

Deficiency Analysis

Background

What is a Deficiency Analysis?

The Deficiency Analysis is an analysis that compares today's travel conditions with that of a future year. Thus, the Deficiency Analysis shows staff, the MPO, and the public where transportation investments in highways, transit and other modes are needed to address the future mobility demands. It helps to set a baseline that is used in the development and evaluation of the various transportation alternatives that will be considered in a subsequent step of the 2055 MTP development.

What Years are analyzed?

The measures and maps are based on a travel demand model that estimates conditions in two different years:

2020- This is 2020 population and employment using the existing transportation system of streets, transit, etc., and reflects the current travel conditions.

2055 Existing + Committed (E+C)- This is the estimated growth in population and employment through the year 2055 but using the existing transportation system plus any projects that are committed to construction or implementation. While somewhat unrealistic, it does help set a baseline for evaluating future mobility investments. This "no build" scenario allows us to see where future mobility deficiencies are to be expected.

Analysis Results

Analysis Visualization

The results of the deficiency analysis reviewed across several metrics. Congestions, Travel Time are two ways our region looks at mobility for a scenario. A variety of visualization techniques are used to illustrate these mobility metrics:

"Tomato Maps"

Congestion maps, commonly referred to as "Tomato Maps" are visualizations that depict levels of congestion on the roadway network. These maps show the forecasted congestion on specific road segments and can show all day or specific times of day, typically CAMPO will show both peak period and off-peak times for comparison. These types of maps show a comparison of the anticipated volume to the designed capacity of the facility, also known as a "V/C ratio". This ratio is traffic volume divided by the traffic capacity of the road

segment. (For example, a volume of 9,000 vehicles on a road that is capable of carrying 10,000 vehicles will produce a V/C of 0.9).

Travel Time Maps

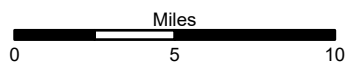
Travel time maps use isochrones, or “contours” to estimate the distance that can be traveled via travel “bands” of 20 minutes (0-20, 20-40, etc.). This analysis uses downtown Raleigh and Raleigh-Durham International Airport (RDU) to show travel time during peak periods in the 2020 and 2055 scenarios and illustrate corridor and small area mobility.

What is the Next Step?

With the MPO’s Goals and Objectives in mind, staff will use the deficiency data to create several alternatives to meet the future travel demand. This Alternatives Analysis is the next step after Deficiency Analysis in the development of the 2055 MTP and will be released in the coming months.

Vehicle Congestion Regional Forecast

2020 Base Year: Daily Peak Period



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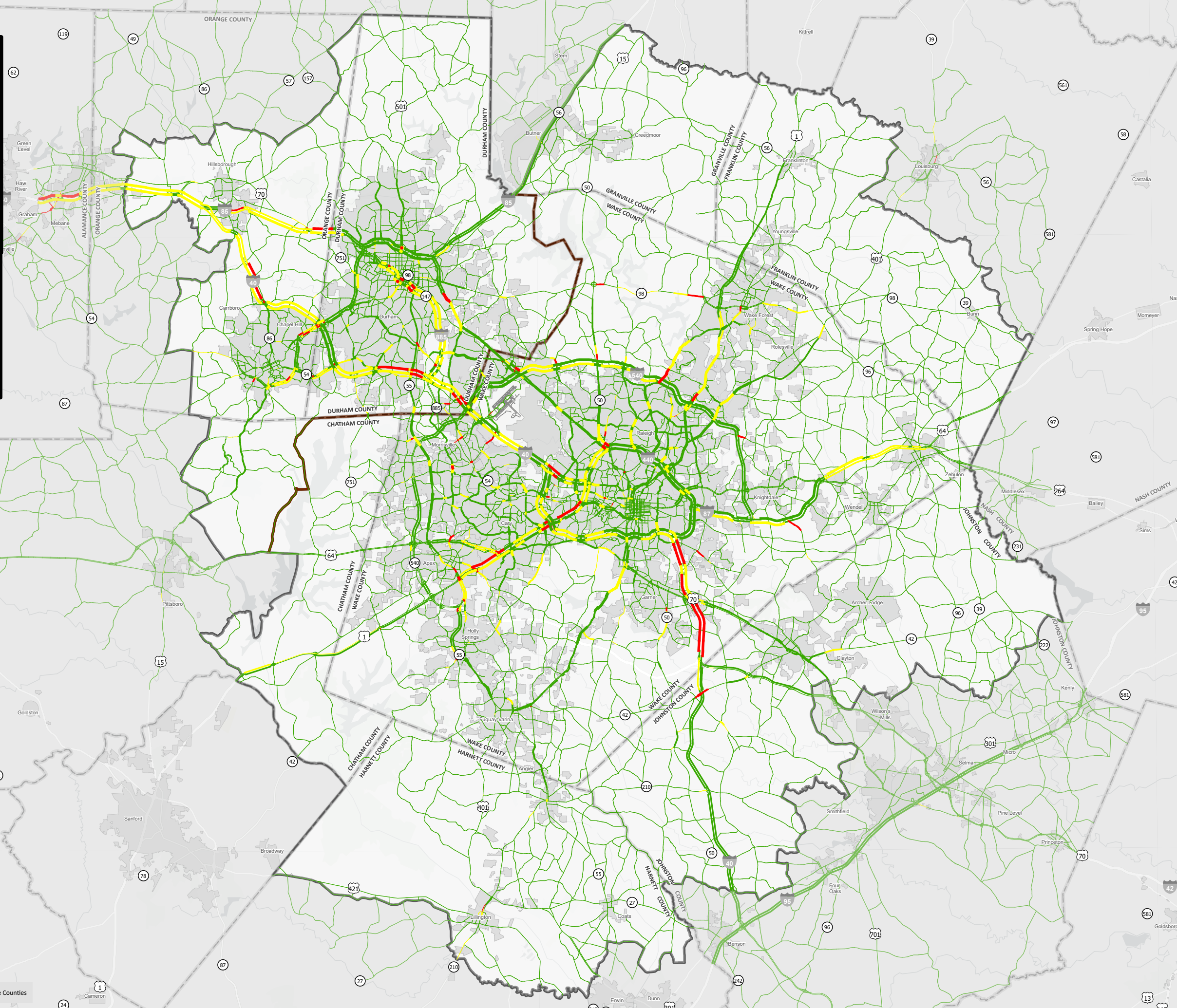
Congestion
Volume / Capacity

- 0.00 to 0.80
- 0.80 to 1.00
- 1.00+

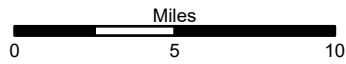
Total Daily Volume
of Vehicles

- 18,750
- 37,500
- 75,000+

Joint MPO Border



Vehicle Congestion Existing + Committed Scenario Regional Forecast 2055: Daily Peak Period



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Congestion
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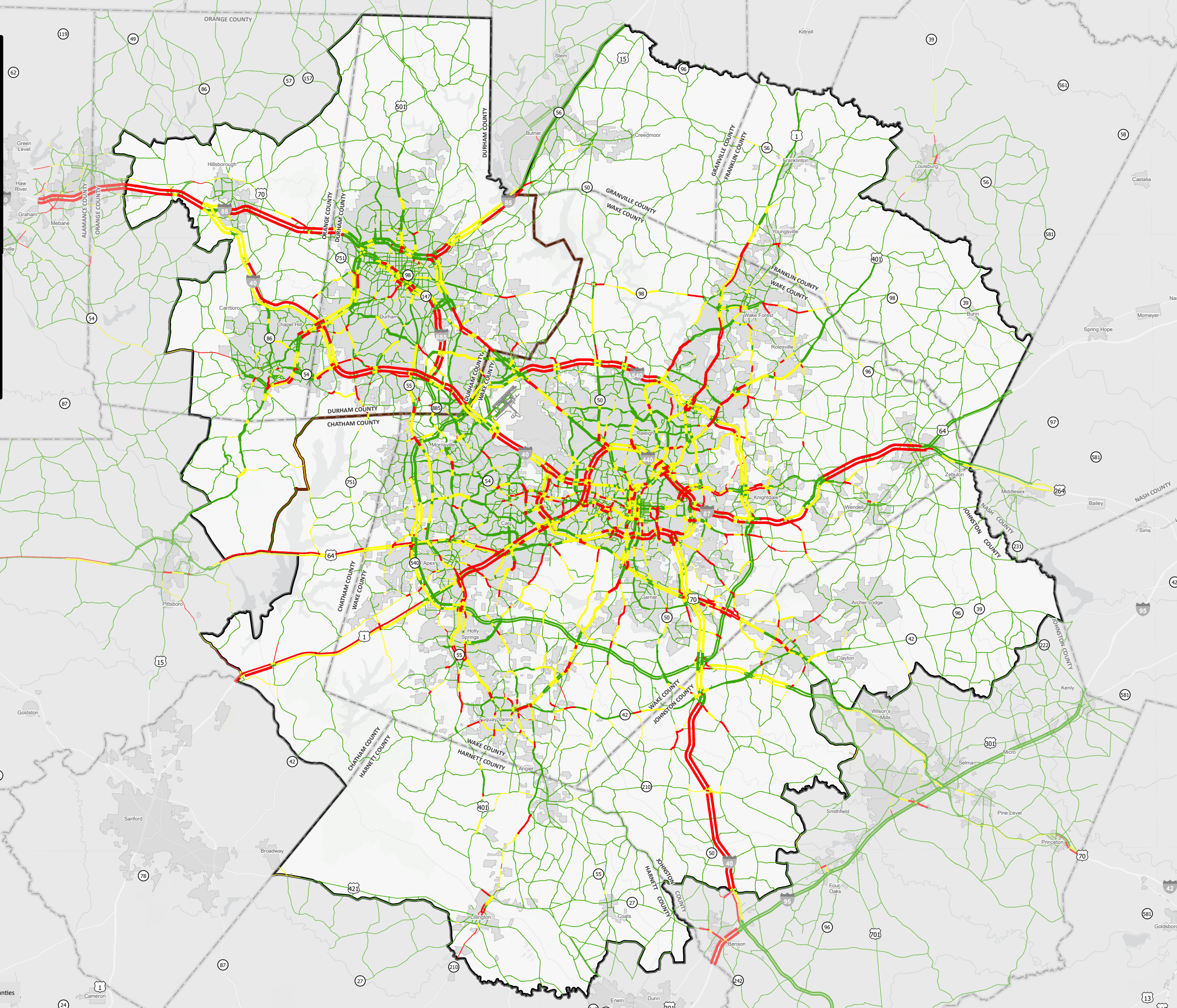
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- █ 0.80 to 1.00
- █ 1.00+

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Joint MPO Border

-



Travel Time Forecast Raleigh Current Conditions (2020)



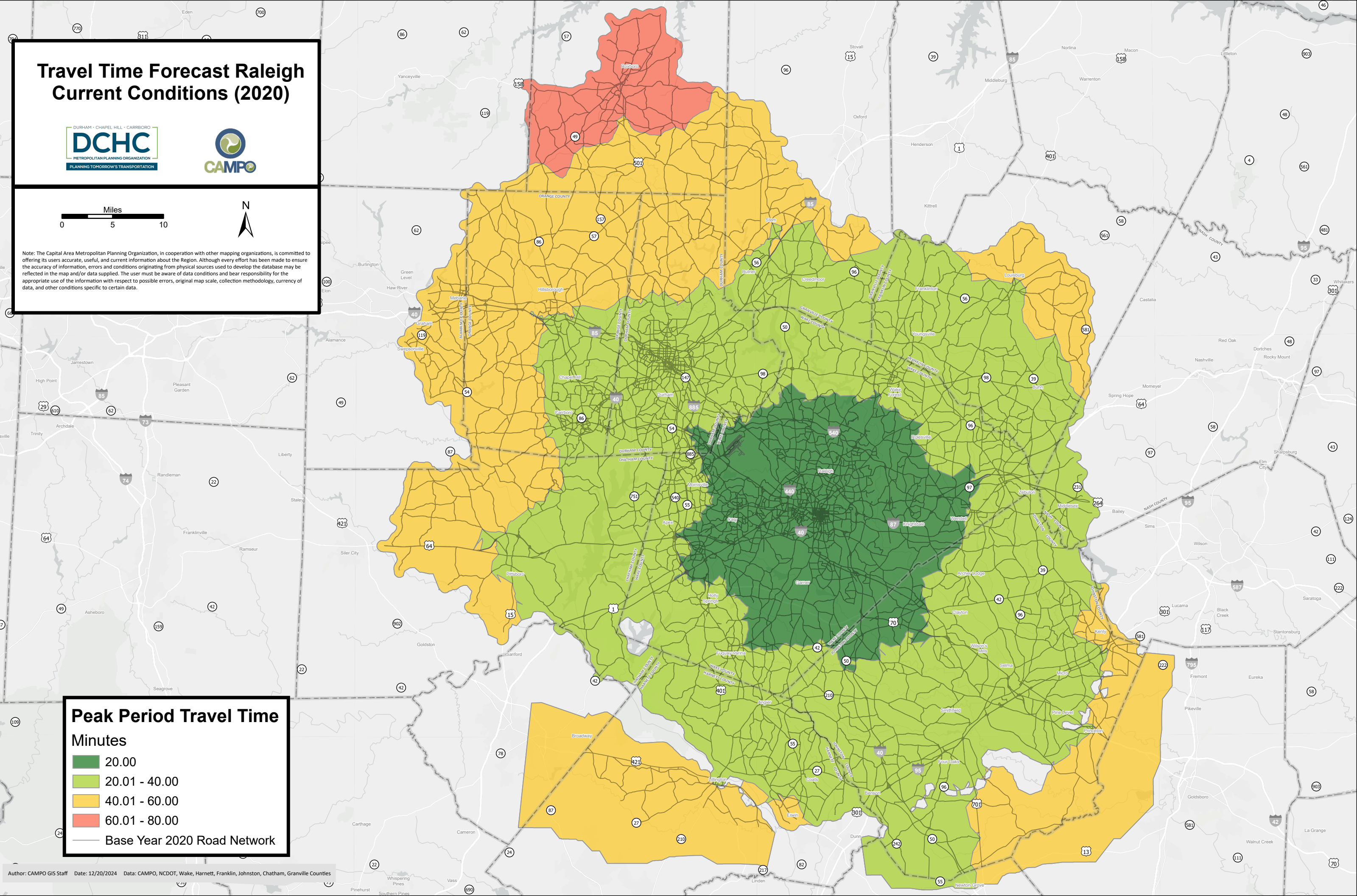
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Peak Period Travel Time

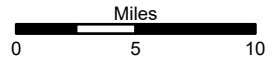
Minutes

- 20.00
- 20.01 - 40.00
- 40.01 - 60.00
- 60.01 - 80.00

— Base Year 2020 Road Network



Travel Time Forecast Raleigh Existing + Committed Scenario 2055 Horizon



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Peak Period Travel Time

Minutes

- 20.00
- 20.01 - 40.00
- 40.01 - 60.00
- 60.01 - 80.00

— 2055 Horizon Road Network

Travel Time Forecast RDU Current Conditions (2020)



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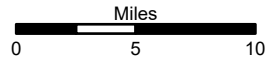
Peak Period Travel Time

Minutes

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— Base Year 2020 Road Network

Travel Time Forecast RDU Existing + Committed Scenario 2055 Horizon



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