

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 2045 MTP development.

What Years are analyzed?

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

2016- This is 2016 population and employment using the existing transportation system of streets, transit, etc., and reflects the current travel conditions. In some cases, the year 2015 has been used for the base year.

2050 Existing + Committed (E+C)- This is the estimated growth in population and employment through the year 2050 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

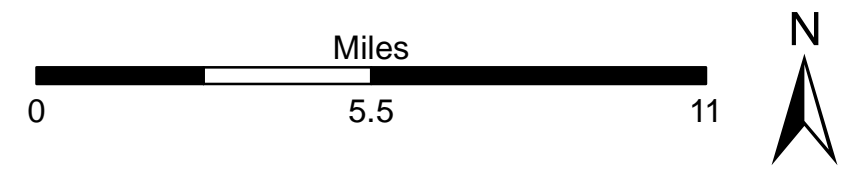
Travel time maps use isochrones, or “contours” to estimate the distance that can be traveled via travel “bands” of 20 minutes (0-20, 20-40, etc.). This analysis uses downtown Raleigh and Raleigh-Durham International Airport (RDU) to show travel time during peak periods in the 2016 and 2050 scenarios and illustrate corridor and small area mobility. Typically,

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 2050 MTP and will be released in the coming months.

Vehicle Congestion Forecast - 2050 MTP

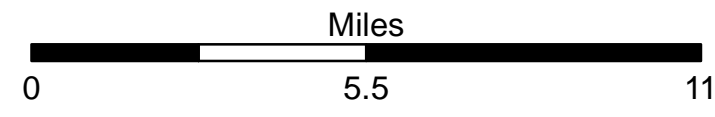
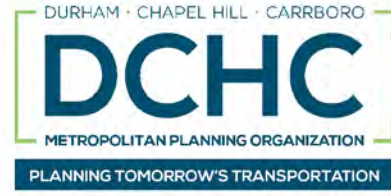
Current (2016) Conditions



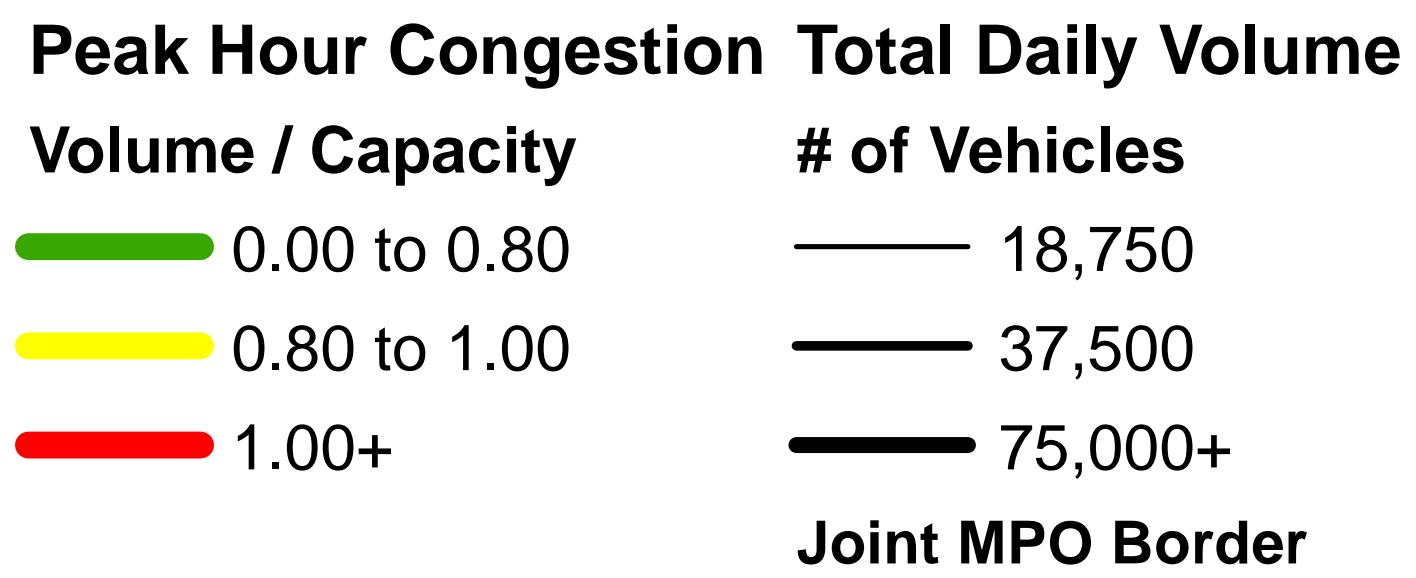
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Peak Hour Congestion	Total Daily Volume
Volume / Capacity	# of Vehicles
0.00 to 0.80	18,750
0.80 to 1.00	37,500
1.00+	75,000+
	Joint MPO Border

Vehicle Congestion Forecast - 2050 MTP Existing + Committed Scenario 2050 Horizon

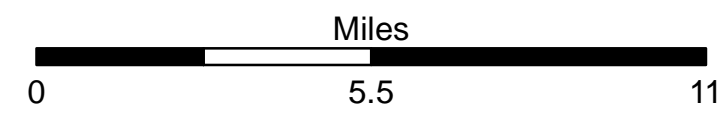
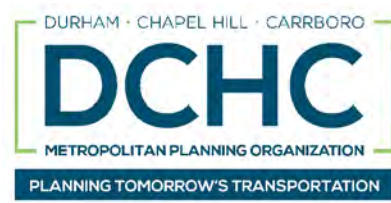


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Vehicle Congestion Forecast - 2050 MTP

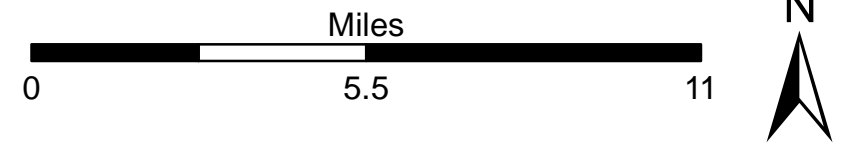
Current (2016) Conditions



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Off-Peak Hour Congestion	Total Daily Volume
Volume / Capacity	# of Vehicles
0.00 to 0.80	18,750
0.80 to 1.00	37,500
1.00+	75,000+
Joint MPO Border	

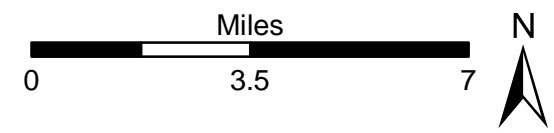
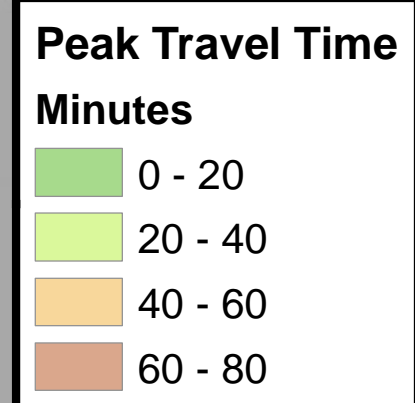
Vehicle Congestion Forecast - 2050 MTP Existing + Committed Scenario 2050 Horizon



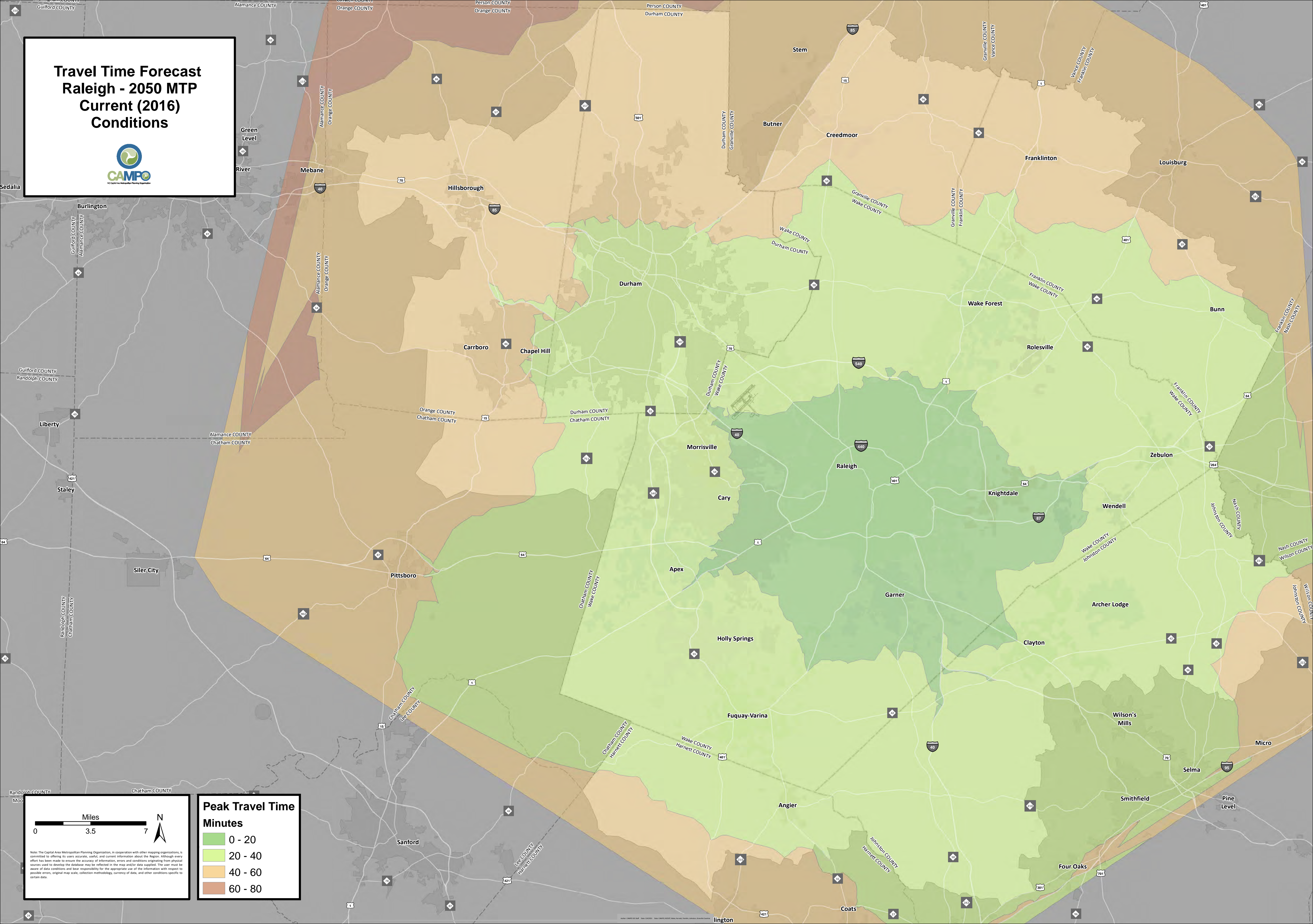
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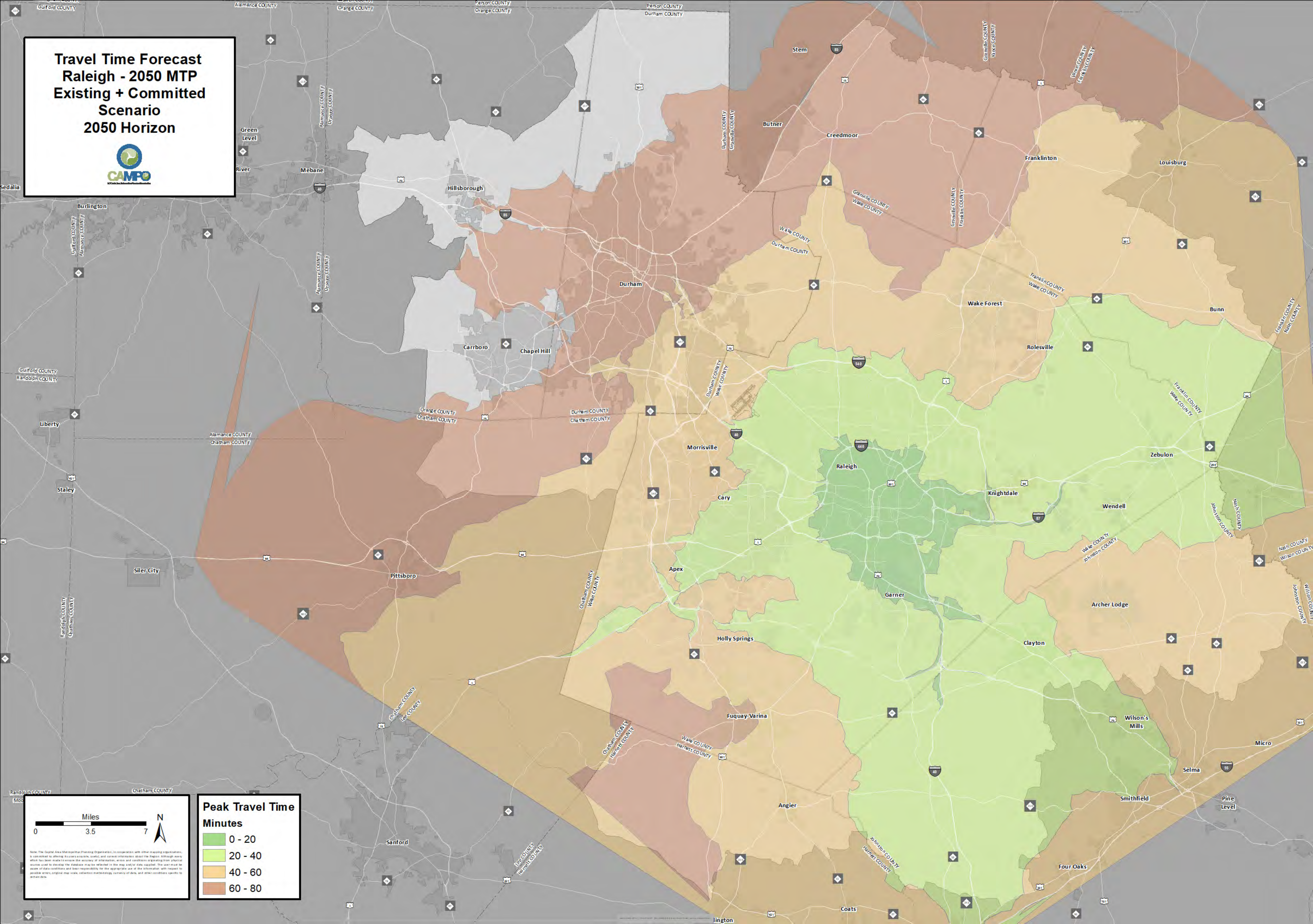
Travel Time Forecast Raleigh - 2050 MTP Current (2016) Conditions



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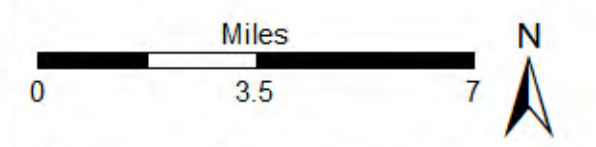


**Travel Time Forecast
Raleigh - 2050 MTP
Existing + Committed
Scenario
2050 Horizon**



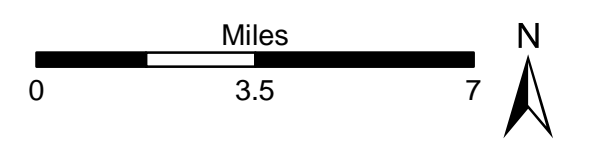
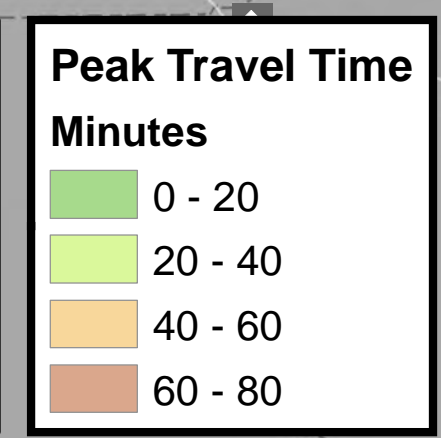
**Peak Travel Time
Minutes**

- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80

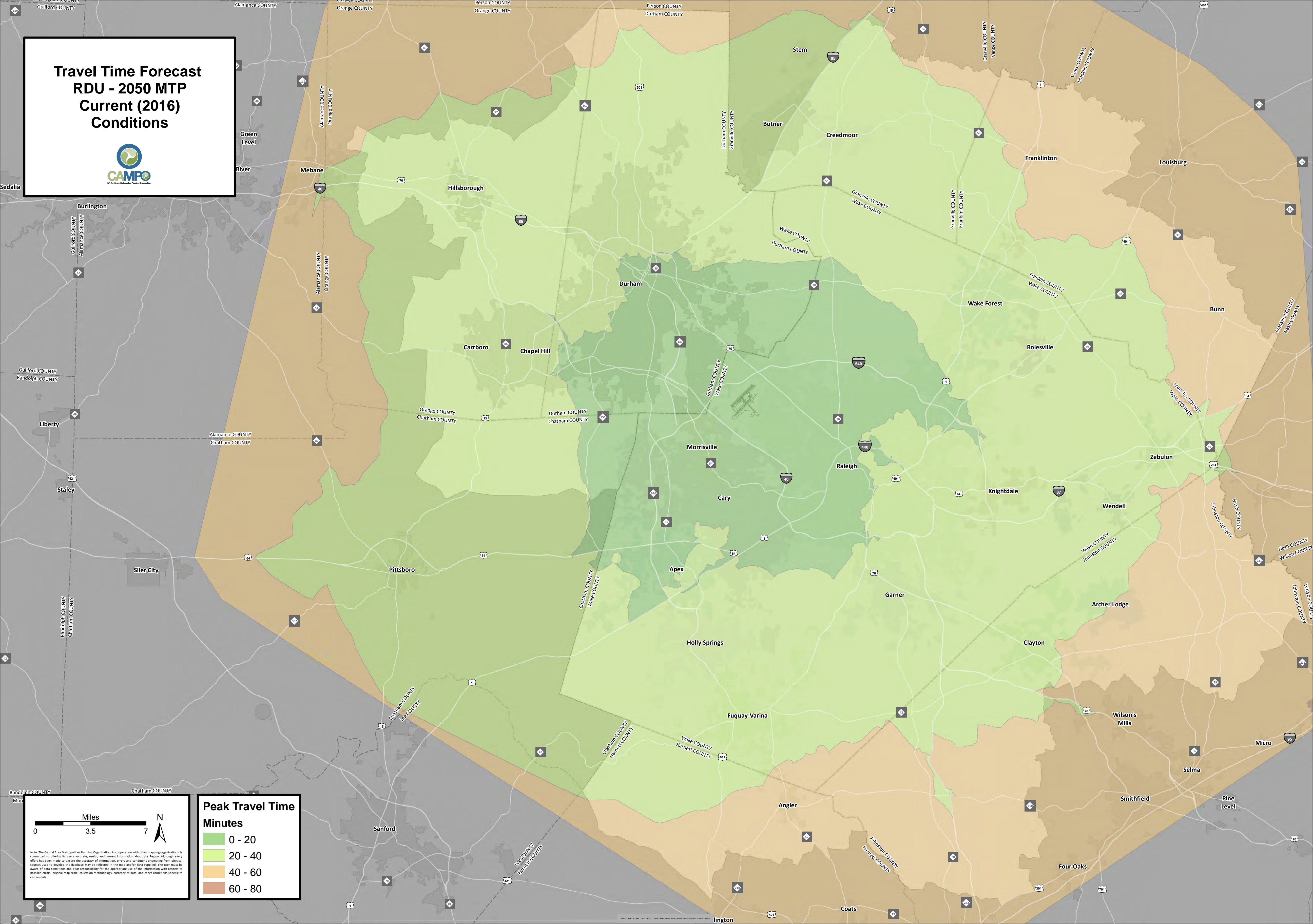


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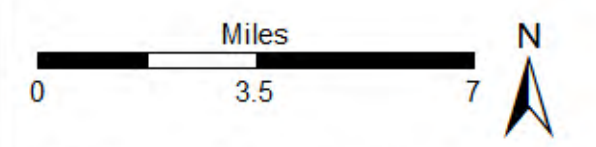
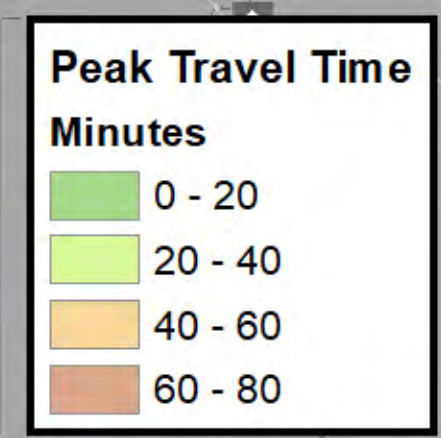
Travel Time Forecast RDU - 2050 MTP Current (2016) Conditions



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**Travel Time Forecast
RDU - 2050 MTP
Existing + Committed
Scenario
2050 Horizon**



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