

Department of Transportation

At a Glance

JAMES REDEKER, 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 – 3,352

Recurring operating expenditures 2016-2017 ---\$611.7 million

Capital Budget 2016-2017 -- \$2.05 billion

Organization structure – Office of Commissioner, Bureau of Finance and Administration, Bureau of Engineering and Construction, Bureau of Highway Operations, Bureau of Policy and Planning, Bureau of Public Transportation, State Traffic Commission

Mission

The mission of the Connecticut Department of Transportation (Department) 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[I]).

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 Department is an Affirmative Action/Equal Opportunity Employer. It is the established policy of the Department to assure equal opportunity and to implement affirmative action programs. All services and programs of the Department 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 Department 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.

Bureau of Finance and Administration is responsible for the following functions within the Department: Finance, Operations and Support, Information Systems, External Audits, Human Resources, and Contract Compliance, Contracts, and Agreements. The bureau provides the fiscal and support services necessary for the development and implementation of the department's programs. In addition, the bureau 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:

A project closeout team was formed in October 2008 with representatives from the Department's operational areas and the United States' Department of Transportation, Federal Highway Administration (FHWA). The Department seeks to close out projects and release unused state and federal funding for obligation on new projects. Since the initiative began, the Department has closed 3,416 projects releasing over \$203 million in federal funding through January 2018. We have eliminated the backlog of projects awaiting closeout. We are currently working on final vouchers as the projects advance to the final voucher step in the project life-cycle. Currently there are 62 final vouchers assigned with 42 drafted; 12 in process.

Unexpended balances of federal highway funds continue to be a focus for the FHWA. In 2009, Connecticut's federal inactive funding balances ranked second worst in the nation. In November 2009, FHWA and the Department entered into a Memorandum of Agreement (MOA) to reduce the federal inactive percentage from 14 percent to 5 percent by the end of FFY 2010. Through mutual efforts by the FHWA and the Department, a percentage of inactive federal funds below 5 percent was achieved by June 2010. The quantity shrank by over 275 projects. In June 2011, the FHWA lowered the goal of maintaining an inactive percentage at or below 4 percent and reducing the number of inactive projects by 10 percent. Both statistics were achieved and maintained as required for the remainder of 2011, during 2012 and through 2013. In December 2013, the FHWA again changed procedures, eliminated some reporting exemptions and lowering

the goal even more. This current requirement is to maintain an inactive percentage at or below 2 percent, measured on a 4 quarter rolling average. The Department continues ongoing efforts with monthly monitoring to ensure the goal is achieved and maintained. We have met the 2% goal each year, and in the most recent year (FY 2017), a 4 quarter rolling average of .5% was achieved. Steady progress continues on reducing the number of inactive projects from a peak of 650 in 2008 to below 200 since March 2015.

The Department has established a performance target for its Contracts unit to award construction projects within 60 days of the Department's receipt of bids. During this 60 day period, the Contract's unit reviews all bids for accuracy, status of contractor qualifications, ensures that environmental permits and rights of way requirements are in order, verifies project funding is in place and ensures the proper federal approvals have been received. Performance against this target is assessed regularly through self-reporting by the unit and this structure has served the Department well. In FY 2007 seven percent and in FY 2008 nine percent of all of the Department's awards met this target. As a result of this initiative, the percentage of contract awards meeting the target continues to remain high. FY 2017 was 95.6 percent and FY 2016 was 96.5 percent, which rivaled the best performance of 94 percent achieved in FY 2014.

The Department revised the Contractor Prequalification application process in October 2015. The previous application process required contractors (approx. 240) to complete and submit a full application every year. The Department had to review/process approximately 240 applications annually, which in most cases had little change from year to year. With the new process, the Department staggered the expiration dates to minimize application backlog, and the contractor's approved Prequalification Statements are now valid for three State Fiscal Years. We also require the contractor to submit a simple Update Certification Form for the years they do not have to submit a full application. The new process has been an efficient and positive improvement by effectively reducing application backlog.

In October of 2016 the Contracts Unit implemented electronic contract signing for construction contracts by utilizing DocuSign software. In the past, contractors were required to come into the office to sign contract documents (paper/hard copy) in person. The new electronic signature process has proven to be much more efficient for both contractors and the Department.

The Department entered into a 35 year Concession Agreement with a new operator during SFY 2010 to operate the 23 Service Plazas located on I-95, I-395 and Route 15. The Concession Agreement also required the operator to redevelop all 23 plazas to add new and more varied food options for the traveling public. The redevelopment called for the complete knock-down and rebuilding of three locations and extensive renovations at the remaining locations. The last of the 23 plazas renovations was completed in August of 2015 and all plazas are now reopened to the public with new facilities and venue offerings. The renovations also included the installation of full emergency generators at all of the plazas which will allow them to remain open to the public to provide fuel, rest breaks, and food during power outages and storms as long as the roads are passable.

The Commissioners Office contains the offices of Communication, Legislative Program & Grants Review, Equal Opportunity & Diversity, Consultant Selection, Security, Legal, Staff Development, Internal Audits, State Traffic Administration and Information Systems. Each office handles a multitude of tasks on behalf of the Commissioner and in support of the operation of the agency.

Of particular note, the Office of Information Systems which is responsible for the daily maintenance and support of the DOT computer network infrastructure, network servers, computers, telecommunications and all computer applications used by more than 180 locations across the State has the following major accomplishments to report for Fiscal Year 2015 to 2016:

- The successful replacement of the 20 year old cabling on Floors 1, 2 and 3 at the DOT Headquarters Building with no disruption to users. The new cabling in combination with a high speed network backbone has greatly improved the speed and performance required by DOT Engineering and Geospatial applications. The 4th and Ground floor are scheduled for completion during FY17.
- The replacement of the aging phone systems located at seven Maintenance Facilities (East Lyme, Meriden, Middletown, Southington, Farmington, Guilford and Old Saybrook) with little to no disruption of services to staff.
- The replacement of the outdated Synergen Fleet Management System by AssetWorks which has features that will enable the DOT to be more efficient and cost effective with our fleet. We are now able to track all functions related to maintenance of equipment, including repair and preventative maintenance (PM) Work orders
- The replacement of the outdated SIS System used for bridges by Inspectech which has greatly enhanced the process used for bridge inspections, design, and analysis of all bridge types on both new and existing structures.
- The development of a Record Tracking application that allows for efficient tracking and retrieval of hardcopies of memos, contracts and project information filed and stored in the DOT Records Center located at Pascone Place in Newington.
- The development of a Consultant Selection Application to electronically maintain a database of all consultant selections for hundreds of DOT Projects.
- The development of a Work Order application that eliminates paper and, electronically tracks work orders submitted by employees to maintenance staff in the Property and Facilities unit.
- Staff performed a full GIS analysis and created 112 maps for the Bureau of Public Transportation to comply with Title 6 Federal reporting requirements.
- The development of a Payroll Toolkit application for Finance to calculate salary variations when there is a permanent or temporary reassignment of an employee.

- As part of a LEAN Event, DOT Technology Services developed the use of Digital Signatures and associated workflows that had a tremendous efficiency impact for Contracts and Negotiations, Construction Documents and Capital Projects. The use of Digital Signatures will be expanded further throughout the DOT in FY17.
- Development of a Contract and Negotiation document generator which automatically creates a customized document from a list of contract clauses.
- Development of a Performance Measure application for Policy and Planning which provides a database for data from different sources that can be uploaded to a DOT Performance Measures Dashboard. The Dashboard automatically calculates and translates the data into graphs.
(<http://www.ct.gov/dot/cwp/view.asp?a=3815&q=448402>).
- Development of the OSTA 85% application which has eliminated the use of paper by the Office of State Traffic Administration when collecting and calculating the average speed of traffic on Connecticut roadways. The application integrates the data with GIS mapping.
- E-Construction is a federal initiative to eliminate the use of paper and build efficiency for the construction field personnel via the use of mobile devices such as tablets. IT staff have deployed more than 60 Windows tablets to Construction staff with connectivity to DOT applications for increased efficiency and productivity with more deployments planned for FY17.
- Development of the Advanced Traffic Management System for Highway Operations using the ESRI GIS platform. This application assists with “Call Before You Dig” as well as with Rights of Way, Traffic Signal locations and much more. The application is now being used daily by Operations staff.
- The successful migration of our Oversize/ Overweight Permitting application to a web base hosted cloud solution which has resulted in the elimination of all technical hardware related issues that were being experienced by OS/OW Permits and a significant increase in speed and performance of the application. This has resulted in greater efficiency and productivity of the Permitting staff.

The Bureau of Policy and Planning conducts planning studies and associated activities for the movement of people and goods for all modes of transportation including highway, rail, bus, maritime, and bicycle/pedestrian. Documentation of proposed alternatives with environmental analyses is developed for all proposed projects through a public process. The Bureau interacts with Legislative and Congressional members and staff, as well as nationally recognized transportation organizations, on various transportation bills including major authorizations and appropriation bills for surface transportation, and intercity passenger rail.

The Bureau is implementing a framework for complying with the transportation performance management (TPM) requirements of federal surface-transportation legislation and rulemaking, including reporting on, and setting targets for, 17 national performance measures. The Bureau is also coordinating with Metropolitan Planning Organizations (MPOs), which are also required to set targets for these measures.

As part of the Department's ongoing performance management initiative, the Bureau continues to publish performance measures and targets for bridge and road conditions, project delivery, highway safety, bicycle and pedestrian accessibility, and rail and bus transit programs. These measures are updated quarterly and placed on the Department's performance-measures web page for public access. This year, the Bureau successfully completed implementation of the LEAN recommendations of 2016, resulting in a streamlined reporting process and an increased focus on aligning performance measure with the strategic direction of all Bureaus.

The Bureau maintains a database for transportation planning related State legislation. All proposed bills that pertain to the Bureau of Policy and Planning are reviewed and input is provided to the Department's Legislative Office when necessary.

The Bureau of Policy and Planning updated various transportation planning-related documents and documentation required by the Federal Highway Administration.

After actively participating in the comment period for federal-transportation-bill rulemaking and as the final rules have become effective, emphasis in the second half of 2017 has shifted to implementing the requirements of the law, incorporating the performance-management framework in the legislation, and coordinating the Department's compliance efforts. Since the FAST Act requires cooperation with MPOs, particularly in setting performance targets in all areas, the Bureau has developed a tracking tool for a total of 118 submittals and related deliverables and is sharing this with MPOs. The Bureau is actively engaging our MPO partners through meetings, workshops, and other information-sharing vehicles in order to achieve successful collaboration on performance management. And since federal guidance is evolving rapidly, the Bureau has established cooperation and information-sharing mechanisms with MPOs and the Federal Highway Administration Connecticut Division Office to rapidly share new guidance and obtain answers to questions on requirements. In 2017 the Bureau has also initiated an effort to reconcile its own performance measures with the national performance measures in order to effectively communicate performance to all stakeholders in our transportation system.

Bureau staff continues to represent the Department at meetings held by the Office of Policy and Management on the implementation of the State's Plan of Conservation and Development (C & D Plan), at Neighborhood Revitalization Zone Advisory Board Meetings and at local and regional Complete Streets steering committee meetings.

The Bureau recently prepared its federally required long-range transportation plan. As part of this effort, Connecticut's tribal nations were engaged and necessary public meetings and notices were given. The Bureau is actively revising the plan based on feedback, and intends to submit the Plan to FHWA in early February 2018. The Plan supports the Congressional goals

outlined in the FAST Act, supports other state agency objectives, and includes four goal areas of Economic Growth, Deliverability, Quality of Life, and Sustainability.

The Bureau reviewed and provided comments and recommendations related to non-motorized user access for 125 design projects.

The Bureau introduced the “Community Connectivity Program,” an output of Let’sGoCT!, designed to improve conditions for walking and bicycling to and within urban, suburban and rural community centers. The goal of this Program is to make conditions safer and more accommodating for pedestrians and bicyclists, thereby encouraging more people to use these healthy and environmentally sustainable modes of travel. One component of the Community Connectivity Program is to offer Connecticut’s towns and cities assistance to conduct a Road Safety Audit (RSA) at important bike and pedestrian corridors and intersections.

An RSA is a formal safety performance examination of an existing road or intersection by an independent, multi-disciplinary team that includes local public agencies. RSA’s will identify and document in a report, bike/ped needs, and develop recommendations to improve conditions. Typically there are low-cost recommendations that can be implemented in the short term, and higher-cost recommendations that can be done over the longer term.

The Bureau performed 80 RSAs, and their corresponding reports, in just over a year. The reports were provided to all the municipalities that applied and they were posted on the project website . The final report will allow the municipalities to pursue future funding opportunities. The outreach for this aggressive program was that the Bureau promoted the program goals to 501 town and municipal participants, physically walked 117.25 miles and inspected 583 intersections on Connecticut roads.

Another component of the Community Connectivity Program was to establish a Community Connectivity Grant Program (CCGP) to provide funding for targeted infrastructure improvements that are commonly identified through RSA’s, or other transportation planning initiatives. The objective of the CCGP was to provide construction funding directly to Municipalities that would result in smaller scale infrastructure improvements that are aligned with the overall program goals. The Bureau solicited applications for grants directly from Municipalities for grants ranging from \$75,000 to \$400,000. There were 80 towns that submitted applications for a total of approximately \$25 million in needs. Applications were evaluated based on specific criteria such as program goal relevance.

Another component of the Community Connectivity Program is to establish the Critical Pedestrian Safety Improvements Initiative. The Bureau will administer the design and construction phases by upgrading the safety of pedestrian crossings with a high risk of motor vehicle crashes involving pedestrians and/or cyclists. These can be crossings with history of such crashes, or with a high risk of crashes and the potential for serious injuries due to the combination of high vehicle speeds and a high volume of pedestrians or cyclists. Requests for help solving serious pedestrian safety problems often come from communities that recently experienced crashes involving serious injuries or fatalities at pedestrian crossings. In some cases no injuries or fatalities are involved, but town officials recognize a high risk of crashes after

numerous near misses are reported to town officials or local police. Often these are crossings in community centers, or at major pedestrian activity centers such as schools, and colleges.

Increasingly, these safety concerns include locations where multi-use trails cross high-volume, high-speed roads. Some of the completed RSA's identified serious safety problems that can be addressed with modest improvements. Current candidate projects include:

- Route 10 in Cheshire. Recent pedestrian fatalities on Route 10 prompted the Town of Cheshire to call for pedestrian safety improvements at the intersection of Route 10 and a major shopping center driveway. The traffic signal needs an upgrade to allow for an exclusive pedestrian phase, and the crossings needed to be upgraded as well.
- Bishops Corner in West Hartford. The intersection of Route 44 (Albany Avenue) and Route 218 (North Main Street) is the junction of two high-volume roadways. The intersection, traffic signal, and crosswalks need substantial upgrades to safely serve pedestrians in the commercial area.
- Route 32 in New London. A recent pedestrian fatality at the intersection of Route 32 and the driveway to Connecticut College prompted the college, the US Coast Guard Academy, and the City of New London to ask for improvements at this and nearby intersections.
- Route 1 in Southwestern CT. Route 1 in southwestern CT has the highest number of pedestrian fatalities in the State. The Bureau will be conducting a series of RSA's within 5 towns (Greenwich, Stamford, Norwalk, Darien, and Westport) covering over 22 miles to identify needs and opportunities for improvements that will enhance pedestrian safety along this corridor.
- State Route 20 in East Granby. The Bureau will administer and manage the design and construction of a Pedestrian Hybrid Beacon or High-intensity Activated crossWalk (HAWK) system at the crossing of the Farmington Canal Trail and Route 20.
- Route 104 in Stamford. The Bureau will administer and manage through the City of Stamford, the preparation of field surveys, public outreach, development of concepts, and the initiation of preliminary design for sidewalks along Long Ridge Road (Rte 104) in Stamford. The project starts at the Bulls Head area near the intersection of Long Ridge Road and High Ridge Road (SR 137), extending northerly approx. 3/4 of a mile to the vicinity of Stamford Health Complex.

The Bureau is in the final stages of completing the update to the 2009 CT Statewide Bicycle and Pedestrian Plan. In 2015 a need was identified and work began to update the old plan. The update is based on an evaluation of the existing plan, suitability map, and the review of the Federal and State guidelines and policy with respect to bicycle and pedestrian planning and design. Significant outreach was conducted as part of this effort to provide the stakeholders with the opportunity to highlight the bicycle and pedestrian planning efforts being undertaken by

CTDOT since the last plan was released in 2009. The final product is scheduled to be released to the public in the Spring of 2018.

The Bureau is assisting with implementing the Complete Streets Policy Department-wide. Complete Streets is a means to provide safe access for all users (pedestrians, bicyclists, transit users and vehicle operators) by providing a comprehensive, integrated, and connected multi-modal network of transportation options. It is the policy of the Department to consider the needs of all users, of all abilities and ages, in the planning, programming, design, construction, retrofit and maintenance activities related to all roads and streets as a means of providing a safe and efficient transportation network that enhances the quality of life and economic vitality. This implementation will include training, design guidance, data collection, and plans to monitor the output through performance measures.

The Bureau continues to support the Safe Routes to School Program (SRTS). While the formal federal program has expired, the Bureau has a “Champion Toolkit” on the Department’s website that provides information on how to get a SRTS Program up and running. The SRTS program’s public outreach efforts resulted in 36 schools participating in International Walk to School Day in October and 23 schools participating in International Bike to School Day in May of 2016.

The Bureau reviewed 92 Major Traffic Generator submittals for the Office of the State Traffic Administration (OSTA); developed traffic projections for 24 state projects; linked all of the Departments traffic counts from 2007 through the present to the TRU maps found on Departments website; updated the database of the Departments 40 Continuous Count Stations allowing users to manipulate the data based on numerous query opportunities; and continued to identify the locations of all traffic counts from state projects and major traffic generators, to Google Earth for quick and efficient identification.

With the introduction of two new transit services, CTfastrak and the Hartford Line, planning for Transit-Oriented Development (TOD) is a Bureau priority. Bureau staff assists the Office of Policy and Management (OPM) with administering the 2015 TOD Pilot Planning grants and has actively participated in the State’s Transit-Oriented-Development interagency task force to assist municipalities with planning and design technical services. Bureau staff also participates in the Governor’s Interagency TOD Working Group.

Bureau staff engaged in several TOD initiatives through the Department’s Task-based consultant team, including the completion of the existing conditions report for the CTfastrak Corridor and initiated the Hartford Line TOD capacity project. This is a project funded by FTA competitively awarded to the Department to assess TOD potential along the Hartford Line.

The Bureau completed its first multi-modal Statewide Freight Plan, in accordance with federal transportation legislation. The Statewide Freight Plan focuses on economic competitiveness, efficiency, safety, and environmental factors. Without such an effort, Connecticut stands to lose out on economic growth opportunities and hamper the efficiency of the entire New England corridor. To this end, the Bureau coordinates with the other New

England freight offices, works regularly with MPOs, State and Federal agencies, and the private sector.

The Bureau is continuing efforts regarding the Programmatic Agreement among the FRA, FTA, the Connecticut State Historic Preservation Office, the Massachusetts State Historic Preservation Office, and the Department regarding compliance with Section 106 of the National Historic Preservation Act as it pertains to the New Haven-Hartford-Springfield High Speed Intercity Passenger Rail Project. This programmatic agreement will be in force until construction of the entire 62-mile corridor is complete.

In addition, the Bureau is assisting with the project that includes the reconstruction of multiple bridge decks on I-84 and Route 8 located at the Route 8 and I-84 interchange in Waterbury. The Bureau is also involved in the I-84 Hartford Project, which is investigating various alternatives to address the aging Hartford Viaduct, as well as, operational and safety improvements along I-84 in Hartford. This involves a Needs and Deficiency Study, Alternatives Analysis, and a National Environmental Policy Act / Connecticut Environmental Policy Act (NEPA/CEPA) document.

Continuing major studies include an Environmental Assessment/Environmental Impact Evaluation for the Orange Railroad Station, Union Station Parking Garage, Route 9 signal removal project in Middletown, Route 25/111 Corridor Study as well as, assisting with the Re-evaluation of Interchange 33 along Interstate 95 in Stratford and the Merritt Parkway Multi-Use Trail Feasibility Study. The Danbury Branch Improvement Program Study and the Central Connecticut Rail Study are now finalized.

The Bureau is also involved with several other major projects involving the preparation of Needs and Deficiency Studies, Alternatives Analyses, and required NEPA/CEPA documentation. These include: I-84, Exits 3-8 in Danbury; Route 7 and 15 Interchange in Norwalk; the I-91/ I-691 / Route 15 Interchange in Meriden, and the Heroes Tunnel on Route 15 in Woodbridge. Additionally, the Bureau has been actively involved with ensuring ongoing compliance with NEPA, CEPA, and Section 106 of the National Historic Preservation Act for the entire Walk Bridge program, including the various projects that fall under its umbrella.

The Bureau continues to implement and is also updating the procedures outlined in the Programmatic Agreement between the Federal Highway Administration, the Department, the Connecticut State Historic Preservation Office, and the Advisory Council on Historic Preservation regarding implementation of minor transportation projects. This Programmatic Agreement (PA) has facilitated more efficient methods by which FHWA and the Department review individual undertakings that may affect historic properties and will continue to streamline the process for minor projects that are limited in scope and for which no historic properties will be adversely affected. The First Amended Programmatic Agreement has been drafted and is currently under review by the signatories. Execution of the Amended PA is anticipated in early 2018.

Through the use of two task-order consultants, the Bureau is also conducting archaeological investigations and historic documentation studies for transportation projects in accordance with State and Federal regulations. The first phase in updating the Department's

Historic Bridge Inventory was also completed. Completion of this task allows the Department to streamline the historic review process by exempting 1,220 bridges from Section 106 review. This represents 22% of the total inventory of bridges maintained by the Department.

The Bureau is continuing to coordinate with State and federal regulatory agencies regarding natural resources and listed species issues and also obtains the necessary water resource permits required for projects. For projects that are designed by state forces in State Highway Design, State Bridge Design, and Facilities Design, the Bureau will delineate wetlands within the project limits, coordinate any needed Fisheries and Natural Diversity Database issues with the Connecticut Department of Energy and Environmental Protection (DEEP), conduct a wetland functions and values assessment of wetlands in the project limits, and complete the Army Corps of Engineers wetland data sheets for wetlands in the project limits. The Bureau also coordinates with the United States Coast Guard concerning projects affecting watercourses that may be navigable waters. In addition, the Bureau performed inspections of active construction sites and maintenance projects to ensure compliance with permit conditions.

The Bureau continues to work with the Department's Bureau of Engineering and Construction regarding streamlining the process for submitting General Stormwater Permits for Construction Activities via DEEP's EZ Filing digital portal system. The Bureau has also finalized and implemented a process for submitting monthly turbidity monitoring reports required by this permit via EPA's NetDMR system.

The Bureau continues to work with various Bureaus Department-wide, along with DEEP, to develop and agree upon an achievable General Permit for the Discharge of Stormwater from DOT Separate Stormwater Sewer Systems (MS4 Permit). Staff from the Bureau have aided in development of the Department's draft stormwater management plan, have coordinated with neighboring DOT's regarding permit implementation, selected outfall sampling locations, as well as investigated and tested various mapping software in order to successfully determine Department needs for implementing the permit requirements. The Bureau is educating Department staff regarding the requirements of the MS4 permit, as well as other environmental permits required for DOT design/construction and maintenance projects.

The Bureau worked with the Department's Bureau of Engineering and Construction, Bureau of Highway Operations, and Management & Technology Services in order to develop and implement a technology software based tool for mapping and performing field assessments for Department owned corrugated metal pipes (CMP's), assessing fisheries passage issues at these crossing, as well as looking for options to more efficiently share data Department-wide.

The Bureau also provided support with revising environmental specifications pertinent to the DOT's Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817.

The Bureau finalized the 5-year update for the Connecticut Department of Transportation Highway Traffic Noise Abatement Policy for projects funded by Federal Highway Administration this year. Staff from the Bureau also attended several meetings regarding the installation of solar

panels on noise barrier walls, and has provided possible noise barrier wall locations for this application.

The U.S. Fish & Wildlife Service (USFWS) in May of 2015 listed the Northern Long Eared Bat as an Endangered Species. The Bureau, in cooperation with Federal Highway Administration, Federal Railroad Administration, and Federal Transit Administration is working with the Bureau of Engineering and Construction and the Bureau of Public Transportation to ensure that all applicable projects receive the adequate level of project consultation that is being submitted to the USFWS.

The National Oceanic and Atmospheric Administration on August 17, 2017 issued the final rule designating critical habitat for the Atlantic Sturgeon that includes the Housatonic River south of the Derby Dam and all the Connecticut River in Connecticut. The Sturgeon itself has been previously listed as endangered by NOAA. The Bureau has led the coordination efforts for federally funded projects and projects that require federal permits. The Bureau has been working with design engineers to ensure that the coordination is accomplished to meet project schedules.

The Bureau is working with the Bureau of Engineering regarding State and federal regulatory agency coordination and anticipated permitting needs for the following environmental studies: Devon Bridge Replacement, East Haddam Swing Bridge over the Connecticut River, Route 136 over the Saugatuck River, Route 15 Heroes Tunnel, Reconstruction of I-84 in Danbury, Walk Bridge Program in Norwalk, Charter Oak Bridge in Hartford, Route 7/15 Interchange in Norwalk, I-91/I-691/RT 15 Interchange Improvements in Meriden, Various I-95 improvement projects and the New Haven Hartford Springfield Commuter Rail Project.

The Bureau, through its Task Order Consultants is conducting listed species surveys for various projects. The Task Order Consultants are also conducting wetland mitigation monitoring and producing required reports for various wetland mitigation sites throughout the state. The Bureau is continuing to conduct site investigations at mitigation sites Statewide to manage and ensure success of these sites, including removal of invasive species. The Bureau has overseen the tidal wetland mitigation site construction and planting of the I-95 West River Project in New Haven/West Haven and the Route 1 over the Niantic River project in East Lyme.

The Bureau is continuing to work with DEEP and the Department's Bureau of Engineering and Construction to find efficiencies within the permitting process. Activities that are ongoing include; developing common permit plan sets for roadway, culvert, and bridge projects, revising the Permit Needs Determination Form, improving DEEP Fisheries coordination, updating the Department's Drainage Manual to reduce the amount of Flood Management Exemptions required from DEEP, and exploring methods to eliminate redundant requests for the same information in permit applications.

In 2017, the Office of Environmental Planning led two Lean events. The first was held in March 2017 and focused on Section 106 of the National Historic Preservation Act, which requires each federally funded or permitted project to be reviewed for potential impacts to cultural resources. This Lean event identified opportunities to improve the existing process by

which reviews are conducted, both within the Department and in consultation with other stakeholders to this process. The second Lean event was held in November 2017 and focused on ways to streamline compliance with the Connecticut Environmental Policy Act (CEPA) internally and between the various State regulatory agencies, specifically the Office of Policy and Management (OPM).

Improvements continue to be made in follow up to several Lean events which took place beginning in 2012. Significant progress is being made in improving the transportation data gathering and reporting process as well as the development of an E-STIP (electronic STIP) with the cooperation of FHWA/FTA and the MPOs throughout the state.

The Bureau developed a Master COG Agreement which will be in effect for a 10 year period. The Bureau completed the process of updating the Department's Public Involvement Procedures document. This was a coordinated effort between all Bureaus in the Department and was completed in August 2017.

The Bureau completed the development of the 2018 Statewide Transportation Improvement Program. This document is developed in coordination with the eight Metropolitan Planning Organizations in the state and was approved by FHWA and FTA in October 2017.

The Bureau assisted the Office of Contract Compliance in updating the Title VI Accomplishment Report and the Title VI program review. The Bureau is continuing its efforts to assure that all MPOs are in compliance with Title VI and Environmental Justice (EJ) requirements. The Bureau requested, received and reviewed the MPOs' quarterly reports to verify the Title VI and EJ practices. The Bureau has developed the federally required listing of the 2016 and 2017 federal fiscal year Obligated and Granted projects for the Public and Regions use.

The Bureau initiated the solicitation of Transportation Alternatives projects through the Metropolitan and Rural Planning Organizations and forwarded applications to the Bureau of Engineering and Construction for administration. The development of a COG/MPO handbook to be used by COG/MPO staff as well as internal DOT staff was completed and is available on the Department's website. The Bureau has initiated the Corridor study program and expects to select appropriate corridor studies in the late spring of 2018.

The update of the 1997 procedure manual for payments to consultant and Council of Governments continues. This should be completed by the spring of 2018.

The Bureau has continued working with the DEEP to develop new Motor Vehicle Emission Budgets for Ozone as part of the State Implementation Plan. New Ozone Motor Vehicle Emission budgets are required by the Environmental Protection Agency as a result of the State's failure to conform to the 2015 Ozone budgets. The new State Ozone attainment date will be July 20, 2018. Air quality conformity model runs were also completed in 2015 for various transportation projects. The Bureau, working with a consultant, has continued to work on the development of a new state-of-the-practice Travel Demand Forecasting Model in order to meet the increasing demand for more complex and finer detailed travel demand, air quality, and

economic forecasts. A model base year of 2010 was provided by the consultant at the end of 2017. Staff is developing an additional ten future model years with a horizon year of 2050 for use in transportation conformity analyzes and corridor alternative analysis studies. The consultant will also be working on developing a rail sub model in order to predict more accurate and detailed rail boardings by station and direction.

The Bureau developed Geographic Information System software and applications including: various new GIS web based maps depicting roadway inventory and data, snow routes, guiderail, signage, intersection, signal, crash and other critical safety and transportation asset data, as well as preparation of the Department's Call-Before-You-Dig 2017 submission.

The Bureau continues to augment and enhance development of a new comprehensive digitized road network which includes over 21,000 miles of state and local roadways. This network and associated new Linear Reference System (LRS) supports asset and data integration for the entire Department including critical areas such as: HPMS reporting, MIRE, FMIS, capital projects, VIP paving, snow routes, pavement condition, performance management, crash location, and roadway attribution, guiderail, pavement markings, sign, sign supports, signal work areas and traffic volume data reporting.

In parallel with this effort the Bureau continues to assist with the Department's new Traffic Asset Management Plan which is developing policies to ensure Department location and attribution data which is collected will be properly maintained, governed and stewarded to ensure efficient data access and availability. Workflows are being conceptualized on an asset by asset basis, stewards are being identified and centralization of data access is being developed.

In addition, the Bureau maintains the State's traffic counting program, crash data system and an inventory of the highway system. This data, as well as future land use and employment projections, is used to estimate future travel demand, identify current and future capacity deficiencies, analyze alternate highway and transit improvement, and is used in environmental studies.

The Bureau has implemented and continues testing the latest in 3D Photolog technology with the upgrade and purchase of its Photolog ARAN Van fleet. This new technology now supports more efficient data collection and reporting of pavement geometry and condition to the Federal Highway Performance Monitoring System (HMPS) Report. It is also currently being integrated with the official LRS. Also Ongoing is the review of business workflows with The Pavement Management Section intended to provide efficiency and improved data quality.

The Division of Research led the administration of several transportation studies related to the Northeast Autonomous Vehicle Summit, Environmental Project Streamlining and Study, Development of the Pavement Design Handbook & Interactive Guide, Effects of snow and ice treatments on vehicles., Development of the Pavement Quality Management Plan; Study of the implementation of Resilient Coastal Communities; Study of Dual Purpose Bridge Health Monitoring and Weigh-in-motion (BWIM); Project Delivery Performance.

Refinement continues on the new state of the art fully electronic crash data system which was implemented in Jan. 2015. This system has been recognized nationally for its state of the art design and functionality and has received two national awards. Additional functionality was added to the UCONN repository and nearly real time data is available for querying.

The Highway Safety Office (HSO) has continued to provide leadership in the field of distracted driving prevention and mitigation. A combination of education and enforcement initiatives has been executed during the past year. These education initiatives include partnering with state and corporate partners as well as funding educational programs for high school students.

The Department continued to partner with Kramer International's 'Save a Life Tour' to build on the success of the Connecticut high school distracted driving program developed over the past several years. For the third consecutive year this program visited 60 Connecticut high schools. The Department continued to partner with AT&T to feature their highly acclaimed distracted driving documentary, 'From One Second to the Next', which is shown to the students during the assembly portion of the program. Following the video the students were given the opportunity to use distracted driving simulators to experience the potential consequences of the dangerous practice in a safe setting.

The Department also brought back Chris Sandy's powerful 'Choices Matter' program to 45 high schools in Connecticut during the 2016-2017 school year. When Chris was 22 years old he was charged and convicted on two counts of vehicular homicide by DUI and spent eight and a half years in prison for his crime. In prison he committed himself to preventing anyone else from repeating his mistakes, and his story has since been the inspiration for a book and documentary. Chris is considered one of the most talented speakers in the youth industry and continues to share his dynamic live presentation at locations throughout the country.

The relationship with the Governor's Prevention Partnership also continued during the 2016-2017 school year. Their 'E3: Encourage, Empower, Engage Program' was administered in the fall and spring academic semesters and 131 youth facilitators were trained across 36 groups of high school students. The program helped students maintain their protective norms around not driving while impaired. The peer-led approach, with interactive activities and games, has been well received by the facilitators and the youth participants in the program.

To combat an increase in pedestrian fatalities in Connecticut, the Department partnered with the Connecticut Children's Medical Center to create a new community awareness project focused on non-motorized safety. The 'Watch for Me CT' media campaign was launched targeting road users throughout the state with the objective to increase awareness while educating them on the rules regarding pedestrians and bicyclists. A website, WatchForMeCT.org, was created that included both pedestrian and bicycle facts and printable PDF documents that could be accessed by municipalities for printing and distribution in their communities. A video was also developed focusing on this issue which is also housed on the 'Watch for Me CT' website. Outdoor digital billboards, were also used.

The HSO continued its partnership with the Connecticut Transportation Safety Research Center at UConn. The Center is the host of the Connecticut Crash Data Repository. The CTSRC deployed new crash dashboards in the Crash Data Repository. In 2017 there were over 24,500 queries submitted for crash data averaging 1,640 queries and 209 data exports each month. The CTCrash.uconn.edu site now has over 1,400 registered users. CTSRC and the CTDOT are also partnering on a project to compile and link safety related datasets from across multiple state agencies. In July of 2016, CTDOT and CTSRC established a program to explore linking crash data with other existing datasets in the state which are hosted by a number of other state agencies. These databases include:

- 1) Roadway and asset data from CTDOT's statewide linear referencing system
- 2) State's toxicology lab results for DUI and drug offenses hosted by DESPP
- 3) Citation, arrest, and adjudication data from Connecticut's Judicial branch
- 4) EMS, Injury, and treatment outcome data maintained by the CT Department of Public Health
- 5) Driver licensing and motor vehicle information maintained by the CT Department of Motor Vehicles.

In addition to crash data, CTSRC has worked with CTDOT on several transportation safety related projects. CTSRC was able to obtain funding from the CTDOT Research group to purchase 2 Crash Data Event Recorders, commonly referred to as black box recorders. This hardware allows law enforcement to download data from cars involved in a crash to obtain vehicle data such as speed, acceleration, braking, steering, and air-bag deployment before, during, and after the crash. This data can provide a comprehensive, unbiased snap shot of the vehicle and enable CTDOT and Law Enforcement an unprecedented opportunity to increase the understanding of interactions between vehicle, roadway environment, and driver. Additionally, our Crash Data Liaisons were able to assist in the training and certification of 60 Connecticut Police in collecting EDR data. The CTSRC has downloaded data for over 6 fatal crashes in the state at no charge to law enforcement.

Finally the CTSRC and CTDOT have developed a program to look at pedestrian safety in the state. In 2017 the CTSRC developed software to identify the most pedestrian crash prone intersections in the state. Then, ranked them based on severity and number of crashes. UConn is now the process of collecting data at these intersections to determine what makes them less safe than other intersections and what human behaviors at these locations may be leading to more pedestrian crashes. The strategic plan from this project with respect to pedestrian safety is due in be complete in mid-2018.

The HSO continues to work in partnership with Central Connecticut State University (CCSU) and the Institute for Municipal and Regional Policy (IMRP) to analyze the current racial profiling law and make recommendations to the Connecticut General Assembly to better align the statute to legislative intent and current best practices. This initiative includes collecting, maintaining, and providing public access to traffic stop data and evaluation of the results of such data. Currently, data collection by all law enforcement agencies in the State with the ability to make traffic stops is mandated by law. Agencies are collecting data and submissions to the Office of Policy and Management via the Criminal Justice Information System are made on a

monthly basis. Multiple training sessions have been held for law enforcement agencies to educate them about the law and options for data collection and submission. Training sessions on fair and impartial policing have also been given at multiple law enforcement agencies. Similarly, a public awareness campaign is underway to educate the public about the project and their rights during a traffic stop. IMRP has released a full report on traffic stop data analysis and most recently released another six months of data on the CT Data collaborative website. For more information about this project, visit www.ctrp3.org

Connecticut's seat belt use rate increased to an all-time high of 90.3 percent in 2017. This is the first time that the state's compliance rate has reached over 90 percent, which puts Connecticut at the highest compliance rate in all of New England. The Highway Safety Office (HSO) has been working diligently with state and local law enforcement and our traffic safety partners to move the needle and this increase is significant. In 2016 Connecticut's was 89.4 percent and the national average was 90.1 percent. The current national rate is 89.7 percent.

The Click It or Ticket enforcement campaigns in May and November are the key tool in public awareness and enforcement for seat belt use. The campaigns aimed at reaching motorists and raising awareness about the dangers of driving without buckling up. The HSO also created a Seatbelt Working Group to discuss methods to increase belt use and decrease unrestrained fatalities in Connecticut. The Working Group is represented by state and local law enforcement, data research groups, safety advocates, media consultants, other state agencies, hospital doctors, hospitals injury prevention departments and the HSO. Connecticut joined law enforcement agencies across the eastern half of the United States in mobilizing the CIOT "Border to Border" operation to reinforce the message across state lines that driving or riding unbuckled will result in a ticket. The HSO also continued year round social norming campaign during non-CIOT periods. Law enforcement partners were encouraged to continue extra enforcement beyond the Click It or Ticket campaign, and social norming messaging was used to keep seat belt use awareness in the news.

During peak riding months, the HSO partnered with the Connecticut Rider Education Program to promote a "Share the Road" awareness message to remind the public that motorcycles are everywhere and to "Look Twice and Save a Life". This messaging was distributed across Connecticut utilizing electronic and static billboards. A 30 second radio spot was also launched to remind drivers to "Share the Road"; this messaging was broadcasted on major radio stations during peak drive times.

The HSO completed another year of comprehensive Speed and Aggressive driving enforcement campaign. This was accomplished through a speed enforcement campaign combining high visibility enforcement (HVE) and the strategic use of media outlets on Connecticut's roads. The local and State Police who participated in this initiative issued 6,698 infractions for speeding, 35 infractions for cell phone violations, 130 suspended licenses, 22 seat belt violations and 929 other motor vehicle violations. Grant participants were chosen based on the major contributing factors. The factors include crashes as a result of aggressive driving, following to close, and failure to yield the right of way. Additionally, areas with high population, high traffic volumes and roadways with low posted speed limits led to the selection of urban areas and larger cities as the most likely areas where speed enforcement can impact the

greatest number of speed related crashes. High Visibility Enforcement ran July 1 through September 5, 2017. Historically, strong high visibility enforcement efforts integrated with targeted media campaigns have proven to be most effective.

Under the HSO Impaired Driving Program, a total of 78 law enforcement agencies were awarded grants for the Comprehensive DUI Enforcement program for FY 2017. An additional 4 law enforcement agencies participated in the Underage Alcohol Enforcement program. Project activities resulted in over 1,200 DUI arrests. A total of nine participants successfully completed a Connecticut Drug Recognition Expert (DRE) training class held in FY 2017. The nine DRE class participants are now all certified DREs. Additional Connecticut DRE training is scheduled for FY 2018. Quarterly Impaired Driving Task Force meetings continue to be held throughout the year. AAA and the Highway Safety Office hosted a Drugged Driving Summit in November 2016 to address concerns about drug impaired driving.

Under the Child Passenger Safety (CPS) Program, in 2017, the number of fitting stations increased from 77 to 89. Printed literature, car seat recommendations and educational supplies were provided to assist in supporting the fitting stations. There are 442 CPS Certified Technicians of which 25 are Child Passenger Safety Certified Instructors. These CPS Instructors are available to teach certification classes for those interested in becoming a car seat technician.

The “Look Before You Lock, Where’s Baby” Education Campaign emphasized child passenger safety by delivering safety messages to increase awareness of the issue of hot cars and to provided tips for parents and caregivers. A press event was held in June to kick-off this event. Safety tips included how not to forget children or leave them in a motor vehicle unattended. The campaign utilized radio, billboards, newspapers, online media, social media, community education, and outreach to businesses to deliver the safety messages. A pre-recorded radio interview aired on 4 radio stations, plus associated iStream stations and 2 digital billboards ran over 17 weeks.

The Bureau of Engineering and Construction continued to manage all programs and projects to maximize federal funds allocated to Connecticut for improvements to all transportation modes. The Bureau continued to advance the Governor’s “Let’s Go CT” initiative in 2016-2017, to include advancing congestion mitigation strategies for the I-95 corridor, progressing the preliminary design process for I-84 Exits 3 through 8 in Danbury, and planning for the replacement of the I-84 / Route 8 interchange in Waterbury.

A “Fix-it-First” approach to the overall program continues to be an emphasis for the Department due to the age of our infrastructure assets and uncertainty in future federal funding levels. In order to maximize the benefit from both federal and state investment dollars, the Bureau advanced the Department’s Transportation Asset Management Plan (TAMP) for the state’s highway transportation system. The development of the Department’s risk-based TAMP is underway with the FHWA portion expected to be ready for the April 2018 deadline. The TAMP is improving on current Department practices used to prioritize actions for improving asset condition in the short and long-term, and is helping to better define best management practices in order to ensure the best use of preservation funding. The TAMP will help the

Department comply with federal legislation and will guide the Department in its endeavor to deliver better asset performance, while also managing risks.

The Bureau of Engineering and Construction has worked in cooperation with the Bureau of Highway Operations to implement a Vendor-in-Place (VIP) Pavement Preservation Program. Strategies to improve Moving Ahead for Progress in the 21st Century (MAP-21) pavement performance metrics (crack percent, smoothness, and rutting) have been added. Strategies being employed include the use of polymer modified asphalt; surface patching and crack filling existing pavement prior to paving; and for selected pavement sections, incorporating specifications for improved pavement smoothness and uniformity.

In 2017, VIP Pavement Preservation Projects on expressways and other state roadways include six resurfacing projects valued at \$25 million. Surface patch and crack fill pavement preservation strategies will be used for all these pavement sections, and other new strategies will be used as follows: Mill and pave treatments with PMA are being placed on I-91 in Rocky Hill/Wethersfield, I-95 in Stonington, and Route 8 in Waterbury. State-of-the-art equipment for improving pavement uniformity is being used at these locations. Mill and pave treatments are being placed on Route 6 in Chaplin/Windham and Route 63 in Naugatuck/Waterbury under with the Maintenance contracts that include specifications for contractor payment incentives/disincentives based upon the smoothness of the final paved surfaces. This approach has been implemented on previous projects under Construction contracts and has resulted in improved ride quality. A mill and pave treatment with PMA is being placed on Route 15 in Orange/Woodbridge/ New Haven. The Bureau of Highway Operations also continues to manage the VIP Resurfacing Program (not to be confused with the new VIP Pavement Preservation Program). Eighty-three (83) pavement sections are being paved in 2017 valued at approximately \$69 million.

The Bureau of Engineering and Construction continues to place an emphasis on the state's LeanCT initiative. Lean participation includes tracking and reporting progress; and solicitation, selection, and prioritization of topics for the scheduling of upcoming Kaizen events. Past Lean events have resulted in process improvements in targeted areas. Recent Lean events have included improvements to the Bureau's Travel Authorization Process in May 2016, Bridge Safety's Report Content and Inspection Frequencies in October 2016, Traffic Engineering's Power Letter Process in December 2016, and Highway Design's Archaeological Review Process in March 2017.

The Department is continuing its effort to 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 of Connecticut's safety stakeholders to collaborate on safety efforts and leverage resources. The new SHSP was published in July 2017.

The Bureau of Engineering and Construction has established a dedicated staff to run a highway safety program focused on implementing systematic transportation safety improvements. These types of projects focus on providing safety improvements over the entire

transportation network, and provide the highest safety benefit for each dollar spent. Systematic safety improvements include:

- A rumble strip project, which are grooves within the pavement that produce noise and vibration when traveled over and are a proven safety countermeasure to reduce lane departure crashes. Thirty-eight miles of centerline rumble strips are expected to be installed on both state and local roads during the 2017 construction season.
- A pedestrian warning sign replacement project on local roads. Pedestrian warning signs and associated plaques are being upgraded with a fluorescent yellow background and post delineator to enhance visibility, especially during dawn and dusk periods. The design plans for all four Districts will be completed in 2018 and constructed in 2019.
- A statewide clearance interval retiming project. All state owned and maintained traffic signals are being revised for the yellow and red clearance intervals. The timings are being calculated and the signal plans are being revised. The actual timing changes are being performed through the Department's maintenance forces.
- A horizontal curve signing project on state roads. Improved horizontal curve delineation is proven to be a cost-effective approach to reducing roadway departures. The locations are being designed in a consistent approach in accordance with national standards with the use of signs. The design plans for Districts 3 and 4 will be completed in 2019 and constructed in 2020. Districts 1 and 2 will be designed in 2020 and constructed in 2021. Construction of Horizontal Curve Signing on local roads began in Districts 2 and 3 in 2017. Construction in Districts 1 and 4 will begin in 2018.

The Bureau's Traffic Studies units will be upgrading pedestrian control features at signalized intersections under Accessible Pedestrian Signal (APS) projects, to include: APS design, countdown pedestrian signals, sidewalk ramps, and crosswalks. Intersections included in the projects include those that have the old-style audible buzzers for non-visual cue during an exclusive pedestrian phase. The projects are a result of language included in the 2009 Manual of Uniform Traffic Control Devices. Ninety-eight (98) intersections in various District 1 towns were included as part of three projects. The first project (15 locations) was constructed in 2015. The second project (39 locations) is currently in construction and estimated to be complete in 2017. The third project (44 locations) is being constructed during the 2017 and 2018 construction seasons. Intersections programmed for APS upgrades in Districts 2, 3, and 4 are presently under design. They are scheduled for the 2019 construction season and will include 49 total intersections (at least 16 in each District).

In addition to the programmed Accessible Pedestrian Signal (APS) traffic signal projects noted above, the Traffic Studies units are also administering and producing traffic signal projects on a yearly basis. Many replacements are addressing outdated equipment, which require frequent maintenance. Equipment will be updated to current Manual of Uniform Traffic Control Devices (MUTCD) standards, including APS where applicable, in these projects. There are

approximately fifteen locations in each of the four districts being designed as well as constructed each year.

The Bureau's Traffic Engineering Project Design unit has recently initiated and completed multiple projects to upgrade signing and pavement markings at all public railway-highway crossings state-wide. These projects represent the first phase of what is intended to be an ongoing program to ensure compliance with retro-reflectivity requirements for these critical safety elements. In addition, based on Federal Railroad Administration recommendations, the unit has initiated and begun implementation of an inspection program intended to annually inspect all traffic signals associated with railway-highway crossings in order to confirm that the signals are synchronized with the railroad crossing and operating properly.

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 25, I-395 and the Merritt Parkway as well as selected sections of I-95, I-84, and Route 8.

The Department continues to manage a more flexible approach to the funding of Bicycle/Pedestrian projects in an effort to close some of the existing statewide gaps. Toward this goal, the Department is facilitating completion of a network of inter-connected, statewide trails under the Multi-use Trail Implementation Plan (Gap Closure Efforts). This program is initially focusing on the East Coast Greenway (ECG). The key is to establish clear priorities that will close the most critical gaps and create long continuous portions of the statewide trail network. The program may include other regional trails that link to the ECG, but the majority of funds and resources will be devoted to completing the ECG.

Construction activities are nearing completion on Project No. 51-268, a 2.2 mile section of the ECG in Farmington. Additionally, construction activities have begun on another segment of the ECG in Cheshire (Project No. 25-145) along the Farmington Canal Heritage Trail. Two previous sections of the ECG in Cheshire were recently completed in construction under Project Nos. 25-135 and 25-144, and construction is nearing completion on Project No. 42-300/301, a section of the ECG in East Hartford. Construction activities are currently underway on the following segments of the ECG: Project No. 12-96 in Bolton; Project No. 76-217 in Manchester; Project No. 11-152 in East Hartford and Bloomfield.

Design activities are nearing completion on a section of the ECG in New Haven under Project No. 92-621. Design activities are also underway on the following projects all along various alignments of the ECG: Project No. 108-189 in Plainfield/Sterling; Project No. 131-203 in Southington; Project No. 30-97 in Columbia. Design has also commenced on sections of the trail on either side of the Putnam Bridge in Glastonbury and Wethersfield under Project No. 53-192.

The Department is also overseeing a study, which is nearing completion, within the town of Plainville to determine a reasonable path for the ECG through that town. It is expected that several projects will be initiated, based on the results of the study, to close one of the last north/south gaps in the ECG. The Department will also be initiating an additional section of the

ECG alignment in the town of Pomfret under the Federal-aid Transportation Alternatives Program. The Capital Region Council of Governments is conducting a study of the ECG with oversight and support from the Department. Moving forward, the Department will continue to evaluate and initiate new sections of regionally significant trails, within budgetary constraints, in an effort to close existing gaps in the ECG across the state.

The Bureau's Highway Design-Local Roads unit has implemented and continues to oversee the Local Transportation Capital Improvement Program (LOTICIP). LOTICIP allows municipalities to perform capital improvements on smaller, locally owned roadways that qualify for the Federal Surface Transportation Program – Urban (STP-U) without needing to adhere to Federal Title 23 requirements that many municipalities are unfamiliar with and find burdensome, time consuming, and expensive. LOTICIP has freed up a significant amount of Department 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 Department for eligible activities, predominantly on State-owned assets. Since November 2013 when LOTICIP was first implemented, the Department has worked with the regional Council of Governments (COGs) through this ramp-up period and issued funding commitments for 89 regionally-endorsed municipal projects representing approximately \$155 million in construction. \$21 million in LOTICIP-funded construction projects were awarded in SFY 2017, with \$75 million currently programmed to be awarded in SFY 2018. The Department continues to coordinate with the regional COGs on new location solicitations and enhancing project delivery.

A major Department transportation initiative which started construction in 2015 involves widening and safety improvements on I-84 in Waterbury. The project includes complete reconstruction of the highway for 2.7 miles, replacement of 8 bridges, construction of one pedestrian crossing, and the widening of I-84 in each direction to include the addition of a 3rd lane. The project also includes the realignment of the Interstate roadway in the vicinity of Harpers Ferry Road to eliminate the existing substandard "S" curve alignment, interchange ramp reconfiguration, relocation of the Mad River and Beaver Pond Brook, and state and local road reconstruction. As a result of the realignment of I-84 and the reconfiguration of the ramps, portions of Hamilton Ave, Harpers Ferry Road, Scott Road, Plank Road, Reidville Drive, Plank Road East, and East Main Street are being reconstructed.

This is a significant and important project because this two-lane section of I-84 cannot accommodate existing peak-period traffic demands. Sustained periods of congestion are routine. This section of I-84 carries an Average Daily Traffic (ADT) volume of 121,800 vehicles, including a significant number of trucks that provide for goods movement throughout the state and region. The project is currently targeting the completion of three continuous lanes of travel through the project limits before the end of the summer of 2019, nearly one year ahead of schedule. The anticipated overall project completion date is 2020.

The Department is finalizing the design for relocation of the I-91 northbound Exit 29 in Hartford to Route 5 North and I-84 East in East Hartford (Project No. 63-703). This exit will be 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. Construction is anticipated to begin in the fall of 2018 and is expected to be completed in four years.

The I-84 Danbury Project 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 has begun 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 has launched a project website (i84danbury.com). The first public forum was held on June 13, 2017 at Western Connecticut State University. The public Scoping Meeting is planned for the first quarter of 2018. Other public outreach efforts include newsletters and social media updates.

Significant transportation improvements on Route 15, the Merritt Parkway, are in design or under construction as part of the Merritt Parkway Corridor Improvement Plan. This includes improvements in Stamford and New Canaan as well as Fairfield and Westport.

State Project No. 135-270, currently in its final stage, begins at the Stamford/Greenwich town line just north of Exit 31 (North Street) and ends in the vicinity of Exit 37, Route 124 (South Avenue) in New Canaan. This project consisted of 6.5 miles in both the east and westbound direction, of roadway resurfacing, safety improvements, and landscaping enhancements. The work also included rehabilitation of several historic, architecturally-sensitive bridges, including Route 124 (South Avenue), Metro-North Railroad, Ponus Ridge, River Bank Road, and Guinea Road. The project costs approximately \$75 million and is currently scheduled to be completed by November 2017.

The next project, State Project No. 158-211/207, 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. The Project started April 1, 2017, and is predicted to cost \$68 million. Construction is expected to last three years with an anticipated completion date of August 20, 2019. The last major project in the Merritt Parkway Corridor Improvement Plan is State Project No. 102-296. This project is currently being designed and will extend from Norwalk into Westport for a distance of 6 miles. The project is expected to start in late 2019.

A series of three projects have been initiated that will result in the removal of the traffic signals from the Route 9 expressway in Middletown. Associated work includes the construction of sidewalk "bump-outs" on Main Street to shorten the pedestrian crossing distances, and a new pedestrian bridge over Route 9 that will connect downtown Middletown to the Connecticut River riverfront. Previously scheduled for construction in 2021-2023, this work is being accelerated at

Governor Malloy's request. Construction is now scheduled to begin in 2018, with the goal of removing the signals from the Route 9 expressway by the end of 2021.

Construction of Phase 2 of the Canal Dock Boathouse in the City of New Haven is progressing with an anticipated completion date of January 31, 2018. Phase 1 consisted of constructing the platform for the boathouse. This City administered project is funded by the Federal Highway Administration and the State as part of the I-95 New Haven Harbor Crossing Corridor Program in order to satisfy commitments made to the City relative to the demolition of the former Yale (Adee) Boathouse. Upon completion, the new facility will be administered by a non-profit agency and will provide function space, opportunities for public rowing, and other waterfront-related programming. The new building is also planned to include wet-lab space for the University of New Haven's Marine Sciences Department.

The Bureau's Bridge Management Unit has currently programmed all the state maintained structurally deficient bridges for rehabilitation or replacement, and all projects are either in design or construction. The state's increased financial investment in transportation continues to show dividends, with the number of bridges that are in a state of good repair steadily increasing over the last five years.

The Department's Bridge Safety and Evaluation unit continued to inspect, evaluate, 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 four-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.

Major bridge replacement/rehabilitation projects active in construction during 2016-2017 include the Moses Wheeler Bridge that carries I-95 over the Housatonic River. The bridge is one of the longest and most heavily traveled bridges in the State of Connecticut. The replacement of the bridge and associated improvements on this section of the I-95 corridor began in August 2011 at a bid price of \$167 million. This project included the removal and replacement of bridges, and the addition of a new bridge over Naugatuck Avenue. In November of 2016, asbestos was detected in the soils during preliminary design for the Exit 33 project. Work was then halted in the potentially impacted areas of the Moses Wheeler Bridge project. Construction costs to date have totaled \$197 million. Contract time was stopped after substantial completion on December 4, 2016. At this time, all traffic is in final alignment with road surface reconstruction 100% complete. The Department is currently packaging all incomplete work items into a new breakout project which will include the appropriate provisions to address the asbestos contamination. Items to be completed include the new public boat launch and parking lot, removal of the temporary work trestle in the Housatonic River, and the construction of a new parking lot in Stratford. This breakout project is scheduled to begin in the spring of 2018.

Another major bridge replacement/rehabilitation project in construction during 2016-2017 is the West River Bridge carrying I-95 over the West River in the towns of West Haven and New Haven. The \$134 million construction project began in December 2013 and is expected to be

completed in late 2018. The project includes reconstruction of approximately one mile of I-95. The project removes the southbound loop ramp to Kimberly Avenue. Exit 45 is eliminated with the removal of the loop ramp. A single diamond interchange will increase safety and improve traffic flow by eliminating the existing weave condition on the interstate.

The largest and most comprehensive transportation program ever undertaken by the Department is the I-95 New Haven Harbor Crossing Corridor Improvement Program. The centerpiece of the Program is the recently completed Pearl Harbor Memorial (Q) Bridge, an extra-dosed cable-stayed bridge, the first of its kind in the U.S. A follow-up project for installation of LED aesthetic lighting system will be completed in 2017. The new bridge has a 100-year life span through the use of innovative and high performance materials (roadway wearing surface, high strength concrete, high performance structural steel). The \$1.874 billion Program is in its 16th year of construction. It is approximately 96% complete and is currently under budget and will be completed on schedule in 2016. A total of 18 program contracts have been completed as of June 30, 2017 with total expenditures to date of \$1.71 billion. The innovative processes CTDOT and CTDEEP developed and implemented during construction have streamlined reviews and issue resolution, and mitigated cost and schedule impacts, while complying with environmental permit requirements. Smaller projects to install a bridge monitoring system and to complete the soil remediation work will be completed by the end of 2017.

A rehabilitation project for the I-84 Hartford Viaduct, which carries I-84 over Amtrak, city streets, and parking lots in Hartford, is currently in construction. The project includes 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 will also be accomplished to Bridge Nos. 01765 and 01766, located just east of the viaduct along I-84. The three projects are combined into one construction contract. Construction began in the spring of 2017 and will be complete by the fall of 2018.

Planning for the long-term redesign and reconstruction of the I-84 Viaduct continues under the I-84 Hartford Project. The project 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. A draft Environmental Impact Statement is expected in early 2019.

The Department continues to employ efficient contract delivery methods to maximize contractor innovation and deliver projects more quickly to construction. The success of the Department's first Design-Build construction project replacing 4 bridges on Route 8 in Bridgeport has led to yet another 4 bridge replacement project using this alternate contracting method. Three of the four bridges are located in the city of East Hartford and carry Route 2 Westbound over I-84 Eastbound, I-84 Exit ramp over I-84 Eastbound, and Route 2 Eastbound

over I-84 ramps. The fourth structure is located in Willington and carries Potter School Road over I-84. The \$23 million recently awarded project will also use Accelerated Bridge Construction (ABC) techniques including Prefabricated Bridge Units (PBUs) and Geosynthetic Reinforced Soil–Integrated Bridge System (GRS–IBS) to help reduce bridge construction time and cost.

The innovative construction method referred to as Accelerated Bridge Construction 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, 16 projects have been completed using ABC, 11 others are in construction and another 9 are in various stages of design from Pre-design to Contract Processing.

The northbound Gold Star Memorial Bridge, located on I-95 between Groton and New London, is planned for major bridge rehabilitation. The construction phase will be divided into 2 separate construction projects. The first of the two projects, scheduled for advertising in January 2018, will be focused on structural steel strengthening and touch-up painting. The subsequent project, scheduled for advertising in August 2019, will include bridge deck replacement. Additional work includes the replacement of the rocker bearings, and replacement of existing structure-mounted sign supports. The current cost estimate for this project is \$97 million for the steel strengthening project and \$135 million for the subsequent deck replacement project. In Addition, a minor rehabilitation project for the I-95 Gold Star southbound bridge is in construction. This project addresses miscellaneous steel repairs, spot painting, deck patching, and includes installation of a new membrane and pavement overlay. The project commenced in the spring of 2017.

Bridge No. 00037, a two-span structure carrying U.S. Route 1 over I-95 in Stamford, is scheduled for a superstructure replacement. The project's construction cost is estimated at \$20 million, with construction anticipated to start in 2018 and be completed in 2020. The project will use accelerated bridge construction (ABC) techniques to demolish and replace both spans during two weekends using Self-Propelled Modular Transports (SPMTs). This project will be very similar to the Department's successful I-84 Southington bridge superstructure replacement project that was completed in June 2014.

The I-84/Route 8 Interchange in Waterbury will be rehabilitated to provide additional service life in anticipation of a future interchange replacement. The project will address the mainline I-84 and Route 8 structures and the turning roadways connecting them. The three design projects will be advertised for construction together in November 2017. The total estimated construction cost is \$180.4 million.

A consultant has been retained to perform a preliminary engineering study to investigate alternatives for the design and replacement of the I-84/Route 8 Interchange. The selected consultant, HNTB, began data collection activities such as traffic counts and survey during the

spring of 2017. The scope of the initial study will consist of developing a broad spectrum of alternatives for the reconfiguration of the interchange that will address the needs and deficiencies of the corridor. A public involvement program will guide the development of alternatives. Results from the preliminary engineering study will be used to advance the project into the environmental and preliminary design phases.

A project to replace the existing railroad bridge over Atlantic Street in Stamford is currently in construction. The project utilizes accelerated bridge construction techniques. The work is broken down into two phases. Phase 1 relocates the buried utilities and the I-95 NB exit ramp, and reconstructs a portion of South State Street. The Phase 1 construction contract was awarded and work began in the spring of 2016. Work is on schedule and is expected to be complete in June 2018. Phase 2 will replace the railroad bridge using innovative construction techniques such as jump spans and Self-Propelled Modular Transport (SPMT) units. Also, at track level, a new station platform will be constructed on the north side of the station in anticipation of a new Track 7 to be used in the future to service the New Canaan line. The Phase 2 project was awarded in the summer of 2017. The overall construction completion will be early in 2020, with the bridge completed late in 2019. The total construction cost for Phase 1 and Phase 2 including rail overhead catenary improvements and new station rail platform extension is estimated to be approximately \$173.8 million.

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. The Department is presently considering construction alternatives to correct existing deficiencies, including alternates to construct an additional tunnel barrel to maintain traffic during construction. Currently the Department is preparing an Environmental Assessment in order to document impacts and identify a preferred alternative. Construction is currently anticipated to begin in spring 2022 and be complete by fall 2026, with an estimated construction cost of \$200 million.

A major bridge rehabilitation project for the Arrigoni Bridge, Route 66 over the Connecticut River in the towns of Middletown and Portland, is now in final design and is scheduled for advertising in October 2018. The construction project, estimated to require two full seasons, will include structural steel repair and strengthening and the replacement of the bridge decks on both approach spans. The concrete bridge decks of the two 600 foot main spans over the river were replaced in a prior project completed in 2012. Construction cost for the current project is estimated at \$37 million.

The Rochambeau Bridges, which carry I-84 over the Housatonic River in Southbury and Newtown, are currently in the design process to rebuild new bridges on the existing substructure. The crossing is made up of two separate and unique structures, one carrying eastbound and the other westbound traffic. The design will leverage the separate structures to enable a traffic shift from one structure to the other enabling the replacement of each superstructure without any impact to traffic. The project is currently slated to use approximately \$60 million in Fix-It-First Bridge funds, with the project being advertised in the 2020 to 2021 timeframe.

The East Haddam swing bridge, carrying Route 82 connecting East Haddam and Haddam over the Connecticut River, is due for a major rehabilitation starting in the 2020 to 2021. This

104 year old structure is a historical landmark that has served the local, state and river traffic communities and industries extremely well. The \$45-\$60 million rehabilitation will include a deck replacement, structural, mechanical, computer and software upgrades to ensure proper opening and closing to accommodate high boat traffic during the peak summer months. The project's design will look at adding a much needed pedestrian sidewalk, which may be built as part of this rehabilitation or as part of a future construction project, to serve the existing economic community and help foster future economic plans for both towns.

A new highway maintenance repair and stores facility is under construction in Rocky Hill and will consolidate the existing repair and stores operations in Wethersfield and the outdated machine shop in Portland. The project involves the construction of an approximately 82,000 SF building, including administrative offices, vehicle repair bays, machine shop, material storage parts room, and employee support and utility spaces. The project also includes the demolition of an existing obsolete building and the construction of a separate 2,450 SF unheated cold storage building for material storage, a new motor fuel island, and site improvements, plus utilities to support the new and existing buildings that are to remain. The construction of this facility started in May 2015 and is scheduled to be completed in December 2017. The construction cost is estimated at \$38.6 million.

A new Bus Maintenance Facility serving the Waterbury Area began construction in February 2015 and is scheduled to be completed in March 2018. This 276,000 SF building is a multi-story facility accommodating bus storage, maintenance and administration. Additionally, a trailhead and a multi-use trail are being constructed within the project limits to support the Naugatuck River Greenway Trail. This facility is located on a parcel of property in the town of Watertown, adjacent to Frost Bridge Road (SR 262) and the Naugatuck River. The facility will replace the current storage and maintenance facility, located in leased space in a former foundry in the Waterville area of Waterbury. The total project cost is approximately \$93 million dollars.

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-third complete. Completed projects at the NHRY include the M8 Acceptance Facility, Diesel Storage Yard, Traction Power Supply Substation, the Independent Wheel Truing (IWT) Facility, the recently opened Maintenance of Way Facility (MOW) and the Component Change-Out (CCO) Shop. Active projects at the NHRY include the Central Distribution Warehouse and Yard Power Upgrade. Projects currently in design include the East End Connector and the West End Yard. Separate from the NHRY, the design continues for the additional parking garage and the connecting pedestrian bridges to the train platforms.

The New Haven-Hartford-Springfield (NHHS) Rail Program will result in the addition of a key rail component to a more robust and vibrant Connecticut multi-modal regional transportation system. Utilizing funding from the new federal High-Speed Intercity Rail Program and state bond funds, the NHHS Rail Program will provide the infrastructure and trains to operate some of the nation's best passenger rail services. As the gateway to New England, the NHHS Rail Program will also facilitate improved service to Massachusetts, Vermont and, in the future,

Montreal. New train service will connect communities, generate sustainable economic growth, help build energy independence, and provide links to travel corridors and markets within and beyond the region.

Over the past year, Amtrak's contractor, Middlesex Corporation, has completed the majority of the civil construction work including new track bedding, ballast, and improvements to drainage as well as retaining walls and bridge replacements. Amtrak is now completing the last phase of the work to upgrade the majority of the line to a double track configuration, resulting in expanded service options, with up to 17 round trip-passenger trains per day. The program also increases freight capacity. The launch of the enhanced rail service resulting from this program is scheduled for May 2018.

Additionally, four Amtrak Stations are being upgraded or replaced on the line to accommodate level boarding. Hartford's Union Station received upgrades to both the track platform and within the station's terminal. Service is now operating using the new platform. The Meriden and Wallingford Stations are also now in service and the Berlin Station platforms are being replaced under a Department construction contract that was awarded to Judlau Contracting. These new stations have five hundred foot platforms and complete ADA interconnectivity between platforms, as well as new parking facilities. These new stations will be operational for the start of enhanced service in May of 2018. Planning and design work continues on future phases of the program including stations in North Haven, Newington, West Hartford and Enfield, along with additional double tracking north of Windsor.

Two significant Metro-North Railroad (MNRR) movable bridges that are each over 110 years old have been identified for replacement. These bridges are key pieces of infrastructure that carry the Northeast Corridor railroads "Amtrak and MNRR" over two rivers and are vital to the operation of these railroads. The Department has started the designs for the replacement of the MNRR Movable Bridge over the Norwalk River, the "Walk Bridge", and the MNRR Movable Bridge over the Housatonic River, the "Devon Bridge". The Walk Bridge replacement is a fast track project; construction for this project will start in 2017 with an estimated cost of approximately \$650 million. The Devon Bridge replacement is scheduled to be completed by 2024 with an estimated cost of \$1 billion. Break out projects under the Walk Bridge program are already under way. One project will electrify the lower Danbury branch line so that Metro North trains that turn at the Norwalk station can do so clear of the bridge and construction. Also, another project to add a new interlocking, where trains can move from one track to another, will not only reduce delays to service during construction but will have long term benefits to the service.

On the Shore Line East Railroad, design was completed for the expansion of the Clinton Railroad Station to include high level platforms on both sides of the track along with a pedestrian up and over structure. Also, work is underway to electrify sidings at the Guilford and Old Saybrook stations that will allow M8 cars to serve the Shore Line East in the future. A second phase to electrify the New London siding is in design.

The Bureau of Maintenance and Highway Operations

The Bureau of Highway Operations 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 12 winter storms which required the use of 188,609 tons of sodium chloride and 1,163,271 gallons of liquid magnesium chloride and 0 cubic yards of sand abrasives applied by 634 state trucks assisted by 221 contracted trucks for plowing purposes only. Maintenance of existing roadways included 630 miles of vendor-applied bituminous concrete overlay. In addition, 6,695 linear feet of drainage pipe was installed along with 99 drainage structures. During the past year, maintenance repairs were performed on 904 of the 4,004 state-maintained bridges through the combined efforts of Department personnel and contractors. The total number of state-maintained bridges has decreased by 5 this year. The Traffic Services Units installed 2,351 miles of center lines and lane lines; erected 1,993 new traffic regulatory, warning and directional signs; renewed or removed 9,453 existing signs; continued maintenance of 2,783 traffic signals and 1,281 miles of highway illumination; and installed 43 new traffic signals and 247 signal revisions.

There were 4,143 highway encroachment permits issued. The Oversize/Overweight Vehicle Permit Unit collected \$3,758,620.50 for the issuance of 89,459 oversize/overweight permit trips and 59 radioactive permits and 116 industrial permits.

The Department's computerized traffic control signal systems include a total of 956 traffic signals on 53 major arterials in 58 municipalities.

The Operations Centers responded to a total of 4,811 reported incidents on the state's limited access highway system. The Newington and Bridgeport Operations Centers monitor 329 highway cameras and operate 135 variable message signs and 14 highway advisory radio stations. The Department's Connecticut Highway Assistance Motorist Patrol (CHAMP) Program provided highway assistance to a total of 8,848 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 provided assistance to 5,904 motorists.

The **Bureau of Public Transportation's** mission is to provide mobility to the residents of the State and to enhance economic development, access to jobs and the environment by providing safe, efficient, economical and reliable transportation alternatives. The Bureau is responsible for *CTtransit* and *CTfastrak bus service*, paratransit service, New Haven Line and Shore Line East rail service and Connecticut River ferry services as well as regulatory oversight of taxi, livery, and household goods companies.

The Bureau is continuing its focus on service quality, reliability and capacity by working with its transportation providers to improve service delivery and implementing a statewide capital program to upgrade transit and rail equipment and infrastructure.

Since introducing all-day, half hourly service on the New Haven Line in 2014, customers have responded by riding more often both during peak and off-peak periods. Rail ridership grew by 2.1 percent on the New Haven Line over the first six months of FY 2016 (July through December 2015) and grew by 2.3 percent in the second half (January through June 2016). The

New Haven Line remains the busiest rail line in the nation. It is again on track to have more than 40 million riders in 2016. These gains were not mirrored on Shore Line East, where rail ridership fell by 4.6 percent over the first six months of FY 2016 (July 2015 through December 2015) and then increased 0.9 percent in the second half (January through June 2016).

CTtransit-branded local bus ridership is down by about 4 percent this year when compared to the same period last year, reflecting a national trend of modest declines in bus ridership over the last year or two. The *CTfastrak* service was the exception to this trend. Since the start of service on March 28, 2015, *CTfastrak* has garnered high customer satisfaction and strong ridership gains. The service ended the fiscal year with an average weekday ridership of 17,533 passengers in the corridor, more than double ridership in the New Britain-Hartford corridor prior to *CTfastrak*. That new ridership resulted in a year end ridership growth over the whole *CTtransit* system of about 1.6%.

CTfastrak introduced a suite of new Intelligent Transportation Systems (ITS) such as automatic vehicle location (AVL) technology, automatic passenger counters and real-time bus arrival information. The AVL system has improved oversight of bus operations and provided data to next-bus-arrival information at *CTfastrak* stations. This information has also been made available to independent app developers to provide real-time bus arrival information to customers via smartphones. *CTfastrak* buses also include automatic passenger counters at all the doors of the buses enabling accurate passenger counts to be gathered by stop. The full ITS system will be installed on all *CTtransit* buses (except for Stamford Division which has a pre-existing system) in fiscal year 2017.

In addition to these operational improvements, the Bureau of Public Transportation, in cooperation with the Bureau of Engineering & Construction, Metro-North Railroad and Amtrak have made significant progress in moving its long-term Capital Program forward.

Major activities and achievements during the year include:

- Completed construction on the first phase of a new signal system on the New Haven Line, from the New York State Line to Greenwich. The second phase, from Greenwich to Norwalk, is now in its construction phase.
- Continued construction of catenary (electric overhead wire) replacement and bridge rehabilitation from New Haven to the New York state line on the New Haven Main Line.
- Continued inspections and repairs to New Haven Line moveable bridges to extend their life until they can be replaced.
- Continued the track maintenance program, bridge timber replacement program, and railroad bridge maintenance program.
- Assisted the Next Generation Equipment Committee in completing a dual mode (diesel/3rd rail) locomotive specification for future national use.

- Continued oversight of Kawasaki application of Fleet Modification Instructions to the M8 fleet in cooperation with Metro-North Railroad. This process standardizes the equipment and software across the entire fleet to bring it to the highest level of reliability.
- New Haven Line future equipment requirements in cooperation with Metro-North Railroad.
- Continued construction of key facilities in the New Haven Rail Yard. The new Component Change Out Shop is now in full operations and construction was completed on a new Maintenance of Way support facility. Construction continues on a project to create a redundant source of power for trains in the Yard and the new state of the art automated parts warehouse is nearing completion.
- Completed design of a north side platform for the Clinton Railroad Station and began construction of electrified sidings at the Guilford and Old Saybrook Stations.
- Began design for additional parking at Union Station in New Haven.
- Initiated planning efforts for the Barnum Station in Bridgeport, and the Orange Station. These projects support ongoing and planned local economic development.
- Continued design and engineering for the rehabilitation of Walk Bridge (over the Norwalk River) on the New Haven Line. Two break-out projects related to the Walk Bridge Program are underway. The first project electrifies the lower Danbury Branch line to allow trains to turn at the Norwalk Station without causing delays on the mainline. The second add an interlocking where trains can move from one track to another just east of the Norwalk Station.
- Continued conceptual design for the Devon (over the Housatonic River) moveable bridge on the New Haven Line.
- Upgraded the Network Infrastructure on the New Haven and Branch Lines to support installation of cameras, passenger communication systems and ticket vending machines.
- Continued design and installation of the Positive Train Control (PTC) System, which will allow integrated command, control, communications, and information systems for controlling train movement. The project is on schedule to meet the current federally-mandated deadline of December 31, 2018.
- Construction of the new bus storage and maintenance facility for the *CTtransit* Waterbury division scheduled to be completed in March 2018.
- The Department was recently awarded \$1.45M from the Federal Transit Administration (FTA) for the Low or No Emission Vehicle Program (Low-No). The Low-No competitive program provides funding to state and local governmental authorities for the

purchase or lease of zero-emission and low-emission transit buses as well as purchase, construction, and installation of required charging equipment. The Department will deploy five (5) 40' Proterra E2 Max battery electric buses in a joint effort with the Hartford Division of the CTtransit system and the Greater Bridgeport Transit Authority (GBT), a transit district supported by CTDOT, in order to evaluate potential future use in the CTtransit fleet.

- Continued construction activities on the Hartford Line which will include the installation of a second track between New Haven and Hartford as well as upgraded stations at Wallingford, Meriden, Berlin and Hartford. This work will allow for additional Amtrak and new *CTrail* service between Springfield, MA and New Haven in May 2018. Amtrak is competing construction on the track and signal systems needed for the service and the Wallingford, Meriden, and Hartford Stations are already in service. Work on the State Street Station and Berlin Station are nearing completion.
- Completed construction on real time train information systems at the Bridgeport and Stamford Stations along with canopy and windscreen upgrades at the Bridgeport Station.