Connecticut Department of Transportation
Quarterly Performance Measures Summary
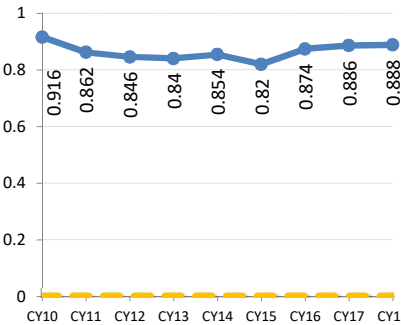## 2020 Quarter 1 (January 1 - March 31)

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ●●● Target: - - -	How are we doing?

Provide Safe & Secure Travel

Rate of Annual Highway Fatalities per 100 million vehicle miles traveled (VMT), CTDOT

(For More Information Click Here)

| CY18 | 0.93 | 0.89 5-year moving average | 0 (5-year moving average) |

Chart data points: CY10: 0.916, CY11: 0.862, CY12: 0.846, CY13: 0.84, CY14: 0.854, CY15: 0.82, CY16: 0.874, CY17: 0.886, CY18: 0.888. Preferred Trend ↓
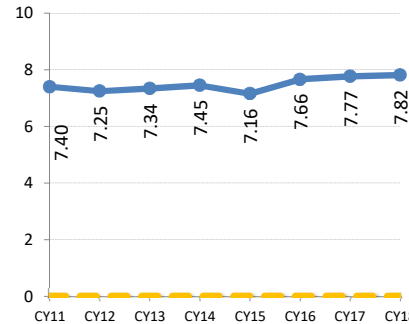
In 2018, 297 persons were killed in motor vehicle crashes in Connecticut. The 297 fatality total includes drivers, passengers, pedestrians and cyclists. The 2018 Connecticut fatality rate was 0.93 fatalities per 100 million vehicle miles traveled (VMT). The five year rolling average for the 2014-2018 time period was 0.89 fatalities per 100 million VMT. The 2017 national fatality rate was 1.16 fatalities per 100 million VMT. The Connecticut rate has historically been lower than the national rate.

Rate of Annual Highway Fatalities per 100,000 population

(For More Information Click Here)

| CY18 | 8.2 | 7.82 5-year moving average | 0 (5-year moving average) |

Chart data points: CY11: 7.40, CY12: 7.25, CY13: 7.34, CY14: 7.45, CY15: 7.16, CY16: 7.66, CY17: 7.77, CY18: 7.82. Preferred Trend ↓
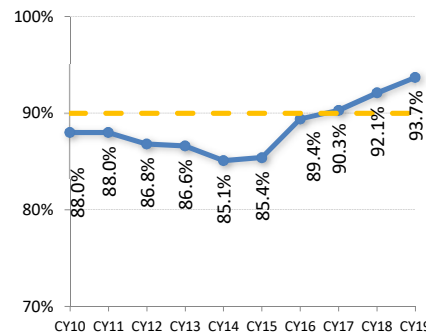
The population for Connecticut in 2018 was 3,572,665. The 2018 Connecticut fatality rate was 8.2 fatalities per 100,000 population. This rate was calculated using 2018 population data and 2018 fatality data. The five year rolling average for the 2014-2018 time period was 7.8 fatalities per 100,000 population. While the 2018 national rate has not yet been calculated, the 2017 national fatality rate was 11.4 fatalities per 100,000 population. The Connecticut rate has historically been much lower than the national rate.

Percent of Seat Belt Usage

(For More Information Click Here)

| CY19 | 93.7% | 93.7% (no data aggregation) | 90.0% (no data aggregation) |

Chart data points: CY10: 88.0%, CY11: 88.0%, CY12: 86.8%, CY13: 86.6%, CY14: 85.1%, CY15: 85.4%, CY16: 89.4%, CY17: 90.3%, CY18: 92.1%, CY19: 93.7%. Preferred Trend ↑
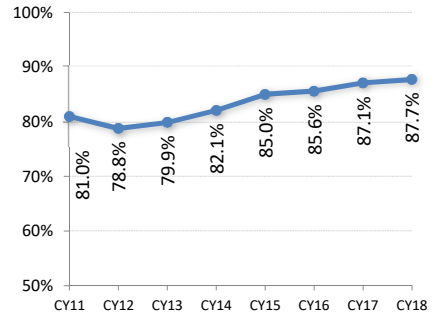
The 2019 statewide seatbelt usage rate is 93.7%. This rate has increased from 92.1% in 2018. The latest statewide survey of belt use was based on field observations using nationally accredited procedures consistent with previous annual surveys. The 2019 survey is directly comparable to the 1995 baseline estimate accredited by the National Highway Traffic Safety Administration (NHTSA), and conducted every year since 1998. The Highway Safety Office continues to work closely with state and local law enforcement agencies and with NHTSA officials to increase this usage rate. The primary methods used to boost this key performance measure are high visibility "Click it or Ticket" advertising and enforcement campaigns. These methods are conducted in May and November to help raise Connecticut's seat belt use rate beyond our goal of 90%. Small fluctuations in the percentage of observed use have occurred annually during the surveys.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ●━━● Target: ┅┅	How are we doing?

Preserve & Maintain the Transportation Network

Percent of State Maintained Roads with Acceptable or Better Ride Quality (NHS)

(For More Information Click Here)

CY18 | 87.8% | 87.7% (3-year moving average) | Increase Percentage

Chart values: CY11 81.0%, CY12 78.8%, CY13 79.9%, CY14 82.1%, CY15 85.0%, CY16 85.6%, CY17 87.1%, CY18 87.7%. Preferred Trend ↑

National Highway System (NHS) roadways are those which have been identified by FHWA as being important to the nation's economy, defense, and mobility. For that reason, they tend to be maintained at a higher priority level and typically carry higher volumes of traffic than the remainder of the network. In 2018, the ride quality of Connecticut's State NHS roadways declined slightly to 87.8%, after four straight years of steady improvement. This decline is in contrast to Federal Performance Measures, which indicate a slight improvement from 2017 to 2018, but the Federal PMs are a composite of three metrics (IRI, rutting, and cracking for asphalt concrete pavements), while ride quality is a function of just one metric (IRI). That having been said, this slight decline in ride quality from 2017 to 2018 on NHS roadways shouldn't be alarming; however, what should be of concern are declining projections of pavement condition over the next ten years for the current 10-year budget scenario. More funding is needed in order to produce a net improvement, or even to just maintain existing conditions on Connecticut's NHS roadways.
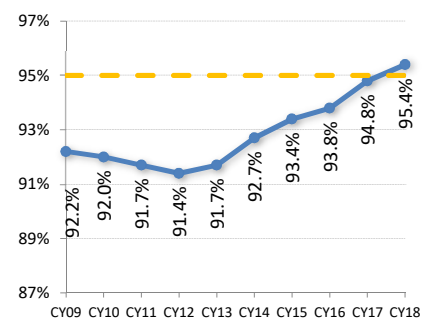
Percent of State Maintained Roads with Acceptable or Better Ride Quality (Entire Network)

(For More Information Click Here)

CY18 | 81.1% | 81.6% (3-year moving average) | Increase Percentage
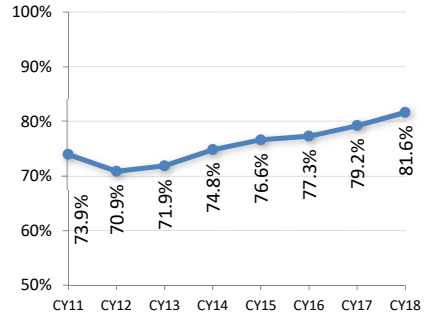
Chart values: CY11 73.9%, CY12 70.9%, CY13 71.9%, CY14 74.8%, CY15 76.6%, CY16 77.3%, CY17 79.2%, CY18 81.6%. Preferred Trend ↑

The ride quality of the entire State-maintained roadway network includes both NHS (1,406 miles) and non-NHS (2,313 miles) State routes and roadways. 2018 pavement condition results indicate that 81.1% of the entire State-maintained network roadway miles had an acceptable or better ride quality, which is slightly lower than last year's value of 83.3%. This decline is in contrast to Federal Performance Measures, which indicate a slight improvement from 2017 to 2018, but the Federal PMs are a composite of three metrics (IRI, rutting, and cracking for asphalt concrete pavements), while ride quality is a function of just one metric (IRI). That having been said, this slight decline in ride quality from 2017 to 2018 on the State-maintained roadway network shouldn't be alarming; however, what should be of concern are declining projections of pavement condition over the next ten years for the current 10-year budget scenario. More funding is needed in order to produce a net improvement, or even to just maintain existing conditions on State-maintained roadway network.

Percent of State Maintained Roadway Bridges in a State of Good Repair

(For More Information Click Here)

CY18 | 95.4% | 95.4% (no data aggregation) | 95.0% (no data aggregation)

Chart values: CY09 92.2%, CY10 92.0%, CY11 91.7%, CY12 91.4%, CY13 91.7%, CY14 92.7%, CY15 93.4%, CY16 93.8%, CY17 94.8%, CY18 95.4%. Target line at 95%. Preferred Trend ↑

The percentage of State Maintained Roadway Bridges in a State of Good Repair has increased due to additional staff and budget resources allocated to bridges over the past few years and reduced project delivery resulting in more timely repairs to our bridges. Also, more durable materials and joint details used in current projects will keep new work from deteriorating.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ●──● Target: ●- -●	How are we doing?

Preserve & Maintain the Transportation Network (Continued)

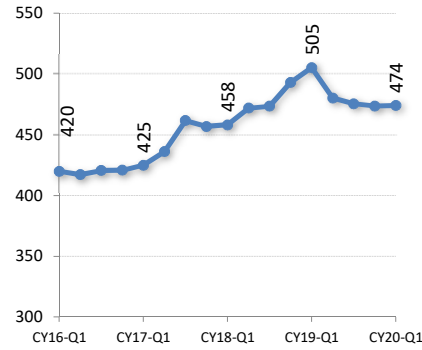| Number of Bridge Work Items Completed

(For More Information Click Here) | CY20-Q1 | 464 | 474 (8-quarter moving average) | Maximize Completion of Work Items | | | During the most recent quarter the 2 year moving average of the bridge work items completed was 464. This represents a 6% decrease in the number of work items completed as compared to the same quarter a year ago; we remain consistent with our target to Maximize Completion of Work Items.
Please note that the Department is in the process of switching over the line item reporting method from the historical, Maintenance-administered Access database to the Bridge Management-administered Structure Management System (Inspectech) which began in February 2017 and will continue through one whole inspection cycle (2 years). As outstanding line items are moved from one system to the next, the total number of outstanding line items may fluctuate due to several factors such as the time-frame of the transfer and what is transferred. |

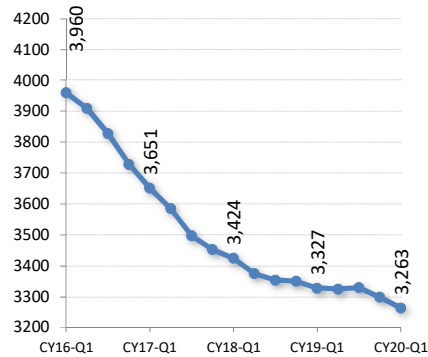Trend chart (Preferred Trend ↑): values 420, 425, 458, 505, 474 across CY16-Q1, CY17-Q1, CY18-Q1, CY19-Q1, CY20-Q1. Y-axis 300–550.

| Number of Backlogged Bridge Work Items

(For More Information Click Here) | CY20-Q1 | 3,134 | 3263 (8-quarter moving average) | Strive for Zero Growth in Backlog | | | During the most recent quarter the 2 year moving average of the backlogged bridge work items was 3,134; this represents a 4% decrease in the number of backlogged work items as compared to the same quarter a year ago. We are consistent with our target to Strive for Zero Growth in Backlog.
Please note that the Department is in the process of switching over the line item reporting method from the historical, Maintenance-administered Access database to the Bridge Management-administered Structure Management System (Inspectech) which began in February 2017 and will continue through one whole inspection cycle (2 years). As outstanding line items are moved from one system to the next, the total number of outstanding line items may fluctuate due to several factors such as the time-frame of the transfer and what is transferred. |

Trend chart (Preferred Trend ↓): values 3,960, 3,651, 3,424, 3,327, 3,263 across CY16-Q1, CY17-Q1, CY18-Q1, CY19-Q1, CY20-Q1. Y-axis 3200–4200.

Provide Mobility Choice, Connectivity & Accessibility

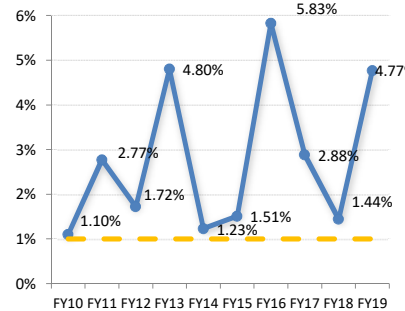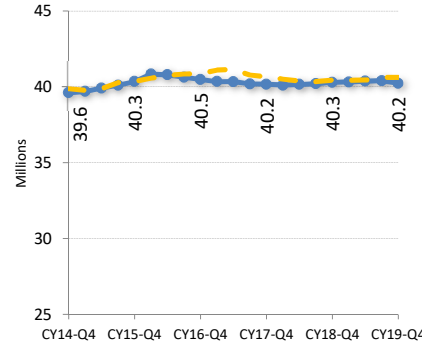| Percent of Funds Expended for Bicycle/ Pedestrian Access

(For More Information Click Here) | FY19 | 4.77% | 4.8% | 1.0% (no data aggregation) | | | Fifty-three capital projects awarded in SFY 2019 included elements for pedestrians or bicyclists, such as sidewalks, ramps, pedestrian signals, push-buttons, signs, and pedestrian/bicycle trails. In conjunction with the Department's annual Maintenance Resurfacing Program, ADA curb ramps and sidewalks are installed to ensure pedestrian access. A Community Connectivity Program is being implemented to support pedestrian and bicycle safety and improve accessibility within urban, suburban, and rural community centers. The total dollars being expended for these items is approximately $33.8 million, which is approximately 4.77% of the total funds awarded for the construction, restoration, rehabilitation, or relocation of roads in the state. The 1% target, established by Public Act No. 09-154 in 2009, has been achieved each year and the Department will continue to strive to exceed this target on an annual basis. Large fluctuation in this measure is to be expected as a single large value initiative will drastically affect the measure. |

Trend chart (Preferred Trend ↑): values 1.10%, 2.77%, 1.72%, 4.80%, 1.23%, 1.51%, 5.83%, 2.88%, 1.44%, 4.77% across FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18 FY19. Target dashed line at 1%.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ●——● Target: ─ ─ ─	How are we doing?

Provide Mobility Choice, Connectivity & Accessibility (Continued)

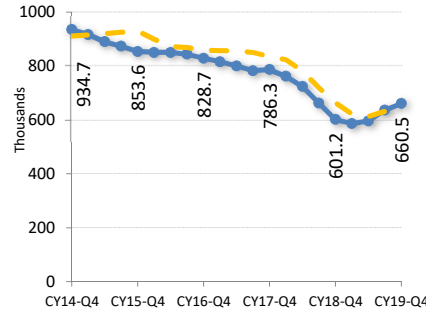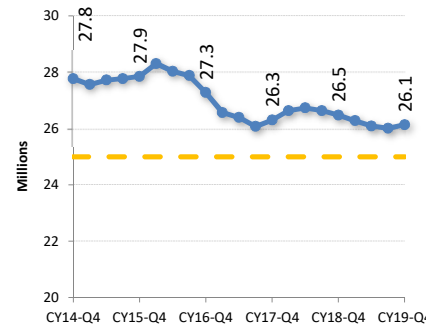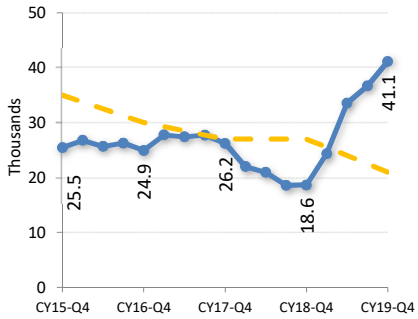|						
Number of Rail Passengers New Haven Line (NHL) (For More Information Click Here)	CY19-Q4	10,243,431	40,234,512 (4-quarter moving sum)	40,627,612 (4-quarter moving sum)		New Haven Line ridership missed goal by 2.0% in Q4 2019. There were 10,243,431 unlinked passenger trips against a goal of 10,449,819 unlinked passenger trips in Q4 2019. The New Haven Line had 63 cancelled or terminated trains in Q4 2019 out of a total of 24,956 trains scheduled. Environmental conditions (i.e., weather) resulted in 36 canceled or terminated trains. Police holds for investigations or vehicles on tracks caused another 12 cancelled or terminated trains in Q4 2019.
Number of Rail Passengers Shore Line East (SLE) (For More Information Click Here)	CY19-Q4	159,685	660,477 (4-quarter moving sum)	648,050 (4-quarter moving sum)		Shore Line East ridership surpassed goal by 2.5% in Q4 2019. There were 159,685 unlinked passenger trips against a goal of 155,807 unlinked passenger trips in Q4 2019. The Shore Line East had 28 cancelled or terminated trains out of a total of 2,904 trains scheduled. Eleven of these cancelled or terminated trains occurred on a single day, 11/1/2019.
Number of CTTransit Passenger Trips (For More Information Click Here)	CY19-Q4	6,736,123	26,135,148 (4-quarter moving sum)	25,000,000 (4-quarter moving sum)		For the quarter ending December 31, 2019 (October 2019 through December 2019), ridership has increased by 1.97%, when compared to the same quarter the previous year (October 2018 through December 2018). Annual Passenger Trips have decreased by 1.36%, trending unfavorable over the past 12 months (January 2019 through December 2019) when compared to the same 12-month span from the previous year (January 2018 through December 2018). Ridership over the past four years has decreased at an average of 1.40% per year, which is trending unfavorable. These unfavorable trends are consistent with regional and national transit ridership trends. Lower gas prices, ride hailing services and other travel options may be contributing to the decline in ridership.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ●——● Target: – – –	How are we doing?

Improve Efficiency & Reliability

Mean Distance Between Failures (Miles) - P-32 Locomotives

(For More Information Click Here)

CY19-Q4

40,749

41,142 (4-quarter moving average)

21,000 (4-quarter moving average)

P-32 locomotives reliability is above goal for the quarter. The reported MDBF for Q4 2019 is 40,749 miles which is 94.0% above the 2019 goal of 21,000 miles. The P-32 fleet had 14 system failures in Q4 2019 and ran 570,485 miles. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system.

Mean Distance Between Failures (Miles) - BL 20 Locomotives

(For More Information Click Here)

CY19-Q4

21,501

52,535 (4-quarter moving average)

13,000 (4-quarter moving average)
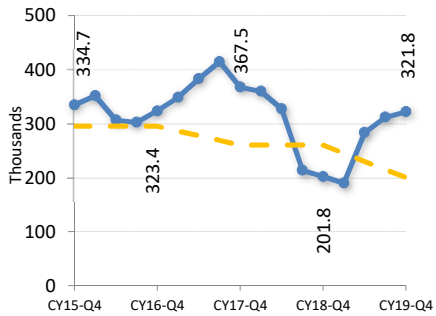

BL 20 locomotives reliability is above goal for the quarter. The reported MDBF for Q4 2019 is 21,501 miles which is 65.4% above the 2019 goal of 13,000 miles. The BL 20 fleet had 5 system failures in Q4 2019 and ran 107,504 miles. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system.

Mean Distance Between Failures (Miles) - Coaches

(For More Information Click Here)

CY19-Q4

238,636

321,846 (4-quarter moving average)

200,000 (4-quarter moving average)

Coach reliability is performing above goal for the quarter. The reported MDBF for Q4 2019 is 238,636 miles which is 19.3% above the 2019 goal of 200,000 miles. The Bombardier coach fleet had 18 system failures in Q4 2019 and ran for a combined total of 4,290,346 miles. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: Target:	How are we doing?

Improve Efficiency & Reliability (Continued)

Mean Distance Between Failures (Miles) - Electric Multiple Unit (EMU) M8

(For More Information Click Here)

CY19-Q4

529,464

444,849 (4-quarter moving average)

280,000 (4-quarter moving average)

M8 vehicle reliability is above goal for the quarter. The reported MDBF for Q4 2019 is 529,464 miles which is 89.1% above the 2019 goal of 280,000 miles. The M8 fleet had 15 system failures in Q4 2019 and ran 7,941,963 miles. A system failure is when one of the vehicle systems such as propulsion or communications significantly delays a train through any defect within that system.
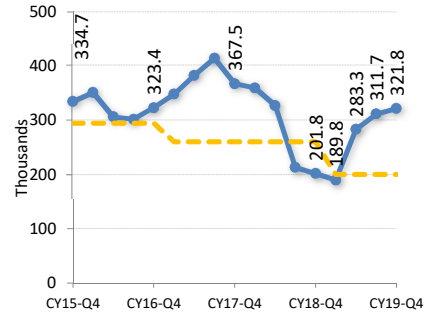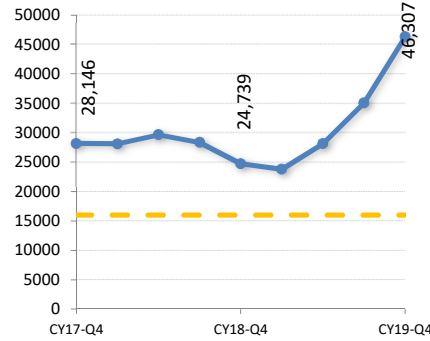
Average Miles Between Road Calls (Bus)

(For More Information Click Here)

CY19-Q4

66,098

46,307 (4-quarter moving average)

16,000 (4-quarter moving average)

Average miles between road calls have increased during the quarter, (average October 2019 through December 2019), up 45.60% when compared to last quarter (average July 2019 through September 2019). The 4-quarter average for this metric is trending favorable at 87.18% more miles between road calls, compared to the same period last year.

Percent of Rail On-Time Performance (OTP)-New Haven Line (NHL)

(For More Information Click Here)

CY19-Q4

94.4%

93.4% (4-quarter moving average)

93.0% (4-quarter moving average)

The OTP for the NHL was 94.4% for Q4 2019, this is above the 93.0 % OTP goal for the New Haven Line. There were 1,061 delayed, cancelled or terminated trains with 2,007 delayed, cancelled, or terminated train incident causes between October 1, 2019 and December 31, 2019 out of 24,956 scheduled trains. It is important to note that a single delay incident can have multiple delay causes (i.e a train might be delayed 10 minutes at final destination but could be delayed by 4 minutes due to a speed restriction on the tracks and another 6 minutes due to wheel slip occurring). Engineering issues such as defects to the tracks or catenary system accounted for 730 incidents, while Environmental issues such as downed power lines and fallen trees caused storms accounted for another 347 delays. These 2 categories were responsible for 53.7% of all delays, cancellations and terminations on the NHL in Q4 2019.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ⬤——⬤ Target: ⬛ ⬛ ⬛	How are we doing?

Improve Efficiency & Reliability (Continued)

Percent of Rail On-Time Performance (OTP)-Shore Line East (SLE)

(For More Information Click Here)

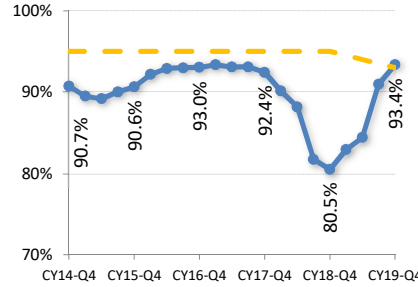CY19-Q4 | 94.7% | 93.4% (4-quarter moving average) | 93.0% (4-quarter moving average)

Trend chart (CY14-Q4 to CY19-Q4): values labeled 90.7%, 90.6%, 93.0%, 92.4%, 80.5%, 93.4%. Preferred Trend ↑

The OTP for the SLE was 94.7% for Q4 2019. This is above the OTP goal of 93.0% for SLE. There were 154 delayed, cancelled, or terminated train incidents between October 1, 2019 and December 31, 2019 out of 2,904 scheduled trains. Intercity train, commuter train, and freight train interference such as when one train is delayed due to another train occupying the block contributed to 52 delays. Mechanical issues with the equipment contributed to another 35 delay incidents. These 2 categories were responsible for 56.5% of all delays, cancellations, and terminations on SLE in Q4 2019.

Percent of Construction Contracts Awarded within 60 Days of Bid Opening

(For More Information Click Here)

FY20-Q3 | 96% | 86.3% (4-quarter moving average) | 100.0% (4-quarter moving average)
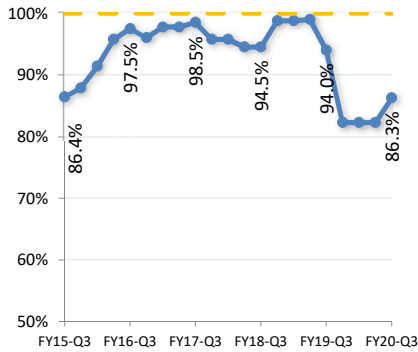
Trend chart (FY15-Q3 to FY20-Q3): values labeled 86.4%, 97.5%, 98.5%, 94.5%, 94.0%, 86.3%. Preferred Trend ↑

23 of 24 (96%) contracts were awarded within 60 days of bid opening.

Percent of Construction Contracts Completed within Budget

(For More Information Click Here)

CY19 | 67.0% | 75.5% (2-year moving average) | 70.0% (2-year moving average)

Trend chart (CY12 to CY19): values labeled 66.5%, 70.0%, 64.5%, 68.0%, 74.5%, 73.5%, 80.5%, 75.5%. Preferred Trend ↑

The general trend of construction contracts completed within budget was showing modest gains over the last 3 years, however over the last 4 quarters, this percentage has dropped. The 2 year moving average of about 75.5% is considered to be good. It must be noted that this measure is influenced by a myriad of factors that affect the results. Construction costs are impacted by the quality and completeness of the project designs, changes in field conditions, changes in scope and risk sharing contractual language in the contracts.

Performance Measure	Latest Period Available	Period Data	Result	Target	Trend	Result: ⬤━━⬤ Target: ▬ ▬ ▬	How are we doing?

Improve Efficiency & Reliability (Continued)

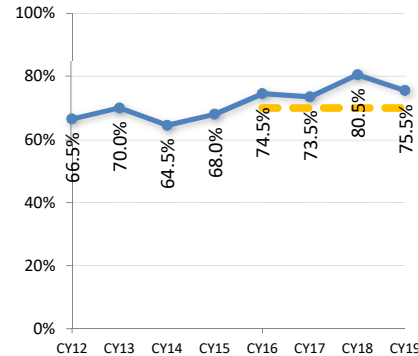| Performance Measure	Latest Period Available	Period Data	Result	Target	Trend		How are we doing?
Percent of Construction Contracts Completed on Time (For More Information Click Here)	CY19	54.0%	62.0% (2-year moving average)	60.0% (2-year moving average)	(chart)	↑ Preferred Trend	The trend of construction projects completed on-time was showing modest gains over the previous year, however the last 4 quarters the percentage has dropped. The Department achieved an on-time performance level averaging approximately 62% for the past 2 years. Several factors indicated in our strategies influenced the on time projects delivery. It must be noted that risk sharing language in our contracts allow projects to receive time extensions for factors that are beyond the control of the contractor and the Department. It should also be noted that the leading cause of project delays are the result of Utility Company delays in performing their work necessary to progress the project.
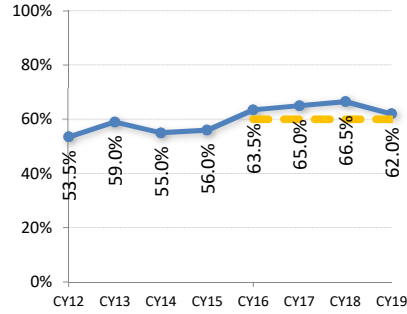
Chart data (Percent Construction Contracts Completed on Time):
- CY12: 53.5%
- CY13: 59.0%
- CY14: 55.0%
- CY15: 56.0%
- CY16: 63.5%
- CY17: 65.0%
- CY18: 66.5%
- CY19: 62.0%

CTDOT Goal: Provide Safe & Secure Travel

Focus Area: Highway Safety - Fatalities

Key Performance Measures:

Key Performance Measures:	Period	Period Data	Result (5 yr. Moving Avg.)	Target
1.) Rate of annual highway Fatalities per 100 million vehicle miles traveled (VMT)	CY2018	0.93	**0.89**	0
2.) Rate of annual highway Fatalities per 100,000 population	CY2018	8.20	**7.82**	0

What is it and why is this important?

Fatality rates per capita and per vehicle miles traveled provide a way of examining motor vehicle deaths relative to the population and amount of driving. By tracking the fatality rate on Connecticut's roads, the Department is able to gather information necessary to develop effective programs that ensure the safety and security of the traveling public.
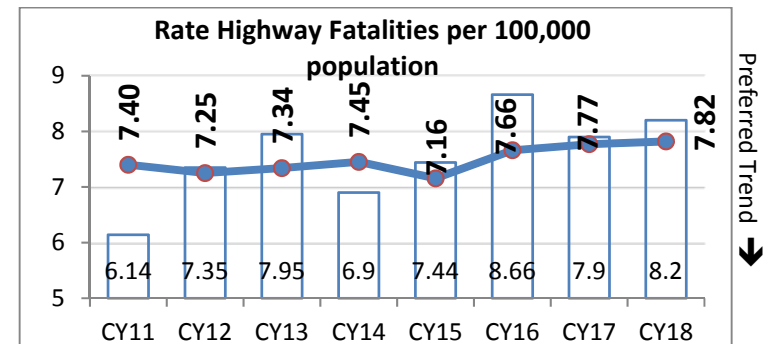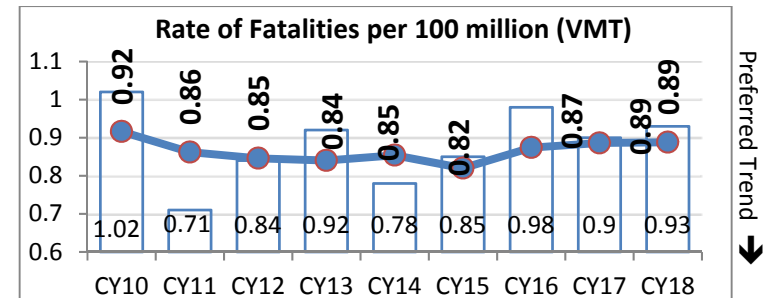
How are we doing?

In 2018, 297 persons were killed in motor vehicle crashes in Connecticut. The 297 fatality total includes drivers, passengers, pedestrians and cyclists. The 2018 Connecticut fatality rate was 0.93 fatalities per 100 million vehicle miles traveled (VMT). The five year rolling average for the 2014-2018 time period was 0.89 fatalities per 100 million VMT. The 2017 national fatality rate was 1.16 fatalities per 100 million VMT. The Connecticut rate has historically been lower than the national rate.

The population for Connecticut in 2018 was 3,572,665. The 2018 Connecticut fatality rate was 8.2 fatalities per 100,000 population. This rate was calculated using 2018 population data and 2018 fatality data. The five year rolling average for the 2014-2018 time period was 7.8 fatalities per 100,000 population. While the 2018 national rate has not yet been calculated, the 2017 national fatality rate was 11.4 fatalities per 100,000 population. The Connecticut rate has historically been much lower than the national rate.

What's our strategy?

The goal of the Connecticut Highway Safety Program is to prevent roadway fatalities and injuries as a result of crashes related to driver behavior. Major strategies include the execution of countermeasures developed to specifically target over- represented groups identified through data analysis. These strategies include participation in National police enforcement campaigns such as "Click it or Ticket" and "Drive Sober or Get Pulled Over" as well as the promotion of sustained enforcement year-round based on local problem identification by law enforcement agencies and other highway safety partners. Various training programs and technical support from law enforcement training based on better identification of impaired drivers to more timely and accurate reporting of crash data are implemented through the HSO to better identify areas where improvement will ultimately lead to less crashes

injuries and fatalities on Connecticut's roadways. The major program areas of Impaired Driving, Occupant Protection, Speed Enforcement and Distracted Driving, account for the majority of enforcement activities and paid media making up the high visibility and sustained enforcement efforts. Combined impaired driving and safety belt enforcement efforts are planned to effectively target these unsafe driving behaviors and achieve a 90 percent observed seat belt usage rate.

Rate of Fatalities per 100 million (VMT)

	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18
Moving Avg	0.92	0.86	0.85	0.84	0.85	0.82	0.87	0.89	0.89
Period Data	1.02	0.71	0.84	0.92	0.78	0.85	0.98	0.9	0.93

Preferred Trend ↓

Rate Highway Fatalities per 100,000 population

	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18
Moving Avg	7.40	7.25	7.34	7.45	7.16	7.66	7.77	7.82
Period Data	6.14	7.35	7.95	6.9	7.44	8.66	7.9	8.2

Preferred Trend ↓

About the data

- A five-year average of the data is reported and used to analyze performance since this highlights the underlying trends while minimizing variability in the series.
- The data used in this report is subject to change. While the number of fatalities represents those reported to the Department for 2016, the file will not officially close until late 2017. The Fatality Analysis Reporting System (FARS) Annual Report File counts are published by NHTSA during the fall of each year for the previous calendar year. The FARS Final File is typically released eight months after the release of the Annual Report File.
- During the time of reporting, 2016 NHTSA national fatality rates were not available.
- Source: Bureau of Policy and Planning, Office of Highway Safety and Crash Data Analysis Unit.

CTDOT Goal: Provide Safe & Secure Travel

Focus Area: Highway Safety – Occupant Protection Program

Key Performance Measures:	Period	Period Data	**Result**	Target
1.) Percent of Seat Belt Use (Observed)	CY-2019	93.7%	**93.7%**	90%

What is it and why is this important?

This measure tracks seat belt usage by Connecticut's motorists. Drivers, front seat passengers and all rear seat passengers aged 4 to 16 are required to wear seat belts.   When worn correctly, seat belts reduce the risk of fatal injury to front seat occupants by 45 percent. In 2013, seat belts saved an estimated 12,584 lives in the United States (Lives Saved in 2013 by Restraint Use, NHTSA).

How are we doing?

The 2019 statewide seatbelt usage rate is 93.7%. This rate has increased from 92.1% in 2018. The latest statewide survey of belt use was based on field observations using nationally accredited procedures consistent with previous annual surveys. The 2019 survey is directly comparable to the 1995 baseline estimate accredited by the National Highway Traffic Safety Administration (NHTSA), and conducted every year since 1998. The Highway Safety Office continues to work closely with state and local law enforcement agencies and with NHTSA officials to increase this usage rate. The primary methods used to boost this key performance measure are high visibility "Click it or Ticket" advertising and enforcement campaigns. These methods are conducted in May and November to help raise Connecticut's seat belt use rate beyond our goal of 90%. Small fluctuations in the percentage of observed use have occurred annually during the surveys.

What's our strategy?

The general goal of Connecticut's Occupant Protection Program is to maintain safety belt use rates at a level that is consistently above the National average. The Click It or Ticket enforcement campaign is a key tool in public awareness and enforcement for safety belt use. Efforts are undertaken to increase awareness and adherence to Connecticut's occupant protection laws with a priority given to enforcement and education. Partnerships have been built with representatives from law enforcement, media, health professionals, education, and local civic organizations. Programming includes enforcement activities, such as checkpoints and participation in national mobilizations.

Percent of Seat Belt Usage
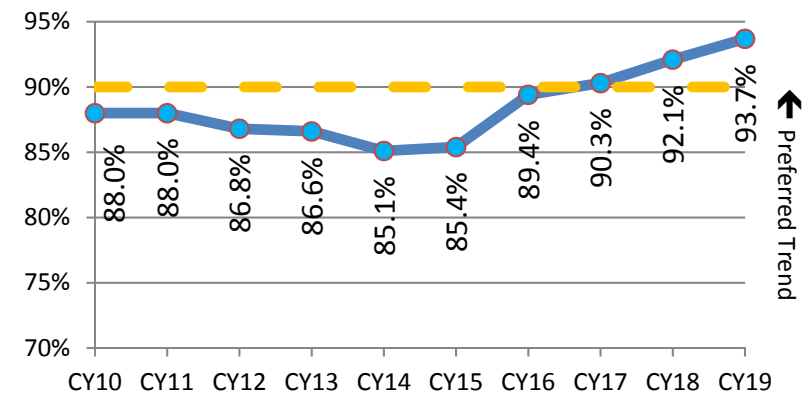
About the data
- Data for this measure is based on an observational sampling, and becomes available for reporting annually when the sampling is completed for the current Calendar Year (CY).
- Source: Bureau of Policy & Planning, Office of Highway Safety

CTDOT Goal: Preserve & Maintain the Transportation System

Focus Area: Pavement Ride Quality

Key Performance Measures:	Period	Period Data	Result (3 yr. Moving Avg.)	Target
1.) Percent of State Maintained Roads with Acceptable or Better Ride Quality (NHS Only)	CY-2018	87.8%	**87.7%**	Increase %
2.) Percent of State Maintained Roads with Acceptable or Better Ride Quality (Entire Network)	CY-2018	81.1%	**81.6%**	Increase %

What is it and why is this important?

Ride Quality (International Roughness Index, IRI) is a well-established indicator of current roadway pavement condition as it is experienced by road users. Ride quality reflects the Department's efforts in managing the 3,734.28 miles of State-maintained roadways, and is also influenced by the age of the roadway network, the state's geography, and its degree of urbanization. 1,392.00 miles of these roadways are also part of the National Highway System (NHS). Ride quality is measured both for the NHS roadways and the entire state-maintained network.

How are we doing?

National Highway System (NHS) roadways are those which have been identified by FHWA as being important to the nation's economy, defense, and mobility. For that reason, they tend to be maintained at a higher priority level and typically carry higher volumes of traffic than the remainder of the network. In 2018, the ride quality of Connecticut's State NHS roadways declined slightly to 87.8%, after four straight years of steady improvement. This decline is in contrast to Federal Performance Measures, which indicate a slight improvement from 2017 to 2018, but the Federal PMs are a composite of three metrics (IRI, rutting, and cracking for asphalt concrete pavements), while ride quality is a function of just one metric (IRI). That having been said, this slight decline in ride quality from 2017 to 2018 on NHS roadways shouldn't be alarming; however, what should be of concern are declining projections of pavement condition over the next ten years for the current 10-year budget scenario. More funding is needed in order to produce a net improvement, or even to just maintain existing conditions on Connecticut's NHS roadways.

The ride quality of the **entire state-maintained** roadway network includes both NHS (1,406 miles) and non-NHS (2,313 miles) State routes and roadways. 2018 pavement condition results indicate that 81.1% of the entire State-maintained network roadway miles had an acceptable or better ride quality, which is slightly lower than last year's value of 83.3%.   This decline is in contrast to Federal Performance Measures, which indicate a slight improvement from 2017 to 2018, but the Federal PMs are a composite of three metrics (IRI, rutting, and cracking for asphalt concrete pavements), while ride quality is a function of just one metric (IRI). That having been said, this slight decline in ride quality from 2017 to 2018 on the State-maintained roadway network shouldn't be alarming; however, what should be of concern are declining projections of pavement condition

over the next ten years for the current 10-year budget scenario. More funding is needed in order to produce a net improvement, or even to just maintain existing conditions on State-maintained roadway network.

What's our strategy?

The CTDOT strategy is to apply asset-management principles to prioritize investment – this means a robust pavement-preservation program to maintain good pavements in good condition, a prioritized rehabilitation program, all the while limiting the percent of roads in poor condition.

Ride Quality (IRI) - NHS Only

81.0% 78.8% 79.9% 82.1% 85.0% 85.6% 87.1% 87.7%

CY11 CY12 CY13 CY14 CY15 CY16 CY17 CY18

Preferred Trend

Ride Quality (IRI) - Entire Network

73.9% 70.9% 71.9% 74.8% 76.6% 77.3% 79.2% 81.6%

CY11 CY12 CY13 CY14 CY15 CY16 CY17 CY18

Preferred Trend

Figures 1 (Top) and 2 (Bottom)
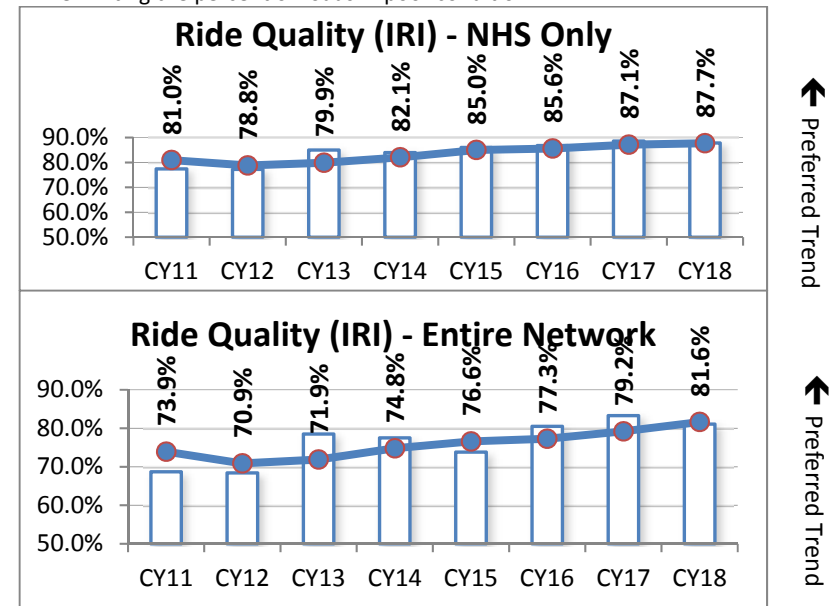
About the data

- IRI Ratings are based on the following values: Good = <95 inches/mile; Acceptable = 95 to 170 inches/mile; Poor = >170 inches/mile
- A three-year average of the measure is reported and used to analyze performance since this highlights the underlying trends while minimizing variability in the series.
- Total miles of roads and total miles of NHS roads are collected by the Department's Roadway Inventory section. IRI data are collected annually by Connecticut's Photo Log unit and are then analyzed and reported by the Pavement Management System. Data for this measure becomes available for reporting in June for the previous calendar year.
- Source: Bureau of Engineering & Construction, Office of Pavement Management

CTDOT Goal: Preserve & Maintain the Transportation System

Focus Area: Roadway Bridge Condition

Key Performance Measures:	Period	Period Data	Result (Same as Period)	Target
1.) Percent of State Maintained Roadway Bridges in a State of Good Repair	CY-2018	**95.4%**	**95.4%**	95%

What is it and why is this important?

CTDOT is responsible for ensuring the safety of the traveling public and protecting the state's capital investment in roadway bridges. The Department is directly responsible (inspecting and maintaining) for approximately 4,000 roadway bridges, including all Connecticut National Bridge Inventory (NBI), Connecticut Non-NBI, Adopted and Orphan roadway bridges. All roadway bridges having spans greater than 20 feet, whether state or town-maintained, are included in the NBI. The Department reports on the condition of the NBI to the Federal Highway Administration (FHWA) on an annual basis. The Department uses the roadway inspection data to trigger the initiation of a rehabilitation or replacement project and to aide in the prioritization of bridge projects in the Department's Capital Program.

How are we doing?

The percentage of State Maintained Roadway Bridges in a State of Good Repair has increased due to additional staff and budget resources allocated to bridges over the past few years and reduced project delivery resulting in more timely repairs to our bridges. Also, more durable materials and joint details used in current projects will keep new work from deteriorating.

What's our strategy?

The overall goal of the Department is to maintain all roadway assets in a State of Good Repair. State of Good Repair (SOGR) for bridges is defined as a condition rating of 5 or better. When a bridge is identified as poor (condition rating of 4 or less), it is an indicator that a bridge is in need of maintenance. As a bridge ages, parts of the bridge can deteriorate to the point it becomes necessary to repair or replace the deteriorated parts or, in some cases, the entire bridge. A bridge in poor condition is therefore a term implying that maintenance or repairs are required to return the bridge to a State of Good Repair. In no case would traffic be permitted to use an unsafe bridge.
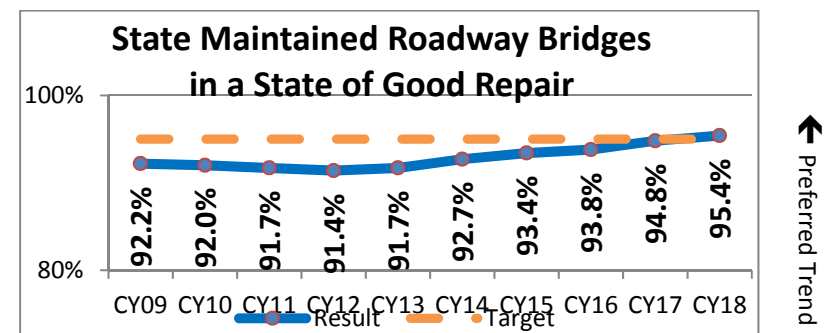
Bridge Inspection: The Department performs routine inspections on all roadway bridges (and culverts) on a 24-month inspection frequency.

Bridge Maintenance: At each inspection, if a deficiency is noted, a request is sent to the Bridge Maintenance Unit to initiate a repair. If the condition rating of a roadway bridge falls below a 5, the Department further reviews its condition, assesses the inspection frequency, adds the structure to the Bridge Program List and initiates a project to address the needs.

About the data

- Roadway bridges are periodically inspected and the condition is rated on a scale from 0 (failed condition) to 9 (excellent condition) for each major bridge component (the deck, superstructure, and substructure). The condition of culverts are also inspected and rated on the same scale for a culvert condition rating. The lowest rated component becomes the overall rating for the structure.
- Condition data for this measure is based on 2018 inspection data.
- Source: Bureau of Engineering & Construction, Division of Bridges - Bridge Management Group

Bridge Management: When a roadway bridge or culvert is rated in poor condition, steps are taken to address the deficiency. Depending upon the magnitude and complexity of the repair either the Bridge Maintenance staff will complete the repairs, or the Bridge Management Group will initiate a project to repair or replace the structure. Early in the design of an initiated project a Rehabilitation Study Report (RSR) is developed to identify alternates for either rehabilitation/repair or replacement. On reconstruction or new bridge projects the reduction of bridge joints and use of durable concrete is being used to extend the service life of the bridge. For our large structures the Department reviews the future needs of these major assets and schedules preservation projects at the appropriate time. The Department is using software applications to predict deterioration rates and to program the best treatment to protect the bridge asset. The goal of an asset management system is to systematically and strategically identify and program treatments throughout the bridge's lifecycle, which will, if applied at the appropriate time, result in achieving and sustaining a State of Good Repair.

State Maintained Roadway Bridges in a State of Good Repair

CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18
92.2%	92.0%	91.7%	91.4%	91.7%	92.7%	93.4%	93.8%	94.8%	95.4%

Result ● Target — Preferred Trend

CTDOT Goal: Preserve & Maintain the Transportation System

Focus Area: Bridge Maintenance

Key Performance Measures:

	Period	Period Data	Result (2 yr. Moving Avg.)	Target
1.) Number of Bridge Work Items Completed	2020-Q1	464	**474**	Maximize Work Items Completed
2.) Number of Backlogged Bridge Work Items	2020-Q1	3134	**3263**	Reduce Backlog

What is it and why is this important?

This measure tracks the progress of maintaining the condition of bridges on Connecticut's highways. The Department seeks to preserve and extend the useful life of existing bridge structures. Upon completion of the bridge inspection process, a Bridge Maintenance Memorandum (BMM) is prepared that identifies deficiencies and areas of deterioration needing repair. Individual work items identified on each BMM vary in complexity from a small concrete spall to replacing bridge expansion bearings. Some items require specialized equipment and/or use of contractual services such as installing bridge deck joints. Other items such as bridge beam end painting are programmed into the federally funded Bridge Preventive Maintenance Program. The repair work is scheduled based on criticality. Due to the advanced age of Connecticut's infrastructure, both the number of bridge inspections and needed repairs continues to increase.

How are we doing?

During the most recent quarter the 2 year moving average of the bridge work items completed was 464. This represents a 6% decrease in the number of work items completed as compared to the same quarter a year ago; we remain consistent with our target to Maximize Completion of Work Items.

During the most recent quarter the 2 year moving average of the backlogged bridge work items was 3,134; this represents a 4% decrease in the number of backlogged work items as compared to the same quarter a year ago. We are consistent with our target to Strive for Zero Growth in Backlog.
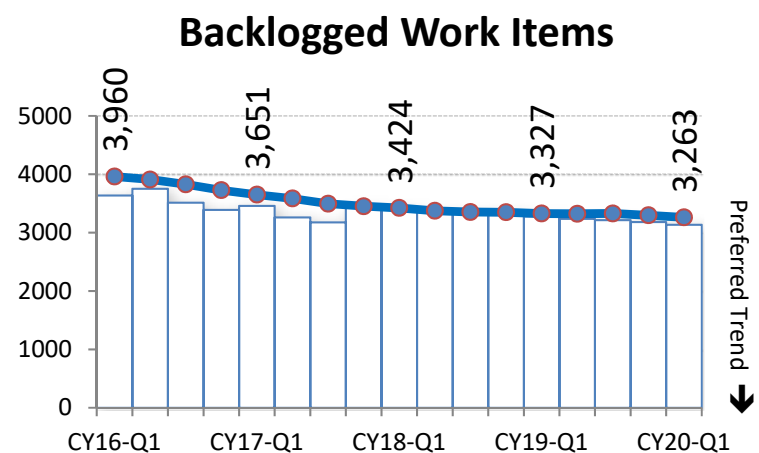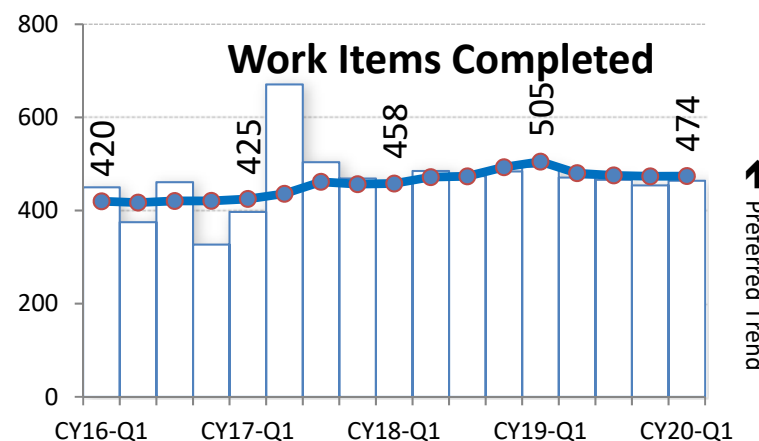
Please note that the Department is in the process of switching over the line item reporting method from the historical, Maintenance-administered Access database to the Bridge Management-administered Structure Management System (Inspectech) which began in February 2017 and will continue through one whole inspection cycle (2 years). As outstanding line items are moved from one system to the next, the total number of outstanding line items may fluctuate due to several factors such as the time-frame of the transfer and what is transferred.

What's our strategy?

Our immediate target is to maximize the completion of work items and Strive for Zero Growth in Backlog.

About the data
- A two-year average of the data is reported and used to analyze performance since this highlights the underlying trends while minimizing variability in the series.
- Data for this measure becomes available for reporting in quarterly and is based on calendar year.
- Source: Bureau of Highway Operations, Office of Bridge Maintenance

Work Items Completed

420 · 425 · 458 · 505 · 474

Preferred Trend ↑

CY16-Q1 · CY17-Q1 · CY18-Q1 · CY19-Q1 · CY20-Q1

Backlogged Work Items

3,960 · 3,651 · 3,424 · 3,327 · 3,263

Preferred Trend ↓

CY16-Q1 · CY17-Q1 · CY18-Q1 · CY19-Q1 · CY20-Q1

CTDOT Goal: Provide Mobility Choice, Connectivity & Accessibility

Focus Area: Multi-use Facilities

Key Performance Measures:

	Period	Period Data	Result	Target
1.) Percent of Funds Expended for Bicycle/ Pedestrian Access	FY 2019	4.77%	**4.77%**	1.0%

### What is it and why is this important?

This measure tracks the percent and total amount of dollars spent and/or programmed to be spent, on projects containing items that improve accessibility for pedestrians and bicyclists. Walking and bicycling promote good health, cost less than driving a motor vehicle, are good for the environment, provide freedom of travel and independence, and add to the sense of community in a town or city. In an effort to meet the public's demand for improved mobility and a better quality of life, CTDOT supports the use of bicycling and walking, and places emphasis on providing a safe and convenient environment for these transportation modes. Public Act 09-154, passed by the Connecticut General Assembly (CGA) in 2009, requires "a reasonable amount of any funds received by CTDOT or any municipality for construction, restoration, rehabilitation, or relocation of roads to be spent for facilities for all users, including at least, bikeways and sidewalks with curb cuts and ramps."

How are we doing?

Fifty-three capital projects awarded in SFY 2019 included elements for pedestrians or bicyclists, such as sidewalks, ramps, pedestrian signals, push-buttons, signs, and pedestrian/bicycle trails. In conjunction with the Department's annual Maintenance Resurfacing Program, ADA curb ramps and sidewalks are installed to ensure pedestrian access. A Community Connectivity Program is being implemented to support pedestrian and bicycle safety and improve accessibility within urban, suburban, and rural community centers. The total dollars being expended for these items is approximately $33.8 million, which is approximately 4.77% of the total funds awarded for the construction, restoration, rehabilitation, or relocation of roads in the state. The 1% target, established by Public Act No. 09-154 in 2009, has been achieved each year and the Department will continue to strive to exceed this target on an annual basis. Large fluctuation in this measure is to be expected as a single large value initiative will drastically affect the measure.

What's our strategy?

CTDOT's strategy is to continue to promote projects that incorporate items to improve accessibility for pedestrians and bicyclists. In addition, the Department continues to provide use of its right-of-way for the expansion of the multi-use trail network.
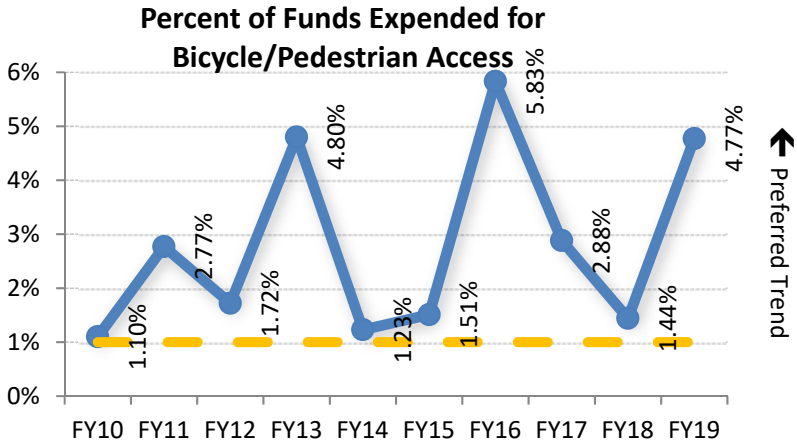
About the data
- • Data for this measure becomes available for reporting annually in October for the previous State Fiscal Year (SFY).
- • The cost data does not include the value of CTDOT ROW used for trails or PE phase costs to plan and design projects.
- • Source: Bureau of Engineering & Construction, Transportation Asset Management Group

Percent of Funds Expended for Bicycle/Pedestrian Access

CTDOT Goal: Provide Mobility Choice, Connectivity & Accessibility

Focus Area: Rail Ridership

Key Performance Measures:	Period	Period Data	Result (12 Month Moving Total.)	Target (12 Month Moving Total.)
1.) Number of Rail Passengers – New Haven Line (NHL)	CY19 Q4	10,243,431	40,234,512	40,627,612
2.) Number of Rail Passengers – Shore Line East (SLE)	CY19 Q4	159,685	660,477	648,050

What is it and why is this important?

Number of Rail Passengers is the key bottom-line measure of the rail transport mode. There are currently three passenger rail lines in the state, the New Haven Line, Shore Line East, and the Hartford Line. The New Haven Line (NHL) operated by Metro-North Railroad connects New Haven and three branch lines (Danbury, New Canaan, and Waterbury) with Bridgeport, Stamford and New York City. The New Haven Line is one of the busiest passenger rail lines in North America. Shore Line East (SLE), operated by Amtrak connects New London with New Haven, and runs select trains continuing to Bridgeport and Stamford. The new Hartford Line operated by both Amtrak and TASI connects New Haven to Hartford with many of these trains continuing to Springfield MA.

How are we doing?

New Haven Line ridership missed goal by 2.0% in Q4 2019.There were 10,243,431 unlinked passenger trips against a goal of 10,449,819 unlinked passenger trips in Q4 2019. The New Haven Line had 63 cancelled or terminated trains in Q4 2019 out of a total of 24,956 trains scheduled. Environmental conditions (i.e., weather) resulted in 36 canceled or terminated trains. Police holds for investigations or vehicles on tracks caused another 12 cancelled or terminated trains in Q4 2019.

Shore Line East ridership surpassed goal by 2.5% in Q4 2019. There were 159,685 unlinked passenger trips against a goal of 155,807 unlinked passenger trips in Q4 2019. The Shore Line East had 28 cancelled or terminated trains out of a total of 2,904 trains scheduled. Eleven of these cancelled or terminated trains occurred on a single day, 11/1/2019.

What's our strategy?

NHL - CTDOT is committed to improving rail service through significant investments in new rail cars, new and/or improved train stations, and new repair facilities. CTDOT, working with Metro North Railroad, has started a multi-year initiative to fully replace the aging New Haven Line signal system.

SLE - CTDOT is committed to improving rail service and has added staff to the CTDOT SLE mechanical shop to help support the aging locomotive fleet. The six GP 40-2H have been rebuilt and are now in service. The P-40 locomotive overhaul program started in August 2018. The first six of the twelve P-40's have been moved to the Amtrak's Beech Grove Shops in Beech Grove, Indiana. The first overhauled P-40s are expected back in late 2020.

About the data

- Data for this measure becomes available for reporting Monthly.
- A four-quarter moving average is used to eliminate season variability and to highlight ongoing trends.
- Source: Bureau of Public Transportation, Office of Rail.

Annual Rail Passengers - New Haven Line

Annual Rail Passengers - Shore Line East
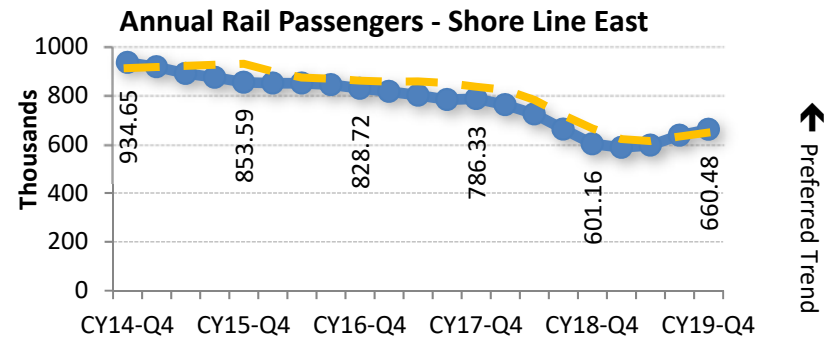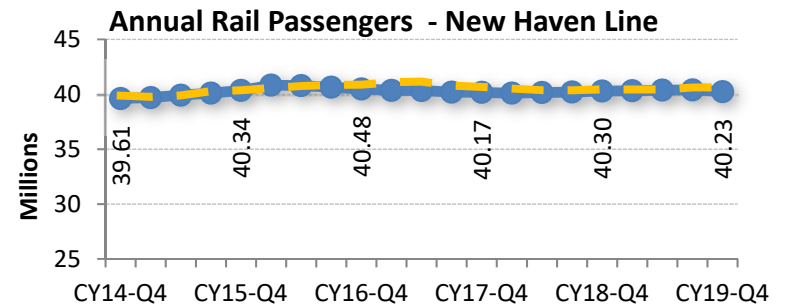
CTDOT Goal: Provide Mobility Choice, Connectivity & Accessibility

Focus Area: Bus Ridership

Key Performance Measures:	Period	Period Data	Result (12 month moving total)	Target
1.) Number of CT*transit* Passenger Trips	CY19 Q4	6,736,123	**26,135,148**	25,000,000

What is it and why is this important?

Number of CT*transit* Passenger Trips is the bottom-line measure for utilization of the CT*transit* fleet and its routes. Each person boarding a bus is counted as one passenger trip. CT*transit* provides fixed-route bus service for Hartford, New Haven, and Stamford. CT*transit* also provides express bus service to Hartford from surrounding areas.

## How are we doing?

For the quarter ending December 31, 2019 (October 2019 through December 2019), ridership has increased by 1.97%, when compared to the same quarter the previous year (October 2018 through December 2018). Annual Passenger Trips have decreased by 1.36%, trending unfavorable over the past 12 months (January 2019 through December 2019) when compared to the same 12-month span from the previous year (January 2018 through December 2018). Ridership over the past four years has decreased at an average of 1.40% per year, which is trending unfavorable. These unfavorable trends are consistent with regional and national transit ridership trends. Lower gas prices, ride hailing services and other travel options may be contributing to the decline in ridership.

What's our strategy?

CTDOT continues using advertising campaigns to market the bus services, and has strategically expanded service options and coverage. Use of newer, cleaner, more energy efficient hybrid electric buses has made "taking the bus" a more attractive and "greener" option. CTDOT recently completed the implementation of a statewide real-time bus location system. Customers can now access the location of their bus and the expected arrival time through their mobile phone. Additional information on CTtransit can be found at http://www.cttransit.com.

CT*transit* Passenger Trips (Annual)
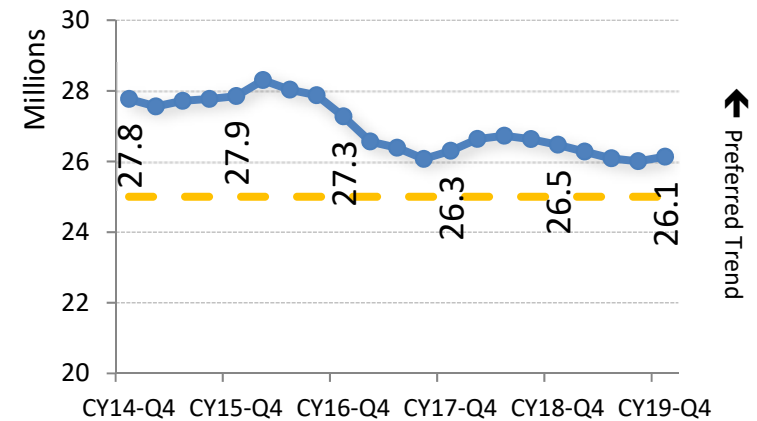
About the data
- Data for this measure becomes available for reporting quarterly and tallied for the preceding 12-month period to yield annual ridership numbers.
- The Period Data represents the 3 months of the reporting quarter for CTtransit's Hartford, New Haven and Stamford Divisions only.
- The data does not include CTtransit Express services. The target for this metric is a cumulative total for the entire 12-month period.
- The information can be obtained from the Office of Transit and Ridesharing in the Bureau of Public Transportation.

CTDOT Goal: Improve Efficiency and Reliability

Focus Area: Rail Fleet Condition

Key Performance Measures:

	Period	Period Data	Result (4-quarter avg.)	Target
1.) Mean Distance Between Failures (Electric Multiple Units – M8)	CY19 Q4	529,464	**444,849**	280,000
2.) Mean Distance Between Failures (Diesel Locomotives P-32)	CY19 Q4	40,749	**41,142**	21,000
3.) Mean Distance Between Failures (Diesel Locomotives BL 20)	CY19 Q4	21,501	**52,535**	13,000
4.) Mean Distance Between Failures (Coaches)	CY19 Q4	238,636	**321,846**	200,000

What is it and why is this important?

Mean Distance between Failures (MDBF) is the rail industry standard for fleet reliability. It is calculated by dividing the total number of confirmed miles operated by the total number of confirmed primary failures. A primary failure is defined as a failure due to mechanical causes that cancels or delays a revenue train for a period exceeding 5 minutes and 59 seconds. The four types of vehicles represented in this document are self - propelled Electric Multiple Units (EMUs), which are used in the New Haven Line service, the P32 and the BL20 diesel locomotives, which power trains on New Haven, Danbury and Waterbury Lines and the passenger coaches which are used on the New Haven, Waterbury, and Danbury Lines.

How are we doing?

M8 vehicle reliability is above goal for the quarter. The reported MDBF for Q4 2019 is 529,464 miles which is 89.1% above the 2019 goal of 280,000 miles. The M8 fleet had 15 system failures in Q4 2019 and ran 7,941,963 miles. A system failure is when one of the vehicle systems such as propulsion or communications significantly delays a train through any defect within that system.

P-32 locomotives reliability is above goal for the quarter. The reported MDBF for Q4 2019 is 40,749 miles which is 94.0% above the 2019 goal of 21,000 miles. The P-32 fleet had 14 system failures in Q4 2019 and ran 570,485 miles. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system.

BL 20 locomotives reliability is above goal for the quarter. The reported MDBF for Q4 2019 is 21,501 miles which is 65.4% above the 2019 goal of 13,000 miles. The BL 20 fleet had 5 system failures in Q4 2019 and ran 107,504 miles. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system.

Coach reliability is performing above goal for the quarter. The reported MDBF for Q4 2019 is 238,636 miles which is 19.3% above the 2019 goal of 200,000 miles. The Bombardier coach fleet had 18 system failures in Q4 2019 and ran for a combined total of 4,290,346 miles. A system failure is when one of the vehicles systems such as propulsion or communications significantly delays a train through any defect within that system.

What's our strategy?

The Department will continue to closely monitor this measure with a view to ensure proper maintenance and replacement of the rail fleet. The Department has initiated design for new rail cars to phase out the aging coach fleet. Over the next 10 years there will be a focus on replacement and expansion of the current locomotive and coach fleet to improve service reliability and meet future ridership demand. Funding for these programs is subject to budgetary constraints.
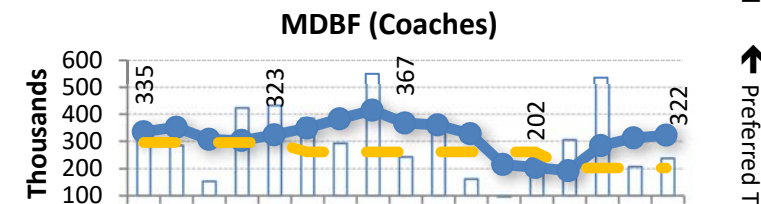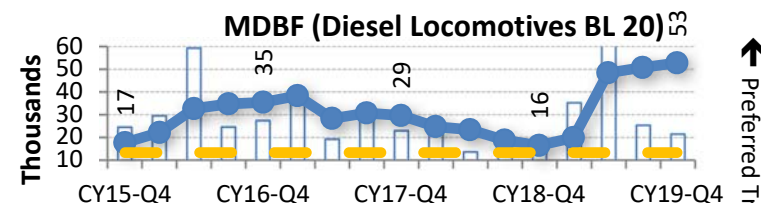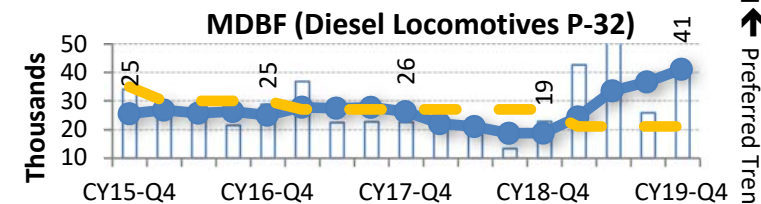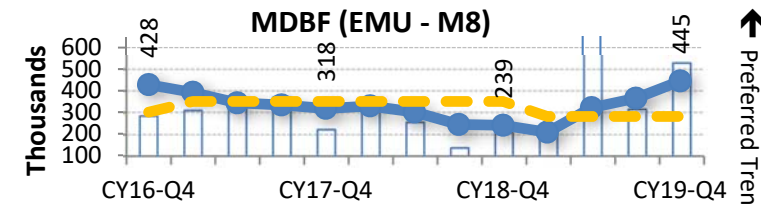
MDBF (EMU - M8)

MDBF (Diesel Locomotives P-32)

MDBF (Diesel Locomotives BL 20)

MDBF (Coaches)

About the data
- Data for this measure becomes available for reporting Monthly. A four-quarter moving average is used to eliminate seasonal variability and to highlight ongoing trends.
- Data are compiled quarterly by the Office of Rail in the Bureau of Public Transportation.
- Source: Bureau of Public Transportation, Office of Rail.

CTDOT Goal: Improve Efficiency and Reliability

Focus Area: Bus Fleet Condition

Key Performance Measures:	Period	Period Data	Result (4-quarter avg.)	Target
Average Miles Between Road Calls	CY19 Q4	66,098	**46,307**	16,000

What is it and why is this important?

Average Miles Between Road Calls is the industry standard performance metric used nationally by bus operators to measure availability and reliability of equipment. Road calls are traditionally counted when a bus misses one of its scheduled trips. In any given time period, the number of road calls can be affected by the age of the fleet, the occurrence of fleet-wide defects on a certain model years of buses, the weather, and other factors.

How are we doing?

Average miles between road calls have increased during the quarter, (average October 2019 through December 2019), up 45.60% when compared to last quarter (average July 2019 through September 2019). The 4-quarter average for this metric is trending favorable at 87.18% more miles between road calls, compared to the same period last year.

What's our strategy?

CTDOT's strategy is to maintain and replace the fleet in accordance with industry best practices and manufacturer's recommendations in order to optimize performance. The Department will also continue implementing a staggered vehicle replacement plan to maintain a reliable fleet.

Miles Between Road Calls (Bus)
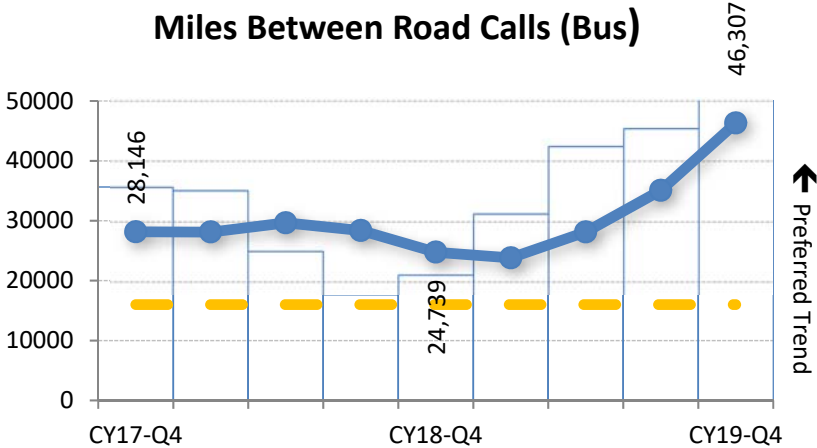
About the data
- Data for this measure becomes available for reporting Monthly & Quarterly. A four-quarter moving average is used to eliminate seasonal variability and to highlight ongoing trends.
- Period Data represents a 3 monthly quarterly average.
- Data are compiled quarterly by the Office of Transit and Ridesharing in the Bureau of Public Transportation.
- Source: Bureau of Public Transportation, Office of Transit and Ridesharing.

CTDOT Goal: Provide Mobility Choice, Connectivity & Accessibility

Focus Area: Rail Utilization

Key Performance Measures:	Period	Period Data	Result (4-quarter avg.)	Target
1.) Percent of Rail On-Time Performance – New Haven Line (NHL)	CY19 Q4	94.4	**93.3**	93.0%
2.) Percent of Rail On-Time Performance – Shore Line East (SLE)	CY19 Q4	94.7	**93.3**	93.0%

What is it and why is this important?

Percent of Trains On–Time is a key measure for service reliability for its customers. It is also the industry standard used to compare existing services. A New Haven Line or Shore Line East train is considered on time if it reaches its final destination within 5 minutes 59 seconds of its scheduled arrival time. On Time Performance (OTP) is impacted by the condition of the fleet, infrastructure and external events such as weather, medical emergencies and police actions, among other factors.

How are we doing?

The OTP for the NHL was 94.4% for Q4 2019, this is above the 93.0 % OTP goal for the New Haven Line. There were 1,061 delayed, cancelled or terminated trains with 2,007 delayed, cancelled, or terminated train incident causes between October 1, 2019 and December 31, 2019 out of 24,956 scheduled trains. It is important to note that a single delay incident can have multiple delay causes (i.e a train might be delayed 10 minutes at final destination but could be delayed by 4 minutes due to a speed restriction on the tracks and another 6 minutes due to wheel slip occurring). Engineering issues such as defects to the tracks or catenary system accounted for 730 incidents, while Environmental issues such as downed power lines and fallen trees caused storms accounted for another 347 delays. These 2 categories were responsible for 53.7% of all delays, cancellations and terminations on the NHL in Q4 2019.

The OTP for the SLE was 94.7% for Q4 2019. This is above the OTP goal of 93.0% for SLE. There were 154 delayed, cancelled, or terminated train incidents between October 1, 2019 and December 31, 2019 out of 2,904 scheduled trains. Intercity train, commuter train, and freight train interference such as when one train is delayed due to another train occupying the block contributed to 52 delays. Mechanical issues with the equipment contributed to another 35 delay incidents. These 2 categories were responsible for 56.5% of all delays, cancellations, and terminations on SLE in Q4 2019.

What's our strategy?

Our strategy has been to focus on replacement of aging infrastructure and equipment to improve overall OTP. The overhead catenary system has been replaced and a major capital program to replace the aging signal system will soon get underway. On the NHL the new M8 fleet has improved reliability. Overhaul of the Shore Line East and Hartford Line diesel locomotive fleet is underway. New rail cars are also being designed and will be advertised for purchase later in 2020.

About the data

- Data for this measure becomes available for reporting Monthly.
- A four-quarter moving average is used to eliminate season variability and to highlight ongoing trends.
- Source: Bureau of Public Transportation, Office of Rail.

On-Time Performance - New Haven Line (NHL)

On-Time Performance - Shore Line East (SLE)
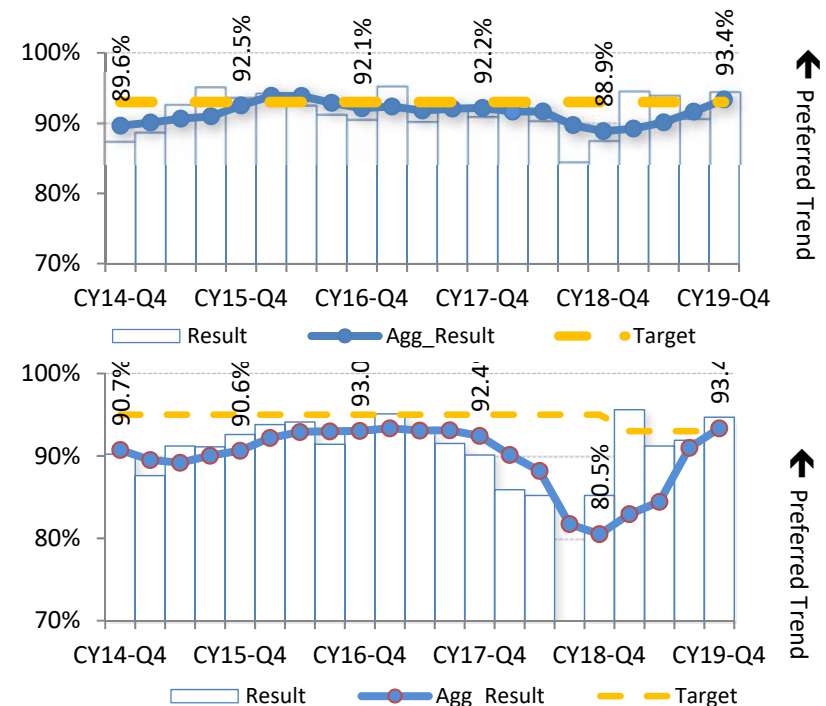
CTDOT Goal: Improve Efficiency and Reliability

Focus Area: Project Delivery (Contract Administration)

Key Performance Measures:	Period	Period Data	Result (4-quarter avg.)	Target
1.) Percent of Construction Contracts Awarded within 60 Days of Bid Opening	FY20 Q3	96%	**86%**	100%

What is it and why is this important?

This measure tracks the progress of awarding construction contracts once the bids have been received. The Department of Transportation executes a significant number of construction contracts annually. These contracts involve the construction and rehabilitation of roads, bridges, buildings, as well as other transportation-related public works projects. The timely execution of contracts is critical not only to ensure a safe and efficient infrastructure for the traveling public but also to disburse funds quickly and minimize overall project costs.
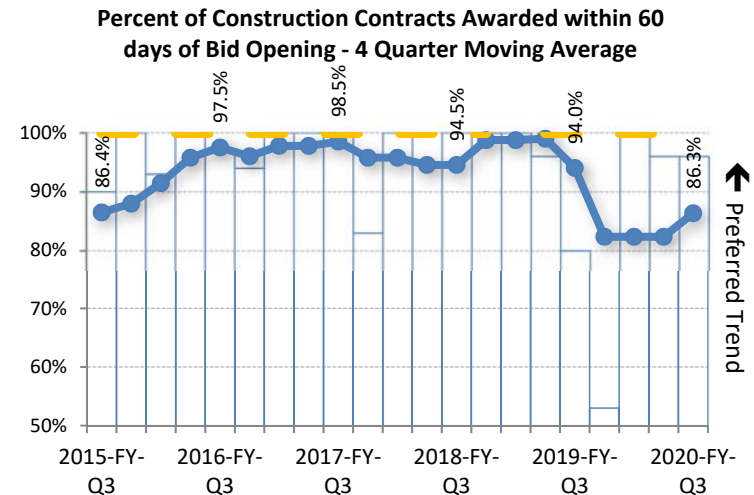
How are we doing?

23 of 24 (96%) contracts were awarded within 60 days of bid opening.

What's our strategy?

The Contracts Unit continues to focus on the timely review and processing of the various bid documents and required contractor submittals that are due prior to contract award, while also keeping open lines of communication with all DOT Units affected by each project, as well as with the apparent low bidder.

Over the last several years the Department has focused on streamlining the contract bidding and award process. In doing so, we have enhanced project tracking mechanisms, processes and increased Department communication related to various aspects of project status, such as permit, right of way (ROW) and funding status. The implementation of electronic bidding has also significantly reduced the review time of contractor bids.

Percent of Construction Contracts Awarded within 60 days of Bid Opening - 4 Quarter Moving Average

About the data

- This measure is calculated by comparing the total number of construction contracts awarded this quarter with the number awarded within 60 days of bid opening.
- A four-quarter moving average is used to calculate the result to eliminate general variability in the trend.
- Data are compiled quarterly, based on the State fiscal year (July 1st through June 30th).
- Source: Bureau of Finance & Administration, Office of Contracts, Agreements, and Contract Compliance.

CTDOT Goal: Improve Efficiency and Reliability

Focus Area: Project Delivery (Construction)

Key Performance Measures:	Period	Period Data	Result (2-year avg.)	Target
1.) Percent of Construction Contracts Completed Within Budget	CY-19	67.0%	**75.5%**	70.0%
2.) Percent of Construction Contracts Completed On-Time	CY-19	54.0%	**62%**	60.0%

What is it and why is this important? **Contracts Completed within Budget and On Time** are fundamental measures that assist the Department in gauging its project delivery performance. These measures are influenced by a myriad of project development phases including the initial design, the contract administration and the performance of the low bid contractor. Projects completed within budget and on time allow the Department to maximize its capital plan for all modes of transportation.

A **contract is considered to be completed within budget** if expenditures do not exceed the original contract value plus a 10% contingency. A **contract is completed on time** if it is completed within the original scheduled calendar days plus a 10% contingency.

How are we doing? The general trend of construction contracts completed within budget was showing modest gains over the last 3 years, however over the last 4 quarters, this percentage has dropped. The 2 year moving average of about 75.5% is considered to be good. It must be noted that this measure is influenced by a myriad of factors that affect the results. Construction costs are impacted by the quality and completeness of the project designs, changes in field conditions, changes in scope and risk sharing contractual language in the contracts.

The trend of construction projects completed on-time was showing modest gains over the previous year, however the last 4 quarters the percentage has dropped. The Department achieved an on-time performance level averaging approximately 62% for the past 2 years. Several factors indicated in our strategies influenced the on time projects delivery. It must be noted that risk sharing language in our contracts allow projects to receive time extensions for factors that are beyond the control of the contractor and the Department. It should also be noted that the leading cause of project delays are the result of Utility Company delays in performing their work necessary to progress the project.

What's our strategy? The Department has implemented a Lessons Learned initiative to address causes of project cost overruns and establish best practices to avoid recurring issues.

Constructability reviews are performed during the design phases to enhance the overall project quality.

The Department has also improved its Quality Assurance efforts, increased management of project risks, and made process improvements to better monitor contract performance.

Also, pleased note there is risk sharing contractual language that impacts certain pay items (budget). These provisions reduce the likelihood of disputes and / or delays, but may increase the cost of the work.
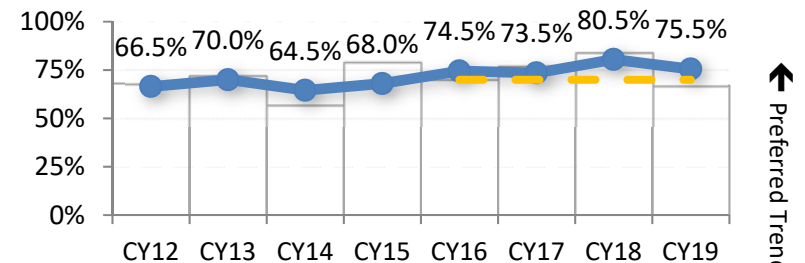
About the data
- Percent of Contracts Completed Within Budget and On-Time are computed from the projects accepted each quarter.
- A two year moving average is used to eliminate seasonal variability in the timing of the completion of projects and to focus on underlying trends.
- Data are compiled by the Office of Construction, Central Office, on a yearly basis.
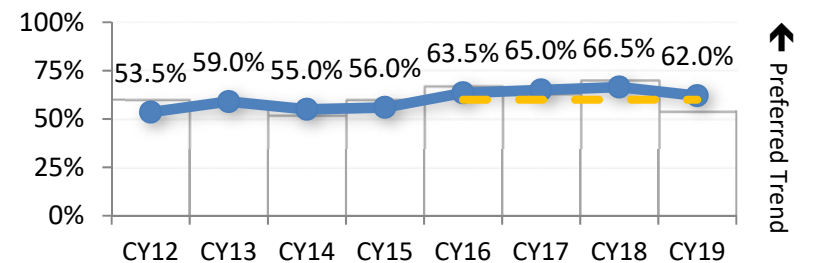- Source: Bureau of Engineering & Construction, Construction Division

Alternate project delivery methods such as Design-Build (DB), Construction Manager-At-Risk (CM@R), and Construction Manager / General Contractor (CMGC) will yield time savings when compared to the traditional Design–Bid–Build (DBB).

The Department has implemented improved procedures to estimate the time allowed to complete a project. The improved procedures include better collaboration between designer and construction personnel as well as commitments from utility companies regarding the duration of their work on Department projects. These projects will begin appearing in the metrics data in the future.

% Contracts Completed Within Budget

Values: CY12 66.5%, CY13 70.0%, CY14 64.5%, CY15 68.0%, CY16 74.5%, CY17 73.5%, CY18 80.5%, CY19 75.5%

↑ Preferred Trend

% Contracts Completed On Time

Values: CY12 53.5%, CY13 59.0%, CY14 55.0%, CY15 56.0%, CY16 63.5%, CY17 65.0%, CY18 66.5%, CY19 62.0%

↑ Preferred Trend