

Connect2050 Appendix 13. Federal Transportation Performance Measures

Background

Appendix 13 includes the federally-required performance measures at the time of this plan's initial adoption. Section 4.4 of the plan puts the federal Transportation Performance Measures (TPMs) performance measures in context with the full set of performance measures associated with the 2050 MTP. Since the MPOs and NCDOT periodically update the specific target values of some of the measures, this appendix is designed to be able to provide a guide to the values without requiring an amendment of the full plan.

Overview

The two MPOs are required by federal law through the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act to adopt specific transportation performance measures. These measures are divided into four categories: **Safety (Highway and Public Transit), Pavement and Bridge Condition, System Performance/Freight,** and **Transit Assets.**

The following are the values for each performance measure at the time of initial MTP adoption. These values are revised periodically and the most current values can be obtained from each MPO.

Federal Performance Measures: Highway Safety

The safety measure is a federal Transportation Performance Measure (TPM) and thus the MPOs are required to set targets for those measures and include those targets in their long-range transportation plan, i.e., Metropolitan Transportation Plan (MTP). CAMPO and DCHC MPO both resolved to plan and program projects to meet the targets in the North Carolina *2022 Highway Safety Improvement Plan (HSIP)*. The HSIP targets are set to reduce fatalities and serious injuries by one-half by the year 2035, and eventually to zero by the year 2050. Those targets included the following statewide reductions by December 21, 2022:

1. total fatalities by 12.17 percent from 1,428.8 (2016-2020 average) to 1,254.9 (2018-2022 average);
2. fatality rate by 13.78 percent from 1.226 (2016-2020 average) to 1.057 (2018-2022 average);
3. total serious injuries by 19.79 percent from 4,410.2 (2016-2020 average) to 3,537.6 (2018-2022 average);
4. serious injury rate by 21.68 percent from 3.782 (2016-2020 average) to 2.962 (2018-2022 average); and,
5. total nonmotorized fatalities and serious injuries by 17.93 percent from 592.2 (2016-2020 average) to 486.0 (2018-2022 average).

Based on the U.S. Department of Transportation (USDOT)/Federal Highway Administration (FHWA) review of the safety targets and actual data, North Carolina has not met or made significant progress toward achieving its safety performance targets. In fact, the number of fatalities and serious injuries and the corresponding rates continue to increase. As a result, the North Carolina Department of Transportation (NCDOT) must ensure that all federal Highway Safety Improvement Program (HSIP) funding is obligated to safety projects and must develop a detailed implementation plan.

On the next page, the CAMPO and DCHC MPO safety target data are presented in tables that show the 5-year rolling average. Some of the values show slight increases and decreases in the first several years, but all of the values have steadily increased since 2012-2016 period.

Capital Area MPO Safety Data and Targets

Target Setting Crash Data

Year	Fatalities (5 Year Average)	Fatality Rate (5 Year Average)	Serious Injuries (5 Year Average)	Serious Injury Rate (5 Year Average)	Non-motorized Fatalities and Serious Injuries (5 Year Average)
2008 - 2012	95.6	0.880	149.8	1.378	32.4
2009 - 2013	95.2	0.864	147.0	1.333	34.0
2010 - 2014	92.4	0.823	155.0	1.378	36.6
2011 - 2015	92.0	0.793	163.6	1.403	40.8
2012 - 2016	95.8	0.797	193.4	1.591	43.6
2013 - 2017	93.8	0.756	255.0	2.012	47.0
2014 - 2018	93.6	0.729	328.4	2.519	50.8
2015 - 2019	99.2	0.748	412.8	3.085	62.4
2016 - 2020	108.2	0.836	485.6	3.730	71.8
2022 Target*	86.6	0.651	377.7	2.820	54.7

DCHC MPO Safety Data and Targets

Target Setting Crash Data

Year	Fatalities (5 Year Average)	Fatality Rate (5 Year Average)	Serious Injuries (5 Year Average)	Serious Injury Rate (5 Year Average)	Non-motorized Fatalities and Serious Injuries (5 Year Average)
2008 - 2012	29.6	0.630	74.6	1.590	18.6
2009 - 2013	30.8	0.640	70.8	1.474	17.6
2010 - 2014	32.0	0.647	74.8	1.514	18.6
2011 - 2015	32.8	0.651	80.6	1.601	20.2
2012 - 2016	34.0	0.658	79.4	1.541	20.8
2013 - 2017	36.0	0.675	84.8	1.586	19.4
2014 - 2018	36.0	0.658	88.4	1.615	20.2
2015 - 2019	38.8	0.695	95.8	1.716	22.4
2016 - 2020	41.4	0.764	107.4	1.995	24.0
2022 Target*	34.3	0.613	84.3	1.507	20.5

*Target based on State's methodology of reducing crashes by 50% by the year 2035

Rates are in units of crashes per 100 MVMT

Last update: 9/16/21

Federal Performance Measures: Public Transit Safety

This transit safety measure is a federal Transportation Performance Measure (TPM). Thus, the MPOs are required to support the Public Transportation Agency Safety Plan (PTASP) targets that the relevant transit systems set, and include the targets in their long-range transportation plan, i.e., Metropolitan Transportation Plan (MTP). The transit systems that receive urbanized area formula grants must develop and implement a safety management system (SMS) that encompasses the following targets:

- the number and rate of fatalities, injuries and events; and,
- the mean distance between mechanical failures.

These targets and the values are presented in the table on the next page. A few notes help to better understand the targets:

- Total is per year;
- Rate is per 100,000 vehicle revenue miles;
- Distance is mean miles between major mechanical failures; and,
- Events are reportable fatalities, injuries, evacuations, collisions and incidents.
- N/A indicates that the transit system does not operate that type of service.

CAMPO and DCHC MPO Transit Safety Data and Targets

Transit System	Fatalities:		Injuries:		Events:		Mechanical Failures:
	Total	Rate	Total	Rate	Total	Rate	Distance
Chapel Hill Transit - Fixed Route	0	0	0	0	0	0	25,000
Chapel Hill Transit - Non Fixed Route	0	0	0	0	2.34	0.6	35,000
GoCary - Fixed Route	0	0	3	0.5	7	1.18	20,000
GoCary - Non Fixed Route	0	0	1	0.2	1	0.2	80,000
GoDurham - Fixed Route	0	0	11	0.3	46	7.2	20,551
GoDurham - Non Fixed Route	0	0	0	0	1	0.05	50,000
GoRaleigh - Fixed Route	0	0	207	125.7	325	197.3	294,156
GoRaleigh - Non Fixed Route	0	0	8	4.82	63	38.25	61,347
GoTriangle - Fixed Route	0	0	3	0.125	3	0.125	25,577
GoTriangle - Non Fixed Route	0	0	3	0.125	3	0.125	99,902
GoWakeAccess - Fixed Route	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GoWakeAccess - Non Fixed Route	0	0	4	0.19	17	0.81	116,687
Orange Public Transportation - Fixed Route	0	0	1	0.238	1.5	1.5	25,000
Orange Public Transportation - Non Fixed Route	0	0	1	0.238	1.5	1.5	25,000

Federal Performance Measures: Pavement and Bridge Condition

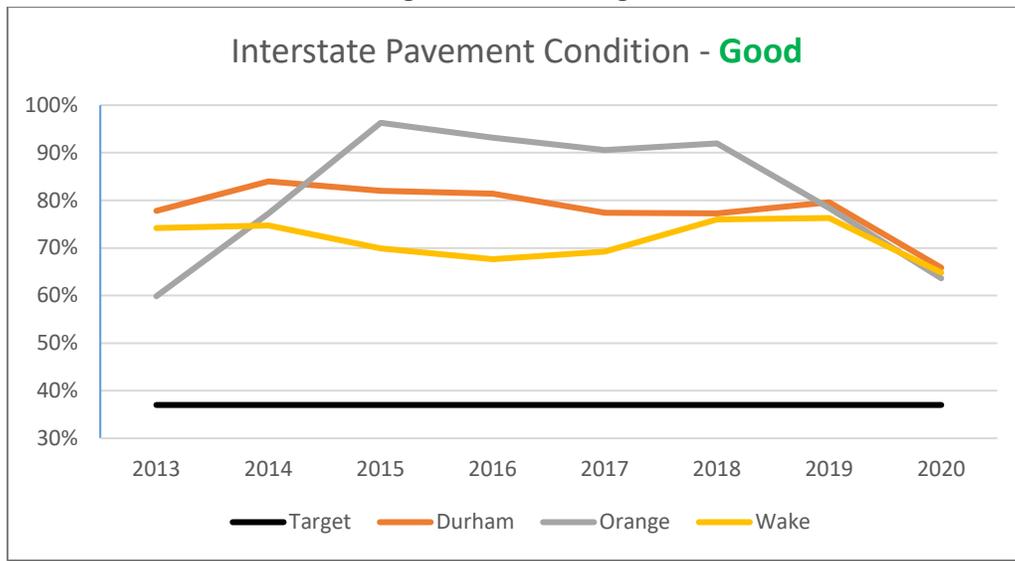
Over the last few years, CAMPO and DCHC MPO each adopted resolutions to support the North Carolina targets for pavement and bridge condition as part of the federal Transportation Performance Measures (TPM) targets. As required by federal regulations, these TPMs must be adopted as part of the Metropolitan Transportation Plan (MTP).

The tables on pages 7-9 show the graded condition for pavement on interstates and non-interstate national highway system (NHS) roadways for the years 2013 through 2020, and for bridges on the NHS network. The target is stated above the graphic box and shown as a static black line in the graph. The level of available data varied and thus staff was able to more easily produce graphs for bridge data for all the counties in the MPOs but pavement data for only Wake, Durham and Orange counties.

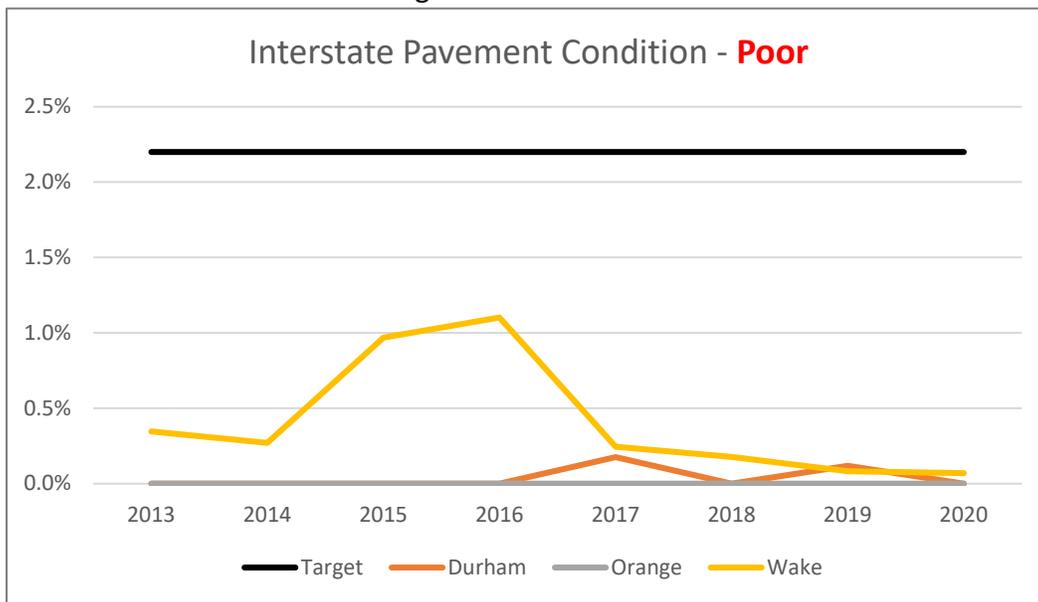
Pavement condition -- Wake, Durham and Orange counties meet the interstate pavements targets, but Durham and Orange counties do not meet the targets for a few years for the non-interstate NHS roadways. In all counties, the roadway condition for non-interstate NHS roadways appears to be deteriorating.

Bridge condition – Most counties consistently exceed the bridge target for good condition. However, Orange, Franklin, Harnett, and Granville counties fail to meet the bridge target for poor condition for several years. Orange and Granville counties also do not meet the bridge target for good condition for a few years.

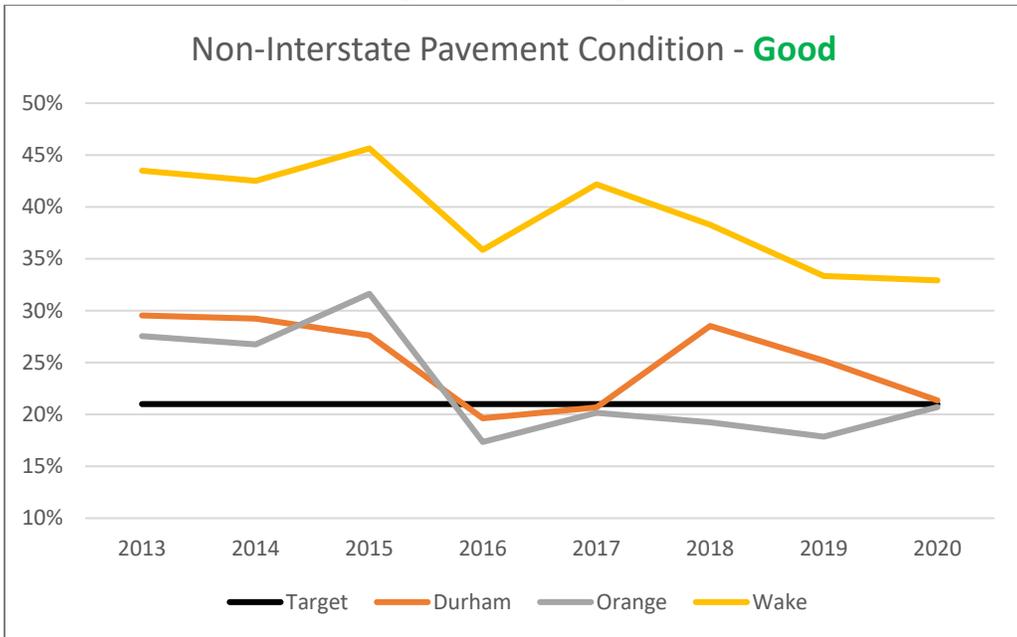
Target = 37% and higher



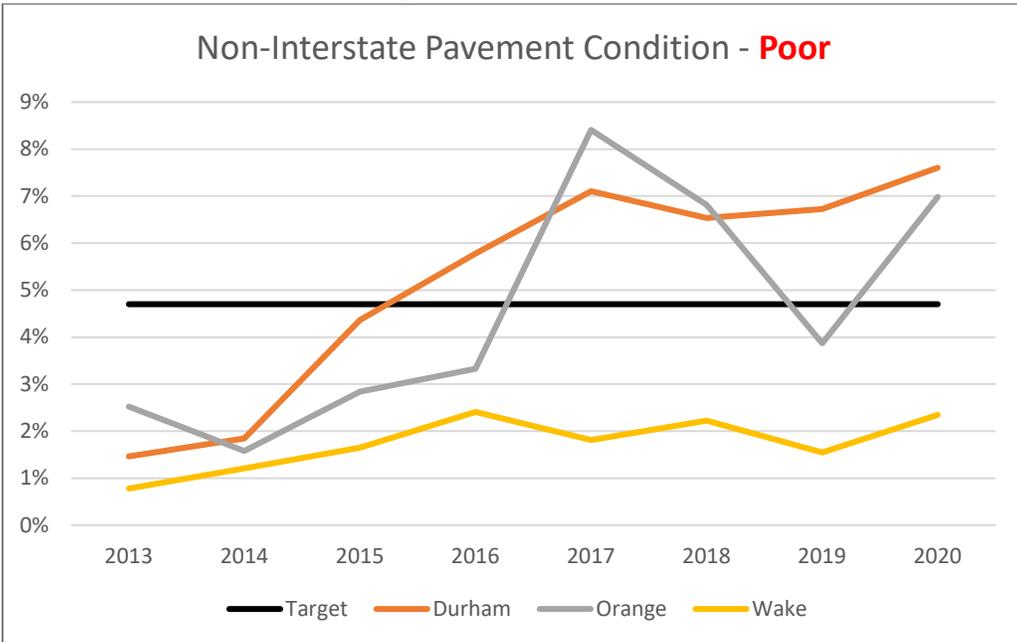
Target = 2.2% and lower



Target = 21% and higher

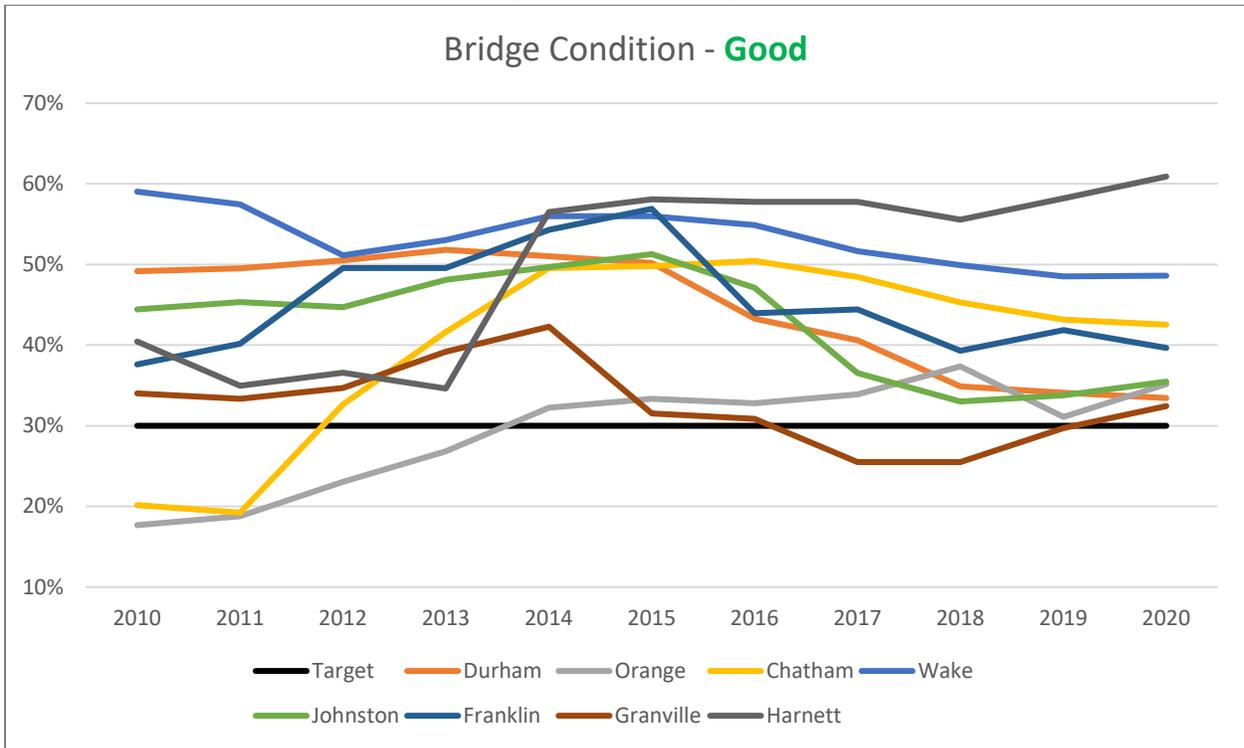


Target = 4.7% and lower



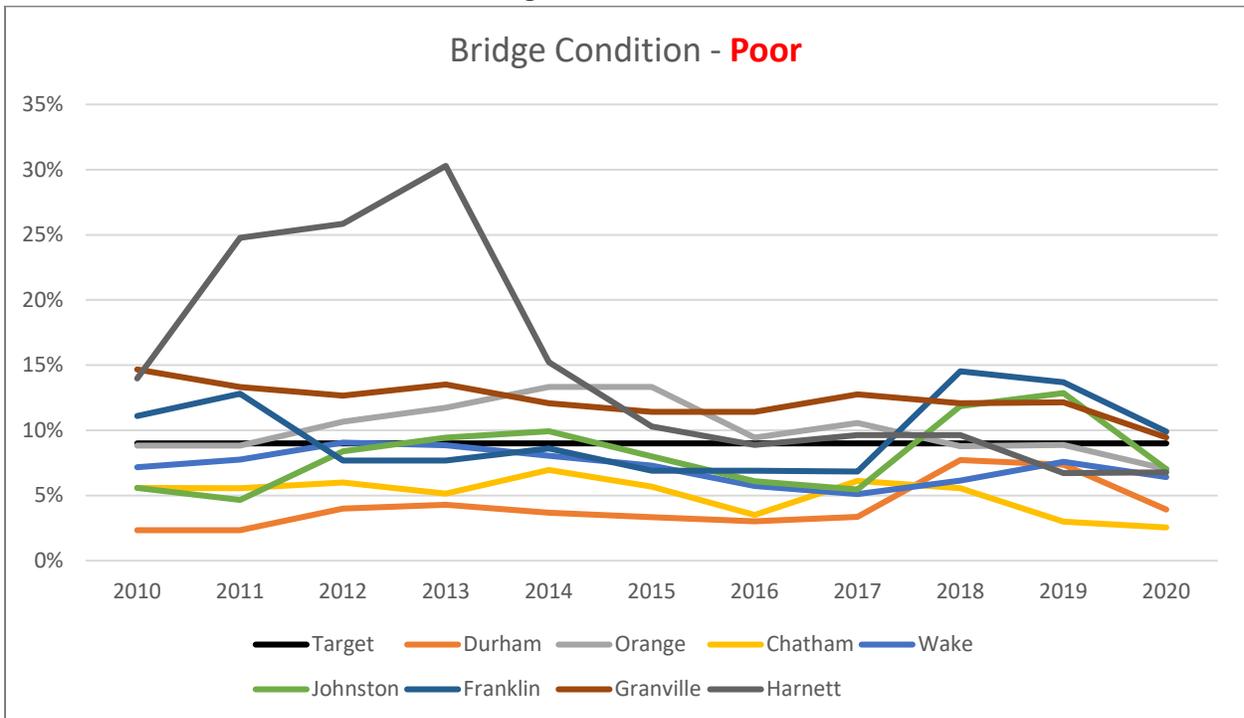
Target = 30% and higher

Bridge Condition - **Good**



Target = 9% and lower

Bridge Condition - **Poor**



Federal Performance Measures: System Performance/Freight

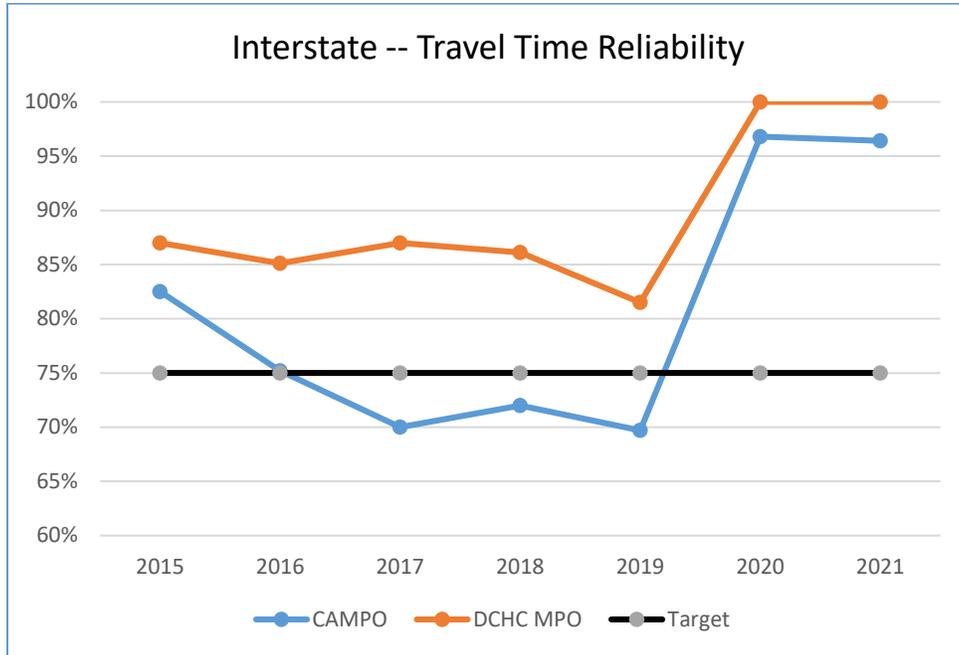
The roadway and truck travel time reliability measures are a federal Transportation Performance Measure (TPM) and thus the MPOs are required to set targets for those measures and include those targets in their long-range transportation plan, i.e., Metropolitan Transportation Plan (MTP). CAMPO and DCHC MPO both resolved to plan and program projects to contribute toward the accomplishment of the following targets: Interstate Level of Travel Time Reliability (LOTTR) – 75% or higher; Non-Interstate National Highway System (NHS) LOTTR – 70%; and, Interstate Truck Travel Time Reliability Index (TTI) – 1.7 or lower.

Level of Travel Time Reliability (LOTTR) measures the percent of person miles traveled that are reliable. As the percent increases, travelers are less likely to experience unexpected delays and less likely to have to leave early for a trip to anticipate unexpected delays and arrive on time. TTR uses actual vehicle travel data, not data from the Triangle Regional Model (TRM), and thus the data cannot be forecasted. As a result, there is not a TTR measure for the year 2050. Nonetheless, the TTR is still an important performance measure to consider in long-range transportation planning to understand the overall health of the major transportation corridors.

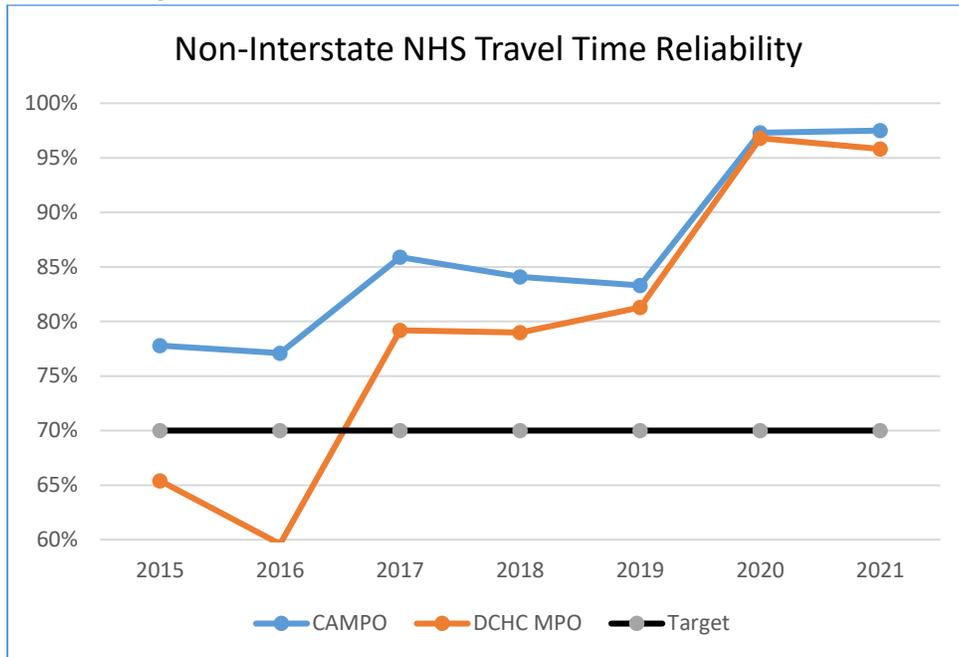
The first graphic on the next page shows the TTR for interstates. CAMPO interstates fail the 75% target for half the target years while the DCHC MPO interstates meet the target for all years. There appears to be a slight trend of decreasing reliability for both MPOs until the year 2020 when the COVID pandemic reduced travel demand and greatly improved travel reliability.

The second graphic on the next page shows the TTR for non-interstate roadways that are part of the National Highway System (NHS). Except for the first two target years when the DCHC MPO failed to meet the 70% target, both MPOs consistently meet the target. The reliability percentage jumped much higher for both MPOs in the years 2020 and 2021 during the COVID pandemic.

Target = 75% and higher

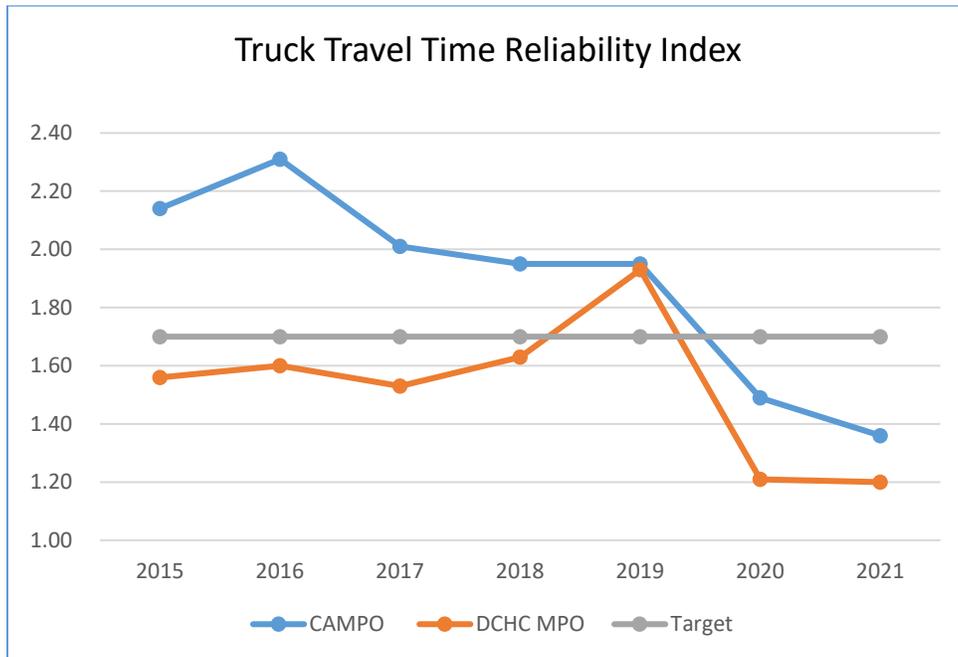


Target = 70% and higher



The **Truck Travel Time Reliability Index (TTI)** is a similar measure of reliability except a decrease in the value of the measure signifies an improvement in travel reliability for trucks. The graph below indicates that in the initial years CAMPO generally failed to meet the target while the DCHC MPO met the target. However, unreliability of truck travel on interstates in the DCHC MPO increased to the extent that the MPO no longer met the target in 2019. However, the decrease in travel demand since 2020 because of the COVID pandemic has allowed both MPOs to meet the target.

Target = 1.7 and lower



Federal Performance Measures: Transit Assets

The Transit Asset Management – State of Good Repairs (TAM – SGR) measure is a federal Transportation Performance Measure (TPM). Thus, the MPOs are required to support the TAM targets that the relevant transit systems set, and include the targets in their long-range transportation plan, i.e., Metropolitan Transportation (MTP). The transit systems that are federal grantees or subrecipients must develop and implement a transit asset management system. Some transit systems in the MPOs (e.g., Chatham Transit Network, Orange Public Transportation and Durham County Access) have chosen to be part of a group plan organized by the North Carolina Department of Transportation/Integrated Mobility Division (NCDOT/IMD) and therefore are not included in this presentation. TAM includes targets for rolling stock, equipment, and facilities, which are presented in detail on the following two pages.

The tables on the next two pages show the target percentage for the assets that are not in a state of good repair. This data is from the Federal Transit Administration's (FTA) National Transit Database (NTD) for the year 2021. A few notes help to better understand the targets.

- Facilities do not have a Useful Life Benchmark such as "years." The Federal Transit Administration (FTA) Transit Economic Requirements Model (TERM) scale is used instead of years.
- TERM scale example: 5 = excellent, 1 = poor.
- Useful Life Benchmark values are in years.
- N/A: System does not have an asset in this class that requires monitoring.

Transit Systems -- Transit Asset Management and Targets

		2021 Targets		
Asset Category - Performance Measure	Asset Class	GoDurham	Chapel Hill Transit	GoTriangle
REVENUE VEHICLES				
Age -- % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AO - Automobile	N/A	N/A	N/A
	BU - Bus (61)	18%	0%	26%
	CU - Cutaway Bus (47)	8%	0%	46%
	MB - Mini-bus	N/A	N/A	N/A
	MV - Mini-van (3)	N/A	N/A	N/A
	SV - Sport Utility Vehicle	N/A	N/A	N/A
	VN - Van	14%	N/A	N/A
	Other	N/A	N/A	N/A
EQUIPMENT				
Age -- % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	0%	0%	0%
	Steel Wheel Vehicles	N/A	N/A	N/A
	Trucks and other Rubber Tire Vehicles (6)	0%	0%	0%
	Maintenance Equipment	N/A	N/A	N/A
	Computer Software	N/A	N/A	N/A
	Custom 1	N/A	N/A	N/A
FACILITIES				
Condition -- % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	0%	0%	0%
	Maintenance	0%	0%	0%
	Parking Structures	0%	N/A	0%
	Passenger Facilities	0%	N/A	0%
	Shelter	N/A	N/A	N/A
	Storage	N/A	N/A	N/A
	Custom 1	N/A	N/A	N/A

Transit Systems -- Transit Asset Management and Targets (continued)

		2021 Targets	
Asset Category - Performance Measure	Asset Class	GoRaleigh	GoCary
REVENUE VEHICLES			
Age -- % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AO - Automobile	N/A	N/A
	BU - Bus (61)	2%	20%
	CU - Cutaway Bus (47)	N/A	20%
	MB - Mini-bus	N/A	N/A
	MV - Mini-van (3)	N/A	20%
	SV - Sport Utility Vehicle	N/A	20%
	VN - Van	14%	20%
	FB - Ferry Boat	N/A	20%
	SB - School Bus	N/A	20%
	Other	N/A	20%
EQUIPMENT			
Age -- % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	13%	20%
	Steel Wheel Vehicles	N/A	N/A
	Trucks and other Rubber Tire Vehicles (6)	0%	20%
	Maintenance Equipment	N/A	N/A
	Computer Software	N/A	N/A
	Custom 1	N/A	N/A
FACILITIES			
Condition -- % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	0%	20%
	Maintenance	0%	20%
	Parking Structures	0%	20%
	Passenger Facilities	0%	20%
	Shelter	N/A	N/A
	Storage	N/A	N/A
	Custom 1	N/A	N/A