

Transportation Capital Infrastructure Program Annual Capital Plan Report



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Prepared by the Office of Engineering

Chief Engineer's Office

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The CTDOT Capital Program

Overview

The mission of the Connecticut Department of Transportation (Department) is to provide a safe and efficient intermodal transportation network that improves the quality of life and promotes economic vitality for the State and the region. In order to achieve this mission, the goal of the CTDOT Capital Program is to gather and spend every available dollar of capital funding to rebuild, replace, or improve the State's transportation infrastructure. Each year, the Department develops a plan to design road, bridge, public transportation and other transportation facilities to acquire the necessary property interests and to construct those projects in a way that uses or leverages all of the available State and Federal funding.

The purpose of this report is to inform the Department's stakeholders about the past year's program and outline the plan for the following year. Since a report was not published in SFY/FFY 2017 due to the uncertainty regarding the solvency of the state's Special Transportation Fund (STF), this year's report includes what would have been covered within the 2017 report in addition to covering 2018. Specifically, the report will cover the 2017 and 2018 Capital Infrastructure Program (for State advertised and administered contracts) and outline the plan for 2019 and beyond. The report includes historical achievements, trends, major issues, and the Department's plan to address critical transportation needs, as well as address current challenges associated with maintaining our aging transportation infrastructure.

The development of the report encompasses a collaborative effort by the Department with various stakeholders, such as Metropolitan Planning Organizations (MPOs) and elected officials. This document is intended to supplement the project and funding information that is provided in the forward-looking *FFY 2019–2023 Capital Plan*. Figure A is the financial summary page from the Plan and a useful reference throughout this document. Reference is also made in this document to the Digest of Administrative Reports to the Governor. The 2016-2017 Digest is available at <https://portal.ct.gov/DAS/Lists/Publications/Reports/Digest-of-Administrative-Reports> and the 2017-2018 Digest is anticipated to be available soon. Readers are encouraged to review CTDOT's portion of those reports for more detailed information regarding CTDOT's 2017 and 2018 accomplishments.

The *Let's GO CT!* vision, and more specifically, the 5 year Ramp-Up toward that vision, has begun to change the dialogue regarding the future of transportation infrastructure in Connecticut. The Department began the process over the past few years of implementing the Governor's *Let's GO CT!* initiative. The 5 year Ramp-Up plan included \$2.8 billion in additional bond authorizations, including an additional \$520 million in Federal Fiscal Year (FFY) 2017 and \$552 million in FFY 2018 (See Figure B). As shown in Figure B, the Department assumes that as the 5 year Ramp-Up ends in FFY 2020, the State's Regular Bond Program will increase by approximately \$700 million in FFY 2021 to reflect the transition to a "ramped-up" regular program.

While maintaining a state of good repair of our current assets continues to be our top funding priority, the Department has begun to analyze the state's individual transportation system in order to identify strategic investment opportunities that will address congestion, as well as those projects that provide economic benefits to the localized region and the state as a whole. Utilizing the FFY 2017 and FFY 2018 *Let's GO CT!* funds, the Department completed a strategic review of the western half of the I-95 corridor from New Haven to the New York state line (referred to as the I-95 West Study), and advanced the strategic review of I-95 from New Haven to the Rhode Island border (referred to as the I-95 East Study). These strategic reviews of the I-95 corridor are a model

for corridor planning. The studies examine current and future traffic conditions using a micro-simulation analysis to address longstanding issues and to help identify priority projects for development along the corridor. In so doing, targeted investments can be identified to improve safety and traffic conditions which may serve as a catalyst for future economic growth along those corridors. It is envisioned that future corridor studies will be performed for the I-84 corridor in the Hartford area as well as the I-91 corridor between New Haven and Hartford.

In addition to the I-95 corridor planning studies currently underway, the Department advanced the preliminary design for I-84 Exits 3 through 8 in Danbury; continued the preliminary design to reconstruct the Interchange of Route 7 / Route 15; and initiated planning to address the operational and condition deficiencies associated with the I-84 / Route 8 interchange in Waterbury. Funding was also made available for Rail and Bus initiatives; such as, funds for the creation of the new rail service running from New Haven to Springfield, MA known as the “Hartford Line”; purchasing new rail cars to operate throughout the state; the deployment of a state-wide real-time bus information system; and improvements to Paratransit Services. More detailed information on *Let's GO CT!* is available at <http://www.transformct.info>.

In the recently concluded FFY 2018, the Department programmed approximately \$1.73 billion for all transportation modes – road and bridge, railroad and bus and other public transit – in the Capital Program. This included \$421.7 million for bus and rail, and \$1.31 billion toward the state’s highway and bridge infrastructure. There was also roughly \$19.9 million programmed for Facilities. It should be noted that the Department had originally planned to utilize over \$2.0 billion in FFY 2018; however, due to projected revenue shortfalls in the State Special Transportation Fund, many state funded projects were put on hold for SFY 2018. When the Legislature took action at the end of the 2018 Legislative Session to accelerate the transfer of sales tax proceeds from dealer sales to the STF from 2021 to 2019, work resumed on those projects that had been put on hold, but the FFY 2018 capital program had already been impacted. The Department anticipates utilizing approximately \$2.61 billion in total Capital Program funding for all transportation modes in FFY 2019. The robust program in 2019 is partially the result of the unutilized funds carrying forward from 2018. It includes available funding from *Let's GO CT!* as well as regular State and Federal funding. This amount includes approximately \$1.01 billion for bus and rail, \$1.56 billion toward the state’s highway and bridge infrastructure, and \$38.58 million in support of the Facilities Program (Please refer to Figure A).

The \$2.61 billion included in the Capital Plan for FFY 2019 is primarily for projects administered by the State, for work on State roads, bridges, public transportation, and facilities. While the plan does include the federal/state funding for off-system bridges and for some projects funded with federal Urban funds, but locally administered; it does not include the projects funded under the state-funded Local Transportation Capital Improvement Program (LOTICIP), the Town Aid Road program, or the state-funded Local Bridge program.

The state’s commitment to an increased investment level in our multi-modal transportation infrastructure will lead toward improving our highway and transit system, while also supporting the economy and business of Connecticut. Figure D charts the Department’s increasing capital outlays that support jobs in the region. These initiatives represent significant investment in Connecticut’s infrastructure. It should be noted that while there are increased investment levels in our multi-modal transportation infrastructure, capital project expenditures also continue to rise.

Although the state has significantly increased its investment levels in recent years for all transportation modes, a long term dependable Federal program, and State program beyond 2022, is imperative in our efforts to plan capital transportation investments.

Asset Management

The Department developed its initial Highway Transportation Asset Management Plan (TAMP), which was certified by the Federal Highway Administration (FHWA) on July 24, 2018. The Highway TAMP was created to document the agency's asset management processes, project future performance of our assets given expected funding, and construct a blueprint for transportation asset management improvements moving forward. It was designed to meet federal requirements (MAP-21 and FAST-Act) that are tied to funding required for our transportation system. A separate document, finalized on October 1, 2018, has been developed to address the transit assets maintained by CTDOT as mandated by the Federal Transit Administration (FTA). While the Highway and Transit TAMPs are currently separate documents due to differing FHWA and FTA requirements and submission schedules, the Department plans to merge these two documents into one CTDOT TAMP in the future.

This first Highway TAMP goes beyond the federal mandates and demonstrates the Department's strong commitment toward achieving a State of Good Repair for our transportation system. An asset management strategy for both National Highway System (NHS) bridges and pavements is included in the Highway TAMP. In addition, the initial Highway TAMP covers all CTDOT maintained bridges, pavements, traffic signals, signs, sign supports and pavement markings. The Highway TAMP contains information on Asset Inventory and Condition, Asset Data Management, Objectives and Performance, Life Cycle Planning, Risk Management, Financial Planning, Investment Strategies and Process Improvements. The Highway TAMP will guide the Department in its endeavor to deliver better asset performance, while also managing risks.

In addition to the CTDOT's Transit TAMP, the FTA's TAM Rule required the Department to be a sponsor of a group TAM Plan for the state's Transit Districts and other small transit providers. Although group plans are not required to have the level of detail, due to the Department's responsibility for service and planning decisions for its providers, the group plan was developed in parallel to its Transit TAMP, including future collaboration between the Department and Transit Districts for TAM implementation activities. A new State of Good Repair Transit Database, an integration of public transportation capital assets of all transit and rail providers, was developed in conjunction with an analytical decision support tool to predict capital asset needs for the four-year horizon period of both group and Transit TAMPs. A Condition Assessment Guidance Document was developed with the Transit TAMPs to assist with future data collection of asset condition for the four capital asset categories defined by the FTA: equipment (nonrevenue vehicles), rolling stock (revenue vehicles), infrastructure (rail fixed-guideway, track, signals, and systems), and facilities.

The Department has used certain aspects of the Asset Management Program, including performance metrics, for a number of years. However, the expanded federal requirements and the implementation of Asset Management are intended to provide a more detailed and objective basis that will drive the development of the Capital Program as we move forward. The asset management plan and underlying management systems provide an objective data driven methodology to assess current and future needs required to maintain the state's transportation assets in a state of good repair. The asset management systems utilize actual condition assessments and proven deterioration models to predict the effects of age and environmental conditions upon individual assets such as a bridge, section of pavement or traffic signal. In so doing a long-term and cost efficient strategy can be devised to maintain the overall transportation system.

Improving Project Delivery

Delivery of completed projects on or before schedule, on or under budget, and of the highest quality is one of the top priorities of the Department. Improving project delivery is an important element of expanding the capacity of the Department's Capital Program and requires the Department to appropriately size its staffing for the effort and to expand the revenue sources when possible. Project Delivery improvement includes innovative construction techniques and a variety of process improvement tools. Every improvement in project delivery increases the Department's capacity for more projects (which equates to more jobs).

The Department continued to advance its ability to utilize alternative contracting methods in 2017-2018 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. The 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. 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 which is located in Willington and carries Potter School Road over I-84 was recently completed on August 24, 2018 in just 61 construction days. The \$23 million project began in September 2017 and is scheduled to be completed in early 2019.

In addition to the Design-Build projects noted above, the Department has also procured projects using other alternative contracting techniques. A \$32 million maintenance building in the New Haven Rail Yard was successfully completed in 17 months using a Construction Manager at Risk (CM@R) delivery method. In Norwalk the initial contracts for the Walk Bridge Replacement Program were procured using a Construction Manager / General Contractor (CM/GC) procurement method. Construction is now proceeding with those projects and the design of the new bridge is nearing completion.

Building on the success of the Design-Build, CM/GC and CM@R projects, the Department has sought to expand its alternative contracting capability. The Department has recently developed a decision matrix and procedure to guide project managers in selecting an appropriate procurement methodology. The Department has also hired a consultant specializing in alternative contracting to assist Department staff in project delivery.

The Department's goal is to develop a manageable collection of "shovel ready" projects designed and ready to bid expeditiously when new revenue sources become available or if other project schedules slip. Alternative contracting is an important part of the strategy to reach to create a backlog of projects. However, even when using alternative contracting there are certain functions that require action and oversight by Department personnel. The inability to promote or hire replacement staff has led to a 15% vacancy rate in the Bureau of Engineering and Construction. The vacant positions have constrained the Department's ability to deliver projects and led to some project delays. If the Department is to reach its goal of having a number of "shovel ready" projects ready to go, then the staffing shortfall must be addressed.

Financing of the Capital Program

Available Funds

The Capital Program is funded with a mix of State and Federal funding. Historically, Federal monies accounted for 70-80% of the Department's capital program; however, this has changed in recent years with an influx of State bond funding for programs such as the Fix-it-First Road and Fix-it-First Bridge programs, and the Local Transportation Capital Improvement Program (LOTICIP). Further state investment in transportation is occurring as a result of the *Let's GO CT!* Ramp-Up legislation. These additional state investments have increased the state participation percentage to roughly two-thirds of the total Capital Program funding (See Figure C).

Available Capital Program funding includes any carryforward balances, or funds made available in a previous year but not obligated to a specific project. It is common for funding to be made available for use on specific projects that may take multiple years to construct, or for items such as rail cars or busses that may take more than two (2) years to be delivered after a purchase order is issued. That is true for 2019. Therefore, the Department will not spend all currently available capital funds in 2019. As a result, roughly \$798 million is expected to carry over to the next fiscal year cycle (See Figure A). Further details regarding planned expenditures in 2019 follow in the Capital Construction Program discussion.

Available Capital Program funding can also include funds released from previously completed projects, which are available to re-use.

Expenditure of Funds

The Department is often questioned on the appearance that it is not fully utilizing state money that is available to it for its transportation program. Special Tax Obligation (STO) bond authorizations are the main source of state funding for the DOT Capital Program, so in order to understand the delay in the spending cycle, it is important to understand the bonding process. It begins when the state Legislature passes bond *Authorizations* that allow the Department to utilize bond funds for transportation purposes. Before the Department can utilize the bond funds, the State Bond Commission (SBC) must *Allocate* the funds at one of its monthly meetings. After the SBC has approved the allocation of funds, the Department can request the funds be *Allotted* to a specific project, through the submission of an allotment request to the Office of Policy and Management (OPM). Once OPM has approved the allotment request and forwarded it to the Office of the State Comptroller, where it is posted in CORE, the funds are available for expenditure.

The Department's practice is to ensure that *Authorization, Allocation and Allotment* have occurred prior to advertising and awarding projects. The Department seeks to have 100% of construction funds approved before advancing into the construction phase. This practice results in the appearance that money is not being spent since the actual draw-down of funds during design or construction will not occur immediately, but rather as the work is completed and accepted. Similarly, significant portions of payments for the purchase of rail cars and buses are not made until the vehicle is delivered and accepted. Undertaking large capital projects such as the reconstruction of I-84 in Waterbury at a cost of \$343 million, or the replacement of the West River Bridge connecting New Haven and West Haven at a cost of \$183 million, can leave the appearance that the Department has large amounts of unspent funds that are not being utilized, when in reality the funds are committed to on-going design work, or soon to be executed capital infrastructure construction projects.

The sale of bonds does not occur until the money is actually required to pay project costs. The amount of bonds sold for the Capital Program is based on the estimated cash flow requirements of current projects, not on the amount of bond authorizations or bond allocations. Bonds are sold to investors and bond proceeds are used to pay for project costs. The cost to the State (the taxpayers) occurs as the State makes principal and interest payments on the bonds that were sold. Bonds sold are typically 20-year bonds, which means that 1/20th of the cost is paid back the first year after the bonds are sold, 1/20th the second year, and so on, for 20 years. The funding required to make the payments is called debt service. The debt service for the Capital Program is paid for with revenue from the STF. The STF is funded with state gas taxes, motor vehicle license, registration and other fees, and a portion of the motor vehicle sales tax.

Role of Federal Funds

While State funding has taken on a more prominent role in recent years with the increase in State bonding authorizations, Federal funds still play a critical role in transportation funding in Connecticut. We have four major sources of Federal funding, all of which fall under the umbrella of the US Department of Transportation (USDOT): the FTA, the FHWA, the Federal Railroad Administration (FRA) and the National Highway Traffic Safety Administration (NHTSA).

In December 2015, Congress passed the FAST Act. The five (5) year bill provided \$305 billion for surface transportation programs for federal fiscal years 2016 - 2020. The FAST Act provides states with predictable formula funding for five (5) years, and provides an average annual growth of 2.9% in the overall funding levels. The Act's five (5) years of predictable formula funding enables the Department to better manage long-term assets and address the backlog of state of good repair needs.

While the FAST Act authorized 5 years of federal funding, it also included a \$7.6 billion rescission of Highway funding on July 1, 2020. The rescission will be distributed between states based on each state's share of the total available fund balances subject to rescission as of September 30, 2019. The Department will take steps during FFY 2019 to minimize the impact of the rescission on Connecticut. This will require the Department to switch funding sources for some projects to more fully utilize federal categories of funds that are subject to rescission and carryforward to FFY 2020 funds in categories not subject to rescission.

The Capital Plan is based on the projected FFY 2019 level of Federal funding of \$717 million. This includes anticipated FHWA, FTA, and NHTSA funding. Total new Federal funding received for FFY 2018 was \$761 million. This included approximately \$25 million of Highway Infrastructure funds, which were provided for FFY 2018, under the Transportation Appropriations Act of 2018, and are not anticipated in FFY 2019. It also included \$50 million of additional funding that was received from FHWA near year-end as part of an annual redistribution of additional funding that the Department successfully applied for and was granted. The FFY 2019 funding level assumes a more typical \$20 million of additional funding at year end as a result of redistribution.

Federal earmarks and discretionary program funding have played a significant role in Connecticut's Capital Program in the past. Examples include: highway funding for the Q Bridge; Intercity and High Speed Rail funding for the New Haven-Hartford-Springfield Rail Program; and Federal Transit's new start funding for CTfastrak; as well as funding for the Power Upgrade Project in New Haven Yard; and funding for the WALK Moveable Bridge replacement through FTA's Emergency Relief Program for recovery, relief and resilience efforts in areas affected by Hurricane Sandy. To date the federal TIGER grant program has helped fund local initiatives in Bridgeport,

Hartford, New Haven, Stamford and Waterbury. Under the Consolidated Appropriations Act of 2018, \$1.5 billion was made available for National Infrastructure Investments, otherwise known as BUILD Transportation Discretionary grants, through September 30, 2020. BUILD Transportation grants replace the pre-existing TIGER grant program.

The data presented in this report is based on the FFY cycle (October 1 to September 30) rather than the Calendar Year or the State Fiscal Year (SFY – July 1 to June 30) because of the major role the Federal funds play and the fact that the FHWA funds must be fully utilized each year by the end of the FFY.

Management of FHWA Funding

The FHWA is the largest Federal funding source for the Department’s transportation program and is the primary Federal funding source for highways and bridges. With annual funding from FHWA exceeding \$500 million, the strategic management and utilization of FHWA funds is critical to the Department’s Capital Program.

FHWA regulations require the Department to “obligate” or commit all regular formula funds authorized for use in any given FFY in that specific year. The Department has consistently obligated all of its available Federal funding. This makes the Department eligible to ask for more funds prior to the end of the fiscal year. In fact, over the last five (5) years, the Department received and obligated \$182 million in additional Federal funds that came from other states or unused obligations and Federal holdbacks. In FFY 2018, the Department was extremely successful in its request, receiving and obligating \$50 million over and above its original allocation of Federal monies.

The USDOT requires the recipients of Federal funds to develop a finance plan to complete a project. To achieve this, the Department uses a Federal financial tool called Advance Construction (AC), particularly for large multi-year programs, which essentially provides for a phased approach to project funding. This mechanism allows the state to request and receive approval to construct a Federal-aid project in advance of the availability of authorized Federal funds.

AC is a cash flow tool that allows states to borrow against future Federal transportation funding. It should be noted that these funds are only guaranteed to the extent of the available future Federal budgets in any given year. Because of the risk in borrowing against future, unknown Federal amounts, the Department uses the AC tool carefully. Figure E shows the historical and planned levels of AC authorization. The AC levels shown for future years reflect specific projects currently identified in the Capital Plan. The amounts may change as project schedules and cost estimates are updated, and as additional projects which need phase financing are committed. For FFY 2019 through FFY 2023, it is estimated that approximately 24 projects will be financed with AC conversions, totaling \$1.1 billion. This represents over 40% of the annual highways funding being used for ongoing construction projects. While the use of the AC tool is necessary to get large projects into construction sooner, it should not be overused as it directly impacts the State’s ability to advertise new projects. As the percent of federal funds being used for ongoing construction approaches the 50% level, it becomes a real possibility that the Department may be fiscally constrained from maintaining its annual project advertising level, which has averaged 96 projects per year for the last five (5) years.

Management of FTA Funding

The FTA is the dominant Federal funding source for the Department's Public Transportation Infrastructure program. With annual funding from FTA exceeding \$190 million, through five (5) annual program apportionments, the strategic management and utilization of FTA funds, paying close attention to funding eligibility requirements, is critical to the Public Transportation Capital Program.

FTA requirements and procedures for the management of all FTA grant programs are governed by FTA's Master Agreement, the official FTA document containing Federal requirements applicable to the FTA recipient and the administration of FTA grants. The Master Agreement is incorporated by reference and made part of each FTA grant.

The Department is the designated recipient for all FTA programs and is responsible for service and planning decisions for rail, fixed-route bus and complementary paratransit service in the urbanized areas of the state.

For most regular formula funds authorized, FTA allows three (3) years for funds to be obligated; therefore the funding may be carried forward. This allows for larger projects to be financed with two (2) or more years of apportionment. Additionally, as the designated recipient, the Department programs and plans the formula funding from Section 5307 (the largest FTA source of funds) and creates a funding pool from which capital projects in regions around the state are funded. The Department does not utilize a formula to reallocate Section 5307 formula funds to the bus operators, rather the funding pool allows for a cooperative, non-discriminatory allocation of funds to different regions based on annual needs. The disbursement of these funds is approved by the MPOs in the Statewide Transportation Improvement Program (STIP). Sub-area split agreements that reflect the annual disbursement of funds by region are created by the Department and executed by the operators from each region. This program allows local transit operators to fund major projects for which they may otherwise have never accumulated adequate funds.

As with FHWA funding, FTA also requires the recipients of Federal funds to develop a finance plan to complete large projects. To achieve this, the Department uses a Federal financial tool called Pre-Award Authority, particularly for large multi-year programs, which essentially provides for a phased approach to project funding. This mechanism allows the state to request and receive approval to construct a Federal-aid project in advance of the availability of authorized Federal funds.

Components of the Capital Program

The Department prioritizes transportation investments that ensure public safety, restore the infrastructure to a state of good repair, improve the customer experience, and promote economic development.

Public Transportation

The Department manages a multi-modal network that includes rail, bus, and paratransit services through contracts with transit districts, private bus operators, management companies and railroads. It also directly operates two Connecticut River ferry services. The state supplies all or most of the capital assets (rolling stock, maintenance facilities, etc.) required in order to operate these various services. The Bureau of Public Transportation provides oversight for the Department of these operators as well as public transit funding for urban, small urban and rural transit providers. These services are the backbone of the state's economy, transporting 85 million people per year.

Through the *Let's GO CT!* Program, the state is making significant investments in upgrading existing routes and services, while building new infrastructure and introducing new services such as the Hartford Line and a state of the art smart card fare system. These improvements are part of a broader strategy to improve the reliability and capacity of existing services, while building a more flexible and integrated multimodal transportation system, one that will help businesses thrive and improve the quality of life for residents and visitors alike.

Highway and Bridge

In developing the Highway and Bridge Capital Program, the Department strives to create a mix of projects that address the transportation mobility and safety needs of the entire state. We balance priorities using a variety of criteria such as safety, system preservation, mobility enhancements, congestion relief, and criticality. The Department also strives to maintain a balance between the urban and rural programmed work.

The Department's overriding focus remains on the preservation of the existing infrastructure. This means maintaining the State's road, bridge and transit facilities in a manner that ensures they last beyond their design life. This is known as a "State of Good Repair."

Complete Streets

Every personal trip includes a movement without a motor vehicle – perhaps walking, biking or using a wheelchair. The Department's policy is to enable safe, convenient and comfortable travel for all citizens whether they are on foot, bicycle or other mobility device. The Department is committed to providing the balance of modes that Connecticut's citizens and economy require. This concept of serving all transportation modes in an integrated manner is called "Complete Streets."

The Department has implemented a Complete Streets Policy department-wide through training, design guidance, funding, data collection, and plans to monitor the output through performance measures. Complete Streets is a means to provide safe access for all users (pedestrians, persons using mobility aids, bicyclists, transit users and vehicle operators) by providing a comprehensive, integrated, and connected multi-modal network of transportation options. To uphold this commitment, the policy statement also directed that a Complete Streets Standing Committee be formed with membership from each Bureau. In 2017, the Complete Streets Committee was established with the

purpose of serving as an umbrella group for coordinating and overseeing Complete Streets efforts. The Committee, which is comprised of employees with representation across all functional areas of the Department, with diverse expertise and experience, serves as an opportunity to share information, examine specific issues, make policy recommendations and create efficiencies. Membership also includes representation from the Connecticut Technology Transfer Center and the Federal Highway Administration.

The Department recently completed a major update to the “Bike and Pedestrian Travel Needs Assessment Form.” This form applies to all Department projects, mainline utility projects within the state right-of-way, the Office of the State Traffic Administration (OSTA) certificate applications receiving state or federal funding, and municipal transportation projects that receive state or federal funding. The form is available on the Department’s website at https://www.ct.gov/dot/lib/dot/bptna_fillableform.pdf.

Connecticut law requires a comprehensive Complete Streets approach to the planning, design, construction and operation of public roads. Also, the law (Public Act No. 09-154) specifically requires that the Department expend at least 1% of the total annual budget for projects that provide facilities for cyclists and pedestrians. The Department has routinely exceeded this spending mandate. 2.6% of the program on average for the last five (5) years has been used to create walkways, bikeways, and various associated amenities.

The Department awarded 65 projects in SFY 2017 and 53 projects in SFY 2018 that included elements for pedestrians or bicyclists, such as sidewalks, ramps, pedestrian signals, push-buttons, signs, and pedestrian/bicycle trails. The total dollars expended for these items was approximately \$13.6 million in SFY 2017 and \$11.8 million in SFY 2018, which was about 2.9% of the SFY 2017 total funds and 1.4% of the SFY 2018 total funds awarded for the construction, restoration, rehabilitation, or relocation of roads in the state.

Safety

The Department has continued its efforts to drive down the number of fatalities and serious injuries of all users of Connecticut’s highways. These efforts are directed by a Strategic Highway Safety Plan (SHSP) for Connecticut. The SHSP is a plan developed by all safety stakeholders, who collaborate on safety efforts and leverage resources. The current SHSP was published in July 2017 and similar safety plans are being prepared for each of the nine Councils of Government in Connecticut. The first two plans should be complete in winter/spring of 2019.

The Department 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. While improving the safety of the transportation network is part of every capital investment, the agency is striving to dedicate approximately \$10 million annually to this specific systematic approach. The work includes:

- Centerline Rumble Strip Projects (CLRS). These are grooves in pavement that produce noise and vibration when tires make contact. They are a proven safety countermeasure to reduce lane departure crashes. Since 2014, over 300 miles of CLRS have been installed on both local and state roads. Another 42 miles of CLRS will be installed in 2018. Beginning in 2019, about 50 miles of new CLRS are anticipated to be installed annually. The actual work is being performed by the Department’s contractor under the VIP paving program.

- Statewide Pedestrian Warning Sign Project on select town-owned 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 signs will be installed in 2019.
- Statewide Traffic Signal Clearance Interval Retiming Project. All state owned and maintained signals are being revised to update the yellow and red clearance intervals to be consistent with national best practices. 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 departure crashes. 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. Design plans for Districts 1 and 2 will begin in 2020 and be constructed in 2022. The installation of horizontal curve signs on select local roads will be substantially complete in late 2018 or early 2019.
- The Department is working with the Connecticut Transportation Safety Research Center at UCONN to develop a state-of-the-art safety management system. The tool, which is under development, will be able to conduct network screening, diagnosis, countermeasure selection, economic appraisal project periodization and safety effectiveness evaluation for all public roads in CT.

The Capital Construction Program

The Department’s Capital *Construction* Program is a subset of the overall capital funding program. The Capital Construction Program is multimodal, with highway and bridge construction constituting the majority of the program. It does not include equipment procurement, such as the new M8 rail cars, or replacement buses. Nor does it include operating expenses or the costs of railroad support of projects. It does, however, include projects such as the catenary replacement program and rail station construction.

Connecticut’s many infrastructure needs far exceed the financial resources to address them all. As a result, the first priority of the Capital Construction Program is preservation of our multimodal assets; maintaining them in a state of good repair. The implementation of a formal Asset Management Program, as detailed in the Department’s TAMPs, will assist in the decision making process for project selection going forward, as required by the USDOT.

For planning purposes, roughly 25% of the Capital Construction Program funding is utilized for preliminary engineering and the purchase of property rights for projects. The rest of the Capital Construction Program funding is dedicated to the construction phase. The construction phase includes the amount of the awarded construction contract *plus* a contingency budget for extra work and change orders *plus* the Department’s costs to manage and oversee the work. A summary of the project delivery statistics for the previous two years in addition to the estimated figures for FFY 2019 are shown in the table below. (Note: all dollar amounts are in millions.)

| | FFY 17 | FFY 18 | FFY 19* |
|-------------------------|--------|--------|-----------|
| Number of Projects | 93 | 78 | 65-75 |
| Construction Bid Amount | \$394 | \$758 | \$520-615 |
| Total Construction Cost | \$492 | \$947 | \$650-770 |

*FFY 19 figures are estimated

The Department is involved in managing a multitude of projects that are not captured above. These include: town advertised projects, such as those that are Department funded through the Federal and State Local Bridge Programs and LOTCIP; projects directly performed by AMTRAK and Metro-North on the Department’s behalf; Maintenance projects completed utilizing contractors selected through DAS contracts; and projects procured using alternative contracting methods such as the Walk Bridge Program and a proposed parking garage in Stamford. The attached five (5) year Capital Plan contains information on specific projects, as does the document, *Projects Scheduled for Advertising*, found on the Department’s website at: <http://www.ct.gov/dot/cwp/view.asp?a=1399&q=260048>. Figure F presents a 15 year history of project production levels, as well as the total construction cost advertised each year. Fluctuation in these numbers is to be expected as a single large value project can dramatically affect the overall numbers.

Overall, the program has been expanding over the years, consistent with the increased transportation investment levels. While the Department has been benefiting from these increased investment levels, the full benefit of this increase has been offset by the increased cost of capital projects.

Mode Specific Accomplishments and Plans for the Future

Public Transportation Capital Program

Bus

The Bus Capital Program supports transit services around the state including state-owned CTtransit operations in eight urban areas, transit district-owned services in seven other urban areas, rural services in five areas around the state, and para-transit operations in 14 transit districts.

CTfastrak service continued to exceed expectations. Since CTfastrak opened in March 2015, it has carried six (6) million customers or approximately 20,000 customers daily. In 2018, new bus service between Hartford and the University of Connecticut at Storrs carried more than 100,000 customers in its first year of service.

The New Fare Technology System project for CTtransit and the CTfastrak, also known as the GO CT smartcard, continued in 2018 with the installation of new fareboxes on all CTtransit and CTfastrak buses. GO CT was launched systemwide in October 2018.

Finally, construction of the new Waterbury CTtransit bus maintenance facility continued in 2018 and will be operational in late 2018.

Rail

Hartford Line service began on June 16, 2018. Train service increased from 6 roundtrips each day to 17 roundtrips per day, a combination of CTrail and Amtrak operated services. The start of service was the culmination of decades of planning and years of effort to design and construct the rail improvements necessary to support the expanded service. The program required more than 30 agreements from property access agreements to rail car leases to operating agreements with the service providers. The initial ridership is on track to exceed first year ridership goals and customer feedback has been positive.

The Rail Capital Program includes capital projects necessary to support two existing commuter railroads, the New Haven Line (NHL) and Shore Line East (SLE) and the Hartford Line, new CTrail service which began revenue service in June of 2018. The overall program is intended to bolster service reliability and operational efficiency, replace outdated and undersized facilities and provide the capacity for growth in rail service.

Among the major priorities, the Department continues to work with Metro-North Railroad (MNR) to implement the requirements of the Railroad Safety Improvement Act of 2008 (RSIA), principally installation of Positive Train Control (PTC) systems on the New Haven Line. The system is designed to monitor train activity, prevent collisions, and convey and enforce speed restrictions. Some features of the new PTC system, such as civil speed enforcement, were added to New Haven Line trains over the past year and additional features will continue to be introduced in 2018

The New Haven Rail Yard (NHRY) capital investment program substantial completion continued with construction of the Central Distribution Warehouse Facility and the Maintenance of Way Facility in 2018. The Central Distribution Warehouse provides an automated parts distribution and inventory control system. The Maintenance of Way Facility includes offices, shops, storage and support (welfare) space for MNR's Maintenance of Way

workers in the Communication, Signal, IT, Power, Structures, Track, Security and CTDOT staff. The East End Connector project is scheduled to begin by the end of this year. This project will provide track connections to the east end of the CCO Shop. Additionally, the West End Yard project will begin in 2019 and will consist of seven electrified storage tracks (Track 44 - 50) with full utilities that can accommodate the storage of 77 cars.

In 2018, the Department continued work to overhaul the P40 and GP40 diesel locomotives, as well as the procurement for an additional 60 M8s for the New Haven Line is well underway. The Department also began work on a long term fleet strategy for the branch lines, Shore Line East and the Hartford Line. The initial focus of the fleet plan will be the replacement of aging push-pull type equipment followed by the purchase of new locomotives. The contract to develop the rail car specifications was awarded in 2018.

The final phase of construction for the last remaining section of the catenary replacement program is expected to be complete in 2019. This last phase will complete the entire catenary replacement from the New York State line to New Haven.

Walk Bridge is the oldest movable bridge along the New Haven Line and Northeast Corridor in Connecticut, the busiest commuter rail line in the nation. Construction of CP243, a new railroad interlocking east of Norwalk to facilitate train movements and reduce delays during construction of the bridge, was initiated in 2018. Work also got underway on Danbury Dock Yard which provides a turnaround location for trains to further reduce train traffic on the bridge. The CTDOT also continued the design and engineering for Walk Bridge. Additionally, several fixed bridges will be replaced as well as upgrades to the East Norwalk Railroad Station as part of the overall program

The installation of a Cab Signal System with Automatic Train Control on the twenty-seven (27) mile Waterbury Branch began in 2018. The Waterbury Branch line is approximately a 27-mile stretch of single line track from Milford to Waterbury. The branch line is currently manual signal block territory or “dark territory,” where only one train is allowed on the entire branch line at a time. Signalization of the branch line will install modern cab signal technology to “light the way” so multiple trains could safely occupy the branch line simultaneously, therefore resulting in increased train capacity and safer train operations. This project will allow for increased capacity and frequency of service on the Waterbury Line.

Maritime

The Department continues to operate the two Connecticut River ferries, the Rocky Hill/Glastonbury Ferry and the Chester/Hadlyme Ferry. Routine repairs to vessels continue and the replacement of the pilings/dolphin piles at both the Rocky Hill/Glastonbury Ferry and the Chester/Hadlyme Ferry are planned with design and construction for this work tentatively scheduled for 2019/2020.

Highway and Bridge Capital Program

Highway and Bridge

The Capital Construction Program's emphasis is toward preservation of the Department's multimodal assets. The financial summary page of the *FFY 2019–2023 Capital Plan* is presented as Figure A, and is a useful reference for this discussion. The full document, however, presents specific projects and activities and the funding planned for those activities over the next five (5) year period.

The Highway and Bridge Construction Program is always the largest modal component of the Capital Construction Program. As noted earlier in this report, Connecticut is heavily dependent on Federal funding for all modes. The 2019 Capital Construction Program funding plan includes a variety of types of projects, from small local bridges and intersection improvements to the continuation of major projects. The Department works to develop a mix of projects that address the transportation mobility and safety needs of the entire state. This also produces a program that can be designed and constructed by firms of various sizes and specialties.

A sizeable portion of the money available for the 2017 and 2018 Capital Construction Program was used on several major initiatives such as Phase 1 of the replacement of the railroad bridge over Atlantic Street in Stamford; rehabilitation of the I-84 and RT 8 interchange in Waterbury; ongoing construction of a segment of the Merritt Parkway Corridor Improvement Project between Fairfield and Westport; repairs to the southbound Gold Star Bridge in New London; painting and structural repairs to the Commodore Hull Bridge in Shelton; rehabilitation of eight bridges within the I-84 Viaduct and surrounding area in Hartford; and the ongoing construction of the new I-95 bridge over West River in West Haven.

Looking ahead towards 2019, major new initiatives planned for this next year include continued planning for the replacement of the I-84 Hartford Viaduct; repairs to the northbound Gold Star Bridge in New London; advancing the preliminary engineering for the reconfiguration of the I-91/I-691/Route 15 Interchange in Meriden; and advancing the preliminary engineering for the Route 7/15 Interchange. The Department will also continue to advance the implementation plan for congestion mitigation for I-95 between New Haven and New York, while advancing the corridor study for I-95 between New Haven and Rhode Island. Design will continue on the Traffic Signal Removal on Route 9 in Middletown; the last remaining segment of the Merritt Parkway Corridor Improvement Project in Norwalk; and, tunnel improvements to the Heroes Tunnel, located along Route 15 in Woodbridge and New Haven.

Construction will continue in 2019 on the Merritt Parkway corridor improvement project that runs from Fairfield to Westport; rehabilitation of the I-84/Route 8 Interchange in Waterbury; Phase 2 of the Atlantic Street railroad bridge project in Stamford; bridge rehabilitation work on the I-84 Hartford Viaduct in Hartford. Construction will begin on the reconstruction of I-91 in the vicinity of the Charter Oak Bridge, to include reconfiguring the ramps on and off the Charter Oak Bridge; I-91 Resurfacing, Bridge, and Safety Improvements in Wethersfield; Safety and Capacity Improvements on I-84 in West Hartford; Resurfacing, Bridge, and Safety Improvements on I-84 in Newtown; and other various Innovative Bridge Program Projects throughout the state.

The Department's projected outlook for construction commitments in 2019 through 2023 are the Tunnel Improvements to the Heroes Tunnel on Route 15 in Woodbridge/New Haven; I-95 Improvements from the New

York State Line to Exit 7 in Greenwich; Resurfacing and Median Replacement on Route 2 in East Hartford; and superstructure replacement of the Rochambeau Bridge on I-84 in Newtown.

A more detailed discussion can be found in the Department of Transportation section of the Digest of Administrative Reports to the Governor (<https://portal.ct.gov/DAS/Lists/Publications/Reports/Digest-of-Administrative-Reports>).

Complete Streets

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. Additionally, the Department is formulating a strategy for the implementation of the “Trail Maintenance” portion of the original *Let’s GO CT!* Multi-use Trail Implementation Plan.

Construction activities are complete on a 2.4 mile section of the ECG in Farmington, and nearing completion on an additional 3.8 miles of the ECG, including projects in Cheshire along the Farmington Canal Heritage Trail, in Manchester along the Air Line Trail, and in Bolton along the Hop River Trail. Three sections of the ECG were recently completed with two projects located in Cheshire, and one located in East Hartford. Construction continues to advance for ECG projects in Bloomfield and Windham.

Design activities are nearing completion on a section of the ECG in New Haven. Design activities are also underway all along various segments of the ECG located in Plainfield/Sterling, Southington, Columbia, and Pomfret/Putnam. Design has also commenced on sections of the trail on either side of the Putnam Bridge in Glastonbury and Wethersfield.

Conclusion

The Department continues to develop its Capital Program consistent with sound fiscal planning. The Federal component of the transportation Capital Program has been stable for many years, and fortunately we have had a new long term commitment for FFY 2017 through FFY 2020 during the Ramp-Up, with plans to maintain that funding level in 2021 and beyond. The State capital funding stream needs to stay strong and reliable as the Governor and legislature make infrastructure spending a priority for economic growth and job creation.

The Department of Transportation's goal is to optimize the capital funding for all of its transportation modes and to continuously improve its ability to deliver maximum infrastructure improvements for each dollar expended. The Department achieves this in the following ways:

- The Department obtains and uses all of the Federal funds allocated to the state.
- FHWA has awarded Connecticut tens of millions of dollars of funds other states could not obligate on schedule.
- The Department attempts to use all of the State funds appropriated to its use as soon as practical.
- The Department works with the Governor's Office, the Legislature and other State and Federal agencies to identify and/or create additional sources of funding.
- Advance Construction is used to advance major projects while managing financial risk and deploying a mixture of projects to meet the many needs of the state.
- The Department manages the Capital Program by managing its resources in a manner that optimizes output. At the same time, the Program creates a variety of jobs and economic benefits: engineering, legal, public safety, materials production and sale, etc.
- Continuously improving Project Delivery increases the Department's capacity to provide the state with higher quality transportation improvements that maximize the state's return on its investment.
- Enhancing transportation investment strategies through strategic planning and using an asset management approach to maintain our transportation infrastructure.

The Department will continue to balance the priorities for the Capital Program using a variety of criteria starting with an asset management approach to achieving a state of good repair. Beyond those financial demands, a significant portion of the Capital Program funding supports a few mega-projects, which can cost many hundreds of millions of dollars and last many years. These large investments can be critical to the state's economic vitality; however, they put a strain on the Capital Program. Therefore, the Department must plan carefully to make the most of its financial resources.

Let's GO CT! and the influx of capital associated with the 5 year Ramp-Up through 2020 has allowed the Department to begin to prepare for an expanded Capital Program and provides necessary funding for public transportation expansion to include the purchase of new rail cars and buses. However, the Department's ability to move beyond the planning and design stage to address our infrastructure and the needs of the travelling public beyond a state of good repair will continue to be limited without a financial plan to support the vision.

Figures

Figure A

Department of Transportation FFY 2019 - 2023 Capital Plan

| | FFY 2019 | FFY 2020 | FFY 2021 | FFY 2022 | FFY 2023 |
|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Highway and Bridge | | | | | |
| Available Funding: | | | | | |
| Federal Funding | \$ 670,437,541 | \$ 624,778,650 | \$ 606,218,749 | \$ 606,942,583 | \$ 606,218,749 |
| State Funding (other than Ramp Up) | \$ 849,203,343 | \$ 607,495,568 | \$ 980,796,301 | \$ 991,017,173 | \$ 1,006,378,573 |
| Ramp Up State Funding | \$ 476,646,315 | \$ 257,100,473 | \$ 110,485,411 | \$ 3,800,000 | \$ - |
| Total Funding | \$ 1,996,287,199 | \$ 1,489,374,691 | \$ 1,697,500,461 | \$ 1,601,759,756 | \$ 1,612,597,322 |
| Less Funding for Programs not in Capital Plan | \$ (249,579,755) | \$ (90,482,857) | \$ (90,482,857) | \$ (90,482,857) | \$ (90,482,857) |
| Less Anticipated Carryforward to next year | \$ (185,564,468) | \$ (151,475,639) | \$ (3,800,000) | \$ - | \$ - |
| Total Funding Anticipate Utilizing | \$ 1,561,142,976 | \$ 1,247,416,195 | \$ 1,603,217,604 | \$ 1,511,276,899 | \$ 1,522,114,465 |
| Programmed Amount (In Capital Plan) | \$ 1,561,142,976 | \$ 1,247,416,195 | \$ 1,603,217,604 | \$ 1,511,276,899 | \$ 1,522,114,465 |
| Public Transportation | | | | | |
| Available Funding: | | | | | |
| Federal Funding | \$ 434,678,812 | \$ 208,364,872 | \$ 213,055,484 | \$ 195,396,635 | \$ 195,396,635 |
| State Funding (other than Ramp Up) | \$ 537,190,419 | \$ 253,023,885 | \$ 240,000,000 | \$ 425,000,000 | \$ 602,000,000 |
| Ramp Up State Funding | \$ 600,100,000 | \$ 1,074,100,000 | \$ 306,600,000 | \$ - | \$ - |
| Total Funding | \$ 1,571,969,231 | \$ 1,535,488,757 | \$ 759,655,484 | \$ 620,396,635 | \$ 797,396,635 |
| Less Funding for Programs not in Capital Plan | \$ (3,156,708) | \$ (3,210,372) | \$ (3,245,833) | \$ (3,356,984) | \$ (3,376,984) |
| Less Anticipated Carryforward to next year | \$ (561,773,841) | \$ (324,258,849) | \$ - | \$ - | \$ - |
| Total Funding Anticipate Utilizing | \$ 1,007,038,682 | \$ 1,208,019,536 | \$ 756,409,651 | \$ 617,039,651 | \$ 794,019,651 |
| Programmed Amount (In Capital Plan) | \$ 1,007,038,682 | \$ 1,208,019,536 | \$ 756,409,651 | \$ 617,039,651 | \$ 794,019,651 |
| Facilities | | | | | |
| Available Funding: | | | | | |
| State Funding | \$ 88,946,679 | \$ 59,803,179 | \$ 21,073,179 | \$ 80,235,429 | \$ 24,731,929 |
| Less Anticipated Carryforward to next year | \$ (50,363,179) | \$ (5,873,179) | \$ (10,679) | \$ (10,679) | \$ (1,929) |
| Total Funding Anticipate Utilizing | \$ 38,583,500 | \$ 53,930,000 | \$ 21,062,500 | \$ 80,224,750 | \$ 24,730,000 |
| Programmed Amount (In Capital Plan) | \$ 38,583,500 | \$ 53,930,000 | \$ 21,062,500 | \$ 80,224,750 | \$ 24,730,000 |
| Total All Modes | | | | | |
| Available Funding: | | | | | |
| Federal Funding [1] | \$ 1,105,116,353 | \$ 833,143,522 | \$ 819,274,233 | \$ 802,339,218 | \$ 801,615,384 |
| State Funding (other than Ramp Up) [2] [3] | \$ 1,475,340,441 | \$ 920,322,632 | \$ 1,241,869,480 | \$ 1,496,252,602 | \$ 1,633,110,502 |
| Ramp Up State Funding [2] | \$ 1,076,746,315 | \$ 1,331,200,473 | \$ 417,085,411 | \$ 3,800,000 | \$ - |
| Total Funding | \$ 3,657,203,109 | \$ 3,084,666,627 | \$ 2,478,229,124 | \$ 2,302,391,820 | \$ 2,434,725,886 |
| Less Funding for Programs not in Capital Plan [4] | \$ (252,736,463) | \$ (93,693,229) | \$ (93,728,690) | \$ (93,839,841) | \$ (93,859,841) |
| Less Anticipated Carryforward to next year [5] | \$ (797,701,488) | \$ (481,607,667) | \$ (3,810,679) | \$ (10,679) | \$ (1,929) |
| Total Funding (Federal and State) Anticipate Utilizing | \$ 2,606,765,158 | \$ 2,509,365,731 | \$ 2,380,689,755 | \$ 2,208,541,300 | \$ 2,340,864,116 |
| Programmed Amount (In Capital Plan) | \$ 2,606,765,158 | \$ 2,509,365,731 | \$ 2,380,689,755 | \$ 2,208,541,300 | \$ 2,340,864,116 |

[1] Includes current year federal funding, earmarked funds, as well as prior year carryforwards and funds released from completed projects that are available for reobligation.

Earmark funds are included in the year in which they are anticipated to be obligated, as they are not available for general use.

Federal levels are based on planned increases under FAST Act.

[2] It is assumed that as the five-year ramp up ends in FFY 2020, the State's Regular Bond Program will increase by approximately \$700 million to reflect the transition to a "ramped-up" regular program.

[3] State funding amounts do not include Cost of Issuance, Aviations, Maritime, Town Aid Road or Highway and Bridge Renewal Equipment.

[4] Programming for Federal Transit Sec. 5305 MPO Planning funds and Sec. 5337 funds for Hartford is not included in the Capital Plan.

Programming for National Highway Traffic Safety Administration (NHTSA) funding is not included in the Capital Plan.

Programming for LOTCIP and Local Bridge programs is not included in the Capital Plan as they are administered as grant programs.

[5] Carryforward funds do not include earmarked funding as they are not available for general use.

State Carryforward includes authorized but unallocated funds as well as allocated but unallotted funds.

Figure B

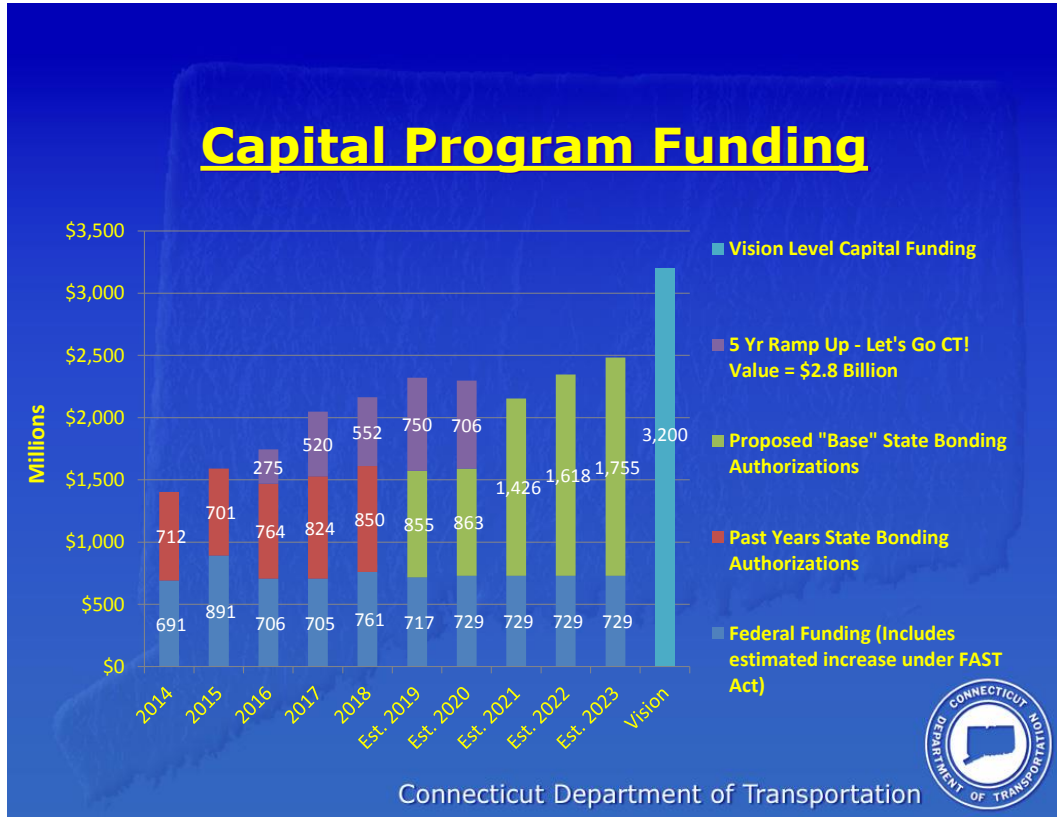


Figure C

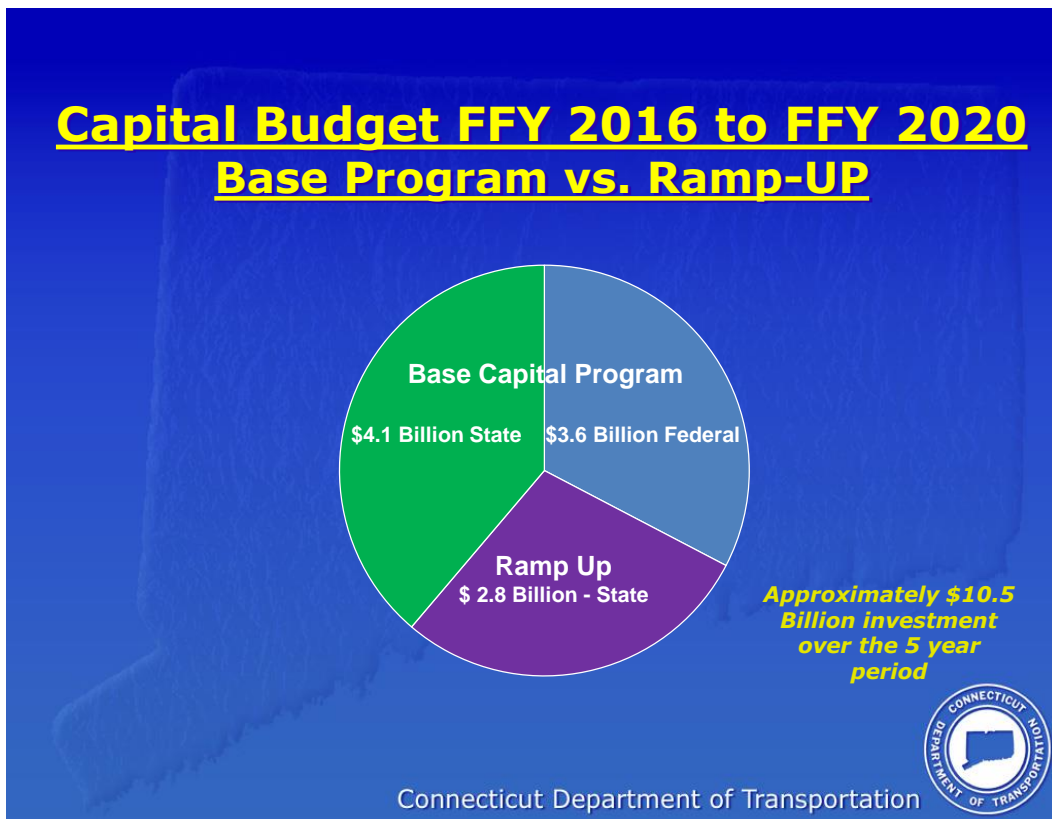


Figure D

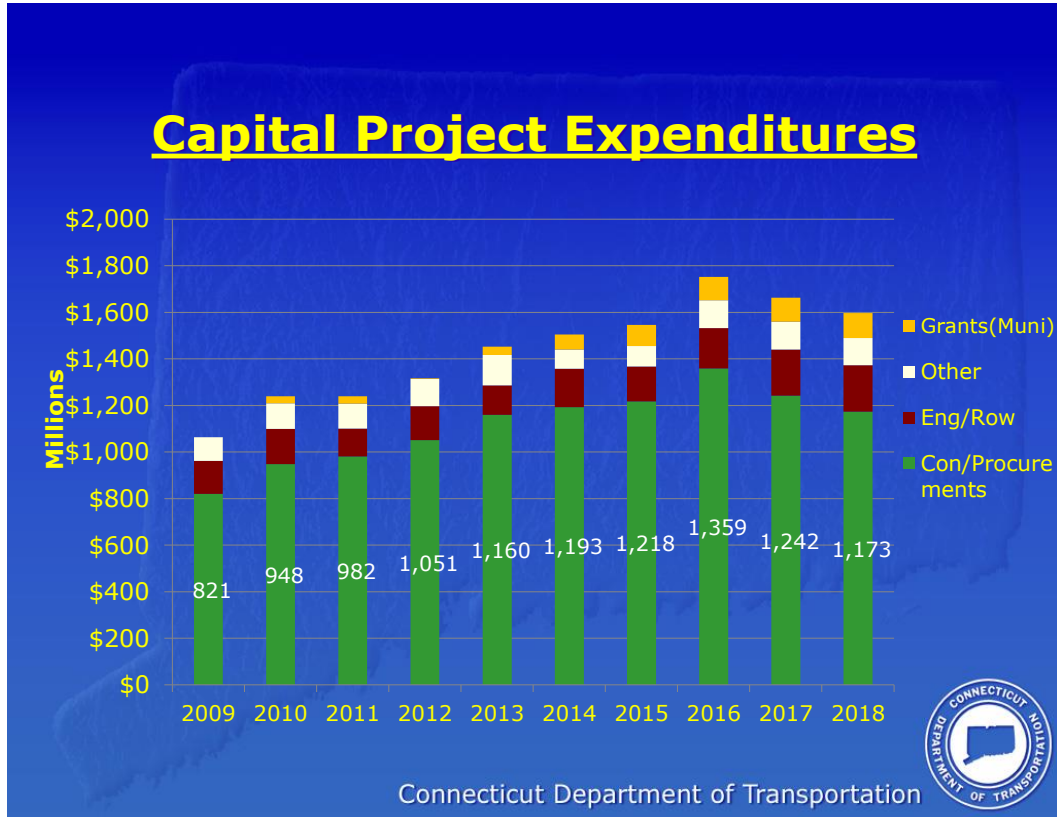


Figure E

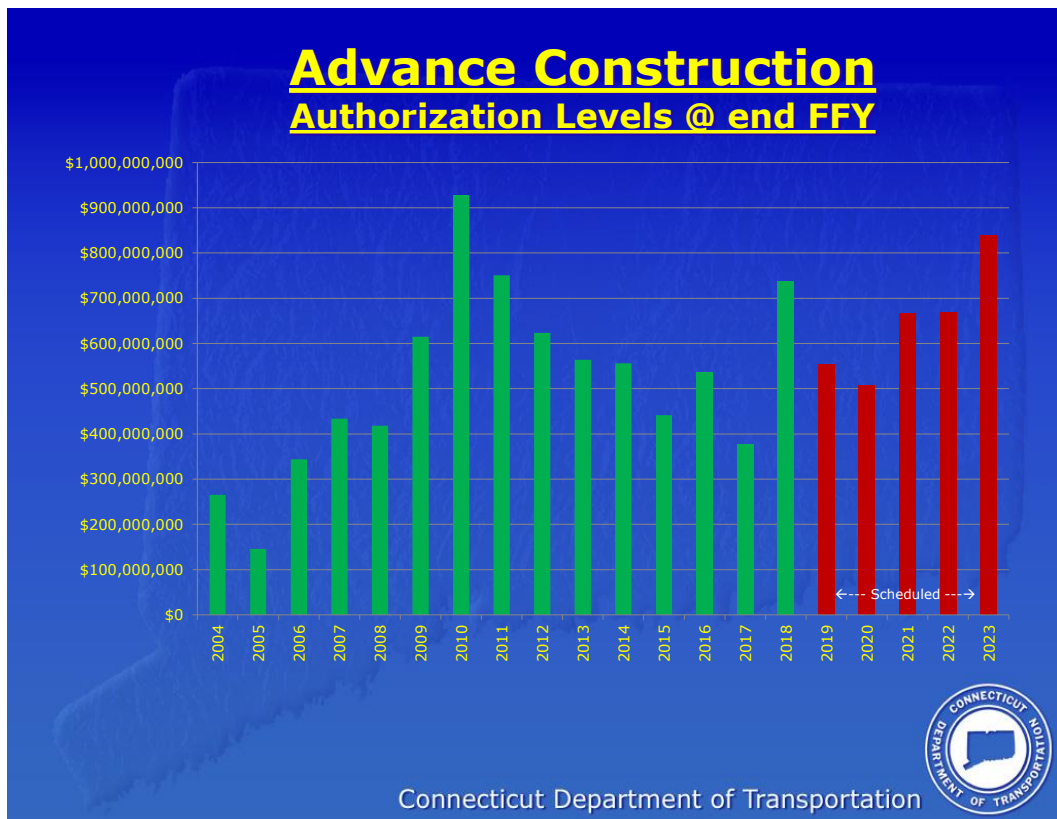


Figure F

