

# Connecticut Department of Transportation Quarterly Performance Measures Summary



2015 Quarter 4 (October 1 to December 31)

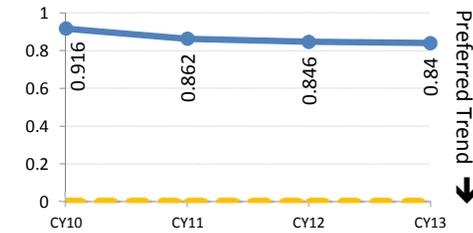
Performance Measure	Period	Period Data	Result	Target	Trend	How are we doing?
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## Provide Safe & Secure Travel

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

[\(For More Information Click Here\)](#)

CY13	0.92	0.84 (5-year moving average)	0 (5-year moving average)
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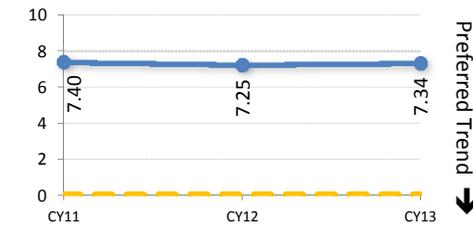
Preferred Trend ↓

In 2013, there were 265 reported fatal motor vehicle crashes in which 286 persons were killed. The 286 fatality total includes drivers, passengers, pedestrians and cyclists. The 2013 Connecticut fatality rate was 0.92 fatalities per 100 million vehicle miles traveled (VMT). The five year rolling average for the 2009-2013 time period was 0.84 fatalities per 100 million VMT. The 2013 national fatality rate was 1.09 fatalities per 100 million VMT. The Connecticut rate continues to be lower than the national rate.

Rate of Annual Highway Fatalities per 100,000 population

[\(For More Information Click Here\)](#)

CY13	7.95	7.34 (5-year moving average)	0 (5-year moving average)
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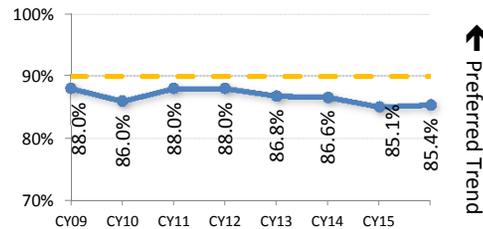
Preferred Trend ↓

The population for Connecticut in 2013 was 3,596,080. The 2013 Connecticut fatality rate was 7.95 fatalities per 100,000 population. The 2013 national fatality rate was 10.35 fatalities per 100,000 population. The Connecticut rate continues to be lower than the national rate.

Percent of Seat Belt Usage

[\(For More Information Click Here\)](#)

CY15	85.4%	85.4%	90.0%
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Preferred Trend ↑

The seatbelt use rate has seen an increase from last year. The Highway Safety Office will continue working with law enforcement agencies statewide with the "Click it or Ticket" campaigns in May and November to ensure a shift in the trend toward the goal of 90%. The latest scientific survey of belt observations was conducted in 2015. It provides the most accurate and reliable statewide estimate of seat belt use available in Connecticut that is comparable to the 1995 baseline estimate accredited by the National Highway Traffic Safety Administration (NHTSA) in 1998 and the statewide survey conducted in 1998. Seat belt use was 85.4% in 2015. The first comparable safety belt use survey in Connecticut was done in 1995 and recorded a 59 percent belt use rate. The rate reached an all-time high of 88% in 2008, and again in 2011.

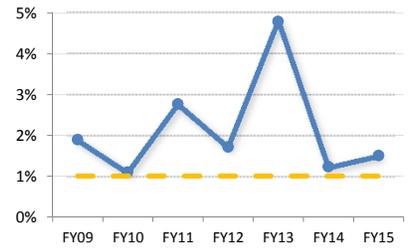
## Preserve & Maintain the Transportation Network

Percent of State Maintained Roads with Acceptable or Better Ride Quality (NHS) <a href="#">(For More Information Click Here)</a>	CY14	84.0%	82.1% (3-year moving average)	Increase Percentage		Preferred Trend ↑	In 2014 84.1% of Connecticut's NHS roadway miles have an acceptable or better ride quality (Fig 1). Over the past three years this percentage has been increasing, reflecting the increased size of the Department's pavement preservation and resurfacing programs.
Percent of State Maintained Roads with Acceptable or Better Ride Quality (Entire Network) <a href="#">(For More Information Click Here)</a>	CY14	77.5%	74.8% (3-year moving average)	Increase Percentage		Preferred Trend ↑	The results indicate that in 2014, 77.5% of the entire state-owned network roadway miles have an acceptable or better ride quality. Like the NHS, the value for the entire network is reflecting the positive impact of increased pavement programs.
Percent of State Maintained Roadway Bridges In a State of Good Repair <a href="#">(For More Information Click Here)</a>	CY14	92.7%	92.7%	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 couple years along with improved project delivery time from initial project identification. An additional 3 to 5 years is needed to fully reflect the impact of the allocation of these resources.
Number of Bridge Work Items Completed <a href="#">(For More Information Click Here)</a>	CY15-Q4	508	390 (8-quarter moving average)	Maximize Completion of Work Items		Preferred Trend ↑	During the most recent quarter the 2 year moving average of the bridge work items completed was 390, this represents a 5.4% increase in the number of work items completed as compared to the same quarter a year ago. We are consistent with our target to Maximize Completion of Work Items.
Number of Backlogged Bridge Work Items <a href="#">(For More Information Click Here)</a>	CY15-Q4	3,786	4016 (8-quarter moving average)	Strive for Zero Growth in Backlog		Preferred Trend ↓	During the most recent quarter the 2 year moving average of the backlogged bridge work items was 4,15; this represents 1.0 % 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.

## Provide Mobility Choice, Connectivity & Accessibility

Percent of Funds Expended for Bicycle/ Pedestrian Access	FY15	1.51%	1.5%	1.0%
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[\(For More Information Click Here\)](#)

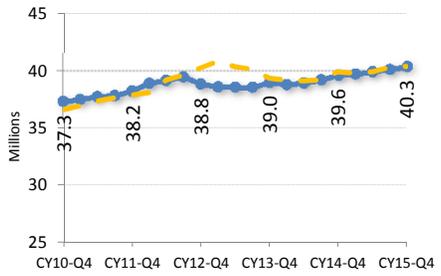


↑ Preferred Trend

Thirty-five projects awarded in SFY 2015 included elements for pedestrians or bicyclists, such as sidewalks, ramps, pedestrian signals, push-buttons, signs, and pedestrian/bicycle trails. The total dollars being expended for these items is approximately \$12.5 million, which is approximately 1.51% 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.

Number of Rail Passengers New Haven Line (NHL)	CY15-Q4	10,489,252	40,343,883 (4-quarter moving sum)	40,361,883 (4-quarter moving sum)
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[\(For More Information Click Here\)](#)

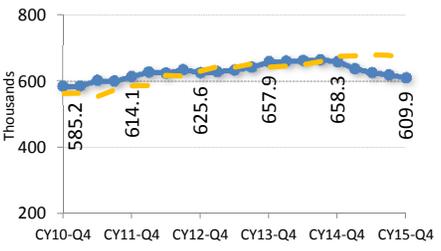


↑ Preferred Trend

Ridership in the New Haven Line grew by 2.3% in the 4th quarter of 2015 in relation to the same period in 2014. The New Haven line has increased ridership by 1.9% in 2015 overall and this is in line with the continuing 5 year trend that averages of 1.6% growth per year over the last 5 years. Growth in commuter tickets and discretionary rides as well as continued service reliability especially in the peak periods are the primary factors for this positive trend.

Number of Rail Passengers Shore Line East(SLE)	CY15-Q4	150,431	609,945 (4-quarter moving sum)	668,982 (4-quarter moving sum)
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[\(For More Information Click Here\)](#)

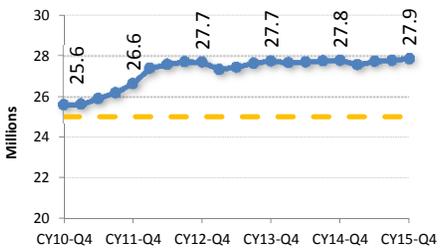


↑ Preferred Trend

Ridership in the Shore Line East fell by 5.4% in the fourth quarter of 2015 in relation to the fourth quarter of 2014. Overall Ridership declined 7.3% in 2015 due to several key contributing factors, these include; abnormally severe winter weather, the fleet's reliability, and mechanical failures exacerbated by the severe weather conditions during the first quarter of 2015. There was growth each of the previous 5 years and recent growth in discretionary rides and a continued growth in the New London and weekend markets have partially offset the ridership losses and have helped to lessen the negative trend.

Number of CTtransit Passenger Trips	CY15-Q4	7,134,767	27,850,129 (4-quarter moving sum)	25,000,000 (4-quarter moving sum)
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[\(For More Information Click Here\)](#)



↑ Preferred Trend

Yearly Passenger Trips have increased slightly by 0.28% over the past 12 months and has increased at an average of 0.20% per year over the last four years.

Performance Measure	Period	Period Data	Result	Target	Trend	Result:	Target:	How are we doing?
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## Improve Efficiency & Reliability

<b>Mean Distance Between Failures (Miles) - Diesel Locomotives</b>  <a href="#">(For More Information Click Here)</a>	CY15-Q4	34,079	25,468 (4-quarter moving average)	35,000 (4-quarter moving average)		Preferred Trend	<p>MDBF for P-32 Diesel locomotives on the New Haven Line made significant improvements in Q4 but fell short of the target. Delays in the completion of the overhaul program for the P-32 locomotives, and the time since overhaul of the earliest locomotives in the program, have combined to cause a negative MDBF trend. There were a total of 16 failures over the course of 545,265 miles of travel for a mean distance between failure of 34,079. This is just under the goal of 35,000 miles and is a significant improvement over both the 2014 Q4 MDBF figure of 25,766, and the 2015 yearly total which was 24,027 miles. This reflects the age of the fleet and the continued need for repair and overhaul.</p>

<b>Mean Distance Between Failures (Miles) - Coaches</b>  <a href="#">(For More Information Click Here)</a>	CY15-Q4	347,438	334,664 (4-quarter moving average)	295,000 (4-quarter moving average)		Preferred Trend	<p>MDBF for coaches on the New Haven Line was above the target this quarter. This trend is in a positive direction, and is a direct result of a continued focus on reliability and an overhaul program on Bombardier coaches completed in 2010. The MDBF of the coaches was 347,438 miles in Q4 of 2015. This was contrasted with a MDBF in Q4 of 2014 of 331,114. The MDBF for 2015 was 315,598. These are all positive trends.</p>

<b>Mean Distance Between Failures (Miles) - Electric Multiple Unit (EMU) M8</b>  <a href="#">(For More Information Click Here)</a>	CY15-Q4	268,449	300,441 (4-quarter moving average)	280,000 (4-quarter moving average)		Preferred Trend	<p>An investment program began in 2009 to purchase a total of 405 M8 cars. As of the end of June 2015 all 405 M8 rail cars were delivered, tested, accepted and deployed in service on the New Haven Line. Connecticut owns 274 cars of the current M8 fleet. The MDBF for the M8 fleet this quarter was 268,449 miles, which is below the 280,000 mile target. However, on a whole the trend continues in a positive direction for the year exceeding the target with an MDBF of 284,388.</p>

<b>Average Miles Between Road Calls (Bus)</b>  <a href="#">(For More Information Click Here)</a>	CY15-Q4	23,512	17,881 (4-quarter moving average)	16,000 (4-quarter moving average)		Preferred Trend	<p>Average miles between road calls has improved significantly during the quarter, up 70% compared to last quarter. The 4-quarter average for this metric is also trending favorable at 15% more miles between roadcalls, compared to the last 4-quarter average.</p>

Performance Measure	Period	Period Data	Result	Target	Trend	Result:	Target:	How are we doing?
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## Improve Efficiency & Reliability (Continued)

Percent of Rail On-Time Performance (OTP)-New Haven Line (NHL)  <a href="#">(For More Information Click Here)</a>	CY15-Q4	93.6%	92.5%	93.0%		↑ Preferred Trend	On-time Performance (OTP) for the New Haven Line this quarter was 93.6%, which is above the target set by Metro North of 93%, and has shown improvement over the same period last year. Overall 2015 is slightly below the target with OTP being 92.6% but has sustained a positive trend over the past 2 quarters. M8 equipment reliability has improved the OTP for the NHL. Engineering issues were the primary reasons for late NHL trains.
			(4-quarter moving average)	(4-quarter moving average)			

Percent of Rail On-Time Performance (OTP)-Shore Line East (SLE)  <a href="#">(For More Information Click Here)</a>	CY15-Q4	92.6%	90.6%	95.0%		↑ Preferred Trend	This quarter the OTP for the Shore Line East was below the target of 95%. The 2015 Q4 OTP was 92.6%. While this is below the SLE target it is an improvement over 2014 Q4 OTP of 90.2% and a continuation of the positive trend that started in Q3 of 2015. Interference with other trains, late train turns and mechanical issues were the primary reasons for late SLE trains for this quarter.
			(4-quarter moving average)	(4-quarter moving average)			

Percent of Construction Contracts Awarded within 60 Days of Bid Opening  <a href="#">(For More Information Click Here)</a>	FY16-Q2	100%	95.8%	100.0%		↑ Preferred Trend	For the second quarter of fiscal year 2016, which is quarter 4 of calendar year 2015, 18 of 18 Construction Contracts were awarded within 60 days of bid opening. This meets the target of awarding 100% of contracts within 60 days.
			(4-quarter moving average)	(4-quarter moving average)			

Percent of Construction Contracts Completed within Budget  <a href="#">(For More Information Click Here)</a>	CY15-Q4	79.0%	79.5%	Increase Percentage		↑ Preferred Trend	19 contracts were completed with 15(79%) completed within budget. For all contracts, the aggregate budgeted dollar value increase was 0%. On-budget contracts totaled \$26.5 million (75% of the total completed cost of all contracts.) Over the past year this measure has exhibited positive gains. A vast majority of the time there are legitimate contractual reasons for exceeding the budget or time. CTDOT includes a significant amount of risk-sharing contractual language (at times mandated by Federal regulations) in our Construction projects. This is done so contractors don't have to inflate their bids to address unknown contingencies and so that CTDOT receives the most cost effective bids. Some of these provisions impact pay items (budget); for example, addressing a subsurface condition not anticipated during the design may increase the cost of the work. Other provisions impact time; for example, additional time is granted for natural catastrophes. Further, the majority of CTDOT projects are unit price contracts based on estimated quantities, which may increase due to differing actual field conditions; this can increase budget as well as time.
			(4-quarter moving average)				

Percent of Construction Contracts Completed on Time  <a href="#">(For More Information Click Here)</a>	CY15-Q4	58.0%	59.3%	Increase Percentage		↑ Preferred Trend	19 contracts were completed with 11(58%) completed on time. On delayed contracts, 5 were completed within 6 months, 2 between 6 to 12 months and 1 between 18 to 24 months of their original time. Delays were due to Changed Conditions (27.0%), Third Party (22.2%), Extra Work (18.9%), Utility Delay (14.7%), Temperature Restriction (14.2%) and other miscellaneous reasons (3.0%). Over the past year this measure has exhibited positive gains. A vast majority of the time there are legitimate contractual reasons for exceeding the budget or time. CTDOT includes a significant amount of risk-sharing contractual language (at times mandated by Federal regulations) in our Construction projects. This is done so contractors don't have to inflate their bids to address unknown contingencies and so that CTDOT receives the most cost effective bids. Some of these provisions impact pay items (budget); for example, addressing a subsurface condition not anticipated during the design may increase the cost of the work. Other provisions impact time; for example, additional time is granted for natural catastrophes. Further, the majority of CTDOT projects are unit price contracts based on estimated quantities, which may increase due to differing actual field conditions; this can increase budget as well as time.
			(4-quarter moving average)				

# CTDOT Goal: Provide Safe & Secure Travel



## Focus Area: Highway Safety - Fatalities

### 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)	CY2013	0.92	<b>0.84</b>	0
2.) Rate of annual highway Fatalities per 100,000 population	CY2013	7.95	<b>7.34</b>	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?

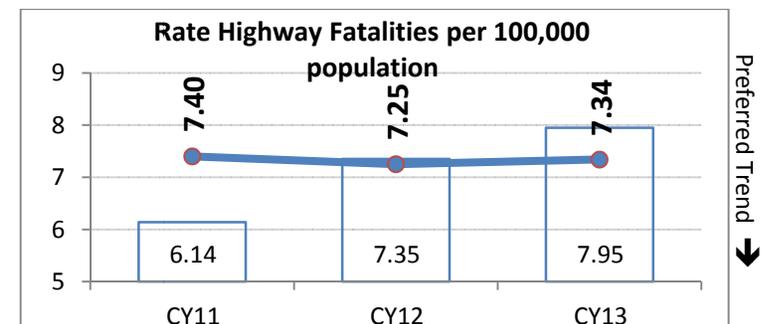
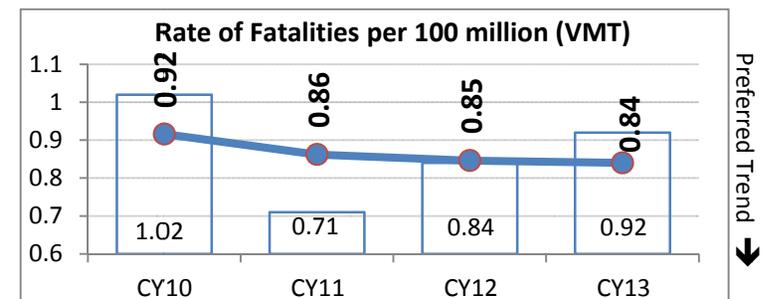
In 2013, there were 265 reported fatal motor vehicle crashes in which 286 persons were killed. The 286 fatality total includes drivers, passengers, pedestrians and cyclists. The 2013 Connecticut fatality rate was 0.92 fatalities per 100 million vehicle miles traveled (VMT). The five year rolling average for the 2009-2013 time period was 0.84 fatalities per 100 million VMT. The 2013 national fatality rate was 1.09 fatalities per 100 million VMT. The Connecticut rate continues to be lower than the national rate.

The population for Connecticut in 2013 was 3,596,080. The 2013 Connecticut fatality rate was 7.95 fatalities per 100,000 population. The 2013 national fatality rate was 10.35 fatalities per 100,000 population. The Connecticut rate continues to be 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 "crack-down" mobilizations 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 largest component of 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.



#### 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 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. (For example, calendar year 2013 data are published initially in the fall of 2014, and finalized in mid-2015.)
- 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-2015	85.4%	<b>85.4%</b>	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?

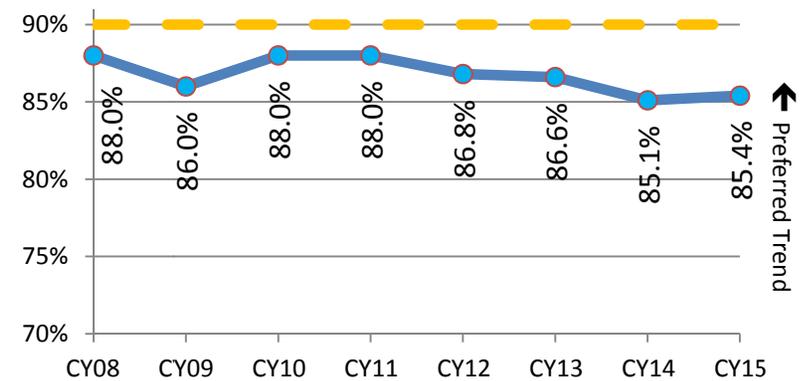
The latest scientific survey of belt observations was conducted in 2015. It provides the most accurate and reliable statewide estimate of seat belt use available in Connecticut that is comparable to the 1995 baseline estimate accredited by the National Highway Traffic Safety Administration (NHTSA) in 1998 and the statewide survey conducted in 1998. Seat belt use was 85.4% in 2015. The first comparable safety belt use survey in Connecticut was done in 1995 and recorded a 59 percent belt use rate. The rate reached an all-time high of 88% in 2008, and again in 2011.

### 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. (CTDOT)

### 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).
- The latest data set used for this posting is through Calendar Year 2015.
- 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-2014	84.1%	<b>82.1%</b>	Increase %
2.) Percent of State Maintained Roads with Acceptable or Better Ride Quality (Entire Network)	CY-2014	77.5%	<b>74.8%</b>	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?

**NHS Roadways** typically carry higher volumes of traffic and tend to be maintained at a higher priority level than the remainder of the network. In 2014 84.1% of Connecticut’s NHS roadway miles have an acceptable or better ride quality (Fig 1). Over the past three years this percentage has been increasing, reflecting the increased size of the Department’s pavement-preservation and resurfacing programs.

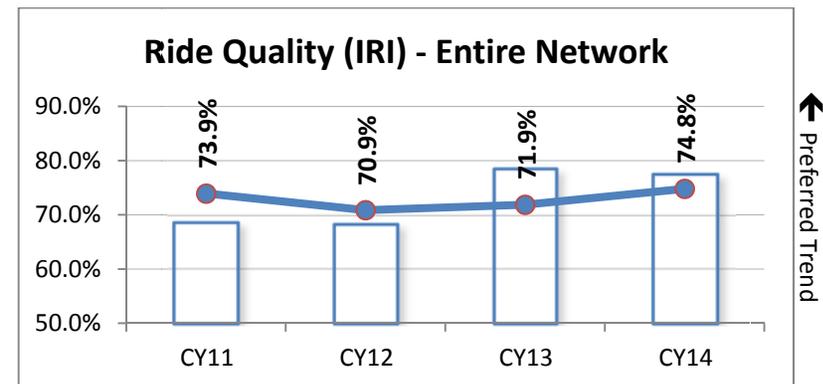
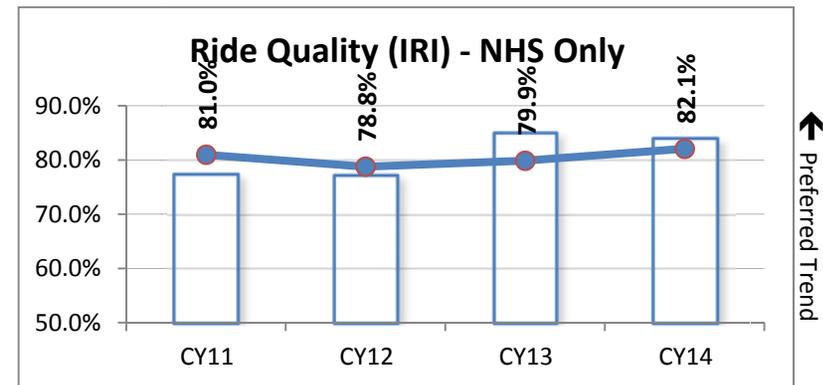
The ride quality of the **entire state-maintained roadway network**, which includes both NHS and non-NHS mileage, is shown in Figure 2. When the non-NHS roadways are factored in, the percent of the roads with good ride quality is reduced. The results indicate that in 2014, 77.5% of the entire state-owned network roadway miles have an acceptable or better ride quality. Like the NHS, the value for the entire network is reflecting the positive impact of increased pavement programs.

### 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.

#### 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



Figures 1 (Top) and 2 (Bottom)

# CTDOT Goal: Preserve & Maintain the Transportation System



## Focus Area: Highway 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-2014	92.7%	92.7%	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 highway bridges. The Department is directly responsible for approximately 4,000 bridges, including all Connecticut National Bridge Inventory (NBI), Connecticut Non-NBI, Adopted and Orphan bridges. All bridges, whether state or town-maintained, having spans greater than 20 feet are included in the National Bridge Inventory (NBI). The Department reports on the condition of the NBI to the Federal Highway Administration (FHWA) on an annual basis.

### How are we doing?

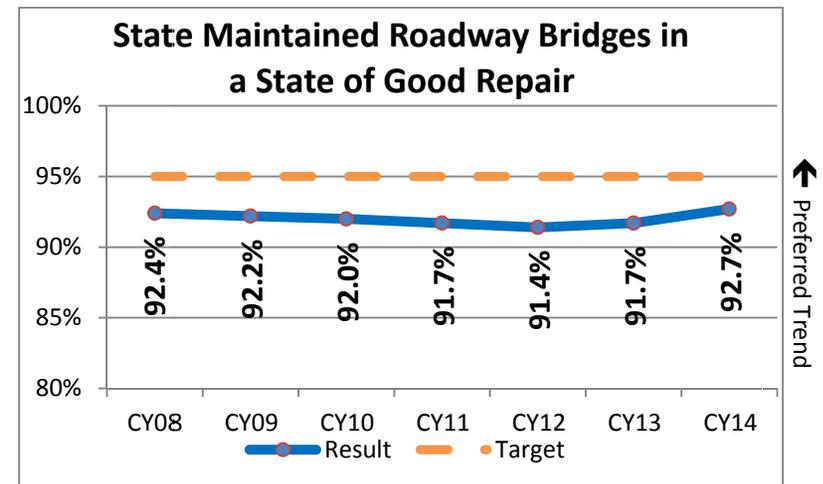
As seen in the chart to the right, the percentage of bridges in a State of Good Repair has increased due to additional staff and budget resources allocated to bridges over the past couple years along with improved project delivery time from initial project identification. An additional 3 to 5 years is needed to fully reflect the impact of the allocation of these resources.

### What's our strategy?

**Bridge Inspection:** The condition of all bridge decks, superstructures and substructures are inspected and rated on a scale from 0 (failed condition) to 9 (excellent condition). The lowest rating becomes the bridge's overall rating. The overall goal of the Department is to maintain all highway assets in a State of Good Repair.

**Bridge Maintenance:** At each inspection if a deficiency is noted, a request is sent to Bridge Maintenance to initiate a repair. If the condition rating of a 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. For our large structures the Department reviews the future needs of these major assets and programs projects in advance of the structure becoming deficient.

**Bridge Management:** When a structure receives its initial poor rating, the bridge is identified as a candidate for rehabilitation or replacement. Steps are taken to ensure that a project is initiated to address the deficiencies of the bridge. Correcting the deficiencies can take several years because of environmental, right-of-way, and constructability concerns. Experience has shown that it is necessary to initiate this process when the first poor rating is identified in order to provide sufficient time for design and construction.



#### About the data

- State of good repair (SOGR) is defined as a bridge rated as 5 or better.
- Data for this measure becomes available for reporting annually in April for the previous Calendar Year. The latest data set used for this posting was released in April 2015.
- Source: Bureau of Engineering & Construction, Office of Bridge Management

# 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	2015-Q4	508	390	Maximize Work Items Completed
2.) Number of Backlogged Bridge Work Items	2015-Q4	3786	4016	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?

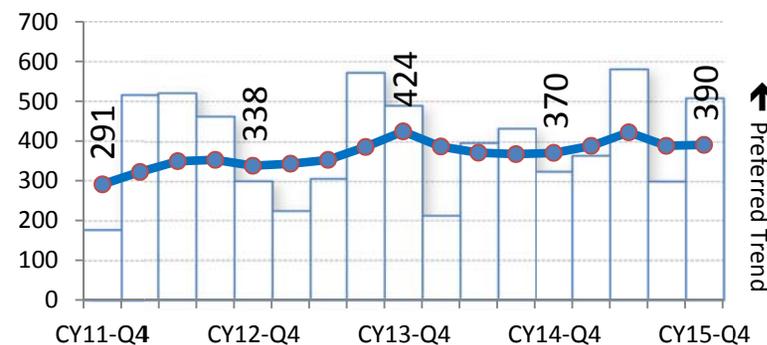
During the most recent quarter the 2 year moving average of the bridge work items completed was 390, this represents a 5.4% increase in the number of work items completed as compared to the same quarter a year ago. We are consistent with our target to Maximize Completion of Work Items.

During the most recent quarter the 2 year moving average of the backlogged bridge work items was 4,15; this represents 1.0 % 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.

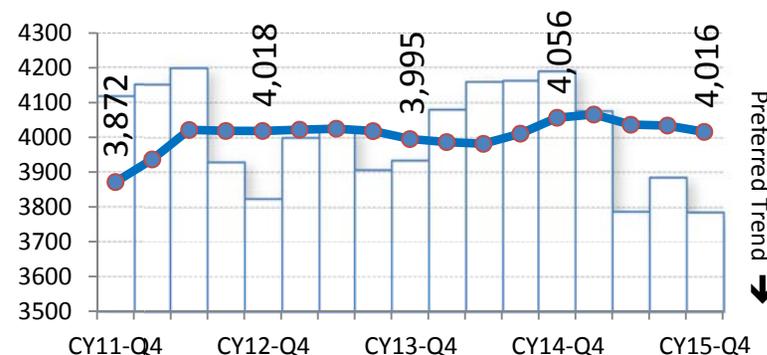
### What’s our strategy?

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

### Work Items Completed



### Backlogged Work Items



#### 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

# 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 2015	1.51%	<b>1.51%</b>	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.”

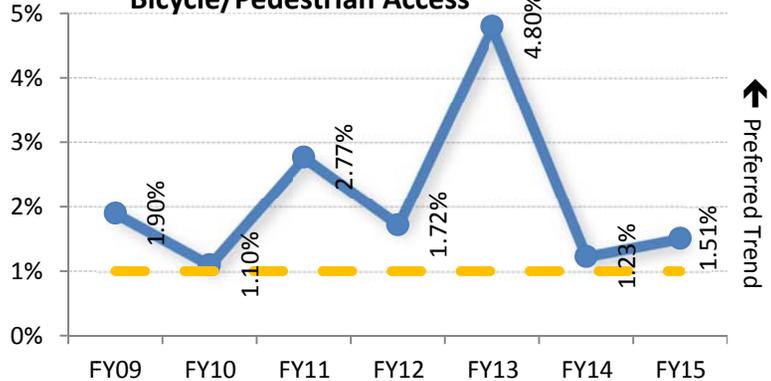
### How are we doing?

Thirty-five projects awarded in SFY 2015 included elements for pedestrians or bicyclists, such as sidewalks, ramps, pedestrian signals, push-buttons, signs, and pedestrian/bicycle trails. The total dollars being expended for these items is approximately \$12.5 million, which is approximately 1.51% 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.

### What’s our strategy?

CTDOT’s strategy is to continue to promote projects that incorporate items to improve accessibility for pedestrians and bicyclists.

Percent of Funds Expended for Bicycle/Pedestrian Access



#### About the data

- Data for this measure becomes available for reporting annually in October for the previous State Fiscal Year (SFY). The latest data set used for this posting was released in October 2015.
- Source: Bureau of Engineering & Construction, Office of Asset Management

# CTDOT Goal: Provide Mobility Choice, Connectivity & Accessibility



## Focus Area: Rail Utilization

### 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)	CY15 Q4	10,489,252	<b>40,343,883</b>	40,283,418
2.) Number of Rail Passengers – Shore Line East (SLE)	CY15 Q4	150,431	<b>609,9458</b>	688,982

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

**Number of Rail Passengers** is the key bottom-line measure for utilization of the rail transport mode. There are two trunk lines in the state – the New Haven Line (NHL), operated by Metro-North Railroad connecting New Haven and three branch lines with Bridgeport, Stamford and New York City and Shore Line East (SLE), is operated by Amtrak and connects New London with New Haven, with select through trains continuing to Bridgeport and Stamford. The New Haven Line is one of the busiest commuter lines in North America.

### How are we doing?

Ridership in the New Haven Line grew by 2.3% in the 4th quarter of 2015 in relation to the same period in 2014. The New Haven line has increased ridership by 1.9% in 2015 overall and this is in line with the continuing 5 year trend that averages of 1.6% growth per year over the last 5 years. Growth in commuter tickets and discretionary rides as well as continued service reliability especially in the peak periods are the primary factors for this positive trend.

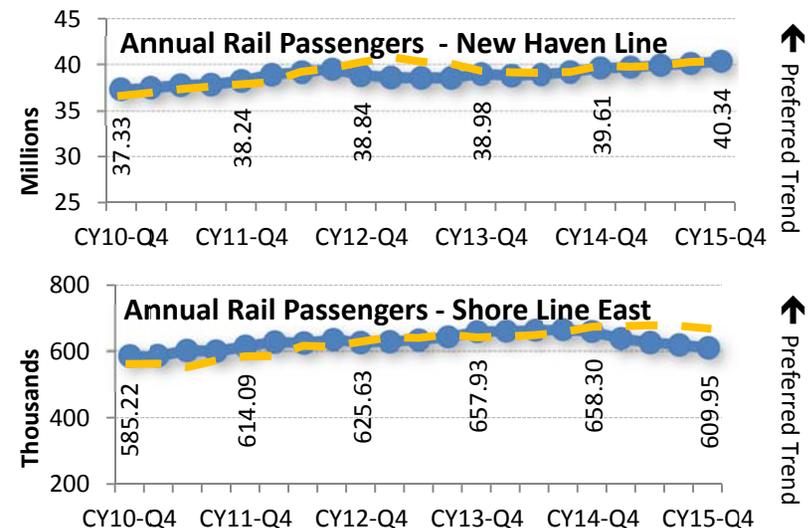
Ridership in the Shore Line East fell by 5.4% in the fourth quarter of 2015 in relation to the fourth quarter of 2014. Overall Ridership declined 7.3% in 2015 due to several key contributing factors, these include; abnormally severe winter weather, the fleet's reliability, and mechanical failures exacerbated by the severe weather conditions during the first quarter of 2015. There was growth each of the previous 5 years and recent growth in discretionary rides and a continued growth in the New London and weekend markets have partially offset the ridership losses and have helped to lessen the negative trend.

### What's our strategy?

CTDOT is committed to improving rail service through a significant investment in new rail cars, new or improved train stations, and new repair facilities.

#### About the data

- Data for this measure becomes available for reporting Monthly. The data set used for this posting is through 09/30/2015, which is quarter 3 of calendar year 2015.
- A four-quarter moving average is used to eliminate seasonal variability and to highlight ongoing trends.
- Source: Bureau of Public Transportation, Office of Rail.



# CTDOT Goal: Provide Mobility Choice, Connectivity & Accessibility



## Focus Area: Bus Utilization

### Key Performance Measures:

	Period	Period Data	Result (12 month moving total)	Target
1.) Number of CTtransit Passenger Trips	CY15 Q4	7,134,767	27,850,129	25,000,000

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

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

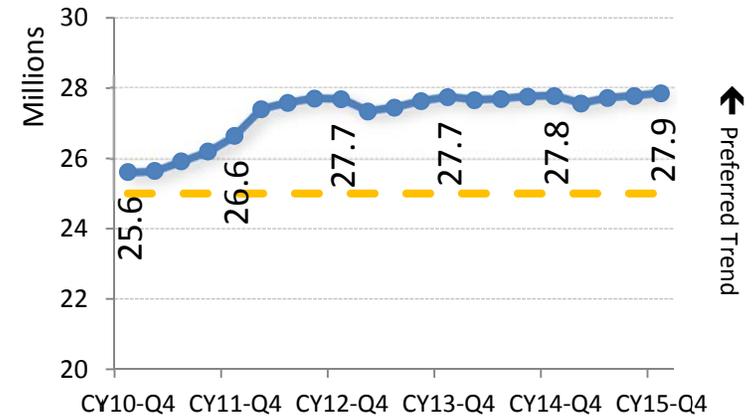
### How are we doing?

Ridership over the past four years has increased at an average of 0.20% per year.

### What's our strategy?

CTDOT has consistently run advertising campaigns to market the bus systems, and has been increasing service options and coverage. Use of newer, cleaner, more energy efficient hybrid electric, low sulfur diesel, and hydrogen fuel cell buses also has made "taking the bus" a more attractive and 'greener' option. Additional information on transit can be found at <http://www.cttransit.com>.

### CTtransit Passenger Trips (Annual)



#### About the data

- Data for this measure becomes available for reporting quarterly and summated for the preceding 12-month period to yield annual ridership numbers.
- Period Data represent the 3 months of the reporting quarter HNS only.
- The target for this measure is a cumulative total for the entire 12 month period.
- The data provided is for CTtransit's Hartford, Stamford and New Haven Divisions only
- Source: Bureau of Public Transportation, Office of Transit & Ridesharing.

# 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)	CY15 Q4	268,449	<b>300,441</b>	280,000
2.) Mean Distance Between Failures (Diesel Locomotives)	CY15 Q4	34,079	<b>25,468</b>	35,000
3.) Mean Distance Between Failures (Coaches)	CY15 Q4	347,438	<b>334,664</b>	295,000

### 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 miles operated by the total number of confirmed primary failures. A confirmed primary failure is defined as a failure of any duration for mechanical cause that occurs to a revenue train that is reported late at its final terminal by more than 5 minutes, 59 seconds.

The three types of vehicles presented in this document are self-propelled **Electric Multiple Units (EMUs)**, which are mainly used on the New Haven Line, **Diesel Locomotives**, which are the main type of self-propelled vehicles used on other lines (Shore Line East and other branch lines) and **Coaches**, which are important from an age-of-the-fleet perspective.

### How are we doing?

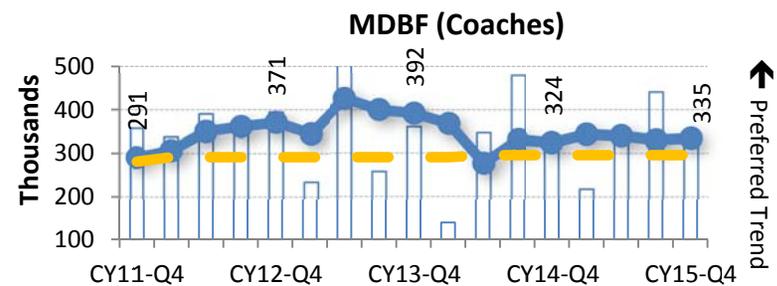
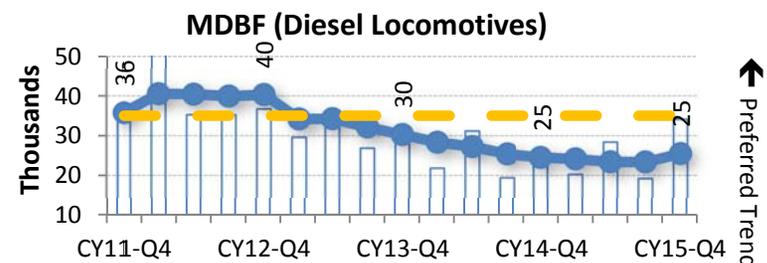
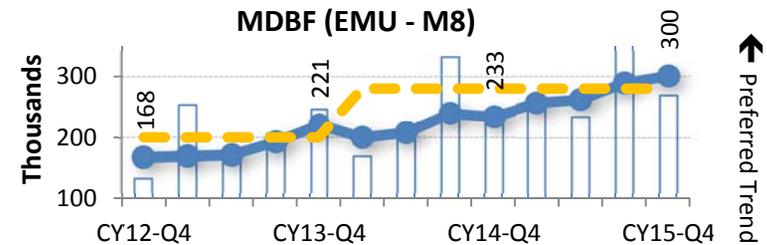
M8 reliability while below goal for the quarter is still a significant improvement and a key to the New Haven Lines continued growth and reliability. Overall it exceeded goal for 2015.

The Diesel locomotives made significant improvements in Q4 but still did not reach target. Overall 2015 MBDF numbers were below goal. This reflects the age of the fleet and the continued need for repair and overhaul.

Coach reliability is performing above goal. This is the result of a recent overhaul of the coach fleet and continued focus on reliability.

### What's our strategy?

The Department continues to monitor this measure with a view of ensuring proper fleet maintenance and replacement. The recent focus has been on investment in the EMU fleet, given the impact this has on the vast majority of rail passenger trips. However, over the next 10 years there will be a new focus on the replacement and expansion of the current locomotive and coach fleets.



#### About the data

- Data for this measure becomes available for reporting Monthly. The data set used for this posting is through 06/30/2015, which is quarter 1 of calendar year 2015. 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	CY15 Q4	23,512	17,881	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.

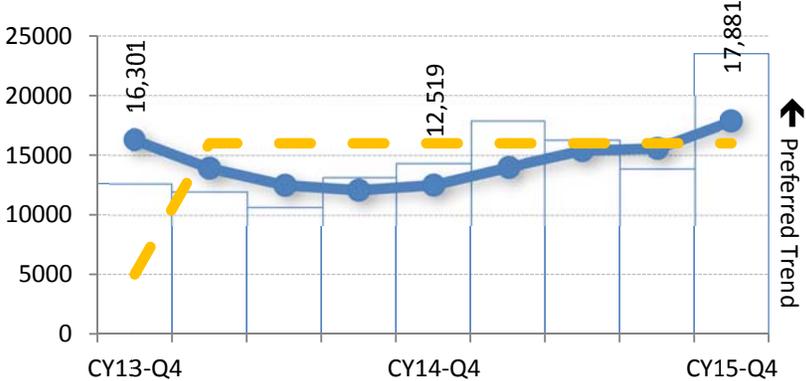
### How are we doing?

Average miles between road calls has improved significantly during the quarter, up 70% compared to last quarter. The 4-quarter average for this metric is also trending favorable at 15% more miles between roadcalls, compared to the last 4-quarter average.

### What's our strategy?

CTDOT's strategy is to continue to maintain the fleet in accordance with industry best practices and manufacturer's recommendations in order to optimize performance.

### Miles Between Road Calls (Bus)



### About the data

- Data for this measure becomes available for reporting Monthly & Quarterly. The data set used for this posting is through 09/30/2015, which is quarter 3 of calendar year 2015. 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: Improve Efficiency and Reliability



## Focus Area: Rail Fleet Operations

### Key Performance Measures:

	Period	Period Data	Result (4-quarter avg.)	Target
1.) Percent of Rail On-Time Performance – New Haven Line (NHL)	CY15 Q4	93.6	<b>92.5</b>	93.0%
2.) Percent of Rail On-Time Performance – Shore Line East (SLE)	CY15 Q4	92.6	<b>90.6</b>	95.0%

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

**Percent of Rail On-Time Performance** is a key measure for service reliability to its customers and is the industry standard used to compare existing services with other similar competitors.

A commuter train is considered **on-time** if it reaches its final destination within 5 minutes, 59 seconds of its scheduled arrival time.

The New Haven and Shore Line East lines are the two primary commuter lines for our rail network. On-Time Performance is impacted both by fleet condition and conditions and events on the tracks themselves.

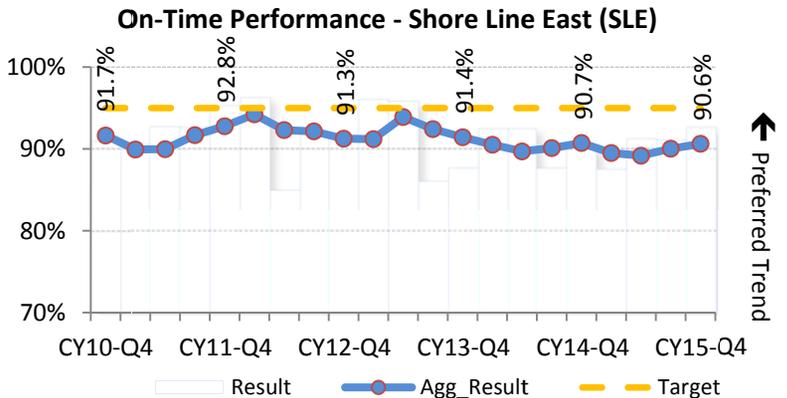
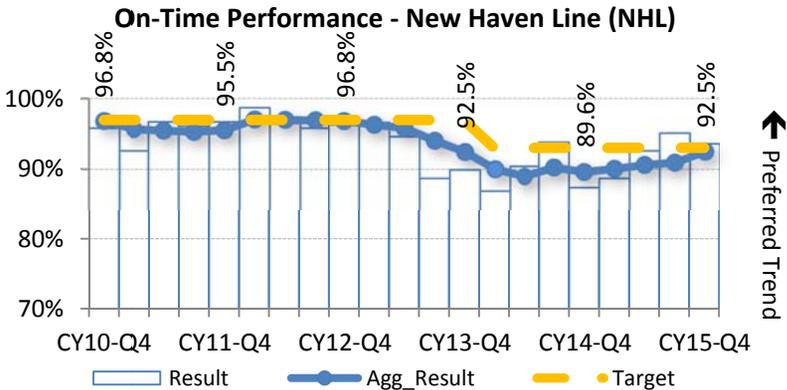
### How are we doing?

The New Haven Line is above its target in Q4 and has shown improvement over the same period last year. Overall 2015 is slightly below its target but has sustained a positive trend over the past 2 quarters.

Shore Line East on - time has steadily improved from Q1 and this positive trend should continue. Q4 was the best OTP for the year and a continuing positive trend. The severe weather in Q1 highlighted the need to upgrade and overhaul our existing Diesel fleet.

### What's our strategy?

Our strategy has been to focus on our equipment and coordinate with our service providers to improve overall OTP on both commuter lines. Retirement of the aging New Haven Line Electric Multiple Unit and its replacement with the new M8 fleet has improved reliability. Overhaul of the Shore Line East Diesel fleet and phased replacement of the Diesels with the newer M8 units are planned and the tracks are being modified to allow the new units.



### About the data

- Data for this measure becomes available for reporting Monthly. The data set used for this posting is through 09/30/2015, which is quarter 3 of calendar year 2015. A four-quarter moving average is used to eliminate seasonal variability and to highlight ongoing trends.
- Source: Bureau of Public Transportation, Office of Rail.

# 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	FY16 Q2	100%	<b>95.8%</b>	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.

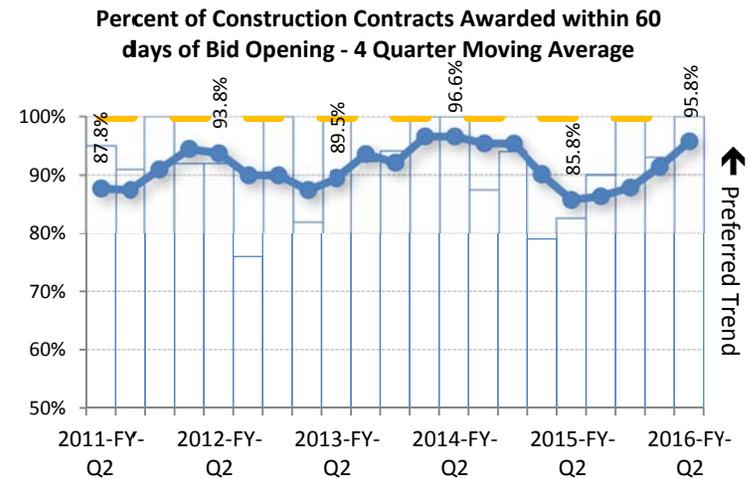
### How are we doing?

This quarter we met the target of awarding 100% of contracts within 60 days.

### 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.



### 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 1<sup>st</sup> through June 30<sup>th</sup>)
- 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 (4-quarter avg.)	Target
1.) Percent of Construction Contracts Completed Within Budget	CY15 Q4	79.0%	<b>79.5%</b>	Increase %
2.) Percent of Construction Contracts Completed On-Time	CY15 Q4	58.0%	<b>59.3%</b>	Increase %

### 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?

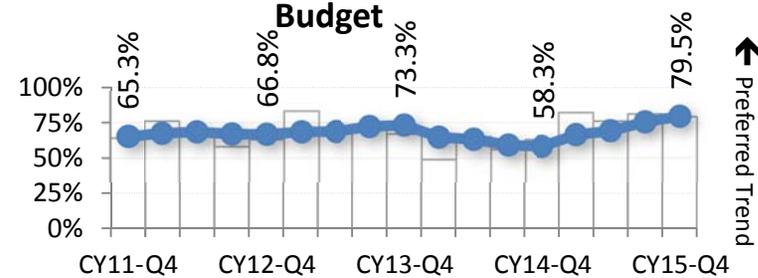
Over the past year this measure is exhibiting positive gains. It must be understood that CTDOT includes a significant amount of risk sharing contractual language in our Construction projects. This is done so contractors don't have to inflate their bids to address unknown contingencies, and CTDOT receives the most cost effective bids. There is risk sharing contractual language that impacts pay items (budget), for example addressing a differing subsurface condition not anticipated during the design may increase the cost of the work. There is also risk sharing contractual language that addresses calendar days (time), for example additional time is granted for floods or natural catastrophes. Some of this risk sharing contractual language is mandated by federal regulations. Further, the majority of CTDOT projects are unit price contracts based on estimated quantities, and many times, due to actual field conditions, the original estimated quantities are increased. This could increase budget and time. In summary, a vast majority of the time there are legitimate contractual reasons for exceeding the budget or time.

### What's our strategy?

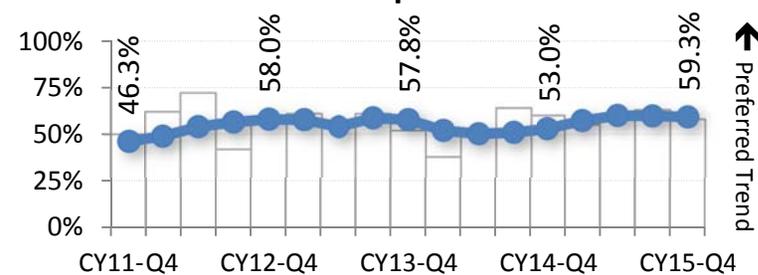
CTDOT has implemented a Lessons Learned initiative to address causes of project delays and cost overruns. In addition, constructability reviews are performed during the design process to enhance

the overall project quality. CTDOT has also improved its Quality Assurance efforts. CTDOT is also moving forward with a variety of new project delivery systems in addition to its traditional Design-Bid-Build, such as Design-Build and Construction Manager At Risk, alternative delivery methods that will yield time (and possibly cost) savings.

**% Contracts Completed Within Budget**



**% Contracts Completed On Time**



#### About the data

- Percent of Contracts Completed Within Budget and On-Time are computed from the projects accepted each quarter.
- A four-quarter 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 quarterly basis.
- Source: Bureau of Engineering & Construction, Office of Construction