2030 VMT Goal and Strategies

Executive Order 21-3

Executive Order 21-3 focuses on climate change, greenhouse gas emissions, and climate resiliency. Section 8, on "Clean Transportation", directs the Connecticut Department of Transportation (CTDOT) to establish a Vehicle Miles Traveled (VMT) reduction target:

- set a 2030 vehicle miles traveled reduction target, and
- develop a plan of investments to contribute to and encourage the achievement of such targeted reductions.

The purpose of including a VMT reduction target in this Executive Order is to reduce greenhouse gas emissions from the vehicles individuals choose to drive in Connecticut.

Target Setting and Methodology

VMT changes over time in response to multiple variables including shifts in population, the economy, energy prices, technology, demographics, and land use. In Connecticut, VMT is expected to continue to grow based on historic trends. Predicting and measuring changes in VMT from actions or projects presents a significant challenge.[1] Given all the variables that may influence travel behaviors, and therefore VMT, a direct causal relationship cannot be established to predict changes in VMT or to measure the effect of any one variable.

The Connecticut Department of Transportation collects traffic volumes on a sample of Connecticut roadways (both state and local), on a 3-year cycle. These volumes are used to develop a Daily Vehicle Miles Traveled value that is a required metric by the Federal Highway Administration as part of the national Highway Performance Monitoring System (HPMS). This methodology is not an actual count of vehicles and the miles people drive.

Table 1 presents the Daily Vehicle Miles Traveled, year-over-year % VMT growth, Annual Population Estimates, and a calculated Vehicle Miles of Travel per Person annually from 2010 - 2023.

Year	DVMT	% Growth	CTDPH Population[2]	VMT per Person
2010	85,721,767	n/a	3,577,845	24.0
2011	85,471,914	-0.29%	3,580,709	23.9
2012	85,435,423	-0.04%	3,590,347	23.8
2013	84,770,376	-0.78%	3,596,080	23.6
2014	85,452,919	0.81%	3,596,677	23.8
2015	86,552,865	1.29%	3,590,886	24.1
2016	86,444,182	-0.13%	3,576,452	24.2
2017	86,301,543	-0.17%	3,588,184	24.1

[1] Driving and the Built Environment: The Effects of Compact Development on Motorized Travel, Energy Use, and CO_2 Emissions; Transportation Research Board Special Report, Issue 298, 2009.

[2] The Connecticut Department of Public Health releases post-censal estimates of population each year.

2018	86,563,582	0.30%	3,572,665	24.2
2019	86,577,672	0.02%	3,565,287	24.3
2020	81,543,552	-5.81%	3,603,448	22.6
2021	79,420,671	-2.60%	3,605,597	22.0
2022	81,277,576	+2.34%	3,626,205	22.4
2023	83,618,676	+2.88%	3,617,176	23.1

Notably, the COVID shutdown in 2020 resulted in a VMT reduction of roughly 6% and a 1.7 daily VMT per capita reduction. Since the reductions seen during COVID, VMT shows a clear rebounding trend both on total as well as per-capita numbers, although not yet at pre-2020 levels. This is taking place even as the population of the state has shown an increasing trend beginning in 2020.

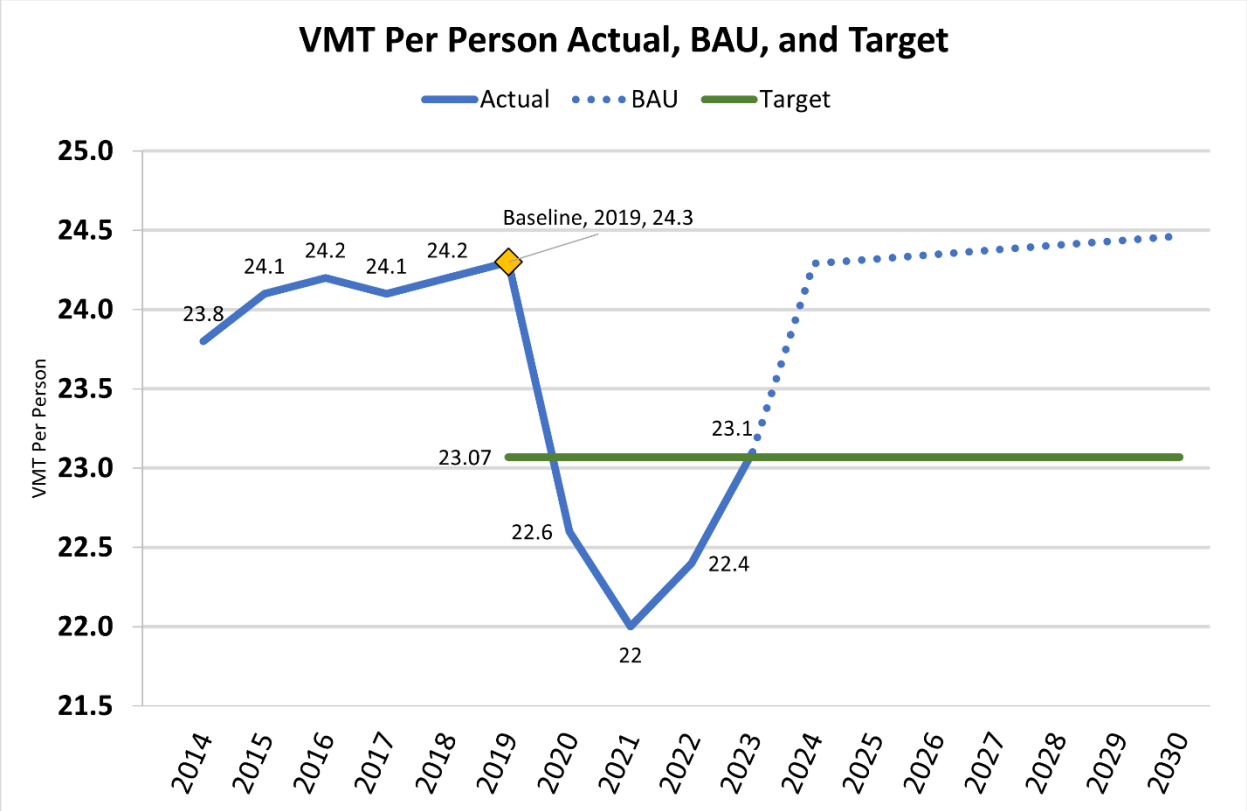
For the purpose of setting a VMT reduction target, CTDOT determined that VMT per capita would be the easiest measure to utilize. Population data and VMT, the two data points used to calculate VMT per person, are typically readily available at a consistent time each year. The measure of VMT per person tends to be a straightforward figure to understand and plan for than either the aggregate figure of total DVMT or VMT rate of growth. CTDOT chose to use 2019 as a baseline to exclude potential data anomalies due to the COVID-19 pandemic.

CTDOT proposes a target VMT per person reduction of 5% by 2030 (from the 2019 baseline of 24.28 daily person miles). This is equivalent to 1.21 miles less per person each day and 433.17 fewer per person miles each year. This means that in 2030, daily person miles would be 23.07. Table 2 details the 2030 target on several measures based on the 2030 state population forecast.

Year	VMT per Person Target	DVMT Target	DVMT Reduction from 2019	Annual VMT Reduction from 2019
2030	23.07	83,833,905	2,743,767	1,001,474,864

In order to compare the reduced VMT scenario to a future “no build” scenario (one that represents no additional land use strategies combined with no other new measures), a Business-As-Usual (BAU) forecast was prepared for VMT per person. The future BAU per person VMT was calculated utilizing five years' worth of growth rates from 2014 to 2019 DVMT. This model resulted in forecast of 24.53 daily person miles in 2030 if no additional strategies are put into place to reduce this measure.

Chart 1 presents the VMT per Person for 2014-2023, which shows the pre-pandemic trends (2014-2019), the distortion in travel during the COVID-19 pandemic, the emerging travel patterns (2021-2023), and the BAU scenario and the VMT per Person target for 2030. VMT per person, which since 2020 had been below the 2030 target of 23.07, in 2023 was 23.12, which means that VMT per person trends need to be steady or slightly declining in order for us to meet the 2030 target.



Factors that Influence VMT

VMT is significantly driven by land use patterns and existing transportation infrastructure associated with land use. Areas with dense development and small block sizes, such as urban areas and town centers, with a mix of development types such as commercial and residential areas, lend themselves to transit availability and frequency, and options for non-motorized trip-making, and thus facilitate lower VMT. In denser areas, destinations such as schools, stores, and homes are close together, which makes it easier to walk, bike, or take transit to those destinations. Also, when vehicle trips are taken in dense areas, those trips are shorter, leading to lower total VMT. Reliance on personal vehicles can be reduced by incentivizing housing and business clusters and density around transit nodes, combined with enhancing access to transit services and making streets safer.

Land use patterns that encourage dense development and lower VMT can be characterized by the following:[3]

Concentration and Composition of Development	**Design**	**Destination**
• Residential density • Employment density • Commercial density • Mix of uses	• Block size • Lot setbacks • Streetscape amenities	• Street connectivity/use of grid network • Distance to central business district

[3] CTDOT 2017 Research Report

• Contiguity of development	• Parking supply and arrangement	• Distance and accessibility to transit stations/stops • Bicycle and pedestrian infrastructure in areas of denser development

Actions taken by CTDOT alone cannot achieve a VMT reduction target. In Connecticut, local towns and municipalities largely determine local land use patterns through zoning. Areas that are zoned for single family residential development spread destinations further apart, forcing longer vehicle trips and making it challenging to access destinations by walking, biking, or transit. In Connecticut, 90.6% of land is zoned for single family residential development as of right and just 2.2% is zoned for four or more housing units without a public hearing.[4] This prevents the construction of dense, mixed-use development that allows for shorter vehicle trips and lower VMT. Zoning codes that require large amounts of parking for residential or commercial buildings encourage vehicle ownership and vehicle trips.[5] To reduce VMT rate of growth, municipalities would need to consider amending zoning laws to allow denser development, particularly near their downtown centers.

Based on a review of existing research, the following strategies are likely to have the most significant impact on achieving a 5% per-person VMT reduction by 2030:

Land Use	**Transportation**	**Other**

• Parking Management
  ○ Eliminate residential parking minimums
  ○ Add fees to parking
• Increase residential density
• Increase job density
• Build medium-high intensity mixed-use transit-oriented development (TOD)
	• Improved transit access (increased frequency, reduced or eliminated fares, expansion of service area and hours of operation)
	• Trip reduction program (full, multi-facetted, staffed)
	• Active transportation and complete streets infrastructure in core urban areas
		• Telework
		• Broadband expansion

Other factors including personal preferences, the economy, gas prices, emerging technologies, and the location and quality of schools and businesses also influence where people choose to live, and the distance people drive.

[4] ZONING ATLAS — Desegregate CT

[5] Death by a thousand curb-cuts: Evidence on the effect of minimum parking requirements on the choice to drive - ScienceDirect

Strategies to Achieve VMT Reduction Target Within CTDOT Control

CTDOT looked to an analysis performed by the Colorado Department of Transportation on measures that could reduce Greenhouse Gas (GHG) emissions from the transportation sector.[6] Colorado researched and estimated the potential GHG reduction associated with various initiatives. While GHG reduction initiatives often overlap with VMT reduction, CTDOT reviewed the Colorado analysis and targeted the measures directly associated with high and medium VMT reduction (and excluded the non-VMT measures such as electric vehicles, signal timing and roundabouts which have valuable safety and GHG benefits but are not VMT reduction measures). Most of the VMT reduction strategies reflect *anticipated* mode switch (away from vehicles). Note these strategies are most effective when combined with land use strategies, referenced above.

Based on a review of these transportation measures, CTDOT intends to pursue or continue to pursue the following strategies for VMT reduction:

1. Increase in Active Transportation/Complete Streets infrastructure in areas of urban/dense residential/commercial development. Note that Active Transportation and Complete Streets projects will continue to be implemented in other locations outside of urban core areas, but the primary purposes in such other locations will be less related to VMT reduction, and instead be focused on safety and mobility.
2. Increase in transit frequency
3. Increase in transit access
4. Continue to assist and partner with municipalities who are pursuing Transit-Oriented Development
5. Trip Reduction Program

In addition to the above strategies, CTDOT will also continue to implement other strategies are expected to have some, though lesser, influence on VMT, including but not limited to:

1. Maintain public transportation infrastructure (track, bridges, catenaries, etc.) in good repair
2. Improve rail service for customers by decreasing travel times and modernizing coaches
3. Construct Complete Streets outside of urban core areas
4. Bus Stop/Shelter Enhancements
5. Provide support for micro-mobility programs

In addition, CTDOT will seek additional data collection (better VMT data, travel demand models, project prioritization analysis, etc.) to evaluate VMT. Additional data and a more robust evaluation of the effectiveness of certain strategies at reducing VMT will be necessary to continue to identify a plan of targeted investments to reach VMT reduction goals.

CTDOT will continue to provide updates on progress toward these goals and strategies annually.

[6] Colorado Department of Transportation Greenhouse Gas Mitigation Measures. (May 2022). pd-1610-0-greenhouse-gas-mitigation-measures-june2022.pdf (codot.gov)