphasize bilingual competency. The integration of GPS and Connected and Automated Vehicles (CAV) technology for automated paratransit routing using real-time data has been identified as a 5-year priority. DART is also working on simplifying pocket schedules and system maps.

Seeking to provide more robust service, DART has extended fixed route service and streamlined routes to allow riders more access to employment, shopping, medical services, government, educational, and entertainment centers. DART has begun holiday service in New Castle County in early 2020 and anticipate weekend service programs to rollout in Fall 2020. Increasing the frequency of resort area transit services has been identified as a 5-year priority.

Regionally, DART is collaborating with partners like SEPTA and Amtrak to add weekend services and increase weekday frequency of trains operating at Fairplay and Newark Stations. Similarly, DART is engaging with MARC/MTA (Maryland) to close the commuter rail gap between Perryville and Newark.

**NON-MOTORIZED TRANSPORTATION**

**Innovation in Motion** outlined three primary bicycling goals: develop a complete, comfortable, connected bicycle network, improve bicyclist safety and confidence, and foster a culture of bicycling that benefits all Delawareans. DelDOT Planning has worked to strengthen the pedestrian crosswalk links by developing a comprehensive GIS-based network system highlighting all the American with Disabilities Act (ADA) compliant curb ramps and crosswalks on all the public roadways.

The original Strategies and Action Items proposed in **Innovation in Motion** were revised to better match and mirror efforts of the DelDOT Bike Plan, Blueprint for a Bicycle-Friendly Delaware (April 2018) policy and program document. This document was being developed and coordinated at nearly the same time but progressed slightly behind that of the long-range plan written development and policy implementation. The strategies and action items need to be reconsidered in the long-range plan to better match expectations for what is ongoing in the bike plan as well as their future actions based on direct advocacy and public input from stakeholders within the cycling community. Likewise, pedestrian strategies and actions were revised and updated accordingly to also be consistent and realistic for what is ongoing and can be newly achieved.

DelDOT is actively continuing the 2017 effort to reduce the number of bicycle accidents along SR 1 as requested by the Delaware Bicycle Council. In 2018, DelDOT approved more than 40 high-volume entrances between Five Points and the Rehoboth Canal and placed the sidewalk stencil staking, "SLOW DOWN LOOK FOR TRAFFIC." For 2020, DelDOT will inspect the existing





stencils to determine which needs to be re-done or if additional locations need to be added to the list of key intersections warning motorists about pedestrian and bicycle safety.

## FREIGHT MOVEMENT

In August 2019, Senate Bill 131 was signed into law by Governor Carney. Codified as Title 21, Chapter 45, §4513, the law requires DelDOT to identify locations for the installation of truck height sensing equipment. The purpose of the sensors is to detect trucks that are violating height restrictions and notify the appropriate authorities.

In 2020, DelDOT is developing standard operating procedures (SOPs) to identify the initial locations and to create a nomination process for any future locations. The Department of Safety and Homeland Security (DSHS) has the responsibility to install and monitor the sensing equipment. One potential challenge to overcome is consistent enforcement.

Initially, the sensing equipment will help ensure freight

operators are not traveling in restricted areas or near underpasses without adequate clearance. As e-commerce increases freight tonnage each year, DelDOT will need to work with communities to ensure that unnecessary restrictions are not proposed, which would adversely impact the freight system that is vital to most Delawareans.

## TRAFFIC & SYSTEM MANAGEMENT

DelDOT is on the cutting edge of innovative transportation technology through its advanced engagement with CAV. DelDOT has not only collaborated to acquire two automated shuttles but is also working with industry partners to develop workforce development programs with the University of Delaware to train students and staff for jobs related to CAV operations and management at DelDOT.

DelDOT has identified corridors in all three counties to advance CAV technology in the state and continues to actively deploy necessary technology to support CAV technologies. DelDOT is currently working on an update to the Strategic Highway

Safety Plan with the goal of completion by the end of 2020. There will be a section on CAV and intelligent transportation systems (ITS) included in the plan.

The traffic section is actively prioritizing and implementing system improvements to minimize high-risk locations for roadway departure crashes. Currently, DelDOT is working on obtaining a contract for high-friction surface treatments and piloting sinusoidal rumble strips that will necessitate the development of a standard detail.

In December 2018, DelDOT modified the Hazard Elimination Program (HEP) to include a new Intersection HEP subprogram and a modified Segment HEP subprogram. To more closely align with the Delaware Strategic Highway Plan, both programs consider crash severity as part of the selection process. Research is being conducted on speed applications to update design standards to integrate new best practices.

There is a current effort to develop software to support auto-routing for hauling permits. DelDOT also continues to discuss the possibilities of deploying more automated technology for flood hazard warning detectors and alert systems.

To advance the state of practice in asset management and preventative maintenance, Signal Construction, Signal Maintenance, and Pavement Markings staff have been supplied with hand-held devices to aid them in reporting and doing their work in the field. Continued efforts will be made to acquire devices for Signing staff to better maintain a sign inventory in real time. DelDOT also continues to work on the publishing of a "Traffic Studies Guidebook" in order to help improve consistency of this work performed.

Improvements have been made on the reporting of traffic control device conditions through the development of Traffic PM 2.0 for signal construction projects. Signing has developed a new retro-reflectivity report over the last two years that involves night inspections and a comprehensive plan to cover every road in the state over the next several years. Pavement markings has been reporting for years using ArcGIS tools to develop maps for statewide efforts.

The distribution of public information has become a primary goal of DelDOT. DelDOT's Safety Program has revamped their website ([safety.deldot.gov](https://safety.deldot.gov)) to include maps, reports, and educational materials of both planned and installed traffic safety devices statewide such as High Friction Surface Treatment, rumble strips, guardrail improvements, pedestrian enhancements, and Flashing Red Arrow conversions. More public visibility to the Department's Highway Safety Improvement Program has been enabled through the inclusion of maps, reports, and recommended improvements of each selected site from the HEP, Electronic Red Light Safety Program (already implemented), and the Highway Rail Grade Crossing Safety Program.







# INNOVATION IN MOTION



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