

# Connecticut Department of Transportation

## *At a Glance*

**Administrative Head: Joseph J. Giulietti, Commissioner**

**Deputy Commissioners: Garrett Eucalitto, Mark Rolfe**

***Established: October 1, 1969***

***Statutory authority: p.a. 69-768***

***Central Office: 2800 Berlin Turnpike, Newington, CT 06111***

***Authorized number of full-time employees: 3,361***

***Recurring operating expenses: \$806 million***

## **Organizational Structure**

- Bureau of Engineering and Construction (BEC)
- Bureau of Finance and Administration (BFA)
- Bureau of Highway Operations and Maintenance (BHOM)
- Bureau of Policy and Planning (BPP)
- Bureau of Public Transportation (BPT)
- Office of Commissioner
- Office of State Traffic Administration

## **Mission**

The mission of the Connecticut Department of Transportation (CTDOT) is to provide a safe and efficient intermodal transportation network that improves the quality of life and promotes economic vitality for the state and region.

## **Statutory Responsibility**

The agency shall be responsible for all aspects of the planning, development, maintenance, and improvement of transportation in the state (Section 13b-3 CGS). The agency serves its customers by providing safe and efficient systems for the movement of people and goods within, to, or from the state, whether by highway, air, water, rail, or other means (Section 13b-2[I]).

## **Affirmative Action Policy**

The Connecticut Department of Transportation is an Affirmative Action/Equal Opportunity Employer. It is the established policy of the CTDOT to assure equal opportunity and to implement affirmative action programs. All services and programs of the CTDOT are administered fairly and impartially, pursuant to the State Code of Fair Practices and all other relevant state and federal laws and regulations, including, but not limited to, CGS 46a-60, Title VI and VII of the Civil Rights Act of 1964, and the Americans with Disabilities Act. The CTDOT continues to work cooperatively with the Connecticut Commission on Human Rights and Opportunities and other state and federal compliance agencies in conducting various reviews and providing the requested information.

## **Public Service, Improvements/Achievements for Fiscal Year 2021-2022**

### **The Bureau of Engineering and Construction**

The Bureau of Engineering and Construction (BEC) manages CTDOT's annual \$2.25 billion multi-modal capital program focused on safety, equity, resilience, and operational improvements to Connecticut's overall transportation system.

The BEC focuses on moving Connecticut forward in reducing transportation emissions and accelerating investments in a cleaner, more equitable, and resilient transportation system. The BEC accomplishes this by maximizing federal and state transportation funds to improve speeds on Connecticut's road networks and rail lines. Improved efficiencies are gained through targeted investments toward enhancing the transportation system and by addressing the backlog of rail, bus, highway, and bridge maintenance work.

The BEC is working on updating the conventional traffic signal systems from pre-programmed, daily signal timing schedules to adaptive signal control technology that adjusts the timing of red, yellow, and green lights to accommodate changing traffic patterns and ease traffic congestion.

Significant areas of planning and engineering included finalizing the congestion mitigation strategies for the I-95 corridor south of New Haven; advancing the environmental assessment for the Route 7/15 interchange in Norwalk; progressing the design for the I-91/I-691/Route 15 interchange; developing strategies for the replacement of the I-84/Route 8 Mixmaster in Waterbury, and advancing a comprehensive multi-modal transportation study of the greater Hartford area known as the Greater Hartford Mobility Study.

The CTDOT continues to prioritize the maintenance of agency assets while analyzing the state's transportation system to identify strategic investment opportunities to improve safety, reduce congestion, address inequities, enhance bus and rail systems and services, and provide economic benefits throughout the state.

### Asset Management

Transportation Asset Management (TAM) principles and practices are now a central part of the CTDOT core strategy to address the condition and needs of Connecticut's transportation

infrastructure. CTDOT continues to comply with all federal TAM requirements, including the June 30, 2022, submittal of TAM implementation documentation for the Federal Highway Administration (FHWA) Annual Transportation Asset Management Plan (TAMP) Consistency Review and the continued implementation of the Public Transportation 2018 Transit TAMP for the Federal Transit Administration.

The CTDOT Highway TAMP goes beyond the federal requirements and covers all CTDOT-maintained bridges, pavements, traffic signals, signs, sign supports, pavement markings, and highway buildings. CTDOT added four additional assets (illumination, retaining walls, drainage culverts, and intelligent transportation systems) in 2022. The Transit TAMP contains information on goals and objectives, asset inventory and condition, analytical approach, investment scenarios, investment plan and implementation, and monitoring. Both TAMPs guide the CTDOT in its endeavor to deliver better asset performance.

Annual asset fact sheets were updated in 2022 for each of the 11 highway assets, and updates are underway for the six transit assets covered in the TAMP. Asset fact sheets are available on the CTDOT website.

### Highway Safety

The BEC is continuing its effort to improve safety and drive down the number of fatalities and serious injuries of all road users on Connecticut's highways. This effort is detailed in Connecticut's Strategic Highway Safety Plan (SHSP). The SHSP brings together all Connecticut safety stakeholders to collaborate on safety efforts and leverage resources. The current SHSP was recently approved in May 2022. Similar safety plans have been completed for Connecticut's nine Councils of Government.

The CTDOT submitted an implementation plan for the highway safety improvement program in June 2022 to the Federal Highway Administration. The plan contains a list of programs and projects initiated in the Federal Fiscal Year 2023. These are intended to reduce severe and fatal injury crashes on Connecticut's public roadways.

The BEC's highway safety program focuses on implementing systemic transportation safety improvements. These projects focus on providing safety improvements over the entire transportation network while providing the highest safety benefit for each dollar spent. Systemic safety improvements included:

- Centerline rumble strip initiative
- Rectangular rapid flash beacons initiative on state and municipal roads
- Horizontal curve signing project on state and locally owned roads
- High friction surface treatments
- A statewide clearance interval retiming project on municipally owned traffic signals
- Signing and pavement markings at unsignalized locations
- Pedestrian improvements at signalized locations

The Railway-Highway Crossing Safety Program provides improvements at railroad crossings and upgrades of traffic control signals with railroad pre-emption at adjacent intersections.

Wrong-way crashes have increased in the state over the past few years. Although they are a small percentage of overall crashes, they have a more significant potential for severe and multiple injuries. In response to these increasing occurrences, CTDOT tested traffic signal detection equipment to activate flashers on signs when a wrong-way driver entered the wrong side of the ramp in Danbury. This technology is being deployed at 15 additional high-risk locations throughout the state. This project was funded by Special Act 20-1 and will begin construction in early 2023. The project's second phase will notify Connecticut State Police of a wrong-way vehicle detector activation and begins design in Fall 2022. CTDOT is also reviewing additional strategies to address wrong-way crashes which could be implemented in the near term.

### Traffic Signal and Sign Management

Traffic signal projects are being completed continually to improve operational efficiency and replace outdated equipment. Under these projects, equipment will be updated to current design practices utilizing the latest standards and guidance from the Manual on Uniform Traffic Control Devices, including adding accessible pedestrian signal equipment where applicable. Each year approximately 60 locations receive complete equipment replacement. Additionally, 110 locations receive spot safety improvements, including removal of nighttime flashing operation, installation of advanced detection methods, and enhancement of pedestrian crossing indications.

Future traffic signal improvement projects aim to include advanced traffic controller equipment and connectivity to a central office. This will allow the use of Automated Traffic Signal Performance Measures (ATSPM). The safety benefits of ATSPM include identifying safety concerns in red light running and pedestrian delay, reducing congestion resulting from poor and outdated timings, and improving operations by actively monitoring signals that allow CTDOT to address malfunctions before they become complaints.

Operational projects have been initiated to upgrade existing obsolete TRANSYT controllers with modern controllers and cabinets, thereby eliminating the approximately 349 DOS-based controllers that are no longer supported and problematic to maintain. The projects will also replace existing detectors with radar and camera units compatible with the future deployment of ATSPMs and retune the 33 systems to optimize traffic flow along the busiest travel corridors in the state. The work will be phased over three years. Funding for the first year was established in Spring 2021.

The CTDOT continues efforts to replace signs on limited-access roadways in the state that have surpassed their practical service life. Multiple limited-access sign replacement projects are currently in design and construction. Some of these projects are piloting the use of a geographic information system to improve asset management life cycle tracking and inventory improvements through design, construction, and inspection.

### Bicycle/ Pedestrian/ Trails

The BEC continues to manage a more flexible approach to funding bicycle/pedestrian projects to close some of the existing gaps in the statewide trail network. Toward this goal, BEC is facilitating the completion of a network of inter-connected, statewide trails under the Multi-Use Trail Implementation Plan. The goal is to establish clear priorities to close the most critical gaps and create long continuous portions of the statewide trail network.

### Local Transportation Capital Improvement Program (LOTICIP)

The BEC oversees the Local Transportation Capital Improvement Program (LOTICIP). LOTICIP allows municipalities to perform capital improvements on locally-owned roadways that qualify for the Federal Surface Transportation Program – Urban (STGB-U).

LOTICIP has freed up a significant level of engineering resources that have historically been devoted to oversight of municipally sponsored federal-aid projects. LOTICIP also allows the portion of federal STP-U monies historically dedicated to improvements on municipally owned facilities to be utilized by the CTDOT for eligible activities, predominantly on state-owned assets.

Since November 2013, when LOTICIP was first implemented, the BEC has worked with the regional Council of Governments (COGs) to issue funding commitments for 231 endorsed municipal projects representing approximately \$448 million in construction. In SFY 2022, \$57 million in LOTICIP-funded construction projects were awarded, with \$190 million currently programmed to be awarded in SFY 2023.

### Highway Program

Planning, design, or construction work progressed on the following projects:

- Project 155-171, the \$55 million improvement project on I-84 in West Hartford, began in the spring of 2020.
- Projects 63-703 and 159-191 in Wethersfield, Hartford, and East Hartford. The \$248 million contract began on April 1, 2019, with major work expected to be completed by year-end 2022.
- Route 2 in East Hartford (Project 42-317). The project aims to extend the service life of this portion of Route 2 by rehabilitating the existing pavement structure and providing safety, bridge, and traffic operational improvements.
- Merritt Parkway corridor improvement plan construction extends 3.4 miles from Route 124 in New Canaan to Main Avenue in Norwalk. It started in May 2022, with an estimated cost of \$55 million.
- I-84 Danbury Project, Project No. 34-349, is an initiative to reduce congestion and improve operations, safety, and access on I-84. The study limits extend from the NY/CT State Line to Exit 8 in Danbury.
- Route 9 in Middletown will have a series of projects to support removing traffic signals from Route 9.
- Route 82 in Norwich is a safety improvement project initiated between I-395 and the Thames River, with the primary purpose of reducing the number and severity of crashes. The safety solution involves constructing a raised median and replacing seven signalized intersections with six modern roundabouts. The project area is approximately 1.5-miles long and experiences a higher-than-average crash rate - resulting in nearly 100 crashes and 35 injuries per year.
- I-91/I-691/Route 15 interchange in Meriden has preliminary designs underway to reduce congestion, improve operations, and address safety concerns associated with crashes caused by congestion and weaving. Three separate projects were initiated:
  - Project 79-240, interchange improvements to I-91 southbound, I-691, and Route 15 southbound in Meriden and Middletown.

- Project 79-245, interchange improvements from I-691 eastbound to I-91 northbound in Meriden and Middletown.
- Project 79-246, interchange improvements to I-91 northbound, I-691 westbound, and Route 15 northbound in Meriden.
- State Project 44-156, Interchange Improvements on I-95 at Exit 74 and Route 161 in East Lyme final designs have been completed. The project aims to address safety and traffic operational concerns at exit 74, between exits 74 and 75, and on Route 161. This project will also include the replacement of the I-95 bridge over Route 161 due to poor condition and accommodating the widening of Route 161. The project will start construction in 2023.
- The Greater Hartford Mobility Study is a comprehensive review addressing mobility challenges in the Greater Hartford Region. The study aims to improve mobility by planning an integrated, resilient, multi-modal transportation system. This will enhance the region's quality of life, economic vitality, and opportunity. The data collection and analysis of existing conditions phase are complete. An extensive public outreach program continues with various stakeholders, community groups, business organizations, and municipalities. Alternatives have been developed and include all modes to improve mobility. The study will be completed in 2023. It will provide a multi-modal implementation plan with near, mid, and long-term solutions.

#### Bridge Program and Innovative Bridge Construction

The Division of Bridges is committed to achieving and maintaining established bridge performance targets documented in the CTDOT TAMP. The BEC continued to inspect and inventory the structural condition of more than 5,000 bridges, 1,800 overhead sign supports, and 900 traffic signal mast arm supports. The asset management plan aims to systematically and strategically identify and plan treatments throughout the bridge's lifecycle to achieve and sustain a state of good repair.

With the implementation of new materials to preserve bridge beam ends, innovative materials and techniques continue to be used by BEC. The bridge beam ends are encased in ultra-high-performance concrete to protect the beam ends from deterioration and improve structural capacity long term. The procedure was developed through a research and design partnership between the CTDOT and the University of Connecticut.

Under the Infrastructure Investment and Jobs Act, additional funds have been set aside in the bridge formula program for municipally owned bridges to cover 100 percent of the design, rights of way, and construction costs. Recognizing the need to maximize federal transportation funding while maintaining equity for all communities, CTDOT will provide the 20 percent construction funding match for the Surface Transportation Block Grant Program. This will prevent conflict between communities receiving 100 percent federal funding and communities receiving funding that would require a local match.

Planning, designing, or construction work progressed on the following structures:

- Niantic River Drawbridge, which carries Route 156 over the Niantic River between the Towns of East Lyme and Waterford.
- Northbound Gold Star Memorial Bridge, located on I-95 between Groton and New

London.

- I-84/Route 8 Interchange in Waterbury is being rehabilitated to provide additional service life in anticipation of a future interchange replacement. The project addresses the deficiencies of the I-84 and Route 8 structures and the turning roadways connecting them.
- The I-84 and Route 8 Interchange preliminary engineering study is underway to investigate alternatives for the design and replacement of this major interchange. Near-term and long-term options will be identified.
- I-95 between Exits 7 and 9 has a planning study underway to explore alternatives for reconstructing I-95 between these exits, including the replacement of Bridge No. 00032 carrying I-95 over Metro-North Railroad in the City of Stamford.
- Heroes Tunnel that carries Route 15 through West Rock Ridge in Woodbridge and New Haven is in the preliminary design stage for a proposed rehabilitation.
- Cribari Bridge on Route 136 over the Saugatuck River in Westport has an environmental assessment to evaluate rehabilitation and replacement alternatives.
- Stratford Avenue movable lift span bridge carrying Route 130 over the Pequonnock River in Bridgeport is in the final design stage.
- Two bridge preservation projects have been initiated for repair to the Tomlinson lift span movable bridge carrying Route 1 over the Quinnipiac River in New Haven/East Haven and repair to the double leaf bascule movable bridge carrying Route 130 over the Yellow Mill Channel in Bridgeport.
- The Rochambeau Bridges, which carry I-84 over the Housatonic River in Southbury and Newtown, are in the final construction phase of the project to replace both bridge superstructures with rehabilitated substructures.
- East Haddam swing bridge rehabilitation project was awarded earlier this year. The bridge carries Route 82 over the Connecticut River, connecting East Haddam and Haddam.
- Bridges 00161 and 00162 support I-95 over First Avenue and Metro-North Railroad, respectively, in West Haven. This project will be advanced using the design-build procurement method.
- Dutch Point Viaduct Bridge 01469B has a design-build rehabilitation project proposed. The bridge carries I-91 southbound over the Connecticut Southern Railroad and ramps in the City of Hartford.
- Bridge 00325 in Bridgeport, originally constructed in 1910, spans Route 1 over Yellow Mill Channel. Two railroad spur lines were completed in the Summer of 2022.

#### Highway Maintenance Facilities

Planning, designing, or construction work progressed on the following projects:

- Construction of a new Brookfield repair facility began in October 2020 and is scheduled to be completed in August 2022. This \$10.3 million project replaces the existing functionally obsolete repair facility. A new store storage facility will also be constructed.
- Construction of a new Putnam repair facility and a new maintenance facility to replace the existing functionally obsolete facility began in February 2021. The project cost is \$22.5 million.
- Construction of a new New Milford maintenance facility to replace the functionally obsolete facility began in 2022. The project cost is \$12.6 million.

- Construction of a new Torrington bridge and signs and markings facility to replace the functionally obsolete facility began in 2022. The project cost is \$24.6 million.
- The design of a new East Hartford maintenance and signs and markings facility to replace the functionally obsolete facility is complete. Construction is anticipated to begin in late 2022. The project cost is \$30.1 million.
- Design plans are underway for constructing a new Orange maintenance facility and a new Farmington maintenance facility to replace the existing functionally obsolete facilities. The two projects are expected to cost about \$40 million.
- Design plans are 15 percent complete for a new District 1 headquarters, materials testing lab, signal lab, bridge safety, and sign shop. The combined building will be located on West Street in Rocky Hill. The project is expected to be delivered using the Construction Manager at Risk method with a design completion in 2024. The anticipated cost is about \$105 million. The project will combine four buildings into one to provide the state with operational and construction efficiencies that will save the state time and re-occurring costs.

#### Electrical Vehicle (EV) Charging

CTDOT installed 29 electrical vehicle charging stations that support 54 level two charging ports at Newington headquarters. EV charging stations are being incorporated into highway maintenance renovation and reconstruction projects. Project 0063-0733 will provide electric charging operations for crash trucks at the Hartford electrical maintenance facility. The project design is underway, and construction is anticipated to be completed during the spring of 2023.

#### **The Bureau of Finance and Administration**

The Bureau of Finance and Administration (BFA) is responsible for the following functions within the CTDOT: finance, operations, support, external audits, contract compliance, contracts, and agreements. The BFA provides the financial, fiscal, and support services necessary for developing and implementing the CTDOT's programs. In addition, BFA administers fuel distribution for most state agencies and oversees the operation of the 23 service plazas on the Governor John Davis Lodge Turnpike and the Merritt and Wilbur Cross Parkways.

The 2021-2022 year posed challenges in dealing with the BFA's operational issues. Despite the pandemic, historic levels of retirements, and the implementation of permanent telework guidelines, the BFA met the financial support and facility management demands of CTDOT. Necessary business functions continued to conduct the full scope of operations at CTDOT.

The BFA processed more financial transactions than any previous year. This resulted in CTDOT's operations, engineering, and construction projects continuing without interruption. Additionally, all BFA functions continued at an average pace, including the development and passage of midterm budget adjustments, participation in the continued development and publication of the five-year capital plan, and a State Treasurer's Office bond sale that ensures highway and public transportation projects will continue as planned for the upcoming 12 months.

The fiscal year 2022 provided the historical increases of federal funds to Connecticut's Transportation Capital Plan. The Infrastructure Investment and Jobs Act (IIJA), now referred to

as the Bipartisan Infrastructure Law (BIL), reauthorized surface transportation funding for an additional five years and increased the previous amount by \$1.6 billion over five years to \$5.4 billion, a 34 percent increase. These additional funds will continue to support legacy programs for highways, bus transit, and rail, as well as allow investment in new programs that will repair, replace, or rehabilitate bridges, support Connecticut's development of electric vehicle charging programs, carbon reduction, and resiliency from weather and natural disasters.

In addition to reauthorizing funding through the IIJA/BIL, CTDOT has positioned itself to request additional federal funds through the Federal Highway Administration (FHWA) redistribution program. The FHWA reviews every state's ability to utilize their highway obligation limitation and requires that states who cannot obligate their federal funding return the obligation limitation to the federal agency. On September 1, the CTDOT can request a portion of the redistributed funds.

Based on a successful demonstration of the ability to use all available funds and a plan to utilize additional funding, CTDOT has received \$275 million of the redistributed ceiling in the past five years. For the fiscal year 2022, CTDOT has submitted a request for an additional \$40 million.

CTDOT also benefited from using Coronavirus Aid, Relief, and Economic Security Act (CARES Act) and American Rescue Plan Act of 2021 (ARPA) funding that offset farebox revenue losses due to reduced ridership on the bus and rail due to the pandemic. An excess of \$276 million for the year was used to cover increased subsidy payments due to this lost revenue.

## **The Bureau of Highway Operations and Maintenance**

The Bureau of Highway Operations and Maintenance (BHOM) provided roadway and roadside maintenance to 5,682 practical two-lane miles of roadway. It also provided snow removal and other roadway maintenance services to 16 state agencies.

Here is an overview of BHOM snow-related activities:

- Performed snow removal and treatment for 11 winter storms
- Used 119,861 tons of sodium chloride and 496,210 gallons of liquid magnesium chloride applied by 634 state trucks assisted by 226 contracted trucks for plowing purposes only

CTDOT is currently in Phase 2 of an advanced technology system project to support and enhance the management of roads during the winter snow season, referred to as Integrated Mobile Observations (IMO). Snowplow vehicles are being equipped with sensors to monitor vehicle location, road and air temperature, and spreader controller system data. A state-of-the-art software product will analyze this data and atmospheric information and provide recommendations to Bureau of Highway Operations and Maintenance managers and supervisors on effectively responding to weather events. This includes the optimal use of roadway anti-icing chemicals. The computer software will also provide future pavement condition forecasts so that CTDOT personnel can better plan for winter storm response, including the pre-treatment of roads. Additional benefits of the IMO system include better fleet and route management, the ability to provide better traveler information to the public, and a more efficient application of road salt.

CTDOT has received a grant from the Federal Highway Administration (FHWA) for Accelerated Innovation Deployment (AID) Demonstration program to support this initiative. Two hundred fourteen snowplow vehicles have been outfitted with IMO/MDSS (Maintenance Decision Support System) technology for the 2022/2023 winter season. Funding has been secured for Phase 3 beginning in the fall of 2022, including installing an additional 150 trucks bringing the total trucks connected to 364.

Other highway operations and maintenance actions included:

- Constructed one new, large-capacity material storage shed
- Maintained existing roadways, including 229 two-lane miles of vendor-applied bituminous concrete overlay
- Installed 6,258 linear feet of drainage pipe
- Replaced or installed 606 drainage structures, and 13 pipes were relined statewide
- Repaired 786 of the 4,127 state-maintained bridges through the combined efforts of CTDOT personnel and contractors
- Continued an aggressive program of tree pruning and removal in response to the dead, dying, decaying, or otherwise compromised trees and vegetation in the state-owned right of way
- Removed 78,390 trees for safety and roadside maintenance
- Upgraded 23 guide rails and 483 ADA ramp installations and improvements
- Installed 1,408 miles of centerlines and lane lines
- Erected 580 new traffic regulatory, warning, and directional signs
- Renewed or removed 5,324 existing signs
- Continued maintenance of 3,389 traffic signals and repaired or replaced 1,299 miles of highway illumination
- Installed 24 new traffic signals, 77 signal revisions, and 229 traffic signal vehicle detection cameras
- Produced 7,916 signs for traffic engineering, 1,699 signs for highway maintenance, 352 miscellaneous signs, and 156 other signs related to property and facilities and COVID.

The special services units reviewed 6,546 encroachment permit applications and issued 4,407 highway encroachment permits. The Oversize/Overweight Vehicle Permit Unit collected \$3,705,049 for the issuance of 84,075 oversize/overweight permit trips, 2,567 annual permits, 104 radioactive permits, and 72 industrial permits.

The Operations Centers responded to 4,913 reported incidents on the state's limited access highway system. The Newington and Bridgeport Operations Centers monitored 362 highway cameras and operated 143 variable message signs. CTDOT's computerized traffic control signal systems include 962 traffic signals on 56 major arterials in 59 municipalities.

In May 2022, GEICO became the new sponsor for the Connecticut Highway Assistance Motorist Patrol (CHAMP) Program. Previously sponsored by State Farm, the CHAMP Program provided highway assistance to 7,394 motorists along the I-95 corridor from the New York state line to the Rhode Island State line. In the Danbury to greater Hartford area, the CHAMP Program assisted 6,450 motorists.

## **The Bureau of Policy and Planning**

The Bureau of Policy and Planning (BPP) collects critical data, conducts planning studies, and performs associated activities to support the safe and effective movement of people and goods for all modes of transportation. Within the BPP, documentation, analyses, and necessary federal and state approvals are developed and sought for all proposed projects to support project delivery. The BPP is also responsible for numerous federal and state mandates and compliance and interacts with legislative and Congressional members and staff and nationally recognized transportation organizations on various bills.

### Roadway Information Systems Office

This office provides critical data collection and management. These efforts support federally mandated reporting and analysis and support for state statute requirements and program distributions. These data collection systems produce necessary data outputs to estimate future travel demand, identify current and future capacity deficiencies, analyze alternate highway and transit improvements, complete environmental studies, and increase access and transparency of CTDOT data in decision making.

### Roadway Inventory Unit

The unit continues to utilize software to update and improve the digitized road network, which encompasses more than 21,000 miles of state and local public roadways. This geospatial road network supports asset and data integration. It acts as a backbone of the transportation enterprise data geospatial development effort. While the unit is primarily focused on the highway performance monitoring system and model inventory of roadway elements federal mandates, other important CTDOT initiatives benefit from this work, such as public transportation and trail network support and development, asset management, pavement condition management, safety analysis, and traffic volume data reporting.

### Traffic Monitoring Unit

This unit maintains the state's traffic counting program, which was pivotal in tracking traffic volumes during the COVID-19 pandemic and recovery. It continues to evolve in the collection techniques to capture quality data efficiently that is safer for CTDOT personnel and offers minimal disruption for the traveling public. The data are now readily available online through the CTDOT open data platform. They are valuable tools for safety analysis, project planning, and economic development.

### Photolog Unit

The photolog unit maintains the photolog automated roadway analyzer, pavement data collection, and processing technologies. It utilizes high-definition cameras to collect annual street-level images of the state highway system. Collected imagery is used to calculate pavement conditions around the state, enabling CTDOT to target preservation and improvements more effectively.

### Enterprise GIS (EGIS) Unit

EGIS aids internal and external stakeholders in collecting, managing, and making available geospatial data for various visualization, integration, and analysis purposes. EGIS identifies and

streamlines data workflows, creates collection applications, and integrates data into the enterprise systems where they can be accessed. EGIS also manages the CTDOT's geospatial open data platform and provides analysis tools, visualizations, and narratives.

In June 2022, a Chief Data Officer position was created. This new position will develop data strategies, coordinate across all areas of CTDOT, and aid in taking the next steps towards a data-driven culture that helps meet the CTDOT mission statement. The EGIS unit was transferred in its reporting structure to the Chief Data Officer, who reports directly to the bureau chief.

#### Statewide Transportation Improvement Program (STIP) Unit

The STIP is a four-year planning document that lists all projects to be funded with federal highway and federal transit funds. It develops, maintains, and coordinates metropolitan planning organizations (MPOs), USDOT approval of the STIP, and periodic revisions. The STIP unit calculates and allocates estimated federal authorization funds to Connecticut's eight MPOs and two rural COGs for the metropolitan transportation plan planning purposes and was last completed in May 2022. The STIP unit also develops, maintains, and updates the CTDOT public involvement process document.

#### Intergovernmental Affairs (IGA) Unit

This unit, formerly known as the COG Coordination Unit, is the designated CTDOT liaison for the MPOs, COGs, and local officials regarding planning efforts. It ensures that the planning process is conducted in accordance with federal laws and regulations. The IGA unit assists with the coordination and dissemination of information on various transportation planning programs, activities, and transportation planning documents. The IGA unit solicits the MPOs/COGs for project proposals under the Congestion Mitigation Air Quality (CMAQ) program, the Transportation Alternatives program, and the corridor study initiative. It also participates in the administration of the MPO/COG transportation studies. The IGA unit prepares and is currently updating the Handbook for Metropolitan Planning Organizations and Councils of Governments. Also, a LEAN event was held with the COGs in early June 2022 to identify ways to improve communications and processes.

#### Travel Demand/Air Quality Modeling Unit

This unit maintains the statewide travel demand model that utilizes socio-economic and demographic data to estimate travel demand. The Travel Demand/Air Quality Modeling unit analyzes and prepares demographic data for utilization in the statewide travel demand model. It also develops and prepares alternative analysis for proposed transit and highway projects. It prepares and analyzes air quality emission reduction benefits for regional projects submitted for the CMAQ program. It also conducts project and regional level transportation air quality conformity analysis. The unit performs a detailed analysis of air quality emission reductions utilizing EPA-required software, develops motor vehicle emission budgets for various nonattainment areas within the state per pollutant, and reviews project plans to determine air quality conformity determination status. This unit also prepares boundary adjustments to Federal Aid Urban Areas and census tracts and block groups for the Census Bureau's Participant Statistical Areas program.

### Highway Safety Office (HSO)

The HSO develops the annual highway safety plan and the annual highway safety report, which ensures compliance with CTDOT policies, National Highway Traffic Safety Administration (NHTSA) guidelines, and relevant federal laws and regulations. These measures are taken to reduce injuries and fatalities on Connecticut roadways. The enforcement-based program areas included:

- Impaired driving
- Distracted driving
- Occupant protection
- Speed and aggressive driving

Additional program areas are:

- Child passenger safety
- Motorcyclist safety
- Non-motorized safety
- Police traffic services
- Traffic records
- Racial profiling

The HSO also coordinates the Connecticut drug recognition expert program. It also undertakes educational campaigns through community-based organizations and the media.

The HSO is responsible for collecting and analyzing crash data for all municipal and state police agencies. This data is tracked with the fatality analysis reporting system as well as the Connecticut crash data repository. The HSO partners with the Connecticut Transportation Safety Research Center at the University of Connecticut on the following projects for driver behavior:

- Cannabis use study (green lab training)
- Police officer traffic safety training
- Statewide crash data and traffic safety-related data linkage project
- Fatal and serious injury black box downloads
- Collection and analysis of driver toxicology information

### Performance Management Unit

This unit implements the transportation performance management requirements of federal law, including reporting and setting targets for national performance measures. It coordinates with MPOs in national performance target setting. The unit publishes performance measures and targets on its webpage. It is also developing a project prioritization methodology for performance-based planning and programming.

### Research Program Unit

This unit administers the Federal Highway Administration-funded research program to assist all areas of CTDOT.

### Statewide Planning Unit

The unit prepares the state's long-range transportation plan, which includes four goal areas of economic growth, deliverability, quality of life, and sustainability. It is also responsible for the

multi-modal statewide freight plan, which focuses on economic competitiveness, efficiency, safety, and environmental factors. This unit also develops strategic plans and studies on congestion reduction, project-financing alternatives, corridor needs, and deficiency studies and assists the Bureau of Public Transportation with required studies and plans. This unit also leads planning for transit-oriented development, including administering grants, participating in interagency task forces, and assisting municipalities with planning and designing technical services.

#### Trip and Traffic Analysis Unit

This unit reviews traffic counts for major traffic generator submittals for the Office of the State Traffic Administration, develops traffic projections for state transportation projects, and provides public access to traffic count data via Google Earth.

#### Project Coordination Unit

The Project Coordination unit assists with implementing the state's Complete Streets law and CTDOT's Complete Streets policy. Complete Streets is an approach to providing safe access for all transportation users (pedestrians, bicyclists, transit users, and vehicle operators) via a comprehensive, integrated, and connected multi-modal network of transportation options. This unit also administers the community connectivity grant program. This program awards grants to improve conditions for walking and bicycling to and within urban, suburban, and rural community centers. It provides municipalities with construction funding and oversight for targeted infrastructure improvements. So far, 107 grants have been approved for various design and construction stages, totaling approximately \$38 million.

The Project Coordination Unit helps to implement the actions in the CTDOT's 2019 Active Transportation Plan to improve safety, connections, and accessibility. The unit performs pedestrian and bicycle design reviews and develops project concepts and corridor studies.

#### Office of Environmental Planning (OEP) Cultural Resources and Environmental Documentation Unit

The OEP provides oversight and support for required National and Connecticut Environmental Policy Act (NEPA/CEPA) implementation and proper documentation for all CTDOT activities. All projects are screened for the appropriate level of documentation under NEPA and CEPA. The unit continues to stay informed, comment on legislative and proposed federal rule changes, and seek efficiencies in the process. OEP ensures projects are screened and comply with Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act and updates and maintains a Historic Bridge Inventory for bridges statewide.

OEP is the lead liaison with various state and federal regulatory agencies such as the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the Connecticut Department of Energy and Environmental Protection regarding water and natural resources issues. The Environmental Permitting Unit obtains the federal and state water resource permits required for all CTDOT-initiated projects. It ensures projects properly avoid, minimize, and mitigate potential impacts on regulated resources.

### Natural Resource Planning Unit

This unit is responsible for coordinating efforts and compliance under the Endangered Species Act with the U.S. Fish and Wildlife Service and National Marine Fisheries for federally funded projects.

### Environmental Resource Compliance Unit

Responsibilities for this unit include inspections of active state-controlled construction sites and maintenance projects to ensure compliance with permit conditions, state and federal laws and regulations, and CTDOT best management practices. This unit is also the lead for developing mapping for the statewide stormwater system in accordance with the general permit to discharge stormwater from CTDOT separate stormwater sewer systems (MS4 Permit). The Compliance team is responsible for noise analysis, compliance, and responses to noise complaints, which have been at a record high during the COVID –19 pandemic. This unit continues its efforts to create a noise barrier wall inventory for use in asset management and is finalizing noise barrier wall specifications and guidance documents. A Type II statewide noise study was initiated at the end of 2021. It will be used to develop a Type II Noise Program.

### Sustainability and Resiliency Unit

This unit is responsible for fulfilling the goals and requirements in the Governor’s Executive Orders (EO), #1 and #3, and more recently, EO #21-3. This office is further responsible for interpreting and implementing the numerous sustainability and resiliency programs recently released under the BIL, including the National Electric Vehicle Infrastructure: Carbon Reduction; and the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program. The feasibility study of the CTDOT fleet electric vehicle supply equipment was completed this fiscal year. The study evaluated 21 state-owned or leased facilities for electric vehicle charging viability, prioritization, design criteria, and estimated cost for deployment. This unit also aids in meeting the increasing need to engage with private and public stakeholders on climate change, resiliency, adaptation, and sustainability initiatives.

### Grants and Socio-Economic Unit

The BPP has been working toward establishing a new Grants and Socio-Economic Unit responsible for leading federal, multi-modal grant initiatives within CTDOT. This unit will lead grant initiatives and will be pivotal in disseminating information and providing grant guidance and support. Information will be shared with CTDOT staff and community partners. The unit will work with other agencies, assessing transportation projects for program eligibility and potential, managing the preparation, drafting, and submission of project grant proposals, and assisting in post-award coordination. With many upcoming funding prospects tied to equity and rebuilding jobs and communities, this unit will facilitate the varied needs in securing funds and applying them to the projects and programs that will benefit Connecticut the most.

## **The Bureau of Public Transportation**

Before the COVID-19 pandemic, bus, rail, and ferry services managed by the Bureau of Public Transportation (BPT) provided approximately 80 million passenger trips annually in Connecticut. During the pandemic, rail ridership decreased by nearly 90 percent of pre-pandemic levels while bus ridership was down roughly 60 percent.

As businesses reopened and the COVID-19 vaccine became more widely dispersed, public transportation ridership rebounded. As of June 30, 2022, rail ridership was down approximately 40 percent from pre-pandemic levels, while bus ridership was decreased by 5 percent on average. Given the perceived permanency of hybrid (telework and in-person) work arrangements, CTDOT will continue to monitor ridership trends on all rail lines.

During the past fiscal year, BPT continued or started some exciting initiatives to transform public transportation in the state. This includes launching a new Customer Experience (CX) Unit, receiving multiple federal grants, completing several multi-year capital projects, expanding the ParkConneCT program, signing a multi-decade New Haven Union Station partnership agreement, and testing and initiating electric M8 railcar service for Shore Line East.

Some additional highlights for the fiscal year included:

### Bus

- Continued the CTDOT and Connecticut Department of Energy and Environmental Protection ParkConneCT program for a second year – identifying and enhancing transit connections to Connecticut state parks. Indian Well, Osbornedale, and Sherwood Island State Parks were added to this year’s program and took advantage of on-demand ridesharing services. As of June 30, 2022, ParkConneCT ridership increased 33 percent compared to the same days of service last year.
- Produced "Along the Lines," a transit-focused podcast series that features transit-based conversations focused on the communities they serve. As of July 2022, there have been 33 episodes published and more than 5,900 downloads.
- Continued preparation for deploying three automated zero emissions 40-foot buses set to operate on Connecticut’s own CTfastrak is anticipated to begin revenue service starting Spring 2023.
- Procured 12 fully electric transit buses for deployment at New Haven and Stamford CT transit divisions. Buses were deployed and active in service as of January 2022.
- Began procurement for the second phase of 12 real-time bus arrival information signs for large-scale implementation statewide to further demonstrate the capabilities of real-time, on-street bus stop signs. The initiative will provide improved stop information for bus passengers by displaying route maps, "next bus" information, and service alerts.
- Finalized agreement with the University of Connecticut to transfer Storrs campus bus operation and maintenance to Windham Region Transit District (WRTD). The operation was transferred on July 1, 2022, allowing for a more cost-effective and robust transit service that will benefit University staff, students, and the public and evolve WRTD into a regional hub for eastern Connecticut.

- Reached an agreement on merging Estuary Transit District and Middletown Area Transit districts. This merger will result in increased resilience and efficiency and allow for more robust staffing and improvements to better meet the transportation needs of the entire region.
- Awarded 54 vehicle grants for \$3,835,395 at 100 percent Federal Transit Administration Section 5310 funds to municipalities and non-profit organizations that serve seniors and people with disabilities.
- Kicked off the use of software to improve real-time information for transit customers and improve tools available to BPT and transit service provider staff for reviewing and monitoring services.
- Continued development of a statewide bus stop enhancement program to create a turnkey program for improving bus stops. Enhancements will include benches, shelters, lighting, real-time bus arrival information, accessibility improvements, and more.

### Railroads

- Completed the multi-year New Haven Line catenary (overhead line) system modernization project, costing \$168 million. The modernized catenary system enables a more reliable and faster train service. BPT also completed the construction of the sixth power substation along the New Haven Line.
- Contacted more than 4,300 persons through Operation Lifesaver special events and conducted a geo-fencing campaign that made approximately 975,000 phone impressions (ads) all along the rails in Connecticut.
- Accepted four additional P40 locomotives from the overhaul program and returned them to service.
- Negotiated the deployment of electric M8s on Shore Line East service in May 2022, which eliminated the use of diesel locomotives and improved service reliability and comfort for passengers.
- Signed the multi-decade New Haven Union Station Partnership with the city of New Haven, cementing a partnership to manage and grow the station complex.
- Awarded the design-build contract for and broke ground on the Stamford Parking Garage. The new parking garage on South State Street will add approximately 900 spaces with a direct pedestrian bridge connection to the station over Washington Boulevard. Construction completion is expected in the summer of 2023.
- Completed Waterbury Branch Line station improvements, including new signage, improved landscaping, new pavement, new benches, and a sidewalk.
- Finished construction of Clinton Station in April 2022. This project included elevator construction with an up and over pedestrian bridge, a new platform, and parking on the North side of the tracks.
- Received a Federal Railroad Administration CRISI grant for the construction of a new Enfield Station.
- Restored and repaired a significant washout of freight railroad line crossing TPC River Highlands Golf Course in Cromwell. The Office of Rails put together an emergency declaration contract and completed the reconstruction of the railroad and surrounding areas.
- Secured a Federal Railroad Administration Restoration and Enhancement grant for an additional round trip to the Hartford Line, which launched on November 1, 2021.

### Ferries

- Rehabilitated the engine of the Selden III for the Chester-Hadlyme ferry operation.
- Designed and produced new ferry tickets for improved cash handling and payment confirmation for implementation during the 2022 ferry operating season.

### Regulatory and Compliance

- Kept the public current on the taxi, livery, and charter bus services available near them.
- Created a new electronic process for submitting applications remotely and processing them for approval. Streamlined the submission process and the approval process with digital signatures. There are 28 application types for the livery, taxi, charter bus, household goods movers, or transportation network companies such as Veyo, Uber, and Lyft.
- Continued to use a new remote process in conjunction with the Department of Motor Vehicles for the touchless processing of new registrations and plate transfers for customers who hold permits or certificates from the Regulatory and Compliance Unit operating livery, taxi, or charter bus vehicles.
- Continued to reactivate hundreds of permits, certificates, and vehicles that needed to be re-registered for customers who hold permits or certificates from the Regulatory and Compliance Unit operating livery, taxi, or charter bus vehicles who suspended operations, vehicle registrations, and insurance coverage during the ongoing COVID-19 epidemic.

### Customer Experience

- Created the Customer Experience (CX) Unit, a new unit within the BPT, formed in September 2021. The purview of the CX unit includes bus and rail services. Its mission is to link customer insights and feedback with public transportation services and solutions, from improving fare systems and facilities, to communications and mobile app technologies, and to promote positive customer experiences.
- Led the launch of a pilot program providing Aira at no cost to individuals who are blind or have low vision. Aira is a service that enables persons who are blind or have low vision to connect with highly trained, live agents in real-time for assistance using the public transportation system and other essential services.
- Launched the development of CTDOT's first-ever customer experience action plan. The CX team and CTDOT volunteers conducted 17 pop-up events and 27 stakeholder interviews, along with ten focus groups with statewide rail, bus, and paratransit/dial-a-ride customers.
- Facilitated the BPT's most recent Service and Fare Equity (SAFE) analysis. SAFE analyses are used to look for any disparate impacts and disproportionate burdens that may be caused by proposed service and fare changes. The SAFE analysis process was launched in April 2022 and finalized in June 2022.