Digest of Administrative Reports to the Governor 2019 – 2020
Department of Transportation

Administrative Head: Joseph J. Giulietti, Commissioner

Established: October 1, 1969 Statutory authority p.a. 69-768

Central Office: 2800 Berlin Turnpike, Newington, CT 06131-7546

Authorized number of full-time employees: 3,387

Recurring operating expenditures 2019 – 2020: $715.4 million

Capital Budget 2019 – 2020: $2.50 billion

Organization Structure:

Office of Commissioner
Office of State Traffic Administration
Bureau of Engineering and Construction
Bureau of Finance and Administration
Bureau of Highway Operations
Bureau of Policy and Planning
Bureau of Public Transportation

Agency Mission

The mission of the Connecticut Department of Transportation (CTDOT) is to provide a safe and efficient inter-modal 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 C.G.S.). 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[l]).

Information Reported as Required by State Statute

The agency shall develop and revise, biennially, a comprehensive long-range transportation plan designed to fulfill the present and future needs of the state and to assure the development and maintenance of an adequate, safe and efficient transportation system (Section 13b-15 C.G.S). The purpose of the Master Transportation Plan is to provide its customers, the Administration, the General Assembly, local elected officials, and the general public with a comprehensive

understanding of the transportation projects and programs that the agency will be pursuing over the next 10 years. The strategic goals of the agency are to ensure safety, maintain the existing system, increase system productivity, promote economic development, and provide required capacity.

Affirmative Action Policy

The CTDOT 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 in a fair and impartial manner, pursuant to the State Code of Fair Practices and all other relevant state and federal laws and regulations including, but not limited to, C.G.S. 46a-60, Title VI and VII of the Civil Rights Act of 1964, and the Americans with Disabilities Act (ADA). 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 requested information.

Organization Structure

Office of State Traffic Administration

The Department of Transportation's 85th percentile data collection has been incorporated into the Bureau of Policy and Planning's Traffic Monitoring program, which has eliminated the need for manual spot speed data collection by the Office of State Traffic Administration (OSTA). Like OSTA's previous application, the data is integrated with GIS mapping and can be accessed via CTDOT's Traffic Monitoring website: Traffic Monitoring Volume and Classification Information Traffic Count Data (ct.gov).

The Bureau of Engineering and Construction

The Bureau of Engineering and Construction (BEC) continued to make improvements to Connecticut's transportation infrastructure by maximizing the use of federal and state transportation funds to address the backlog of State of Good Repair work, as well as to initiate select transportation enhancement projects, such as improvements to I-91 and the Charter Oak Bridge. Major areas of planning and engineering included finalizing the congestion mitigation strategies for the I-95 corridor south of New Haven, advancing the preliminary design activities for the Route 7/15 interchange in Norwalk, progressing the preliminary design for the I-91/I-691/RT15 interchange, and developing strategies for the replacement of the I-84/ Route 8 Mixmaster in Waterbury.

Asset Management

The Department continues to actively implement Transportation Asset Management (TAM) principles and practices to address the condition and needs of the

State of Connecticut's transportation infrastructure. The Department complied with all Federal TAM requirements including certification of the CTDOT 2019 Highway Transportation Asset Management Plan (TAMP) in August 2019 by the Federal Highway Administration, submittal of TAM Implementation Documentation for FHWA Annual TAMP Consistency Review on June 30, 2020, and continued implementation of the Public Transportation 2018 Transit TAMP for the Federal Transit Administration.

The Highway and Transit TAMPs were created to document the agency's asset management processes, project future needs of our assets, and construct a blueprint for transportation asset management improvements moving forward. The plans meet federal requirements (MAP-21 and FAST-Act).

The Highway TAMP goes beyond addressing all the federal mandates and demonstrates the Department's strong commitment toward achieving a State of Good Repair for our transportation system. An asset management strategy for National Highway System (NHS) bridges and pavements is included in the TAMP as required. The CTDOT Highway TAMP covers all CTDOT maintained bridges, pavements, traffic signals, signs, sign supports, pavement markings and highway buildings. The Highway TAMP contains information on Asset Inventory and Condition, Asset Data Management, Objectives and Performance, Life Cycle Planning, Risk Management, Financial Planning, Investment Strategies and Process Improvements. The Transit TAMP was developed in partnership with CTDOT Public Transportation's service providers to achieve a systematic and comprehensive asset management system for the State's public transportation assets.

The public transportation assets include bus rolling stock, rail rolling stock, service vehicles, rail infrastructure, bus facilities, and rail facilities. 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 Department in its endeavor to deliver better asset performance. Annual Asset Fact Sheets were updated in 2020 for each of the 13 assets covered in the TAMPs and are available on the CTDOT website. The fact sheets provide updated inventory and condition data as well as performance projections. In addition, CTDOT continues to improve its TAM processes including methods of tracking work conducted throughout the asset lifecycle and development of key information on other assets to be managed.

Lean

The Bureau of Engineering and Construction (BEC) continues to place an emphasis on the state's LeanCT initiative. Lean participation includes tracking and reporting progress, solicitation, selection, and prioritizing topics for the scheduling of upcoming Kaizen events. Past Lean events have resulted in process improvements in targeted areas.

The BEC continues to implement improvements in numerous targeted areas from Kaizen events including the Streamlining of Pavement Data Processing and Workflow, Environmental Permitting for Design-Build Projects, e-Construction, and several Traffic Signal Program processes including Customer Service for Traffic Inquiries, As-Built Plans, and Power Letters. Discussions have been conducted on remote methods to conduct limited and abbreviated remote Lean activities during the COVID-19 pandemic.

Highway Safety

The Bureau of Engineering and Construction's highway safety program focuses on implementing systematic transportation safety improvements. These types of projects focus on providing safety improvements over the entire transportation network, while providing the highest safety benefit for each dollar spent. Systematic safety improvements include:

- Centerline rumble strip initiative. Rumble strips are grooves within the pavement that produce noise and vibration when traveled over and are a proven safety countermeasure to reduce lane departure crashes. Approximately 25 miles of centerline rumble strips were installed in 2020.

- Pedestrian warning sign replacement project on local roads. Pedestrian warning signs and associated plaques have been upgraded with a fluorescent yellow background and post delineator to enhance visibility, especially during dawn and dusk periods. The last of the four projects was completed in 2020.

- Horizontal curve signing project on state and locally owned roads. Improved horizontal curve delineation is proven to be a cost-effective approach to reducing roadway departure crashes. The locations are being designed in a consistent approach in accordance with national standards with the use of signs. The signing projects in Districts 3 and 4 (state roads) are presently under construction and the signing projects in Districts 1 and 2 (state roads) are currently under design and will be installed over the next few years. The installation of horizontal curve signs on local roads was completed over the last two years.

The BEC partnered with the University of Connecticut's T2 Center (the local Technical Assistance Program) in 2019-2020 to deliver a package of signs and traffic cones to approximately 150 local agencies to set up a safety work zone and personal protective equipment for crew members. The crew members then attended a full day work zone safety and flagger certification training to ensure that they could appropriately utilize the equipment and manage the safe operation of a work zone. The towns who participated in the program were pleased with the ability to provide their crews with this life saving equipment and training. The program was a very positive reflection on the efforts of the Connecticut Department of Transportation to focus critical resources to local road priorities.

Systemic safety projects to upgrade active railroad devices are ongoing to ensure functionality of system critical components at public railway-highway grade crossings. The projects include upgrading gate arms, gate arm mechanisms, warning lights, and bells on multiple rail lines throughout the state.

Traffic Management

Traffic signal projects are being completed on a yearly basis to improve operational efficiency and replace outdated equipment which requires frequent maintenance. Under these projects, equipment will be updated to current Manual of Uniform Traffic Control Devices (MUTCD) standards, including adding Accessible Pedestrian Signal (APS) equipment at locations where applicable. There are approximately fifteen locations in each of the four districts being designed and constructed each year.

A goal for future traffic signal improvement projects is to include Advanced Traffic Controller (ATC) equipment along with connectivity to a central office. This will allow the use of Automated Traffic Signal Performance Measures (ATSPM). The safety benefits of ATSPM's include identifying safety concerns in the areas of red light running and pedestrian delay, reducing congestion that results from poor and outdated timings, and improving operations by actively monitoring signals which allows CTDOT to address malfunctions before they become complaints.

LED lenses at State-owned traffic signals statewide that were re-lamped in the early 2010's are approaching the end of their estimated 7-year service life. Projects have been initiated to replace these LED lenses with ones that have a 15-year service life. Other improvements undertaken with these projects include adding vertical green arrows adjacent to exit ramps for limited access roadways to discourage wrong-way vehicles. Projects in Districts 1 & 2 started construction in 2020, and projects in Districts 3 and 4 are anticipated to start construction in Spring 2022.

Project No. 0007-0250 is the upgrade of the coordinated traffic control signal system on the Berlin Turnpike (U.S. Route 5 & Route 15) in Wethersfield, Newington, and Berlin. The project will install the first State-owned system that uses adaptive traffic signal control and connected vehicle technology with snowplow priority. Design of this project is currently being finalized with construction anticipated to be completed in late 2022.

In recognition of the fact that much of the signing on limited access roadways in the state has surpassed its effective service life, multiple signing replacement projects are currently in design or construction. These include projects on Route 2, Route 9, Route 72, I-691, and sections of I-91, I-84, Route 2, and Route 8.

Bicycle / Pedestrian / Trails

The Bureau of Engineering and Construction continues to manage a more flexible approach to the funding of bicycle/pedestrian projects to close some of the existing statewide gaps in the trail network. Toward this goal, the BEC is facilitating the completion of a network of inter-connected, statewide trails under the Multi-use Trail Implementation Plan. This program is focused on the East Coast Greenway (ECG), a trail of statewide significance. The goal is to establish clear priorities that will close the most critical gaps and create long continuous portions of the statewide trail network.

Construction activities are complete on ECG projects in Bloomfield, 1.9-mile multi-use trail segment (Project No. 11-152) in Windham, bridge rehabilitation (Project No. 163-204), and the easternmost half-mile segment of trail in Sterling (Project No. 108-189). Construction is currently underway on the ECG in the towns of Pomfret and Putnam for the construction of two bridges and three underpasses (Project No. 111-124).

Design activities are complete on a section of the ECG in New Haven under Project No. 92-621 and on either side of the Putnam Bridge in Glastonbury and Wethersfield under Project No. 53-190, as well as in Norwalk on the Norwalk River Valley Trail under Project No. 102-350. Design activities are underway on the following projects along various segments of the ECG; Project No. 108-189 in Plainfield/Sterling, Project No. 131-203 in Southington, Project No. 30-97 in Columbia, and Project No. 109-173 in Plainville. The Bureau of Engineering and Construction is also working with the Towns of Bloomfield and Simsbury to design a segment of the ECG under the LOTCIP program and with the Town of Killingly to design a segment of the ECG under the Community Connectivity and DEEP recreational trails programs.

On January 9, 2019, the CTDOT, in cooperation with the Federal Highway Administration, solicited applications for funding from the Council of Governments (COG) under the Surface Transportation Block Grant (STBG) program set-aside for funding for Transportation Alternatives (TA). In anticipation of the Fixing America's Surface Transportation Act (FAST Act) expiration in September 2020, this solicitation is intended to position the Department, COGs, and Municipalities across Connecticut for continued project delivery under subsequent Federal transportation legislation. In a teleconference with the COGs on August 4, 2020, the Department announced that new project proposals, many of which are trails, will be initiated in the fall of 2020 in the TA program. The solicitation had successful application that include a segment of multi-use trail on the ECG in Pomfret and Putnam and a segment of trail that will begin connecting the ECG to the CT*fastrak* multi-use trail.

The Connecticut Department of Transportation and the Capital Region Council of Governments recently completed a study to determine a reasonable alignment for the ECG through Plainville. Project No. 109-173 has been initiated, based on the results of the study, to close the last remaining five mile north/south gap in the ECG in Plainville. The work will be broken up into three phases, starting with the southernmost section to

begin construction in late 2023, the northernmost section in 2024, and the downtown Plainville section in 2025. These projects will close the last remaining gap in the Farmington Canal Heritage Trail connecting New Haven to Massachusetts. Moving forward, the Department will continue to evaluate and initiate new sections of the regionally significant trails within budgetary constraints to close existing gaps in the ECG across the state.

Local Transportation Capital Improvement Program

The Bureau of Engineering and Construction (BEC) continues to oversee the Local Transportation Capital Improvement Program (LOTCIP). LOTCIP allows municipalities to perform capital improvements on smaller, locally-owned roadways that qualify for the Federal Surface Transportation Program – Urban (STGB-U) without needing to adhere to Federal Title 23 requirements that many municipalities are unfamiliar with and find burdensome, time consuming, and expensive. LOTCIP has freed up a significant level of BEC resources that have historically been devoted to oversight of municipally sponsored Federal-aid projects. LOTCIP also allows the portion of Federal STP-U monies historically dedicated to improvements on municipally owned facilities to be utilized by the Department for eligible activities, predominantly on State-owned assets. Since November 2013 when LOTCIP was first implemented, the BEC has worked with the regional Council of Governments (COGs) to issue funding commitments for 163 regionally endorsed municipal projects representing approximately $295 million in construction. $29 million in LOTCIP-funded construction projects were awarded in SFY 2019, with $39 million currently programmed to be awarded in SFY 2020. The BEC continues to coordinate with the regional COGs on new location solicitations and enhancing project delivery.

Resilience

Resilience is inherent in current engineering design practices, standards and criteria and the Department continues to pursue best available science in keeping climate-related, design input up to date, incorporating future climate projections (precipitation, stream flow, sea level rise) and updating design guidance. In cooperation with the U.S. Geological Survey (USGS), the Department co-funded a project (near completion) to update streamflow estimates and regression equations for estimating flows for hydraulic analysis and design. The USGS project incorporated improved statistical techniques and captured data from several significant flood events that occurred throughout State since the last update. There is currently a knowledge gap on how to incorporate the future climate scenario output predicted by global climate models into the design practices for transportation infrastructure. Research is currently underway to fill this gap.

Highway Program

Project 155-171, awarded on January 21, 2020 in the amount of $55 million, is being constructed to provide safety and operational improvements to address concerns with congestion and traffic operations on I-84 in West Hartford. Improvements include adding an additional auxiliary lane on I-84 WB between Exits 39A and 43, and on I-84 EB between Exit 40 and 41. Bridges over Berkshire Road and I-84 WB over Ridgewood Road will be widened or replaced. Construction progress to date includes reconstruction of the I-84 median in the area of Exit 40 and the first half of a new bridge on I-84 WB over Ridgewood Road, along with I-84 EB & WB cross slope and profile improvements from Exit 39A to 43. The first construction season is wrapping up on I-84 in West Hartford between Woodruff Road and Mayflower Street in the vicinity of the Westfarms Shopping Mall. The estimated completion date is May 30, 2023

Construction continues for the relocation of I-91 northbound Exit 29 in Hartford to Route 5 North and I-84 East in East Hartford (Project No. 63-703). This exit is being replaced with a major diverge consisting of a two-lane bridge entering the left side of the Charter Oak Bridge. Additional improvements include extending the four-lane section of I-91 northbound from Interchange 27 to Interchange 29 and widening Route 15 northbound to three travel lanes from east of the Charter Oak Bridge to the Silver Lane underpass. Project No. 159-191, which involves pavement rehabilitation and safety improvements of I-91 northbound and southbound in Wethersfield is combined with Project No. 63-703 under one contract. Construction of the new exit 29 is ongoing. Substructure elements and structural steel have been completed, and concrete decks and parapets are scheduled for completion by the end of 2020. The new exit 29 is currently scheduled to open one lane of traffic to the public in May 2021. Pavement repairs for project 159-191 are scheduled to be completed by the end of 2020, with final safety improvements being completed in the 2021 season. The $213 million Contract (Project No.63-703/159-191) began April 1, 2019 and has an estimated completion date of October 22, 2022.

The I-84 Danbury Project, Project No. 34-349, is an initiative to improve safety, increase capacity, and improve operations and access between Exits 3 and 8 in Danbury. The eight-mile stretch of I-84 experiences significant congestion and is CTDOT's highest priority for expanded capacity on the I-84 corridor. The project planning process is underway and focuses on public engagement and the development and preliminary assessment of alternatives. Subsequent phases will include environmental documentation, identification of a preferred alternative and preliminary engineering. The project team has been meeting with a variety of stakeholders in Danbury and surrounding towns and launched a project website (i84danbury.com). The first public forum was held on June 13, 2017 at Western Connecticut State University. Other public outreach efforts include newsletters and social media updates.

Transportation improvements continue on Route 15 (the Merritt Parkway) as part of the Merritt Parkway Corridor Improvement Plan. State Project No. 158-211/207, currently in its fourth year of construction, addresses 4.6 miles in both the east and

westbound directions of the Merritt Parkway in Fairfield and Westport. Included within the project are eleven (11) historic structures that are a mix of Parkway over and under other travel ways, as well as the Saugatuck River. The Westport structures include Newtown Turnpike, Route 15 over Wilton Road, Route 15 over the Saugatuck River, Clinton Avenue, North Avenue, and Bayberry Lane. Fairfield bridges include Route 15 over Cross Highway, Merwins Lane, and Redding Road.

Roadway improvements include resurfacing the roadway, correcting roadway cross-slopes, widening existing shoulders to 8 feet (4 feet paved, 4 feet reinforced grassed), upgrading guiderail with the standard Merritt Parkway style railing, installing concrete median barrier where appropriate, and rehabilitating the historic landscape in accordance with the Merritt Parkway Landscape Master Plan. Construction started in April 2017 and is predicted to cost $68 million. This project is substantially complete with some minor items outstanding.

The last major project in the Merritt Parkway Corridor Improvement Plan extends from Route 124 in New Canaan to Newtown Turnpike in Westport for 6.1 miles. During the design of this section (State Project No. 102-296PE), it was decided to break out the project into two halves and complete the work under separate construction projects. The northern project became known as State Project No. 102-368CN and begins at Main Avenue in Norwalk and extends to Newtown Turnpike in Westport for approximately 2.7 miles. State Project No. 102-368 has been advertised for bids and is expected to begin construction in May 2021 with completion in fall 2022. The remaining 3.4 miles will be constructed under State Project No. 102-296CN. The design of this project is scheduled for completion in fall 2021. The scope and magnitude of these projects are similar to prior parkway projects including the ongoing section in Westport and Fairfield.

A series of projects have been initiated in the downtown Middletown area that will support the removal of traffic signals from the Route 9 expressway in Middletown. The first project included the construction of sidewalk “bump-outs” on Main Street in order to provide better pedestrian visibility, shorten the pedestrian crossing distances, and improve signal timing. In February 2020, construction began on the contract consisting of the major intersection improvements at St. John’s Square (Project No. 0082-0320CN) and the major bridge rehabilitation project for the Arrigoni Bridge (Project No. 0082-0312CN). Construction for these projects will last two full seasons, expecting to be completed in fall 2021 and will include the reconstruction of the intersection leading to the Arrigoni Bridge from the Middletown side, as well as replacement of the bridge decks on both approach spans.

Structural steel repairs and strengthening is also included. A project to close the at-grade access from Miller Street to Route 9 by upgrading the Bridge Street railroad crossing is in design (Project No. 0082-0322CN). Also, in design is a project to remove the stop-controlled on-ramp from Route 17 onto Route 9 northbound (Project No. 0082-0316CN). The removal of the traffic signals on Route 9 is its own independent project (Project No. 0082-0318) that, due to public involvement, requires developing a detailed

traffic model of the surrounding area to clearly determine how traffic patterns will be changed due to removal of the traffic signals.

Bridge Program / Innovative Bridge Construction

Bridge work is being programmed based on an asset management approach to achieve and maintain established bridge performance targets, as documented in the Department's FHWA certified "*Highway Transportation Asset Management Plan*" (TAMP), dated August 28, 2019. The goal of an asset management system is to systematically and strategically identify and program treatments throughout the bridge's lifecycle, which will, if applied at the appropriate time, result in achieving and sustaining a State of Good Repair, given available funding. Over the last several years, the number of bridges rated poor has been steadily decreasing as the result of additional state funds applied toward bridge projects, additional maintenance staff to perform a myriad backlog of bridge maintenance work, and additional engineering staff to accomplish bridge capital improvements. The Department also continues to evaluate, and implement when appropriate, innovative materials and techniques such as high-performance concrete which has been shown to extend the service life of bridge elements while also reducing future maintenance and rehabilitation costs.

The Bureau of Engineering and Construction (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. Signs and traffic signal supports are typically inspected at six -year intervals. Bridges are typically inspected at two-year intervals. However, some bridges are inspected more frequently if warranted due to structural deterioration. This critical function helps to ensure the safety of the traveling public through the identification of deficiencies and needs in a systematic and timely manner. Routine maintenance is also identified to protect the State of Connecticut's multi-billion-dollar capital investment in bridges.

When a state-maintained bridge becomes poor, steps are taken to address the deficiency, either by Bridge Maintenance performing repairs, or by the BEC initiating a project to repair or replace the structure in a capital project. If the bridge is maintained by a town or another entity, the BEC notifies the owner of the need to correct the deficiency and provides information regarding funding for qualified bridges.

The innovative construction method referred to as Accelerated Bridge Construction (ABC) has been used in several construction projects in Connecticut. ABC is bridge construction that uses innovative planning, design, materials, and construction methods in a safe and cost-effective manner to reduce the onsite construction time that occurs when building new bridges or replacing and rehabilitating existing bridges. ABC improves site constructability, total project delivery time, and work-zone safety for the traveling public. ABC reduces traffic impacts, onsite construction time, and weather-related time delays. Since 2012, 33 projects have been completed using ABC, 10 others are in construction and another 42 are in various stages of design from Pre-design to Contract Processing.

The Bureau of Engineering and Construction continues to employ efficient contract delivery methods to maximize contractor innovation and deliver projects more quickly to construction. The use of ABC techniques, including Prefabricated Bridge Units (PBUs) and Geosynthetic Reinforced Soil–Integrated Bridge System (GRS–IBS), help reduce bridge construction duration, project costs as well as minimize future maintenance requirements. PBU's were utilized on the I-95 crossing over Route 1 in Branford and will be also be used in combination with innovative materials on Route 82 in Salem, Route 69 in Wolcott and Mosher Avenue over Amtrak in Groton.

In 2016 CTDOT's Federal Local Bridge Program initiated a pilot program in which, with the municipality's agreement, the Department administers the design and rights-of-way phases of a Federal Local Bridge Program project, from concept through design completion. This pilot program was initiated due to the Department's recognition of the difficulties faced by many municipalities in carrying out design activities in a timely fashion. Initially 8 projects were selected for the pilot program, but due to the overwhelming success of the pilot in reducing typical design durations from 48 months down to 24 months, CTDOT has opened up this program to all municipalities, contingent upon availability of state funds. All Municipalities now have the option to request for CTDOT to administer the design and rights-of-way phase for these projects.

For a Municipality that opts into this program, CTDOT uses state funds to pay for 20% of design costs to match the 80% federal funding. The municipality remains responsible for advertising for construction, administering construction of the project, and funding 20% of the rights-of-way and construction phases to match the 80% federal funding. Currently there are 23 projects enrolled in this program.

Various active projects within the Bridge Program include: A project to replace the existing railroad bridge over Atlantic Street in Stamford is currently in construction. The project incorporates ABC techniques. The work is broken down into two phases. Phase 1 is complete and included relocating the buried utilities and the I-95 NB exit ramp and reconstructing a portion of South State Street. Phase 2 is partially complete. Work completed included the replacement of the railroad bridge using innovative construction techniques, including railroad track jump spans that permitted construction of new bridge abutments under live rail traffic.

Self-Propelled Modular Transporters (SPMT's) were used to transport and place pre-constructed bridge spans built off site. The new spans were successfully installed during the week of July 4, 2019. With the Atlantic Street bridge work complete in late 2019, on-going work includes catenary replacement and completion of a new station platform on the north side of the station in order to use the new Track 7 that will service the New Canaan branch line. Construction completion is scheduled for spring 2021.

A project for the replacement of the I-95 Bridge over Saugatuck Avenue in Westport using the lateral slide ABC technique is scheduled for advertising in 2021. This bridge replacement work will be incorporated in a resurfacing and safety improvement project on I-95 of several miles. New bridge abutments will be constructed

underneath the existing spans as new spans are constructed over Saugatuck avenue on temporary supports. On consecutive weekends, following construction of the new bridge spans on their temporary supports, all I-95 highway traffic will be shifted to the southbound roadway while the northbound span is slid into place. The following weekend, all traffic will be shifted to the northbound roadway while the existing southbound span is demolished, and the new southbound span is slid into place.

Innovative materials and techniques were successfully used to preserve bridge beam ends for structures carrying I-91 in New Haven. The bridge beam ends were encased in ultra-high-performance concrete (UHPC), the first use of this technique in the nation. The procedure was developed by way of a research and design partnership between the Department and UCONN, and has been featured by FHWA on a national level Project 42-325 in East Hartford, which is in design and anticipated to be in construction in late summer of 2021, will also utilize this repair technique. This project involves the rehabilitation of Bridge No. 05844A which carries I-84 Eastbound over Route 15. Approximately 49 beam ends will be repaired with UHPC.

A bridge rehabilitation project for the I-84 Hartford Viaduct, which carries I-84 over Amtrak, city streets, and parking lots in Hartford, was recently completed in construction. The project included repairs to structural steel, bearing and concrete repairs to the bridge deck and supporting substructure, replacement of the median barrier, and parapet modifications. Similar repairs were also accomplished to Bridge Nos. 01765 and 01766, located just east of the viaduct along I-84. The three projects were combined into one construction contract. Construction began in the spring of 2017 and was completed this year.

The completion of work on the I-84 Hartford Viaduct restored the bridge to a state of good repair with an expected service life of 20 years. Consequently, the planning study for replacement of this structure was deferred in lieu of a more comprehensive study of travel needs for the larger greater Hartford region. The Greater Hartford Mobility study (GHMS) will address structural deficiencies, improve traffic operations and safety, and improve mobility on the I-84 mainline and its interchanges between Flatbush Avenue and I-91. The Lowered Highway alternative would relocate a portion of the Amtrak rail line, improving rail operations in Hartford; eliminate the viaduct by bringing I-84 down at or below ground level; reduce I-84’s impact on neighborhoods; and, free up as many as 45 acres of land, creating opportunities for development including TOD around a new, multimodal station opposite Union Station. The project will also improve access, safety, and mobility for bicycles and pedestrians within the project area. The next phase will result in a draft Environmental Impact Statement.

The northbound Gold Star Memorial Bridge, located on I-95 between Groton and New London, is planned for major bridge rehabilitation. There will be three separate construction projects. The first project, scheduled for advertising in April 2021, will focus on structural steel strengthening of the truss approach spans, replacement of truss bearings, and concrete repairs to the substructure/piers. The second project, scheduled for advertising in April 2022, will focus on structural steel strengthening and/or

replacement of the girder approach spans and the replacement of the girder bearings. The third project, scheduled for advertising in May 2024, will include replacement of the bridge deck, bridge parapets, sign supports and signs, storm drainage, and navigation lighting.

The 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 mainline I-84 and Route 8 structures and the turning roadways connecting them. The three design projects were awarded as a single $153 million construction contract in April of 2018 and are scheduled for completion in September 2022. The project includes structural steel repair and strengthening, bridge deck repair and resurfacing, and bridge deck replacement on all spans of the Route 8 northbound and southbound interchange bridges. Temporary U-Turn and bypass are in place that will allow for replacement of the Route 8 NB deck replacements.

A preliminary engineering study has been initiated to investigate alternatives for the design and replacement of the I-84/Route 8 Interchange. Survey and traffic data collection, including traffic volumes and origin/destination statistics, have been completed. Models are being prepared to project future traffic demand for the Interchange. The scope of the initial study will consist of developing a broad spectrum of alternatives for reconfiguration of the Interchange that will address the needs and deficiencies of the corridor. Fiscally constrained alternatives, including potential near-term measures for improving operational and safety needs, are also being explored to manage and maintain the existing infrastructure.

A project to rehabilitate Bridge No. 32 on I-95 that spans Metro-North Railroad and local streets in Stamford was awarded in the fall of 2019 and will be completed in the fall of 2021. The project incorporates innovative variable quantity construction items for deck patching. This methodology was employed to limit potential construction cost changes associated with contract deck patch quantities, which are difficult to estimate during the design process.

The proposed rehabilitation of the Heroes Tunnel, carrying Route 15 through West Rock Ridge in Woodbridge and New Haven, is in the preliminary design stage. Construction alternatives are being evaluated that would correct existing tunnel deficiencies, including potentially constructing a new tunnel barrel to maintain traffic during construction. An Environmental Assessment (EA) is being prepared to document impacts and identify a preferred alternate. Engineering progress beyond the EA is not certain at this time, considering required prioritization of transportation improvement projects in the capital program. In the interim, a tunnel project to address the most pressing ventilation and fire safety improvement needs was initiated and is scheduled to be advertised for construction in October 2022.

An EA for the study of bridge rehabilitation and replacement alternatives is currently underway for the historic Cribari Swing bridge on Route 136 over the Saugatuck River in Westport. The EA is scheduled for completion in October 2021. Depending on the outcome of the EA, a bridge rehabilitation or replacement project could be scheduled for advertising in late 2024.

A construction project for the rehabilitation of the Devon double leaf bascule movable bridge carrying Route 1 over the Housatonic River in the towns of Milford and Stratford is scheduled for advertising in April of 2021. The project will include the replacement of the bridge decks on the bascule spans along with bridge deck repair with resurfacing of the approach spans, structural steel repair, and concrete repair to the piers and abutments.

Additionally two bridge preservation projects have just 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. Both projects are scheduled for construction advertising in early 2024.

The Rochambeau Bridges, which carry I-84 over the Housatonic River in Southbury and Newtown, entered the construction phase of the project to replace both bridge superstructures on rehabilitated substructures. These unique structures, one carrying eastbound and the other westbound traffic, will leverage the separate structures to enable a traffic shift from one structure to the other, enabling the replacement of each superstructure with minimal traffic impacts. The cost of the construction project is approximately $53 million.

The East Haddam swing bridge, which carries Route 82 over the Connecticut River, connecting East Haddam and Haddam, is due for a major rehabilitation starting in 2022. The date was set to avoid any conflicts with the Arrigoni Bridge project. This 104-year-old structure is a historical landmark that has served the local, state and river traffic communities and industries extremely well. The $60 million rehabilitation will include a deck replacement, structural, mechanical, architectural, computer and software upgrades to ensure proper opening and closing to accommodate high boat traffic during the peak summer months. The project will add a permanent pedestrian sidewalk to serve the existing community and help foster future economic plans for both towns.

Pavement Program

Steps to improve pavement performance across all segments of CTDOT's pavement inventory were taken during 2020. These steps included the establishment of well-defined roles and responsibilities for all Bureaus and Offices involved in managing pavements. An Annual Resurfacing Program process map was developed for the programming, delivery, and construction of pavement projects and a data-driven programmatic approach to develop a 2-year pavement resurfacing candidate list was initiated.

Strategies to improve Moving Ahead for Progress in the 21st Century (MAP-21) pavement performance metrics (crack percent, smoothness, and rutting) continued to be employed. These strategies included the use of polymer modified asphalt (PMA); surface patching and crack filling of existing pavement prior to paving; the application of thin preservation treatments (ultra-thin overlays and rubberized chip seals) and for selected pavement sections, incorporation of specifications for improved pavement smoothness and uniformity. The continued specified use of material transfer vehicles (MTVs) during paving operations, and a requirement for contractors to obtain pavement cores for the determination of asphalt concrete pavement density have resulted in pavements that are smooth, dense, and uniform. Undoubtedly, the above specification improvements, which were developed over years of collaboration with industry, are bearing positive outcomes.

The 2020 Pavement Preservation Program (PPP) included two ultra-thin overlay projects valued at approximately $17 million: a 40-lane-mile treatment on I-84 and I-384 in East Hartford and Manchester, and a 40-lane-mile treatment on I-395 in Montville and Norwich. In addition to being low-cost preservation treatments that will extend the overall life of the pavement, the ultra-thin overlay will also increase skid resistance and decrease storm water spray at the tire-pavement interface compared to traditional overlays. The 2020 PPP also included two Asphalt Rubberized Chip Seal (ARCS) projects valued at approximately $5 million: 40-lane-miles in eastern Connecticut (CTDOT District 2) and 10-lane-miles in northwestern Connecticut (CTDOT District 4). These cost-effective surface treatments are expected to last approximately ten years before these roadways need to be treated or resurfaced, which improves the overall life-cycle performance of the pavements. Like the ultra-thin treatments, the ARCS treatments will also improve the skid resistance of pavements.

Highway Maintenance Facilities

The reconstruction of the Wethersfield Maintenance Facility began in November 2018 and was completed in July 2020. This $10 million project fully renovated the facility after the Repair Unit moved to Rocky Hill. A two-bay wash bay addition was also constructed.

The renovation of the Darien Repair and Maintenance Facility began in August 2019 and is scheduled to be completed in December 2020. This $6 million project performs state of good repairs to the building including the roof replacement and the boiler and heating system replacement.

Construction on a new East Hampton Maintenance Facility began in August 2019 and is scheduled to be completed in April 2021. This $11.5 million project relocates the Marlborough Maintenance Facility operation and includes the construction of a new salt shed. The functionally obsolete Marlborough facility will be retained for off-season equipment staging and storage.

Design plans are 90% complete for the construction of a new Torrington Bridge Facility and a new Torrington Signs and Markings Facility to replace the existing functionally obsolete facility. This $18.7 million project is anticipated to start construction in January 2022 and is scheduled to be completed in December 2024. In addition, a new Paint Storage Building and a new Cold Storage Building will also be constructed.

Design plans are 60% complete for the construction of a new New Milford Maintenance Facility to replace the existing functionally obsolete facility. This $9 million project is anticipated to start construction in December 2021 and is scheduled to be completed in June 2023.

Construction of a new Stratford Salt Shed began in September 2020 and is scheduled to be completed in May 2021. This $2.3 million project replaces the existing functionally obsolete salt shed.

Finally, state of good repair projects continue to replace facility roofs, salt shed roofs, and underground storage tanks.

Public Transportation

The New Haven Rail Yard (NHRY) Facilities Improvement Program is a comprehensive plan to transform and provide state of the art storage, servicing and maintenance facilities for the New Haven Line fleet, as well as CT Commuter Rail service (Shoreline East and Hartford line). The $1.178 billion-dollar multi-project program is approximately one-half complete. Completed projects at the NHRY include the M8 Acceptance Facility, Diesel Storage Yard, Traction Power Supply Substation, Independent Wheel Truing Facility, the Component Change-Out Shop, Maintenance of Way Facility, Central Distribution Warehouse, and the Yard Power Upgrade. Active projects at the NHRY include the East End Connection and the West End Yard. Projects currently in design include rehabilitation projects for a second Wheel Mill Facility and the Car and Diesel Shop.

Two significant movable bridges, each over 110 years old, have been identified for replacement along the New Haven Line. These bridges are key pieces of infrastructure that carry rail commuter and intercity service over two rivers and are vital to the operation of the Northeast Corridor. The designs for the replacement of the movable bridge over the Norwalk River, known as the “Walk Bridge”, and the movable bridge over the Housatonic River, known as the “Devon Bridge,” are underway. The Walk Bridge program is utilizing the Construction Manager / General Contractor (CM/GC) alternative contracting method. Advance projects for the program, CP243 and Danbury Dockyard, are in construction at a combined construction cost of $325 million. The Walk Bridge will start construction in 2021. The Devon bridge replacement is in the environmental planning phase. The Devon Bridge is anticipated to start construction in 2025.

Shore Line East railroad expansion is continuing to progress. The Branford and Guilford stations have been expanded and are now operational from both sides of the tracks and construction is substantially complete. Construction of Clinton Station is underway with completion scheduled for the Spring of 2021. This project includes the construction of elevators with an up and over pedestrian bridge, and a new platform and parking on the North side of the tracks. The Madison Station Improvements are scheduled to begin design in the winter of 2020. The station upgrades are expected to go into construction in 2022.

The project to construct P&W Railroad spur tracks to terminal properties on Waterfront Street in the New Haven Port Area is now complete. Discussions with the New Haven Port Authority regarding surplus properties, owned by the Department in the port area, are ongoing.

The Bureau of Finance and Administration

The Bureau of Finance and Administration (BFA) is responsible for the following functions within the CTDOT: Finance, Operations and Support, External Audits, Contract Compliance, Contracts, and Agreements. The BFA provides the fiscal and support services necessary for the development and implementation of the department's programs. In addition, the BFA administers fuel distribution for most state agencies and oversees the operation of the twenty-three service plazas on the Governor John Davis Lodge Turnpike and the Merritt and Wilbur Cross Parkways.

The following is a summary of some of the key initiatives being undertaken in the Bureau of Finance and Administration: CTDOT has been positioning itself annually for additional Federal funds through the Federal Highway Administration (FHWA) redistribution program. Federal law provides for a redistribution on August 1 of each fiscal year of the obligation limitation, or “ceiling,” from those States and programs unable to obligate their full share of federal highways funding to other States, such as Connecticut, that are able to obligate more than their initial share of the ceiling.

The FHWA reviews every state’s ability to fully utilize their highway obligation limitation and requires that States who cannot fully obligate federal funding return the obligation limitation to the federal agency. This obligation limitation, along with any amounts held back from original distribution by USDOT, is then redistributed to states that can obligate their federal allocations and can demonstrate the need for additional ceiling to advance eligible projects that are ready to move forward.

Through yearlong strategic planning efforts, CTDOT has positioned itself to be able to submit a robust application – from a typical ask of $10-$20 million prior to FY2016, to $50 million and up for the last 3 years. Based on a successful demonstration of our ability to fully use all available funds and a plan to quickly utilize additional funding, CTDOT has received $142 million of redistributed ceiling in the past 3 years. For FY2020, CTDOT has submitted a request for $75 million.

A project closeout team was formed in October 2008 to address a backlog of Federal Highway Administration (FHWA) funded projects that were completed but had not been closed. From October 2008, through June 2019, the CTDOT closed 3,493 FHWA funded projects and released $215 million of unused federal funding for obligation on new projects. The CTDOT and Connecticut Employees Union Independent (CEUI) partnered with the Office of State Comptroller to establish a Diabetes Prevention Program at the CTDOT as part of an ongoing commitment to maintaining a healthy, productive workforce.

The goal of this initiative is to provide CTDOT licensed CDL operators the opportunity to volunteer to participate in a Diabetes Prevention lifestyle change program. Employees may attend informational sessions designed to teach employees how to make healthy lifestyle changes focused on diet modification, managing stress, improved exercise, and adopting healthy habits to delay and even prevent the progression of the condition to Type 2 diabetes. Employees are given resources by dedicated and trained lifestyle coaches who understand the challenges faced by the CTDOT's work environment, schedule, and hours of work. The program is the first of its kind and will serve as a model for other state agencies.

The Bureau of Highway Operations and Maintenance

The Bureau of Highway Operations and Maintenance provided roadway and roadside maintenance to 5,682 effective two-lane miles of roadway and provided snow removal and other roadway maintenance services to 76 state agencies. With respect to snow and ice control, there were 6 winter storms which required the use of 86,037 tons of sodium chloride and 331,267 gallons of liquid magnesium chloride and 0 cubic yards of sand abrasives applied by 634 state trucks assisted by 230 contracted trucks for plowing purposes only. Maintenance of existing roadways included 216 two lane miles of vendor-applied bituminous concrete overlay. In addition, 8,184 linear feet of drainage pipe was installed along with 838 drainage structures. During the past year, maintenance repairs were performed on 953 of the 4,126 state-maintained bridges through the combined efforts of Department personnel and contractors.

The Bureau of Highway Operations and Maintenance 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 such as the shoulder area and center-median of highways, roadways and ramps. CTDOT has removed 111,792 trees for safety and roadside maintenance.

The Traffic Services Units installed 3,015 miles of centerlines and lane lines; erected 1,318 new traffic regulatory, warning and directional signs; renewed or removed 7,769 existing signs; continued maintenance of 3,733 traffic signals and 1,279 miles of highway illumination; and installed 41 new traffic signals and 104 signal revisions. The Rocky Hill Sign Shop produced 6,003 COVID-19 related signs including 1,765 for Department of Motor Vehicles, 5,027 for Connecticut Transit and 92 for the Connecticut Ferry locations from April 2020 to September 2020.

There were 4,141 highway encroachment permits issued. The Oversize/Overweight Vehicle Permit Unit collected $3,643,007.00 for the issuance of 87,294 oversize/overweight permit trips, 2,759 annual permits, 31 radioactive permits, and 55 industrial permits.

CTDOT's computerized traffic control signal systems include a total of 962 traffic signals on 56 major arterials in 59 municipalities.

Highway Operations responded to a total of 4,044 reported incidents on the state's limited access highway system. The Newington and Bridgeport Operations Centers monitor 333 highway cameras and operate 136 variable message signs and 14 highway advisory radio stations. CTDOT's Connecticut Highway Assistance Motorist Patrol (CHAMP) Program provided highway assistance to 7,551 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 aided 5,311 motorists.

The Equipment Fleet Operations unit brought a portion of the 9-Ton Winter Maintenance Truck build process inhouse producing and installing various components which provided consistency, standardization, and improved workmanship. The Team upcycled equipment for 12 new snow and ice heavy-duty plow trucks and built 7 heavy-duty plow trucks with new equipment. Re-using body and hydraulic components, the team has been fabricating pieces and assembling trucks inhouse. This new initiative is innovative and realizes a costs savings, while engaging employees to advance the Bureau of Highway Operations and Maintenance's goals.

CTDOT has begun deployment of an advanced technology system project to support and enhance the management of roads during the winter snow season, referred to as Integrating Mobile Observations (IMO). Snowplow vehicles will be 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, along with atmospheric information, and provide recommendations to Bureau of Highway Operations managers and supervisors on how to respond to weather events most effectively. This includes the optimal use of roadway anti-icing chemicals. The computer software will also provide future pavement condition forecasts so that 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 more efficient application of road salt. CTDOT received a grant from FHWA for the Accelerated Innovation Deployment (AID) Demonstration program to support the rollout of this initiative. One hundred fifty-one (151) snowplow vehicles will be outfitted with IMO/MDSS technology for the 2020/2021 winter season using current available funding. Funding opportunities for completing the rollout to the rest of the snowplow fleet, including Federal grants, are currently being examined.

The Bureau of Policy and Planning

The Bureau of Policy and Planning (BPP) conducts continued, cooperative and comprehensive statewide transportation planning processes that provide for consideration and implementation of projects, strategies and services to address economic development, increased safety, accessibility and mobility of people and goods, while protecting the environment, and enhancing the integration and connectivity of the transportation system across all modes of travel. The BPP is an important source of data, data analysis and support for the entire Department, and ensures compliance with federal and state planning and regulatory requirements.

The Bureau of Policy and Planning has moved into production with a new comprehensive digitized road network, which includes over 21,000 miles of state and local roadways. This network and associated Geospatial Linear Reference System supports asset and data integration for the CTDOT including via the Transportation Enterprise Development (TED) Group. While the Roadway Inventory Unit is primarily focused on the Highway Performance Monitoring System (HPMS) and Model Inventory of Roadway Elements (MIRE) federal mandates, other important initiatives benefit from this work such as Asset Management, FMIS, capital project delivery, VIP paving, pavement condition, GIS, signal work areas and traffic volume data reporting. The TED group is focused on improving geospatial technology and data governance practices for the entire Department. These activities are spearheaded by the newly created Enterprise GIS Unit (EGIS). The EGIS unit works to develop systems and policies as they relate to ESRI GIS technology and how it can be deployed throughout the Agency to foster improved data collection and maintenance.

The BPP maintains the State's Traffic Monitoring Counting Program. The collection, dissemination and utilization of traffic volume counts are vital to the operation of a transportation agency. Photolog Automated Roadway Analyzer (ARAN) Pavement Data Collection and continuous inventory of the highway system are also housed within this bureau. This data represents critical elements needed to estimate future travel demand, identify current and future capacity deficiencies, analyze alternate highway and transit improvements, inform environmental studies, and are also utilized by the public. Federal mandates related to HPMS and MIRE are critical to federal funding apportionment and Highway Safety requirements, which are also tied to significant funding for the Department.

The Statewide Transportation Improvement Program (STIP) Unit develops, maintains, and coordinates Metropolitan Planning Organizations (MPOs) and USDOT approval of the Statewide Transportation Improvement Program and periodic revisions. The 2018 STIP was maintained during this timeframe and the 2021 STIP was in development. The Unit provides the MPOs/ Council of Governments (COGs) and the Public the previous fiscal year (FFY 2019) Obligated and Granted Projects list as mandated by the Federal Authorization bill, and calculates and allocates estimated Federal Authorization funds to Connecticut's eight MPOs and two Rural Planning Organizations for Metropolitan Transportation Plan planning purposes. The Unit

coordinated the development of the draft update to the Department's Public Involvement Process document and coordinates the BPP's Title VI training. As COVID sent staff home to telework, the draft development of the Virtual Public Involvement Process also began.

The COG Coordination Unit is the designated Department Liaison for the MPOs, Councils of Governments (COG) and local officials on planning efforts to ensure that the planning process is conducted in accordance with the requirements of federal laws and regulations. The Unit coordinates or assists with the coordination or dissemination of information on various transportation planning programs and activities and transportation planning documents. The Unit solicits the MPOs/COGs for project proposals under the Congestion Mitigation Air Quality (CMAQ) program, the Transportation Alternatives program (FFY19) and the corridor study initiative. The Unit participates in the administration of the MPO/COGs transportation studies and the development of Project Authorization Letters. Staff attends monthly COG/MPO transportation committee meetings along with monthly Policy Board meetings.

The Travel Demand/Air Quality Modeling Unit maintains the statewide travel demand model which utilizes current and future socio-economic and demographic projections to estimate travel demand. The unit analyzes and prepares Census, American Community Survey, and other demographic data for utilization in the Model and participates in the development and preparation of alternative analysis for proposed transit and highway projects. The unit is actively involved in the development of a new travel demand model using CUBE software. The unit 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 and conducts detailed analysis of air quality emission reductions utilizing EPA required software. Project level analysis was prepared for required transportation projects and Regional Conformity was begun for the Draft 2021 STIP. The unit participates in the development of motor vehicle emission budgets for various nonattainment areas within the state of Connecticut per pollutant; and reviews project plans and designs to determine air quality conformity determination status, as well as to fulfill NEPA requirements. The Unit prepares boundary adjustments to Federal Aid Urban Areas and to Census Tracts and block groups for the Census Bureau's PSAP program.

The Highway Safety Office (HSO) develops the Annual Highway Safety Plan and the Annual Highway Safety Report, which ensures compliance with Department policies, National Highway Traffic Safety Administration guidelines and relevant federal laws and regulations. These measures are taken to reduce injuries and fatalities related to driver behavior. The enforcement-based program areas include Impaired Driving, Distracted Driving, Occupant Protection, and Speed and Aggressive Driving. Additional program areas are Child Passenger Safety, Motorcyclist Safety, Non-Motorized Safety, Police Traffic Services, Traffic Records, and Racial Profiling. The HSO also coordinates the Connecticut Drug Recognition Expert program. 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 (FARS) as well as the

Connecticut Crash Data Repository. The HSO partners with the Connecticut Transportation Safety Research Center at UConn on projects related to driver behavior.

The Bureau of Policy and Planning (BPP) implements the transportation performance management framework at the CTDOT and focuses on a performance-based planning and programming approach guided by the Long-Range Transportation Plan. Performance measures are updated by each Bureau to provide a comprehensive perspective of Department performance and are published quarterly on the Department's webpage. The performance measures represent all modes of transportation as well as several performance dimensions including highway safety, infrastructure condition, and project delivery. The BPP also coordinates Department compliance with requirements of federal law, including reporting and target-setting for 17 national performance measures in the areas of highway safety, infrastructure condition, and highway system performance. The BPP coordinates with MPOs in national performance target setting, as they are also required to set corresponding performance targets.

In the effort to optimize highway system performance, the Bureau of Policy and Planning places a major emphasis on developing advanced capabilities to analyze travel time reliability for passenger cars as well as freight movement on the highway network. It leads a multi-disciplinary working group of CTDOT and MPO planning professionals to collaborate on travel time analytics and has acquired visualization tools to use in modeling and measuring performance in this area.

The Bureau of Policy and Planning (BPP) prepares the state's long-range transportation plan, which includes four goal areas of Economic Growth, Deliverability, Quality of Life, and Sustainability. The BPP also develops strategic plans and studies regarding congestion reduction, project-financing alternatives such as toll and other transportation revenue options, corridor needs and deficiency studies, and public transportation modal and location-based studies. The BPP also coordinates the agency's efforts supporting the implementation of Governor's Executive Orders 1 and 3, as well as representing the Department on the Governor's Council on Climate Change.

The BPP leads planning efforts for Transit-Oriented Development (TOD), including administering grants, participating in interagency task forces, and assisting municipalities with planning and design technical services. The BPP also prepares the multi-modal Statewide Freight Plan and leads CTDOT's participation in Connected and Autonomous Vehicle (CAV) activities and is working toward the development of the agency's first Connecticut and Autonomous Vehicle Strategic Plan.

The BPP reviews Traffic Impact Studies for Major Traffic Generator (new development) submittals for the Office of the State Traffic Administration and develops traffic projections for all state transportation projects.

The BPP assists with implementing the Department's Complete Streets Policy in accordance with the Connecticut General Statutes. The BPP reviews projects during the design phase to ensure compliance.

The BPP administers the Community Connectivity Program, to improve conditions for walking and bicycling to and within urban, suburban, and rural community centers. Program components include: Road Safety Audits at important corridors and intersections; and the Community Connectivity Grant Program to provide municipalities with construction funding for targeted infrastructure improvements. Eighty cities/towns have been approved for grants totaling approximately $25 million. As of June 30, 2020, 12 projects were in construction or completed and approximately $3.2 million had been expended.

The BPP completed the Active Transportation Plan in 2019, a multi-pronged approach to improve bicycle and pedestrian transportation. The BPP helps to implement the actions in the Plan to improve safety, connections, and accessibility and is developing a pedestrian zone safety initiative aimed at evaluating and reducing vehicular speeds in high crash locations involving pedestrians.

The Office of Environmental Planning provides oversight and support for required National and Connecticut Environmental Policy Act (NEPA / CEPA) implementation and proper documentation for Department activities. The BPP continues to stay informed and comment on legislative and proposed federal rule changes, as well continuing to seek out efficiencies in process, and provide training. The Bureau of Policy and Planning is leading investigations into use of PEL (Planning and Environment Linkage) as a planning tool. A Programmatic Agreement is being renewed and is under review to streamline the Categorical Exclusion process with FHWA.

The BPP 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. The BPP is the lead liaison with various State and Federal regulatory agencies such as the US Army Corps of Engineers, US Environmental Protection Agency and the Connecticut Department of Energy and Environmental Protection (DEEP) regarding water and natural resources issues. The Office of Environmental Planning obtains the necessary water resource and stormwater permits required for all CTDOT initiated projects, and ensures projects properly avoid, minimize, and mitigate for potential impacts to regulated resources.

The Bureau of Policy and Planning is responsible for coordination efforts and compliance under Section 7 of the Endangered Species Act with the US Fish and Wildlife Service and National Marine Fisheries for federally funded projects. The BPP is working with an FHWA Working Group to reassess and streamline the existing National Marine Fisheries/FHWA Programmatic Agreement. Responsibilities also include inspections of active State controlled construction sites and maintenance projects to

ensure compliance with permit conditions, State and federal laws and regulations, and Department Best Management Practices.

The General Permit for the Discharge of Stormwater from CTDOT Separate Stormwater Sewer Systems (MS4 Permit) Year 1 draft annual report was prepared for internal review and comment. Environmental Planning is also the lead for developing mapping for the statewide stormwater system.

The Bureau of Policy and Planning is responsible for noise analysis and compliance, as well as responding to noise complaints from the traveling public, and created a noise barrier wall inventory for use in asset management efforts. The Bureau of Policy and Planning is in the process of developing a noise barrier inspection program that will be part of the inventory.

The Bureau of Public Transportation

Prior to 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. In March 2020, the COVID-19 pandemic led to 90 percent declines in rail ridership and 60 percent declines in bus ridership. The Connecticut River ferry season was also abbreviated. Some riders had returned by June 2020, although the effects of the pandemic persisted. Rail services operated at reduced levels due to the significant loss of commuters. Bus services with few exceptions operated at full levels throughout the period to serve the essential workers that rely on bus service. This also provided the capacity necessary for social distancing.

The Bureau of Public Transportation worked closely with service providers to provide resources and technical expertise to respond to the effects of the pandemic. This included a temporary shift to rear door boarding, purchase and installation of driver barriers, distribution of masks to customers, coordination with other state agencies to provide childcare for bus drivers and priority COVID-19 testing for bus drivers and other essential transit workers.

During the fiscal year, the BPT continued to make progress on the maintenance and modernization of transit and rail infrastructure. Service reliability and the customer experience depend on a well-maintained, modern infrastructure.

Some highlights for the fiscal year include:

- New Haven Line investments during the year included the completion of the overhead catenary program, which replaced the variable tension system (i.e., wires sag during warm weather) with a constant tension system to improve train reliability and speed. This project was initiated more than 20 years ago and was phased due to a lack of long-term reliable funding plan.

- Substantial progress was made on the Waterbury Line signal & siding program, which will enable expanded train service including new morning and evening peak service. The BPT worked with Metro-North to accelerate construction activities during the pandemic. The program is expected to be complete in late 2021.

- The Bureau of Public Transportation worked with Metro-North and Amtrak to develop new rail car specifications to replace aging equipment on Shore Line East and Hartford Line. The new rail cars will provide full accessibility for persons with mobility impairments and provide new onboard amenities to improve the customer experience.

- CT*rail* eTix was introduced to customers to provide mobile ticketing options for travel on Shore Line East and Hartford Line. The app also allowed through-ticketing to New Haven Line stations including Grand Central Terminal, for the first time providing a unified ticketing experience for travelers.

- On the bus side, the Bureau of Public Transportation in partnership with the Greater New Haven Transit District and City of New Haven completed the Move New Haven study. The study team surveyed customers, evaluated ridership patterns and recommended consolidation of bus stops, expanded service hours and implementation of two new bus rapid transit routes.

- The Bureau of Public Transportation initiated the first ever electric bus procurement in partnership with Greater Bridgeport Transit and conducted its own procurement of electric buses for the CT*transit* system. The first buses are expected to be delivered next fiscal year. The BPT also worked with DEEP and PURA to review barriers to the ultimate transition of the diesel bus fleet to an all-electric bus fleet.

- The modernization of the CT*transit* Hartford Garage continued with the replacement of underground storage tanks and modernization of maintenance bays at the garage.

- The BPT initiated discussions with transit districts and colleges and universities to encourage new partnerships and shared services. These partnerships may improve economies of scale and better integrate services.

- The Bureau of Public Transportation applied for numerous federal grant opportunities and was successful in its applications for additional funding for Walk Bridge, new Windsor Locks Station, and Stamford Transportation Center improvements bringing in a total of $206 million to Connecticut in non-state funding for these programs. Grant funding was also awarded for the Hartford Line service.