

To: Transportation Committee
From: Jennifer Carrier, Director of Transportation Planning
 Rob Aloise, Principal Transportation Engineer
Date: June 12, 2018
Subject: Performance Measures and Target Setting – Pavement Conditions

This memorandum presents and reviews the current Pavement Conditions and CTDOT Performance Measure Targets, and offers potential CRCOG Target recommendations for review and discussion at the June Subcommittee meeting. CRCOG has until November 16, 2018 to either adopt CTDOT’s targets or set our own.

FHWA Pavement Condition Performance Measures

The four performance measures include:

- Percentage of Pavements on the Interstate System in Good condition
- Percentage of Pavements on the Interstate System in Poor condition
- Percentage of Pavements on the non-Interstate NHS in Good condition
- Percentage of Pavements on the non-Interstate NHS in Poor condition

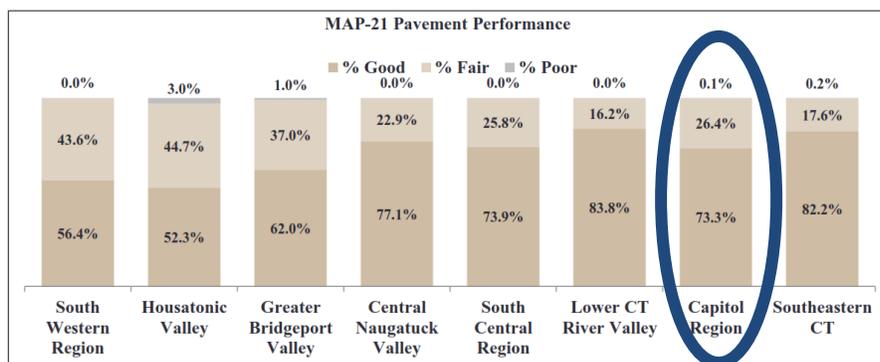
To understand these measures it is important to have the following background:

- Federal guidance focuses the pavement performance measures on the National Highway System (NHS) which consists of a network of strategic highways, including interstates and other roads that serve major airports, rail or truck terminals, and other strategic transport facilities. The specific NHS roadways within our region are illustrated in Figure 1.
- CTDOT uses dTIMS, developed by Deighton Associates, as their asset management system. The program encompasses strategic planning components with maintenance, operations and capital investment decision-making aspects.
- CTDOT’s Pavement Management System, consists of three major components: a system to regularly collect highway condition data; a computer database (ROADWARE Vision) to process, sort, and store the collected data, and dTIMS to evaluate repair or preservation strategies and suggest cost-effective projects to maintain highway conditions.

Current NHS Pavement Conditions

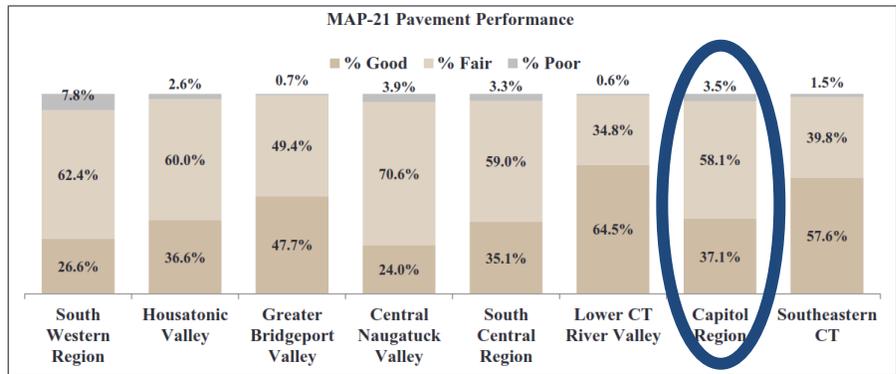
The following graphics represent pavement conditions within our region, compared to other regions.

Percentage of Pavements on the Interstate NHS in Good/Poor Condition



Percentage of Pavements on the non-Interstate NHS in Good/Poor Condition

As illustrated in these graphics, the region's Interstate NHS pavements and non-Interstate NHS pavements are rated 0.1% and 3.5% poor, respectively.



Statewide, 2.2% of the Interstate NHS pavements and 8.6% of the non-interstate NHS pavements are in poor condition.

CTDOT's pavement condition performance targets for 2020 and 2022 are shown to the right.

Pavement Condition Measures	Asset (unit of measure)	Current Condition (HPMS submittal 6/2017)		2-year targets (2020)		4-year targets (2022)	
		Good %	Poor %	Good %	Poor %	Good %	Poor %
<ul style="list-style-type: none"> % of Interstate system in "Good" and "Poor" condition <ul style="list-style-type: none"> MAX % Poor (Interstates): 5% % of National Highway System in "Good" and "Poor" condition 	Interstate Pavement (lane miles)	66.2	2.2	65.5	2.0	64.4	2.6
	Non-Interstate NHS Pavement (lane miles)	37.9	8.6	36.0	6.8	31.9	7.6

Staff Review of CTDOT NHS Pavement Condition Targets

Federal regulations require that State DOT's maintain pavements so the percentage of Interstate pavement classified as poor does not exceed 5% (there is no threshold for non-Interstate pavement). If this condition is not met States are required to set aside and obligate a specified percentage of its NHPP funds and STP funds to correct the Interstate pavement conditions until the 5% minimum threshold is met.

To determine the future 2-year and 4-year statewide targets, CTDOT relied on projections from its pavement asset management program, utilizing the assumption that 2017 funding levels would be maintained. Under this scenario, CTDOT sees the condition of NHS pavements improving slightly in the 2-year projection, then receding slightly back to approximately current conditions in the 4-year timeframe. It should be noted that in both timeframes the percent of Interstate Pavement in Poor condition remains below the 3%, which is below the 5% federal threshold.

Within CRCOG, NHS Pavement Conditions are significantly better than the statewide averages, with only 0.1% of Interstate and 3.5% of Non-Interstate pavement in Poor condition. Both of these measures are within the 5% maximum threshold that FHWA applies to Interstates. A map showing locations where the region's NHS roadway's pavements are in Poor condition appears in Figure 2. As shown on the map, there is very little in Interstate pavement that is in Poor condition, and Poor pavement conditions on NHS Non-Interstate roadways are primarily limited to the following three areas:

- Route 71 in Berlin
- Route 30 in South Windsor
- Route 83 in Ellington and in southern Somers

Staff Recommendations

The CTDOT 2020 targets work to address the Poor condition of pavement on the NHS Interstate and NHS non-interstate system; the 2022 targets show a deterioration of the 2020 targets. It should be noted that the 2022 targets still meet federal requirements as it relates to NHS Interstate poor pavement conditions being below 5%.

CRCOG staff feels developing our own regional targets for NHS Interstate and NHS non-Interstate pavements is currently outside of what we can reasonably do given limited access to DOT's asset management system and regional data. CRCOG staff feels the NHS Interstate targets represent pavement improvements in the next 2 years. CRCOG also feels the NHS non-interstate poor pavement conditions targets represent an improvement over current conditions. Understanding this, CRCOG staff recommends supporting DOT's 2 and 4-year targets for the pavement conditions.

However, understanding the FHWA pavement performance measures only apply to NHS roadways, and that over 95% of lane miles (20,427 of 21,390) of Connecticut's public roadways are not located on the NHS, we feel CRCOG should also aim to improve the non-NHS pavements within the region. Currently almost 85% of these non-NHS lane miles (17,287 of 20,427) are municipally owned, with pavement conditions either unknown, or documented within the respective municipality. There is no comprehensive source of aggregated data available, and therefore Non-NHS pavement conditions are mostly unquantifiable on a regional basis.

Therefore, CRCOG staff also recommends that we work on the following initiatives:

- Support improvements that address these three stretches of non-Interstate NHS roadways with poor conditions generally identified above and in the attached (e.g. Route 71 in Berlin; Route 30 in South Windsor; Route 83 in Ellington and a portion of Somers)
- Coordinate with CTDOT to understand the dTIMS asset management system and assess regional use
- Incorporate the NHS Pavement Condition data and map into CRCOG's Long Range Transportation Plan
- Update pavement condition mapping on a regular basis to monitor progress and pavement conditions
- Coordinate with CTDOT as it relates to pavement investments within our region
- Monitor pavement performance best practices in other states and Regional Planning Organizations
- Evaluate if the establishment of a comprehensive regional pavement management system, that focuses on non-NHS roadways, has merit and if so evaluate the pros, cons, options, and feasibility of beginning to establish one.

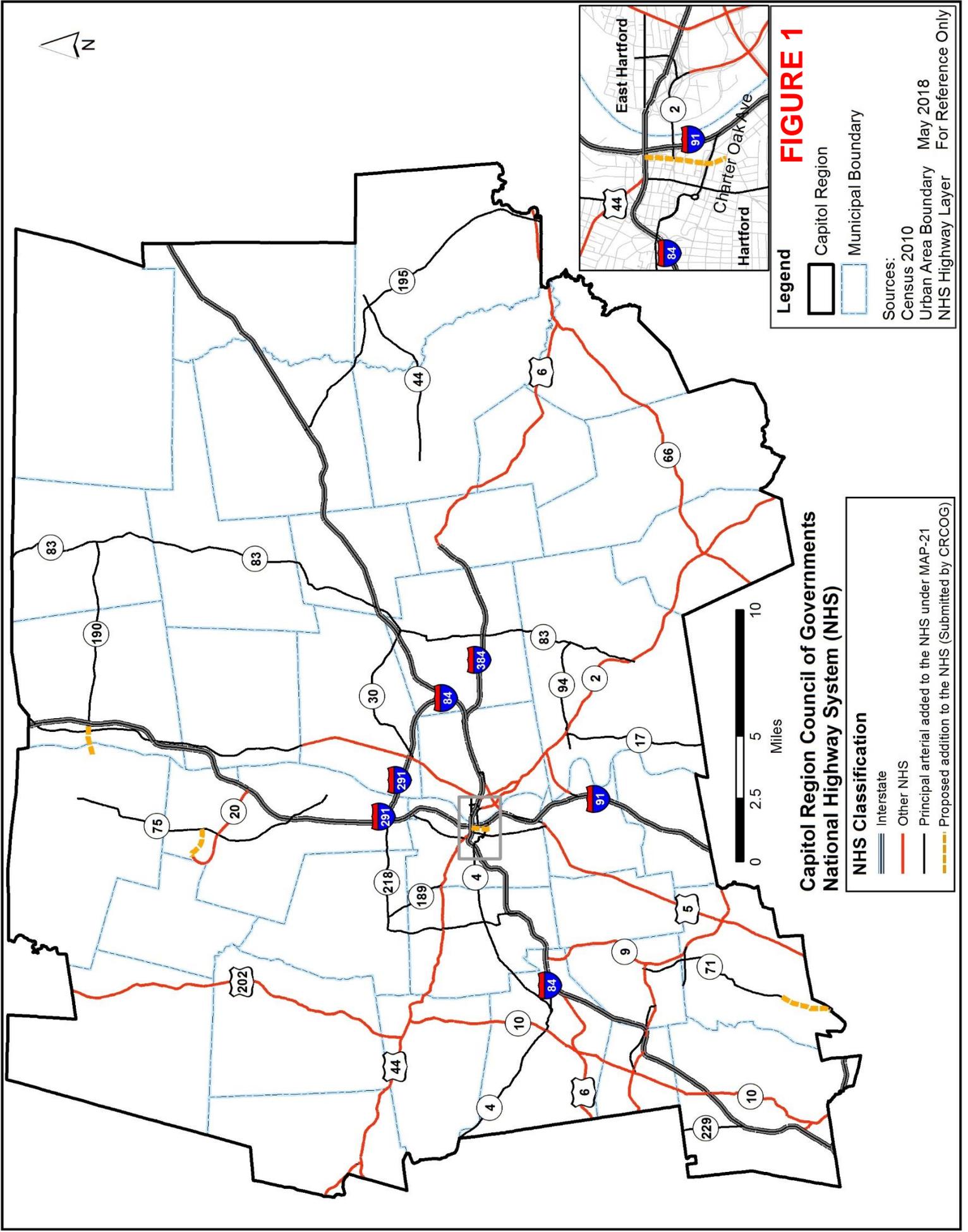


FIGURE 1

Legend

- Capitol Region
- Municipal Boundary

Sources:

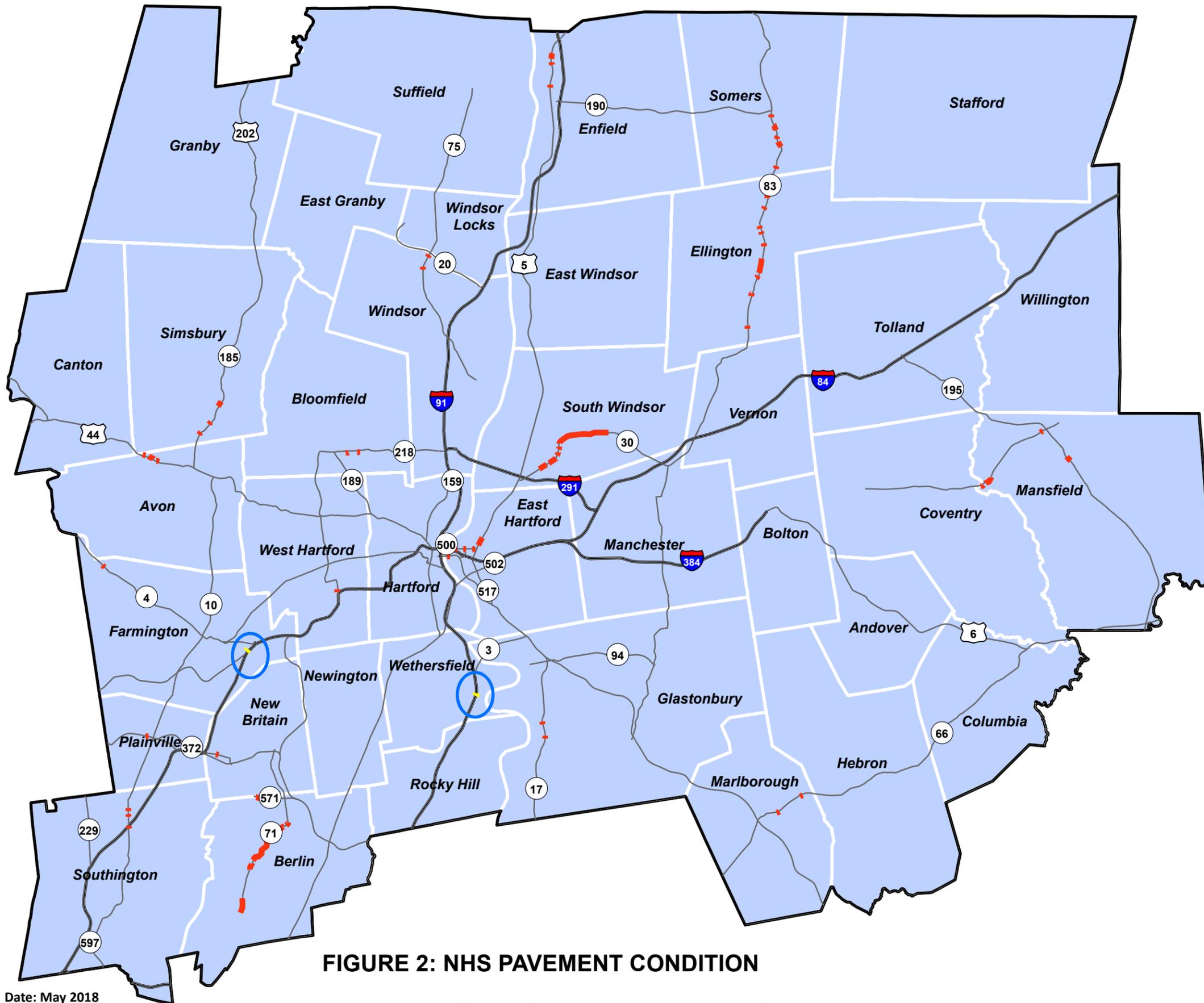
- Census 2010
- Urban Area Boundary May 2018
- NHS Highway Layer For Reference Only

**Capitol Region Council of Governments
National Highway System (NHS)**

NHS Classification

- Interstate
- Other NHS
- Principal arterial added to the NHS under MAP-21
- Proposed addition to the NHS (Submitted by CRCOG)





Municipality	Total Lane Miles in Poor Condition
South Windsor	6.60
Berlin	5.31
East Hartford	3.68
Ellington	3.12
Avon	2.21
Enfield	1.57
Southington	1.50
Mansfield	1.43
Somers	1.40
Bloomfield	0.83
Simsbury	0.80
Farmington	0.70
Windsor	0.45
Glastonbury	0.44
Marlborough	0.40
Wethersfield	0.40
New Britain	0.20
Plainville	0.20
West Hartford	0.12
Capitol Region	31.37

Interstates Pavement Condition		
	Good Condition	Poor Condition
Lane Miles	459.5 (73.3%)	0.7 (0.1%)
Non-Interstate Pavement Condition		
	Good Condition	Poor Condition
Lane Miles	322.3 (37.1%)	30.7 (3.5%)

NHS Pavement Condition

- Interstate Poor Pavement Condition
- Non-Interstate Poor Pavement Condition

(Locations are approximate and for illustration purposes only)

FIGURE 2: NHS PAVEMENT CONDITION



Date: May 2018
 Datasource: CTDOT Pavement Data
 For Reference Purposes Only.