

Optimizing the State of Connecticut
Transportation Capital Infrastructure Program
December 2015
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Introduction

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, the Department gathers and spends 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 specific purpose of this report is to inform the Department's stakeholders about the past 2015 Capital Infrastructure Program and to outline the plan for 2016 and beyond. The report includes historical achievements, trends, major issues and the Department's plans to increase its production of critical transportation projects. This document is intended to supplement the project and funding information that is provided in the forward-looking *FFY 2016–2020 Capital Plan*. Figure A is the financial summary page from the Plan and a useful reference throughout this document.

This past year has been a watershed time for transportation planning in Connecticut. Governor Dannel P. Malloy, with the support of the Department rolled out a vision for a best-in-class transportation investment program. The Vision, called Let's Go CT!, is multimodal and far-reaching. The Governor and legislative leaders progressed the Vision by passing a 5 Year funding legislation to "Ramp Up" transportation investment toward that future visionary level. Total, newly available, capital funding over the next 5 years is estimated to be approximately \$10 billion; \$3.8 billion state bonding, \$3.2 billion federal funding, and now \$2.8 billion in additional state bonded "Ramp Up" funding (Figures B and C).

Also, there is a brand new federal transportation funding bill which was legislated in November called Fixing America's Surface Transportation (FAST) Act. At this time it is unclear exactly how the new funding is allocated, so this report and the *FFY 2016–2020 Capital Plan* do **not** include the new increases. The Plan assumes 5 years of 2015 level funding.

In the recently concluded Federal Fiscal Year (FFY) 2015, the Department committed approximately \$ 1.3 billion for all transportation modes – road and bridge, railroad and bus and other public transit - in the Capital Program in 2015. This included \$400 million for bus and rail assets and \$900 million for highway and bridge infrastructure. There was also roughly \$19 million committed to the Maritime Capital Program and \$31 million for Facilities Program.

The Department anticipates the availability of approximately \$2.3 billion in the total Capital Program funding in federal fiscal year 2016 for all transportation modes which include the new 5 Year Ramp Up funding program. This amount includes approximately \$1 billion for bus and rail assets and \$1.2 billion available for highway and bridge infrastructure. The Department anticipates about \$38 million in Maritime funding and \$22 million in support of the Facilities

Program. As noted above, the federal portion of these figures is expected to increase by some small percentage based on the new federal act.

The Department will not spend all currently available capital funds in 2016. It is a common occurrence in funding cycles that available funding is intended for use on specific projects or work not yet ready for purchase or construction the year that it is made available. That is true for 2016. As a result, roughly \$89 million is expected to carry over to the next fiscal year cycle (See Figure A). Further details regarding planned expenditures in 2016 follow in the Capital Construction Program discussion.

Role of Federal Funds

The Department's Capital Program is heavily dependent on federal funding. These federal transportation funds flow through the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA) and the National Highway Traffic Safety Administration (NHTSA).

Historically, federal monies have accounted for well over 50% of the Department's capital program. More recently, the state-federal ratio has flipped with substantial State bond funding for the Fix it First Highway and Bridge Programs and the newer Local Transportation Capital Improvement Program (LOTICIP). Now, with additional state bond monies in the 5 Year Ramp Up legislation, the state participation will account for roughly two-thirds of the total Capital Program funding (note Figure C). This increased investment level is improving our transportation infrastructure and 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. Though in recent years, the state has significantly increased its investment levels for all transportation modes, a long term dependable federal program is imperative in our efforts to plan capital transportation investments.

Congress recently passed a five-year, \$305 billion bill, called the FAST Act, which authorizes federal surface transportation programs through fiscal year 2020. The FAST Act provides states with predictable formula funding for five years, and provides an average annual growth of 2.9% in the overall funding levels. Having a multi-year federal authorization in place will allow the State to better plan and manage its capital resources.

The FAST Act reforms federal surface transportation programs, refocuses those programs on addressing national priorities, and encourages innovation to make the surface transportation system safer and more efficient. It establishes a new formula program for highway freight projects and emphasizes the need to address large-scale projects of national or regional significance by establishing a new competitive grant program called the Nationally Significant Freight and Highway Projects (NSFHP) program.

The FAST Act increases flexibility for states by converting the Surface Transportation Program (STP) to a block grant program and rolling the Transportation Alternatives Program (TAP) into STP. The FAST Act also streamlines the environmental review and permitting process to accelerate project approvals.

On the public transportation side, the FAST Act reauthorizes the programs of the FTA through FFY 2020 and includes a number of reforms to improve mobility, streamline capital project construction and acquisition, and increase the safety of public transportation systems across the country.

While Connecticut expects to receive an increase in federal funding under the FAST Act, actual state authorizations by program were not yet available at the time this report was compiled. This five-year Capital Plan is based on the FFY 2015 level of federal funding. As additional information is made available by the federal government regarding Connecticut's authorizations by program, and how any policy changes will affect use of the funding, the capital program will be adjusted accordingly.

Federal transportation legislation requires the development of a formal Asset Management Program for pavements and bridges and for public transportation assets. This is a systematic evaluation of the age and condition of all assets that will be used in setting capital program priorities. Department staff is actively engaged in the development of its program along with a related set of performance measures. The Department has used certain aspects of the Asset Management Program, including performance metrics, for a number of years. However, the expanded federal requirement is intended to provide a more detailed and objective basis for Capital Program development. The Transportation Asset Management Plan will be finalized and implementation will begin in late 2016.

Much of the data presented in this report is based on the FFY cycle (October 1 – September 30) rather than the Calendar Year or the State Fiscal Year (SFY) because of the major role the federal funds play.

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 CT*fastrak*. However, such funding is not expected to be a significant source of future federal aid.

Mode specific accomplishments and plans for the future

Bureau of Public Transportation

The Connecticut Department of Transportation provides bus and rail public transportation services through contracts with numerous operators, including private management firms, transit districts, private bus operators, and railroads. It also directly operates two Connecticut River ferry services. The Department supplies all or most of the capital assets (rolling stock, maintenance facilities, etc.) required to operate these various services and provides statewide oversight of public transit funding for urban, small urban and rural transit providers.

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 CT*fastrak* to East Hartford and Manchester. These improvements are part of a broader strategy to build a flexible and integrated multimodal transportation system, one that will help businesses thrive and improve the quality of life for residents and visitors alike.

In addition to investing and prioritizing use of state funds, the Department also leverages federal funding from the FRA and the FTA. While developing its projects, the Department ensures its capital funds are prioritized with the following goals in mind.

- Ensure public transportation system safety
- Maintain the existing transportation infrastructure
- Increase the productivity of the transportation system
- Promote economic development
- Provide necessary capacity improvements
- Spend all federal and state funds effectively

Public transportation customers directly benefit from much of the Department transit capital investment in assets, such as new stations, parking and trains and buses. Other projects may not be as visible to the riding public, but are just as important: bus and train storage and maintenance facilities, technology, and infrastructure replacements and repairs in assets, such as track, bridges, signal and communication systems as well as safety and security improvements.

Bus Capital Program

The Bus Capital Program supports transit services around the state including state-owned CT*transit* 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.

CT*fastrak*

On March 28, 2015, the Department launched CT*fastrak*, a Bus Rapid Transit service that features a bus-only roadway linking downtown New Britain and downtown Hartford. CT*fastrak* also

provides quicker one-seat ride service between the southwest suburbs of Hartford as far west as Waterbury and Bristol and downtown Hartford. In its first eight months of service, the system registered more than 1,500,000 boardings by people who used the service to reach work, healthcare, education and entertainment destinations. The new services have reduced bus travel times in the corridor and stations have provided a catalyst for economic development, now beginning to take shape.

Statewide Bus Communications System

The Department has nearly completed an upgrade to the communications infrastructure to improve operations and the customer experience. In collaboration with the Department of Emergency Services and Public Protection, the Statewide Bus Communications System fully modernizes the communications backbone that links *CTtransit* bus operators and dispatchers. Over the next year, the Department will add more enhancements to the system to provide real-time bus location information for customers and dispatchers alike. These upgrades are expected to improve the quality of bus service and improve customer satisfaction.

System-wide Fare Collection

The System-wide Fare Collection project for *CTtransit* and the *CTfastrak* service was awarded in November 2014. The procurement of up to 600 new fare-boxes, ticket vending machines and related equipment will offer a wide array of customer service improvements. This new technology will increase payment options. The options ultimately will include payment with smart phones and smart cards, making it easier and faster for customers to use the Department's bus services.

Other Projects

Construction of the new *CTtransit* bus maintenance and storage facility for the Waterbury area is underway. Construction commenced in the spring of 2015 and is on schedule to be completed in the summer of 2017. The facility will accommodate the storage and maintenance of a mixed fleet of 40 buses and 39 smaller vehicles.

Greater Hartford Transit District (GHTD), under contract to the Department, provides ADA paratransit service in the Greater Hartford/Capitol Region and the New Britain/Bristol area. A new facility is under construction in Hartford for the operations and maintenance of the paratransit system. The new facility will provide sufficient office space to accommodate the operational activities. The maintenance area will provide maintenance bays along with a mechanic's area, a wash bay, maintenance storage area, maintenance manager's office and locker rooms. The location will also include sufficient vehicle storage for approximately 150 vehicles as well as employee/visitor parking.

New projects being planned or implemented this year as part of the Let's Go CT! Ramp Up include:

- A study to design service improvements for extending CT*fastrak* service east of Hartford into East Hartford, Manchester and beyond, including longer-term capital improvements that would enhance service effectiveness and ridership potential;
- A study of a potential CT*fastrak* service in Fairfield County including capital improvements that would create travel time savings for buses, and better amenities for customers;
- A statewide bus study to plan for 25% growth in bus service statewide, and the capital costs involved in achieving that goal, including rolling stock, maintenance facilities, and customer amenities;
- Replicate the Intelligent Transportation Systems (ITS) program that has been so successful for CT*fastrak* and extend it to the entire CT*transit* fleet statewide by the end of 2016. This system enables vehicle location, real-time bus arrival prediction, variable message signage at stops/stations, on-board automated bus announcements, etc.
- Examine potential benefits costs of coordination of communications, marketing, and scheduling for transit and paratransit, and the related investments needed to achieve that goal.

Rail Capital Program

The Rail Capital Program includes capital projects necessary to support two commuter railroads, the New Haven Line (NHL) and Shore Line East (SLE). 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. These investments support future Hartford Line service and the 2x2 Plan for the New Haven Line, which will provide dedicated local and express tracks.

New Haven Rail Yard

The Department is expanding and improving the New Haven Rail Yard (NHRY) which provides storage, dispatching, inspection, maintenance, and cleaning for the Department's rail fleet. This program consists of several projects that will transform the complex into a state-of-the-art facility. These projects are part of a larger investment program to improve the quality, reliability and capacity of train service in the state. New Haven Rail Yard projects underway include:

Projects in Construction:

- Component Change Out (CCO) Building
- Central Distribution Warehouse
- Maintenance of Way Facility
- Yard Power Upgrade

Projects in Design:

- Pedestrian Bridge North
- Pedestrian Bridge South
- East End Connector

Component Change Out (CCO) Building

The Department is nearing completion of the new Component Change Out (CCO) Building which will provide state of the art facilities to maintain new M8 rail cars, the workhorse of the rail fleet. The CCO features hydraulic lifts to replace wheel sets, overhead cranes to replace air-conditioning units mounted on top of the rail vehicles and a new parts management system that will automate parts distribution and inventory control. The facility when it opens in 2016 will be operated and maintained by Metro-North Railroad under contract to the State of Connecticut.

Catenary Upgrades

The Department is replacing the overhead wire or catenary system that supplies power to the New Haven Line's electric trains. The new "constant tension" system is more reliable and allows trains to take advantage of the maximum speeds on the Line. The Catenary Project is divided into sections in order to run train service while making a full overhead wire replacement. Four sections have been completed. The final phase of construction for the remaining sections is underway with an estimated completion of 2017. This will complete the entire catenary replacement from the New York State line to New Haven.

Positive Train Control

The Railroad Safety Improvement Act of 2008 (RSIA) has mandated the installation of Positive Train Control (PTC) systems on all commuter and intercity rail lines. The system is designed to monitor train activity, prevent collisions, and convey and enforce speed restrictions. This project is well underway with a total estimated cost of \$160 million.

Signal Upgrade

It has been more than 35 years since the NEC/NHL communication and signal system was replaced. Phase one of this project has begun for the replacement of the New Haven Line Signal System along the mainline. The project includes modifying the signal block lengths to increase train capacity between interlocking's and to increase speed where possible. The project is divided into four (4) segments and the construction of Segment 1 (CP 229 (Greenwich) to CP 241 (Norwalk)) has begun.

Locomotive Overhaul

The Department is expected to complete procurement for the overhaul of 14 diesel locomotives in the next year. These rehabilitated locomotives will improve rail service for SLE and NHL Branch Line customers.

Walk Bridge

Built in 1896, the Walk Bridge is the oldest movable bridge along the New Haven Line and Northeast Corridor in Connecticut. The bridge will be replaced with a more resilient “bascule” or vertical lift bridge that opens for marine traffic from one side with a counterweight system. It will strengthen commuter safety, enhance commuting reliability and increase operational efficiency along the corridor. The New Haven Line, which is America’s busiest commuter rail service, serves approximately 125,000 passengers daily and is projected to double its ridership by 2065. This \$568 million project will significantly enhance the reliability of commuter and intercity passenger service along the Northeast Corridor. As a result of a competitive grant opportunity under the Hurricane Sandy Resiliency Program, the Department was awarded approximately \$161 million in federal emergency relief funding for the design and replacement of the New Haven Line’s Walk Railroad Bridge in Norwalk.

It is anticipated that the construction of the replacement of the Walk Bridge on Metro-North Railroad’s New Haven Line will require the establishment of a two-track outage to accommodate a significant portion of the construction work. This two-track outage results in several operating challenges that must be overcome, including Express-Local train overtakes, limited headways between trains and possible schedule changes and train cancellations. In order to accommodate this operational challenge, the Department has included additional elements into the program. The construction of a universal interlocking at CP 243 (\$60 Million) and the improvements at Danbury Dock Yard (\$34 million funded from Ramp Up) have been incorporated into the program.

The Department has recently completed shorter term repairs to the bridge including upgrades to the drive system to open and close the movable pieces of rail that lock the bridge into place; electronic switches; repairs to rollers and rods in the center pier on which the bridge pivots; and readjustment of the gear and shaft system to properly align wedges at either end of the movable span that lock it into place.

Transit Oriented Development

Transit-Oriented Development (TOD) is the Department’s newest tool for leveraging transportation improvements to generate economic development and in turn expand system ridership. These projects will introduce new residential and commercial development and add commuter parking capacity near rail stations.

There are a number of projects in development at stations along the New Haven Line as well as the Hartford Line, now under construction. These stations include:

- Stamford Station
- Barnum Station (future station)
- Orange Station (future station)
- New Haven Union Station
- Meriden Station (future station)
- Newington Station (CT*fastrak*)

Hartford Line

The Hartford Line Program is underway. This \$570 million project will allow an increase in top train speeds from current speeds of 80 mph to 110 mph, and increase rail service to 17 round trips per day. It requires a substantial rebuilding of the rail bed including new culverts and bridges to support an additional railroad track. The Department secured funding from the federal High-Speed Intercity Rail Program and has earmarked funds from the Let's Go CT! program to complete the work.

New projects being planned or implemented this year as part of the Let's Go CT! Ramp Up include:

- **NHL- New Danbury Branch Dock Yard**
New Danbury Branch Dock Yard project will extend the limits of electrified track to the "Dock Yard" located just north of the junction of the Danbury Branch and the New Haven Mainline at CP400 in South Norwalk. This will improve the operation of the Danbury Branch by moving the current turning operations off the Danbury main, and provide a location to turn trains which will be needed during the construction of the WALK Bridge. Moving turning operations off of the main line has the added benefit of freeing up capacity along the mainline through the South Norwalk Station.
- **New SLE Station in Niantic**
Funding to complete a feasibility and environmental study to determine whether a new Shoreline East rail station is needed in Niantic.
- **Rail Fleet**
Overhaul of four (4) P40 Locomotives. The Department will advertise, bid, and award a Contract for the overhaul of these P40 Genesis type locomotives.

Maritime

The Maritime Office operates the two Connecticut River ferries as well as the State Pier in New London, as well as related capital improvements.

In 2015, a major hull plating replacement project was completed on the Chester-Hadlyme Ferry (SELDEN III).

With respect to port improvements, the capital budget in SFY 2015 provided \$25 million for dredging and navigational direction (channel markers, tide indicators, etc.). A majority of the port infrastructure improvements are focused on maintenance dredging, most recently at Wethersfield Cove and Norwalk harbors. The State Pier Facility improvement project is also progressing through design.

Future Maritime project responsibilities, with the exception of those associated with the Connecticut River ferries, are expected to transition to the new Connecticut Port Authority in 2016.

Highways and Bridges

In developing the 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:

- Safety
- System Preservation
- Mobility Enhancements
- Congestion Relief
- Criticality
- Urban, Rural, etc.

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."

In 2015 the Department started the reconstruction of I-84 east of Waterbury. This \$350 million project will be in construction for at least the next 4 years. This past year the Department also continued other major construction initiatives such as the replacement of the Q Bridge (I-95 New Haven), replacement of the Moses Wheeler Bridge (I-95 Stratford), the I-95 bridge over West River in West Haven, rehabilitation of the Merritt Parkway in Stamford, and operational improvements on I-95 in Norwalk.

The Department also progressed the planning and engineering required to replace the I-84 Hartford Viaduct in the future. The current cost estimate is approximately \$4 to \$5 billion, depending on the alternative selected. Other major initiatives now on the horizon because of Ramp Up funding include reconstruction and expansion of the I-84 corridor in Danbury; replacing the Route 8 and I-84 interchange in Waterbury; modifications to the I-91 connection to I-84 at the Charter Oak Bridge in Hartford and I-91 through Meriden. The I-95 corridor in eastern and western Connecticut also warrants upgrades and Route 11 remains a potential future major construction initiative.

Historically, the Department's highway maintenance facilities have not been included in the formal Capital Program. However, the Department does consider these investments critical to its mission. The Department formulates and funds vehicle and facility programs and projects to ensure that the staff and equipment required to maintaining the state's roads and bridges are properly housed and supported. This year, this important element of the program is included in the overall summary of the Capital Plan and in 2016 we anticipate the availability of \$22 million for this program.

Bicycle, Pedestrian and Related Transportation Modes

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.

Connecticut’s transportation network prior to the 1950’s was largely walk-able. However, late 20th century development mainly focused on the automobile. The Department is committed to providing the balance of modes that Connecticut’s citizens and economy require. The Department will enhance modal choice through design, construction and maintenance to better serve constituents’ travel needs. This concept of serving all transportation modes in an integrated manner is called “Complete Streets.”

Connecticut law requires a comprehensive Complete Streets approach to the planning, design, construction and operation of public roads. Also, the law 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; typically, 1.5-5% of the program is used to create walkways, bikeways, and various associated amenities.

One of the largest initiatives in 2013 and 2014 was the pedestrian path on the Putnam Bridge. Planning for the extensive connections required at both ends in Wethersfield and Glastonbury is underway. This will be a significant new enhancement to the pedestrian/bicycle network. In 2015 the Department started construction of a major missing bikeway link in Manchester.

Two new programs have been created under the Ramp Up funding specifically for pedestrian and bicycle facilities which will allow expansion of our construction program. The Department also has assumed responsibility for completion of major bike and pedestrian trail corridors, such as the Farmington Canal Heritage Greenway. Projects are underway to complete existing gaps in the corridor. The Department is also conducting a feasibility study for a multi-use trail along the entire length of the Merritt Parkway, from the New York State Line in Greenwich to the Housatonic River in Stratford.

The Capital Construction Program

This section addresses the Department's substantial Capital Construction Program, including the Department's efforts to improve project selection and project delivery. Note: the Capital **Construction** Program is a subset of the overall capital funding program; therefore, some of the figures in this section will differ from those presented earlier in the report.

The Capital Construction Program is multimodal, but highway and bridge construction constitutes 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. This discussion is intended to present the Department's competitively bid construction program carried out by the state's construction industry.

For starters, 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. A formal Asset Management/Performance Management Program, currently under development, will assist in the decision making process for project selection going forward.

The Let's Go CT! vision and more specifically the newly legislated 5 year Ramp Up toward that vision is beginning to change the dialogue on this matter significantly. Maintaining a State of Good Repair of our current assets should always demand priority attention and funding. However, the new Ramp Up funding program and the potential to expand annual investment levels beyond the lofty Ramp Up levels, has this agency planning for a very aggressive multi-faceted, multi modal, system enhancement consistent with the needs of our populous (Figure B). Depending on the breadth of new state capital funding levels, the future may include extensive capacity improvements on highway and transit systems. The magnitude of these capital projects would dwarf historical investment levels.

Until the Vision, and the finances to support it, is more clearly defined, 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 survival however; they put a strain on the Capital Program. Therefore, the Department must plan carefully to make the most of its financial resources.

One way the Department manages the financial commitment of larger projects is through the prudent application of the federal Advanced Construction (AC) tool. The Department also strives to improve the efficiency of the development and construction of its projects, called "Project Delivery". Improving Project Delivery requires the Department to appropriately size its

staffing for the effort and to expand the revenue sources when possible. Project Delivery improvement also includes innovative construction techniques and a variety of process improvement tools.

Federal Funding and Advanced Construction

As noted earlier, U.S. Department of Transportation (USDOT) funds constitute a sizeable percentage of available capital construction funds. The FHWA for highways and bridges is by far the largest federal funding source. FHWA regulations require that the Department “obligate” or commit, all funds authorized for use in any given FFY in that year.

The Department has consistently obligated all of its available federal funding. This makes the Department eligible to ask for more. In fact, over the last five years, the Department received and obligated \$86 million in additional federal funds that came from other states or unused obligations and federal holdbacks. In Federal Fiscal Year 2015, the Department received and obligated \$28 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 that 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 amounts to borrowing 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. The AC mechanism was used aggressively in 2010 to progress work on the important I-95 New Haven Q Bridge Program without affecting funding for the rest of the construction program. The Department has since been able to move back from those higher levels of such “borrowing.” With the recent award of the \$350 million I-84 reconstruction in Waterbury, Department has placed another large commitment against future federal funding. Figure E shows the historical and planned levels of AC authorization. Note that the AC levels shown for future years reflect specific projects identified in the Capital Plan and therefore subject to significant change (i.e. additions) as larger projects which need phase financing are committed.

2015 Capital Construction Program

As noted in the Introduction, the Department committed approximately \$1.3 billion across all modes in the Capital Program in 2015. It included \$400 million for bus and rail assets, \$900 million for highway and bridge infrastructure and smaller amounts for facilities and maritime activities. The vast majority of these monies supported the Capital Construction Program specifically.

A sizeable portion of the money available for the 2015 Capital Construction Program was used to continue major initiatives such as the replacement of the Q Bridge (I-95 New Haven), the Moses Wheeler Bridge (I-95 Stratford), and the I-95 bridge over West River in West Haven. Also, in FFY 2015, the Department bid 97 new contracts. These contracts were estimated at roughly \$415 million in construction contract value and a \$515 million total construction phase budget. The total construction phase budget includes inspection and other support services, as well as a contingency budget. Some of the more significant individual new construction contracts include a new bus maintenance facility in Watertown with a budget in excess of \$90 million and the Department's first design build contract to replace bridges on Route 8 in Bridgeport with a budget in excess of \$40 million. Figure F presents the historical project production levels, as well as the contract value of the construction work produced each year. Also presented are the anticipated targets for the coming year.

Lastly, Figure G shows the Department's financial expenditures in the Capital Construction Program over time. The program has been expanding over the years, consistent with the increased transportation investment levels.

Planned 2016 Capital Construction Program and Project Selection

The Capital Construction Program will again emphasize preservation of the Department's multimodal assets. The financial summary page of the *FFY 2016–2020 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 five-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. For planning purposes, federal funding for 2016 and beyond is assumed to remain constant with prior years' amounts. The new FAST act provides additional federal funds, but the details have not been fully analyzed and incorporated into this publication.

The 2016 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 such as I-95 over West River and the I-84 widening in Waterbury. Major new initiatives planned for this next year include repairs to the south bound 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 start of the next phase of the Merritt Parkway rehabilitation program in the Westport area. 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.

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 is planned for

use in the construction phase. During the FFY 2016, the Department anticipates bidding 100 projects at roughly \$555 million in contract value. That equates to nearly \$675 million in total construction costs (including inspection services, etc.) the Department will deliver this year. The five year Capital Plan contains information on specific projects, as does the document, *Advertising Schedule of Projects* found on the Department's website:

<http://www.ct.gov/dot/cwp/view.asp?a=1399&q=260048>

Figure F indicates the anticipated project production levels for FFY 2016 noted above.

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 now have a new long term commitment for FFY 2016 through FFY 2020. The state capital funding stream is anticipated to stay strong and reliable as the Governor and legislature make infrastructure spending a priority for economic growth and job creation.

Improving Project Delivery

Delivery of completed projects on or before schedule, on or under budget and of the highest quality is the top priority of the Department. And, as noted above, improving project delivery is an important element of expanding the capacity of the Department's Capital Program. Every improvement in project delivery increases the Department's capacity for more projects (which equates to more jobs). The following are just some examples of the continuous improvement being implemented at the DOT.

- Lean DOT/DEEP Permitting Process
- Accelerated Bridge Construction
- Alternative Project Delivery
 - Design Build
 - Construction Manager at Risk
 - Construction Manager/General Contractor
- Local Transportation Capital Improvement Program (LOTICIP)
- Master Municipal Contracts
- 3-D Engineering modeling
- e Construction

The Department recognizes a need to improve effectiveness continuously and to expand its capacity to deliver an even larger Capital Program. Part of this expanded Program is development of 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.

Conclusion

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

Figures

Figure A

Department of Transportation FFY 2016 - 2020 Capital Plan

	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020
Highway and Bridge					
Available Funding:					
Federal Funding	\$ 582,146,751	\$ 582,141,081	\$ 564,999,441	\$ 553,550,938	\$ 547,914,847
Carryover Federal Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Total Federal Funding	\$ 582,146,751	\$ 582,141,081	\$ 564,999,441	\$ 553,550,938	\$ 547,914,847
State Funding					
Regular Program	\$ 395,873,224	\$ 295,987,664	\$ 327,192,800	\$ 285,892,780	\$ 317,392,601
Carryover Regular State Funding	\$ 156,221,641	\$ 56,004,009	\$ 40,584,822	\$ 19,705,440	\$ 20,668,801
Let's Go CT Ramp-up	\$ 78,510,000	\$ 80,890,000	\$ 397,110,000	\$ 274,290,000	\$ 164,000,000
Carryover Let's Go CT Ramp-up Funding	\$ -	\$ -	\$ 5,215,000	\$ -	\$ 147,090,000
Total State Funding	\$ 630,604,865	\$ 432,881,673	\$ 770,102,622	\$ 579,888,220	\$ 649,151,402
Total Funding	\$ 1,212,751,616	\$ 1,015,022,754	\$ 1,335,102,063	\$ 1,133,439,158	\$ 1,197,066,249
Programmed Amount	\$ 1,156,747,607	\$ 969,222,932	\$ 1,315,396,623	\$ 965,680,357	\$ 1,015,862,752
Year-end Carryover	\$ 56,004,009	\$ 45,799,822	\$ 19,705,440	\$ 167,758,801	\$ 181,203,497
Transit					
Available Funding:					
Federal Funding	\$ 159,272,301	\$ 143,954,061	\$ 149,254,061	\$ 149,254,061	\$ 149,254,061
Carryover Federal Funding	\$ 212,870,556	\$ 11,844,580	\$ -	\$ -	\$ -
Total Federal Funding	\$ 372,142,857	\$ 155,798,641	\$ 149,254,061	\$ 149,254,061	\$ 149,254,061
State Funding					
Regular Program	\$ 206,727,500	\$ 209,702,500	\$ 220,590,000	\$ 221,215,000	\$ 220,940,000
Carryover Regular State Funding	\$ 234,497,887	\$ 9,653,830	\$ -	\$ -	\$ -
Let's Go CT Ramp-up	\$ 205,650,000	\$ 430,000,000	\$ 220,100,000	\$ 410,000,000	\$ 542,000,000
Carryover Let's Go CT Ramp-up Funding	\$ -	\$ -	\$ -	\$ 4,500,000	\$ 4,500,000
Total State Funding	\$ 646,875,387	\$ 649,356,330	\$ 440,690,000	\$ 635,715,000	\$ 767,440,000
Total Funding	\$ 1,019,018,244	\$ 805,154,971	\$ 589,944,061	\$ 784,969,061	\$ 916,694,061
Programmed Amount	\$ 997,519,835	\$ 805,154,971	\$ 585,444,061	\$ 780,469,061	\$ 897,194,061
Year-end Carryover	\$ 21,498,410	\$ (1)	\$ 4,500,000	\$ 4,500,000	\$ 19,500,000
Maritime					
Available Funding:					
Federal Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Carryover Federal Funding	\$ -	\$ -	\$ -	\$ -	\$ -
Total Federal Funding	\$ -	\$ -	\$ -	\$ -	\$ -
State Funding					
Regular Program [1]	\$ 17,500,000	\$ 17,500,000	\$ 17,500,000	\$ 17,500,000	\$ 17,500,000
Carryover Regular State Funding [1]	\$ 20,146,223	\$ 11,846,223	\$ 12,619,470	\$ 23,119,470	\$ 27,619,470
Total State Funding	\$ 37,646,223	\$ 29,346,223	\$ 30,119,470	\$ 40,619,470	\$ 45,119,470
Total Funding	\$ 37,646,223	\$ 29,346,223	\$ 30,119,470	\$ 40,619,470	\$ 45,119,470
Programmed Amount	\$ 25,800,000	\$ 16,726,753	\$ 7,000,000	\$ 13,000,000	\$ 18,300,000
Year-end Carryover	\$ 11,846,223	\$ 12,619,470	\$ 23,119,470	\$ 27,619,470	\$ 26,819,470

Facilities

	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020
Available Funding:					
State Funding					
Regular Program	\$ 20,719,775	\$ 25,510,000	\$ 37,000,000	\$ 37,000,000	\$ 37,000,000
Carryover Regular State Funding	\$ 1,564,202	\$ -	\$ -	\$ -	\$ -
Total State Funding	\$ 22,283,977	\$ 25,510,000	\$ 37,000,000	\$ 37,000,000	\$ 37,000,000
Total Funding	\$ 22,283,977	\$ 25,510,000	\$ 37,000,000	\$ 37,000,000	\$ 37,000,000
Programmed Amount	\$ 22,283,977	\$ 25,510,000	\$ 37,000,000	\$ 37,000,000	\$ 37,000,000
Year-end Carryover	\$ -	\$ -	\$ -	\$ -	\$ -
Total All Modes					
Available Funding:					
Federal Funding	\$ 741,419,052	\$ 726,095,142	\$ 714,253,502	\$ 702,804,999	\$ 697,168,908
Carryover Federal Funding	\$ 212,870,556	\$ 11,844,580	\$ -	\$ -	\$ -
Total Federal Funding	\$ 954,289,608	\$ 737,939,722	\$ 714,253,502	\$ 702,804,999	\$ 697,168,908
State Funding					
Regular Program	\$ 640,820,499	\$ 548,700,164	\$ 602,282,800	\$ 561,607,780	\$ 592,832,601
Carryover Regular State Funding	\$ 412,429,953	\$ 77,504,062	\$ 53,204,292	\$ 42,824,910	\$ 48,288,271
Let's Go CT Ramp-up	\$ 284,160,000	\$ 510,890,000	\$ 617,210,000	\$ 684,290,000	\$ 706,000,000
Carryover Let's Go CT Ramp-up Funding	\$ -	\$ -	\$ 5,215,000	\$ 4,500,000	\$ 151,590,000
Total State Funding	\$ 1,337,410,452	\$ 1,137,094,226	\$ 1,277,912,092	\$ 1,293,222,690	\$ 1,498,710,872
Total Funding	\$ 2,291,700,060	\$ 1,875,033,948	\$ 1,992,165,594	\$ 1,996,027,689	\$ 2,195,879,780
Programmed Amount	\$ 2,202,351,419	\$ 1,816,614,656	\$ 1,944,840,684	\$ 1,796,149,418	\$ 1,968,356,813
Year-end Carryover [2]	\$ 89,348,642	\$ 58,419,292	\$ 47,324,910	\$ 199,878,271	\$ 227,522,967

NOTES:

As authorizations have not been issued yet under the recently passed FAST act, the Highways and Transit Federal funding amounts are shown at the FFY 2015 level. State funding levels are based on authorized SFY 2016 and SFY 2017 amounts.

It should be noted that this plan is presented on a Federal Fiscal Year (FFY) basis (October 1st through September 30th), but as state funds are received on a State Fiscal Year (SFY) basis (July 1st through June 30th), a portion of funds from one SFY might be used in the prior FFY. For example, during the July 1 - September 30, 2016 quarter, \$10 million of SFY 2017 bond funds might be utilized to fund projects that are part of the FFY 2016 capital plan.

Any funding not fully utilized in a year is carried forward into the next fiscal year for programming. This carry forward of funds is why funding appears greater in some years than others, although level federal and state funding is assumed. It should also be noted that while the carryforward funding being shown under Available Funding represents funds available to be programmed in that year, it would be duplicative to add the carryforward funds in with new funding when looking at total funding over multiple years, as the carryover funds were originally counted in a prior year.

Also of note is that while no additional federal earmarks are assumed, those previously authorized are included in the year in which the project is anticipated to commence. This sometimes causes the federal funding to fluctuate between years.

[1] PA 15-1 of the June Special Session authorized \$17.5 million to the Connecticut Port Authority for SFY 2017.

For purposes of this plan, level funding is assumed for FY's 2018-2020.

The Carryover Funding shown in FY 2016 includes \$18.4 million of funds that have been authorized, but not yet allocated by the Bond Commission.

[2] Of the Year-end Carryover, the following amounts represent Let's Go CT Ramp-up Funding:

	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020
	\$ -	\$ 5,215,000	\$ 4,500,000	\$ 151,590,000	\$ 179,390,000

Figure B

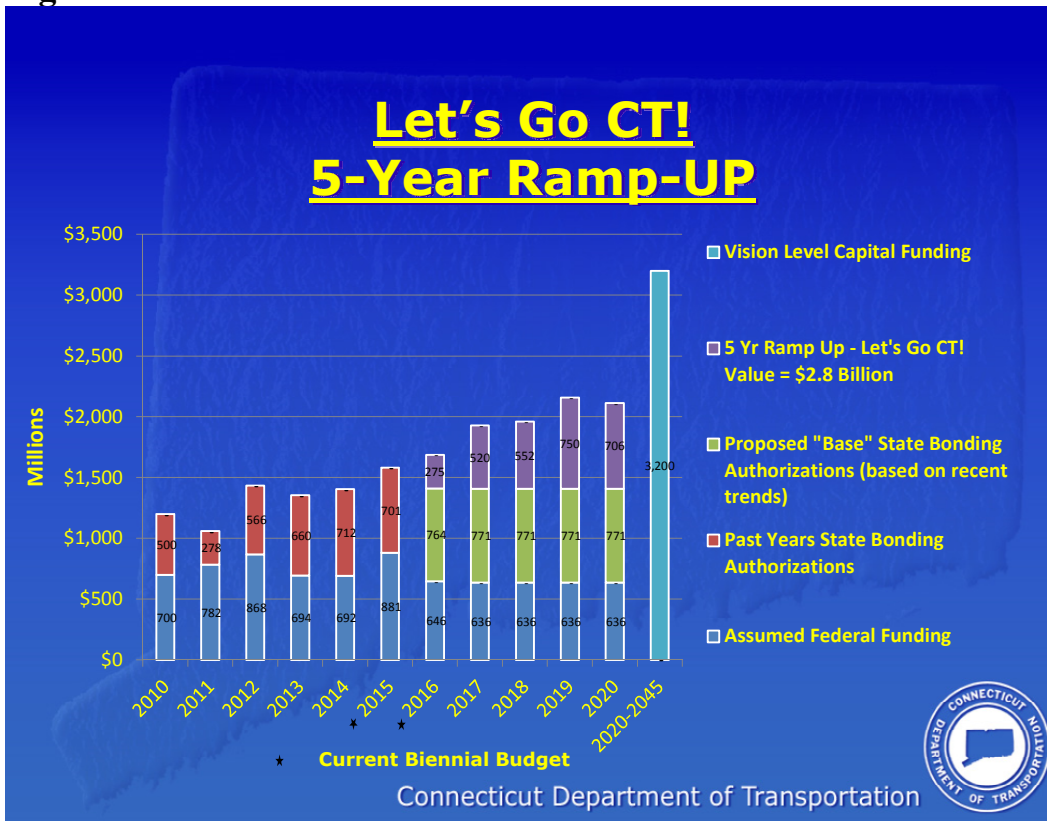


Figure C

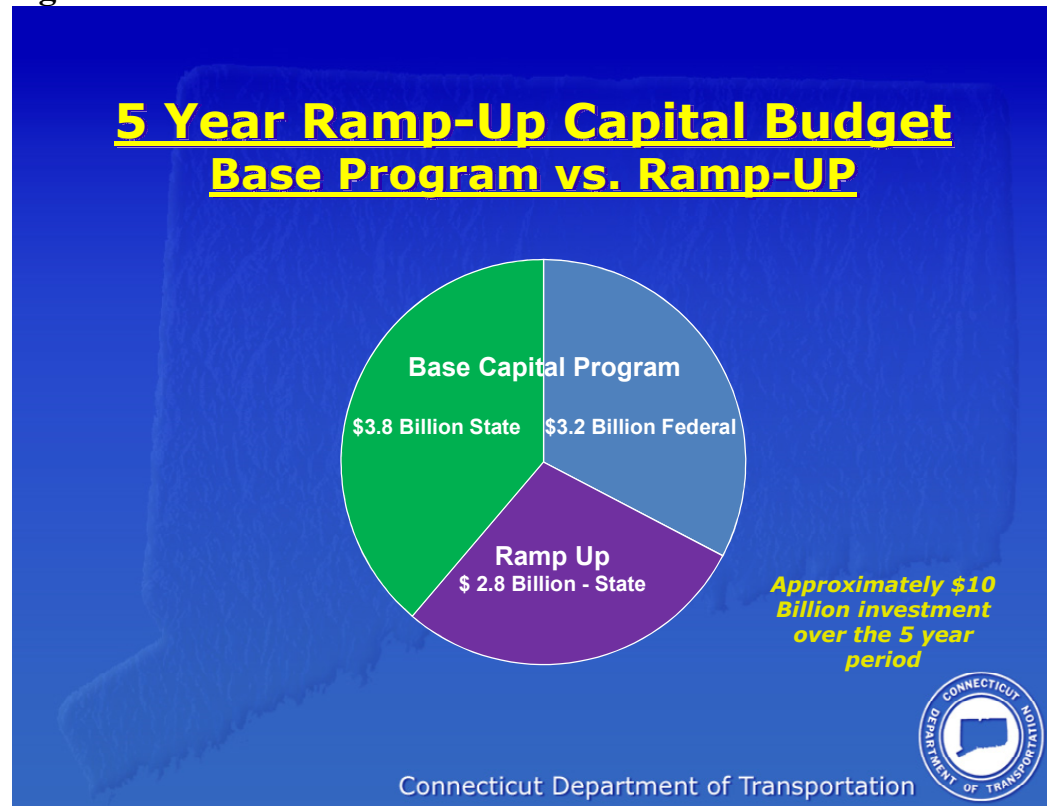


Figure D

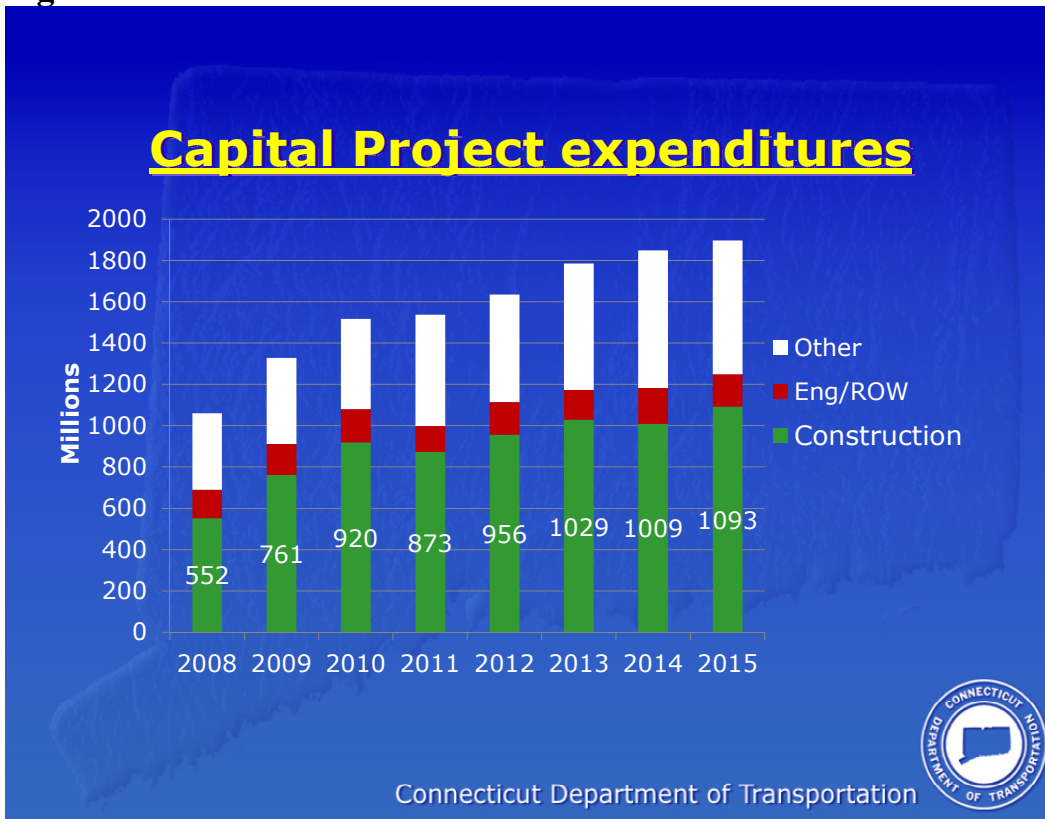


Figure E

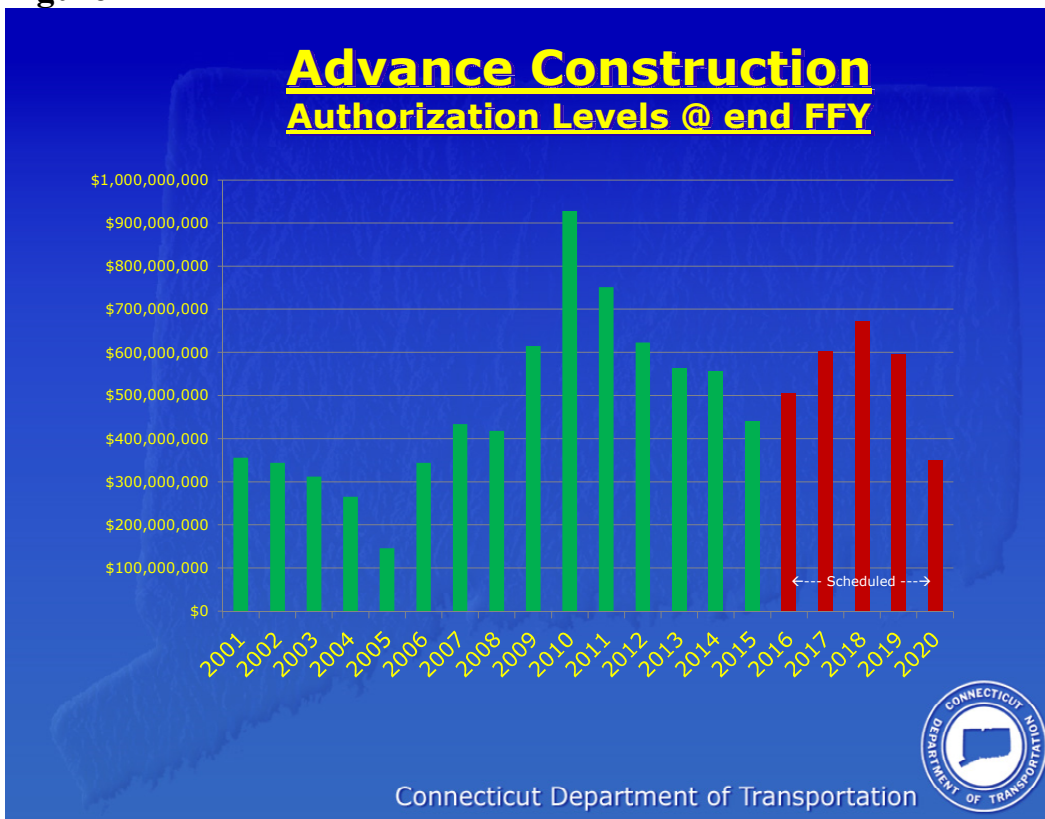


Figure F

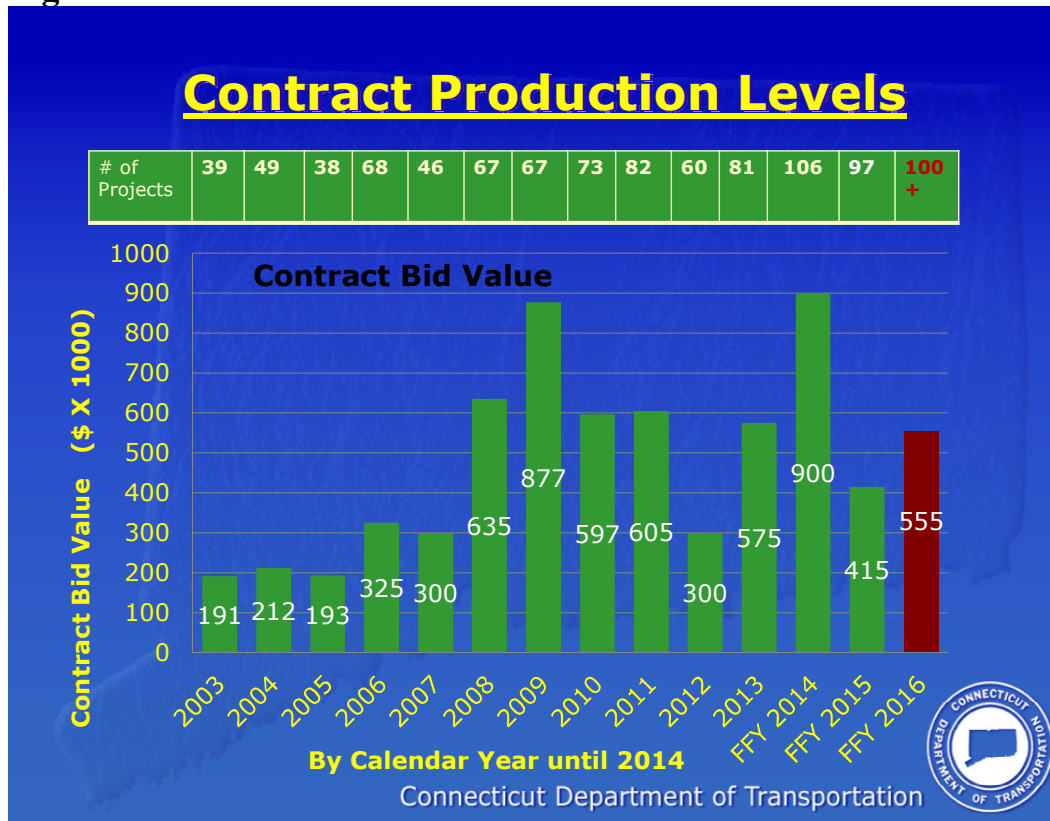


Figure G

