

Sustainability Performance Plan FY 2021

Department of Transportation

Prepared by Sue Donlon & Rob Bell
Senior Sustainability Officers

Approved by Joseph J. Giulietti
Commissioner

*This report was written in compliance with
section 5 of Executive Order 1.*



EO 1 Background

On April 24, 2019, Governor Lamont launched the GreenerGov CT initiative by signing Executive Order 1 (EO 1) which directs Executive Branch agencies to advance environmental leadership and cost savings for taxpayers by reducing greenhouse gas emissions and other sustainability objectives in energy use in buildings and vehicles, water use, and waste disposal.

EO 1 calls on agencies to recommit to and expand the state's Lead by Example (LBE) program to reduce the operating costs and environmental impacts of state government facilities and operations. EO 1 builds on the foundation of the state's LBE program by setting new sustainability goals, listed below, for Executive Branch agencies and invoking deeper levels of commitment and participation.

GHG

45% reduction in
GHG emissions
below 2001 levels

WATER

10% reduction in
water consumption
from a FY20 baseline

WASTE

25% reduction in
waste disposal from a
FY20 baseline

Since the GreenerGov CT initiative was launched, significant progress has been made towards laying the groundwork for expanded LBE initiatives in the future: governance structures were established, baseline data was collected, and financing and project strategies were developed. Additionally, agencies reported completing or making progress on 90+ sustainability projects in FY20 in the annual agency Sustainability Performance Plans. Sustainability Performance Plans are plans drafted each year by Senior Sustainability Officers to detail agency progress and necessary goals, actions, and responsible parties to achieve the targets set in EO 1.

In 2020 and 2021, agencies continued to navigate the COVID-19 pandemic. As many agencies returned to the office in 2021, the GreenerGov CT leadership encouraged agencies to use the return to the office from teleworking as an opportunity to refresh staff practices and to take on new sustainability initiatives. The FY21 Sustainability Performance Plan includes a summary of sustainability actions initiated as part of the "Returning to the Office Greener" call to action.

EO 1 Participation Overview

DOT's Mission

The mission of the Connecticut Department of Transportation 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.

FY21 Participation Overview

In FY2021, the CTDOT participated in all standing GreenerGov committees including the subcommittee working groups (Clean and Efficient Transportation, Materials Management, Energy Efficiency and Renewable Energy). The CTDOT also provided updates during the April 2021 GreenerGov full committee call on DOT's EV charging buildup and water reduction projects that the agency recently implemented.

Participating Agency Staff

Sue Donlon
Rob Bell
Fred Krauth
Jon Andrews
Jenn Reilly
Emily Pysh
Dave Elder
Elise Greenberg
Adam Fox
Rick Hanley
Craig Babowicz
Adam Boone
Kathy Germain

10+

Sustainability Projects

including projects relating to infrastructure improvements or behavioral change that took place in owned, leased, or occupied space and were either in progress or completed in FY21

Sustainability Projects

Project 1

What: Developed pollinator habitat at DOT Headquarters parking area. DOT also established 26 new Conservation Areas in highway right of ways for 2021. This brings the total state DOT Conservation Area coverage to around 180 acres.

Where: DOT Headquarters

Project type: Behavioral - Combination

Status: Completed in FY 2021

Benefits: Reduced required mowing thereby reducing GHG emissions from mowers. Added pollinator habitat which is an environmental benefit which cannot be calculated.

Savings: Greenhouse gas emissions have been reduced from less mowing, but this has not been quantified. Maintenance mow time was reduced saving man-hours and fuel for mowers.

Project 2

What: The construction and design of additional EV charging infrastructure at CTDOT Headquarters and District Offices. In total, 29 Level 2 chargers will be onsite, with over 54 outlets/ports available to EVs (30 of which will be available to staff and visitors) are slated to be completed in December of 2021. CTDOT is currently evaluating three additional DOT locations for EVSE infrastructure buildout, and our design team is in the process of doing more in-depth analysis of these locations.

Where: CT DOT Headquarters

Project type: Structural - GHG - Vehicle/fleet

Status: In progress in FY 2021

Benefits: The installation of these charging units will allow for the charging of employee, visitor and DOT fleet EVSEs. By encouraging employee charging and incorporating EVs into our motor pool, DOT hopes to spur the adoption of electric vehicles and exemplify our commitment to lead by example.

Project 3

What: Installation of touchless water fixtures at DOT Headquarters

Where: CT DOT Headquarters Newington

Project type: Structural - Waste

Status: Completed in FY 2021

Benefits: Installed touchless fixtures in DOT Headquarters restrooms and water bottle fill stations throughout the building. The auto-shut off feature reduces water use, and the water bottle fill stations reduce use of single-use water bottles. As an added feature to increase awareness of waste reduction the water bottle fill stations have a counter to show how many single-use bottles have been saved.

Savings: 900,000 gallons per year.

Sustainability Projects cont.

Project 4

What: Design and construction of roundabout projects throughout the state. 5 completed construction, 13 in design.

Where: CT Highway Roundabouts – statewide

Project type: Behavioral - GHG - Vehicle/fleet

Status: Completed in FY 2021

Benefits: Roundabouts are known to be a safe alternative to stop signs or traffic lights. They improve the flow of traffic, allowing for more efficient traffic, and reduce serious injuries and fatalities. They reduce vehicle idling thereby reducing emissions and fuel consumption.

Project 5

What: Completed construction on 12 Community Connectivity Projects in Bridgewater, Canton, Cheshire, East Hartford, Ellington, Essex, Glastonbury, Meriden, Old Saybrook, Simsbury, and Tolland.

Where: Throughout the State (12 locations)

Project type: Behavioral - Combination

Status: Completed in FY 2021

Benefits: Over three million dollars were invested in Community Connectivity projects to create urban trail sections, increase bicycle and pedestrian access, increase safety, and improve connections to public transit.

Project 6

What: CT Transit received their first Battery Electric Bus this year. Ten BEB charging stations were installed in the garage to accommodate future electric fleet expansion.

Where: CT Transit located in Hamden, CT

Project type: Structural - GHG - Vehicle/fleet

Status: Completed in FY 2021

Benefits: Each BEB purchased for the CT Transit fleet is expected to save on diesel fuel costs and emissions. The vehicle offers a quieter, comfortable ride, and has exceeded diesel bus performance in the areas of acceleration, top speed, hill climb, braking, steering, and maneuverability. CT DOT also received a Low-No federal grant for \$13 million toward the planned purchase and deployment of 10 BEBs (35' buses) and DC fast chargers in CT Transit's Waterbury Division. This procurement helps to advance one of the State's environmental goals to electrify at least 30% of its bus fleet by 2030. The project will be the first of its kind in the state to prepare an entire transit and paratransit depot fully for electrification.

Savings: For the Waterbury project- deploying the zero-emission buses in place of the existing vehicles will reduce CTDOT's annual greenhouse gas emissions by approximately 770 tons and prevent the release of 18.4 pounds (lbs.) of particulate matter under 10 micrometers (PM10) annually, 17.2 lbs. of which is fine particulate matter (PM2.5), which has a considerable health impact on the local community. This reduction in emissions of GHGs and particulates results in a social cost savings of \$40,500 annually, in accordance with Executive Order 13990.

Sustainability Projects cont.

Project 7

What: CT DOT was awarded a 2021 RAISE grant in the amount of \$12.6 million for the Derby-Shelton Multimodal Transportation Center. A portion of the grant will fund light duty Electric Vehicle charging stations at the station, and an additional overhead charger for Battery Electric Buses who frequent the station.

Where: Derby-Shelton Multimodal Transportation Center

Project type: Structural - GHG - Vehicle/fleet

Status: In progress in FY 2021

Benefits: The successful implementation of this grant-funded project will allow for charging of Battery Electric Buses and light duty vehicles at this station, increasing the range and EV charging network within the state.

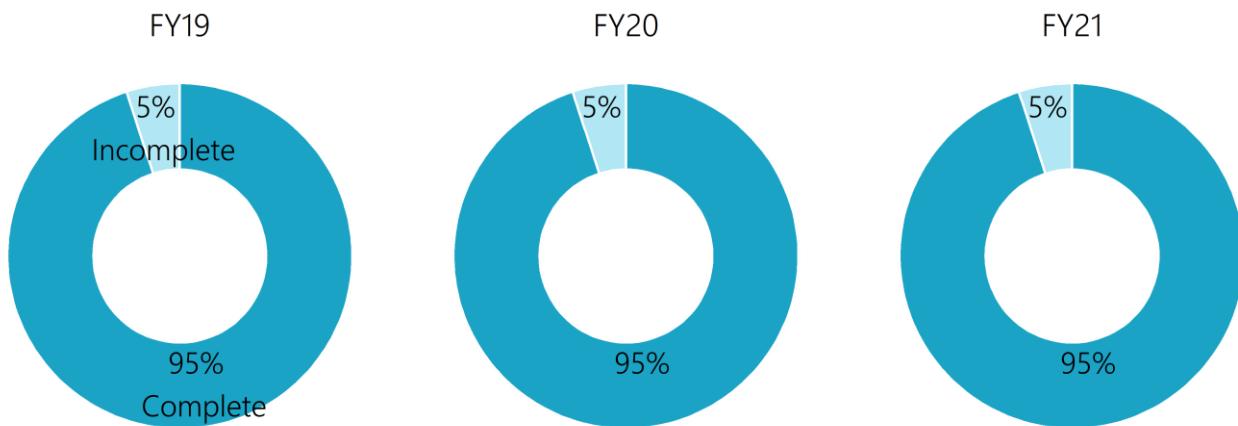
Savings: Greenhouse gas emissions will be reduced by the use of EVs and BEBs, but this has not been quantified.

Performance Data

The following data was pulled from EnergyCAP, the state's utility tracking software, on December 9, 2021. Note that utility data on agencies occupying space owned by another state agency may not be linked to their EnergyCAP accounts.

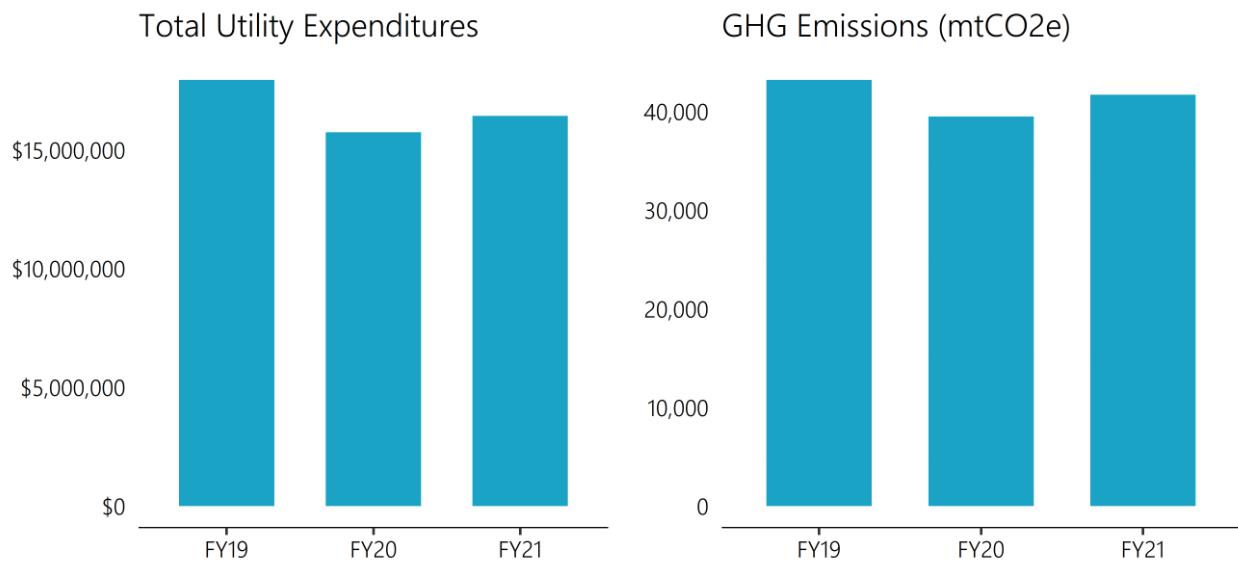
Data Completeness

The charts below display the estimated percent of utility data for DOT entered into EnergyCAP. More recently uploaded data may still be 'in queue' awaiting processing by EnergyCAP and will not be reflected in this report.



Data Trends, FY19-FY21

The charts below summarize the total utility expenditures and total GHG emissions for DOT for FY19 -FY21. Keep in mind that data that is missing or not yet processed in EnergyCAP may cause these numbers to be artificially low.

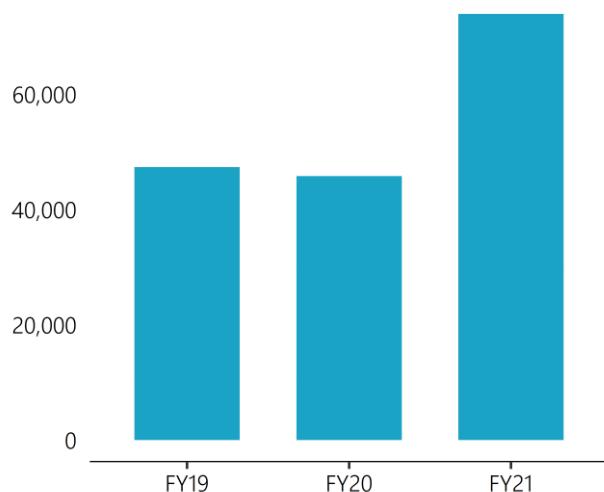


Performance Data cont.

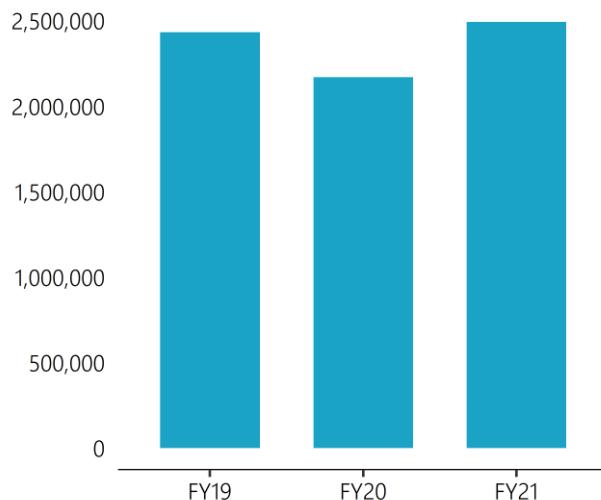
Data Trends, FY19-FY21 - Continued

The charts below summarize the water and gas/diesel use for DOT for FY19-FY21. Keep in mind that data that is missing or not yet processed in EnergyCAP may cause these numbers to be artificially low.

Water & Sewer Use (Kgal)



Gas & Diesel Use (Gal)



Detailed Utility Use and Cost Data

The table below summarizes the utility use and cost data for DOT for FY19-FY21 according to data pulled from EnergyCAP on December 9, 2021. As mentioned previously, keep in mind that this data may be incomplete.

Commodity	Unit	Use			FY19-21 Change	Cost			FY19-21 Change
		FY19	FY20	FY21		FY19	FY20	FY21	
Electric	kWh	49,825,659	48,789,463	47,362,754	-4.9%	\$8,764,330	\$8,248,160	\$8,148,217	-7.0%
Natural Gas	CCF	654,972	737,609	717,901	+9.6%	\$706,262	\$777,606	\$798,313	+13.0%
Oil	Gal	292,424	192,154	119,072	-59.3%	\$605,681	\$329,619	\$207,460	-65.7%
Propane	Gal	2,833	1,873	601	-78.8%	\$5,101	\$3,872	\$2,341	-54.1%
Vehicle Gasoline	Gal	700,416	752,299	774,270	+10.5%	\$1,884,119	\$1,820,564	\$1,958,904	+4.0%
Vehicle Diesel	Gal	1,733,917	1,418,687	1,719,604	-0.8%	\$5,635,230	\$4,199,314	\$4,832,087	-14.3%
Total GHG Emissions	mtCO2e	43,213	39,501	41,724	-3.4%	-	-	-	-
Water	Kgal	28,445	28,096	38,696	+36.0%	\$209,603	\$219,536	\$233,488	+11.4%
Sewer	Kgal	18,919	17,693	35,218	+86.2%	\$136,697	\$149,946	\$257,267	+88.2%
Total	-	-	-	-	-	\$17,947,023	\$15,748,617	\$16,438,077	-8.4%

*Gasoline and diesel costs estimated based on average monthly cost from EIA.gov, \$2.53 for gasoline and \$2.81 for diesel in FY21; \$2.42 for gasoline and \$2.96 for diesel in FY20; \$2.69 for gasoline and \$3.25 for diesel in FY19.

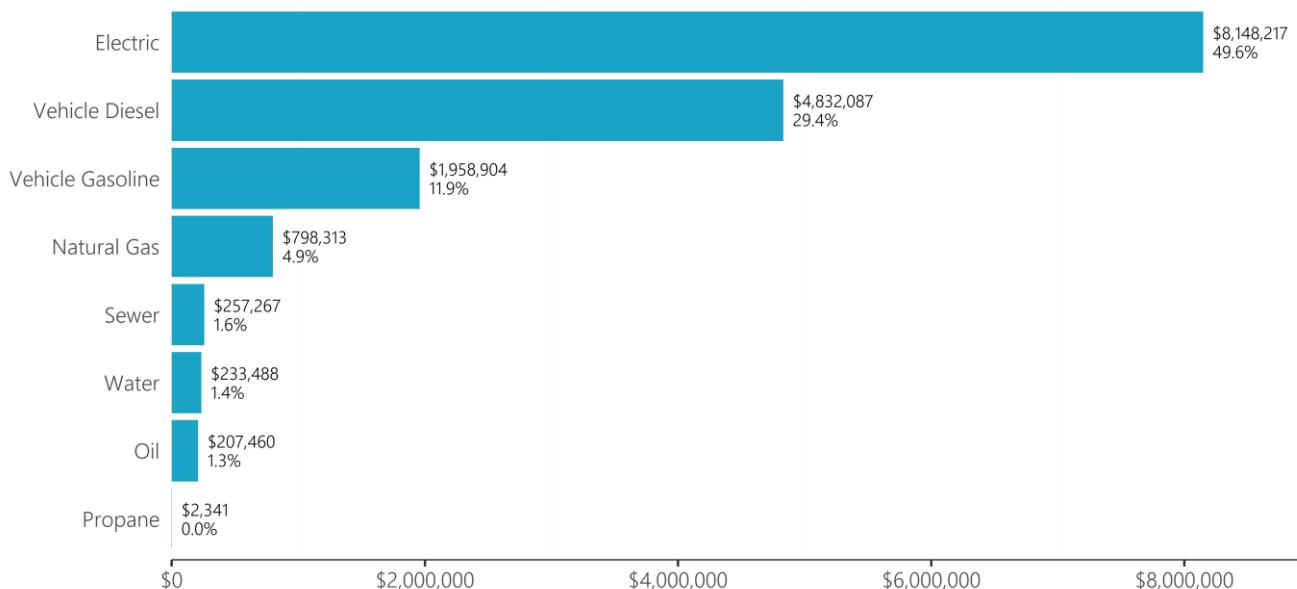
Performance Data cont.

FY21 Data Snapshot

The charts below highlight the breakdown of utility expenditures and GHG emissions by commodity for FY21.

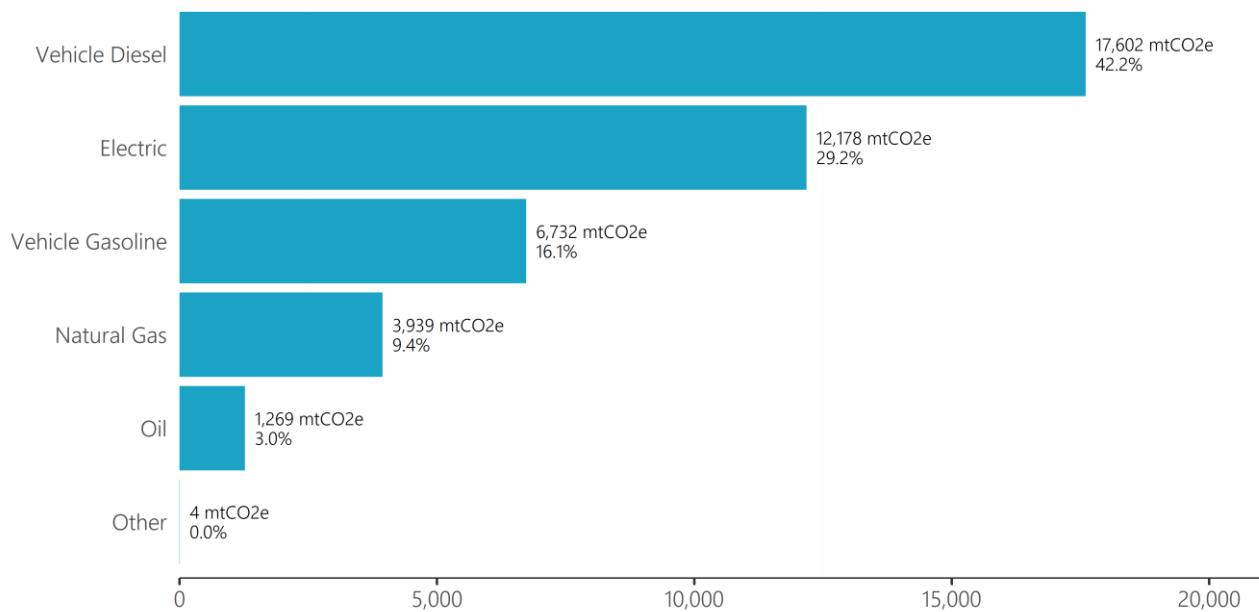
Commodity Cost Breakdown, FY21

The chart below represents the breakdown of commodity costs at DOT in FY21.



GHG Emissions Breakdown, FY21

The chart below represents the breakdown of GHG emissions by commodity at DOT in FY21.



Return to the Office Greener

In FY21, the GreenerGov CT leadership encouraged agencies to use the return to the office from teleworking due to the COVID-19 pandemic as an opportunity to refresh staff practices and habits and to take on new sustainability initiatives. Eleven actions were presented as possible strategies for a more sustainable return to the office, and agencies were asked to pick three actions not already in process. The actions for DOT are highlighted below.

Returning to the Office Greener Suggested Actions

1. Identify agency vehicles which could be transitioned to electric models. 
2. Have a No-Cost retro commissioning scoping study to identify HVAC improvement and controls opportunities.
3. Sign up a building to participate in Eversource's Strategic Energy Management program.
4. Have a free building energy audit performed to identify basic opportunities to upgrade lighting or weatherization.
5. Perform a water audit to identify opportunities for fixture replacement or conservation actions.
6. Check for water leaks using the Fix-A-Leak Checklist.
7. Assess the feasibility of hosting solar on your buildings or property. 
8. Optimize your dumpster size and pickup schedule. 
9. Start an organics diversion/collection program.
10. Tune up recycling practices.
11. Make a Green Team of staff invested in making space and operations more sustainable.
12. Other actions

Additional details on the return to the office:

In May of 2021, CTDOT created a Sustainability and Resiliency Unit in the Office of Environmental Planning. The unit's responsibilities include developing comprehensive policies and plans to meet Connecticut's statutory GHG reduction goals and Governor Lamont's Executive Order Goals (EO #1 and #3). This unit is working collaboratively with other Bureaus within the Department to implement and carry out such policies and plans, conduct vulnerability assessments of Department Assets, help identify funding solutions for priority sustainability and resiliency projects and stay abreast of trends and research happening within the industry. In 2021, CTDOT issued a new cleaning RFP that consolidated the variety of chemicals a vendor had to choose from to clean a building and emphasized greener cleaning options. The CTDOT has worked with DEEP and DAS to accelerate EV deployment at CT State Agencies and has identified the use of CMAQ funding to transition zero-emission EVs into the state fleet and expand EV infrastructure buildout at State Agencies. This work has been ongoing through 2021, and a contractor has performed evaluations/site assessments for 21 DAS facilities to help in prioritizing EV charging buildout across the state.

COVID-19 Impact

Impact of COVID-19 on DOT's ability to make progress on the goals of EO 1 in FY21

Staff capacity is limited due to COVID-related upgrades and ensuring buildings are immediately disinfected due to COVID positive cases. COVID has slowed the rollout of any behavior-based projects and outreach.

COVID-19 changes that have led to a positive sustainability outcome that will continue after the pandemic

Strategically evaluating building footprint needed for agency work	✓
Reassessing agency fleet	
Holding virtual meetings as a more regular practice	✓
Increased telework as a regular practice	✓
No changes to report	
Other	

Additional details on positive sustainability outcomes and how they will be continued after the pandemic

The Department plans to continue telework as allowed by union contract and the Governor's authorization.

Future Planning

Status of FY20 Plans

	Progress has been made	Progress has stalled	Plans have been completed.	Stated plans no longer a priority	Other
GHG Reduction	✓				
Water Use Reduction	✓				
Waste Reduction	✓				

Sustainability Plans Beyond FY21

GHG Reduction

Inclusion of EVSE at facilities and recommendations for future build-out. EVSE Installations at District Offices. Installation of Solar at DOT HQ in Newington, and CT Transit in Hamden. Expand Battery Electric Bus procurement, operation and charging infrastructure at bus maintenance garages. Continue conversion of roadway lights to LED

Water Use Reduction

Evaluate and reduce irrigation. Implement leak checks at major facilities

Waste Reduction

Evaluate opportunity to reduce hazardous waste. As more employees transition back in the building, we will consider developing a composting program.

Resources Needed

Barriers encountered while making EO 1 progress in FY21

Funding	✓
Staffing	✓
Technical expertise	
No barriers encountered	
Other	

Specific type of support or resources needed to make progress on future sustainability projects

- Universal tool to calculate project GHG reductions
- Funding – Combined water and GHG audits
- Project Funding – establish State pool and fund projects based on ROI and GHG/Water/Waste reductions

Additional info on DOT's participation in EO 1 during FY21

The CT DOT Sustainability Team meets every other month to provide updates on ongoing projects, socialize new ideas for sustainability initiatives, and work through any barriers to the successful implementation of sustainability efforts.

DOT continued its progress on rail infrastructure that increases rail speed, safety and service in the state. For example, signals, Positive Train Control (PTC) and passing sidings were installed by Metro-North Railroad along the Waterbury Branch in 2021. The completion represents a historic upgrade to a branch that was built in 1849 and underscores the state's commitment to maintaining and upgrading the branch and providing improved and increased public transportation options in Connecticut.

DOT also continued to adjust and expand rail and bus/transit operations to increase availability of these lower-emission transportation alternatives. Examples include expanded hours of CTtransit bus service in New Haven, and additional morning train service on the CTrail Hartford Line.