

2035 LRTP and CTP Alternatives – Congestion Maps (V/C maps)

Use of Congestion Maps

The Performance Measures provide a general indicator of the overall transportation system. On the other hand, the Congestion Maps show the forecasted level of service on specific road segments and corridors based on the afternoon peak hour. These maps are sometimes called “V/C” maps (V over C maps) because the level of service, or existence of congestion, is derived by dividing the traffic volume 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. A V/C of 1.0 is equal to a Level of Service (LOS) of “E”, which can be described as:

Limit of acceptable delay, unstable flow, poor signal progression,
traffic near roadway capacity, frequent cycle failures.

Although the term traffic congestion is subjective in that it means different levels of delay to different people, it can be said that any road segment approaching a V/C of 1.0, which is indicated on the maps with a **yellow color**, experiences some delays. A V/C greater than 1.0, which is indicated on the maps by the **purple color**, means frequent delays for the motorist, and a V/C greater than 1.1, which is indicated by the **red color** on the maps, translates into unacceptable travel delays.

The Triangle Regional Model (the travel demand model for the Triangle Region) uses travel behavior data for the Triangle Region, future transportation system networks, and future population and employment data, to forecast the volume and capacity values needed to produce these maps. The forecasts are for the year 2035. Each Congestion Map represents one of the Alternatives, which are comprised of a specific transportation system (Intensive Highway, Fixed Guideway, etc.) and Socioeconomic Data (Baseline, Buildout, etc.).

Review and comparison of the Congestion Maps for the various Alternatives will show how well a particular Alternative addresses travel demand on the key roadway segments and corridors in the MPO planning area.

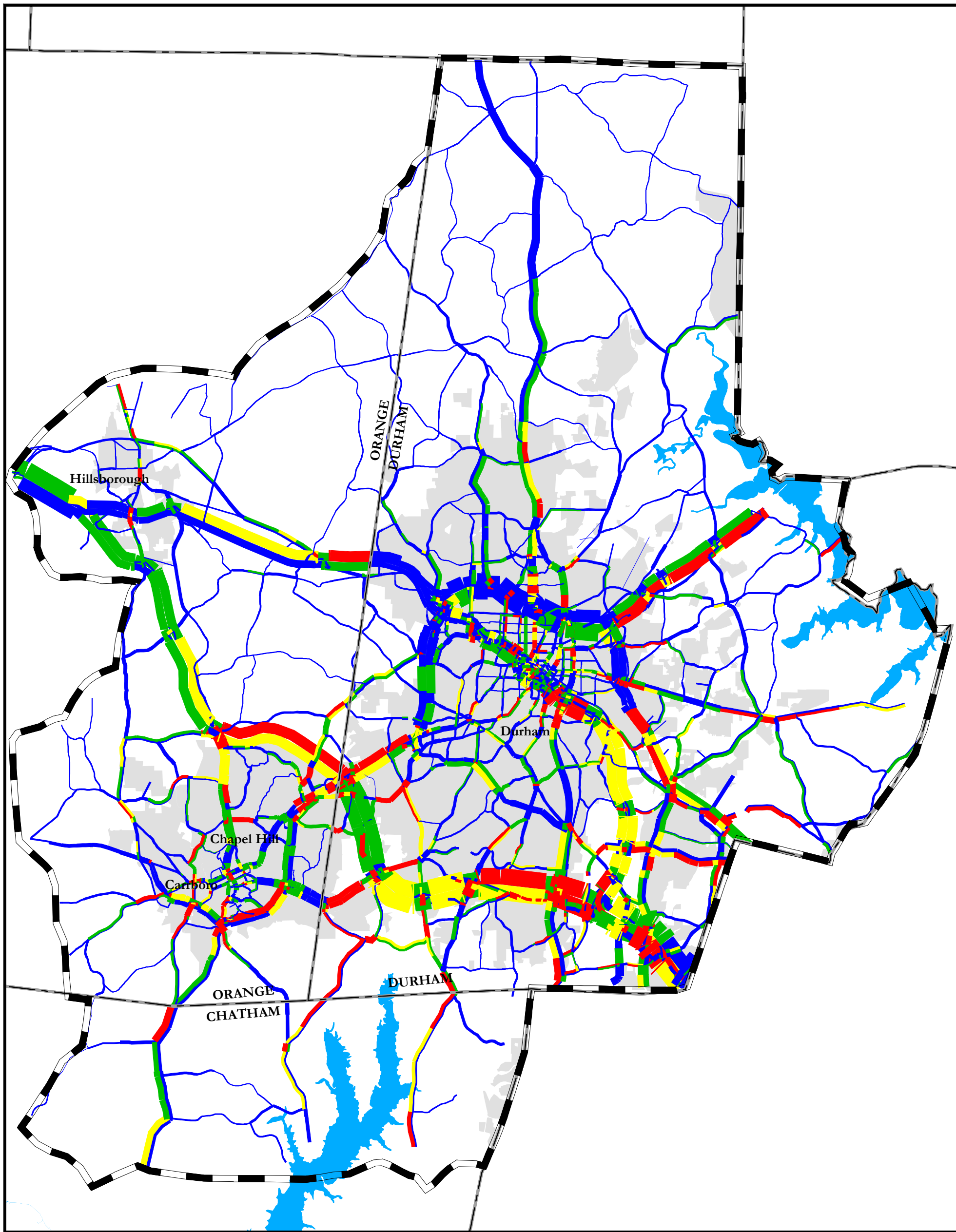
Of particular importance is the comparison of any one Alternative with the **E+C map** (Existing plus Committed), which can be considered a benchmark. The E+C map uses a transportation network with the current roadways and transit services plus any others that have been committed to being implemented, and the Socioeconomic Data (i.e., population and employment) for the year 2035. This map shows the level of service to be experienced if no additional roadway improvements or transit services are implemented, and thus helps to answer the question, “When we make our next transportation investment decision, where do we need to focus our investment?” Furthermore, by

comparing the E+C Congestion Map with the other Alternatives, you can see how well the transportation investments in that Alternative address the congestion in the E+C.

Congestion Maps for Alternatives

On the following pages, the Congestion Maps are presented in the order shown on the table below.

Alternative:		
ID	Transportation System	Land Use Scenario
N/A	Existing Plus Committed	Baseline
2-A	Comprehensive Transportation Plan	Baseline
2-B	Comprehensive Transportation Plan	Buildout
3-A	Intensive Highway	Baseline
3-B	Intensive Highway	Constrained
3-C	Intensive Highway	Travel Corridor
4-A	Intensive Fixed Guideway	Baseline
4-B	Intensive Fixed Guideway	Travel Corridor
4-C	Intensive Fixed Guideway	Transit Node
5-A	Intensive Bus Transit	Baseline
5-B	Intensive Bus Transit	Travel Corridor
5-C	Intensive Bus Transit	Transit Node
6-A	Moderate Multimodal	Baseline
6-B	Moderate Multimodal	Travel Corridor
6-C	Moderate Multimodal	Transit Node

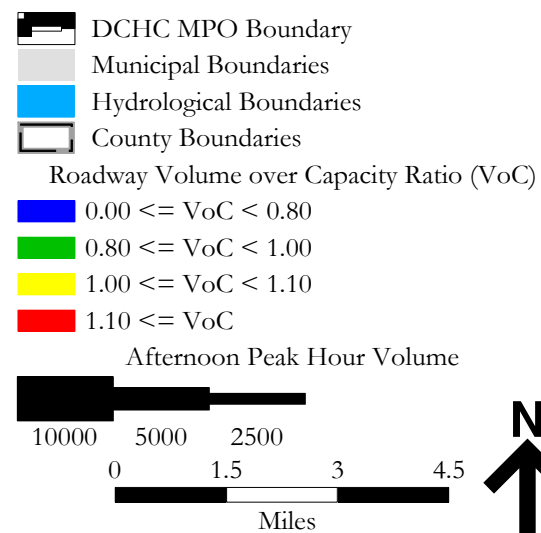


2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 7a

2035 Existing plus Committed

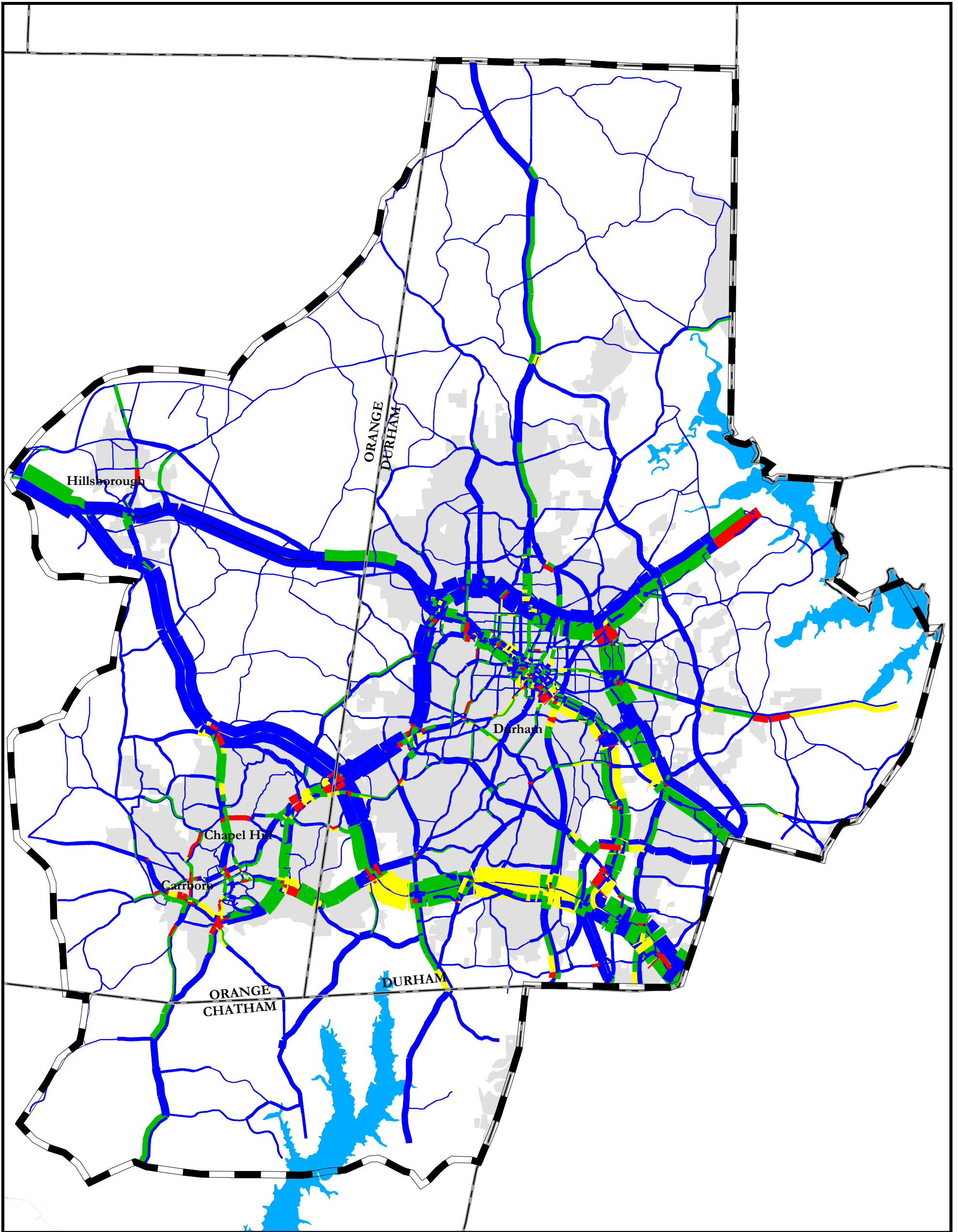
Baseline Land Use Scenario

DCHC MPO Area



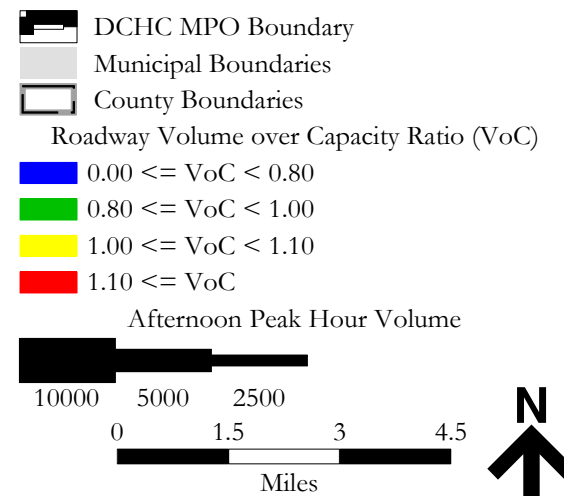
This map represents the ratio between projected roadway volume and capacity, assuming a existing plus committed transportation system for the baseline land use scenario.

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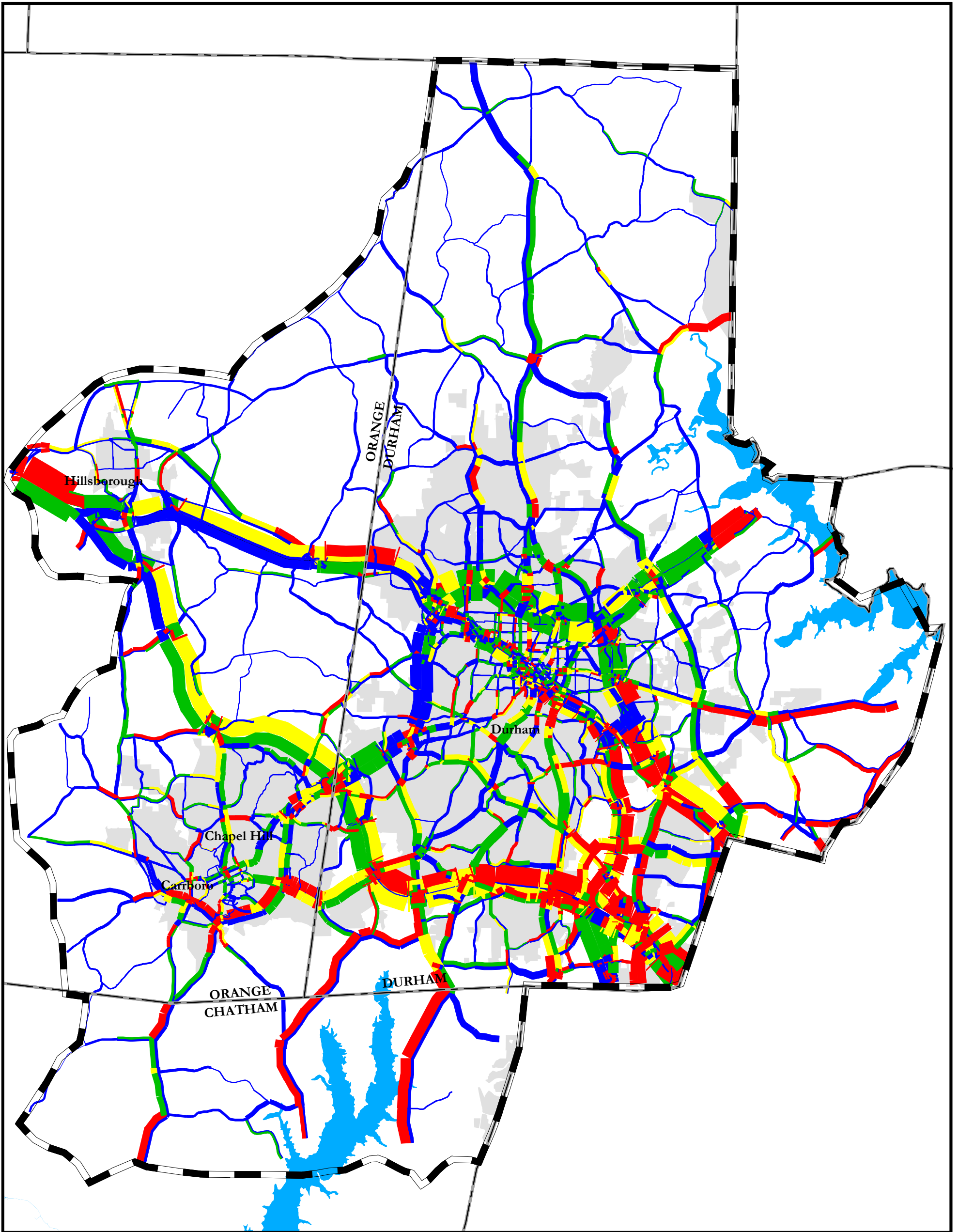
2035 Afternoon Peak Hour
 Volume over Capacity Ratio (VoC)
 Alternative 2a

**Comprehensive
 Transportation Plan**
 Baseline Land Use Scenario
 DCHC MPO Area



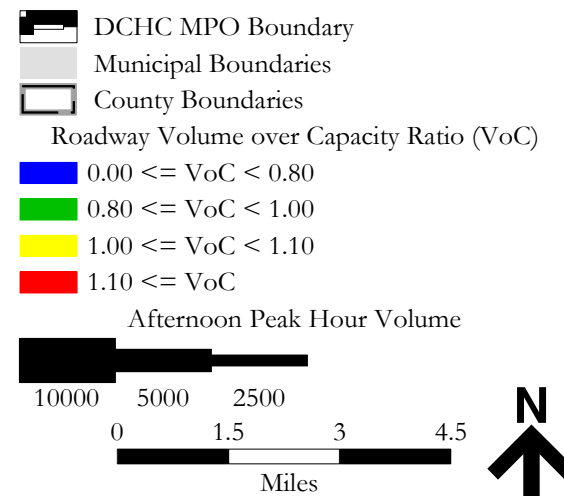
This map represents the ratio between projected roadway volume and capacity, assuming implementation of the comprehensive transportation plan for the baseline land use scenario.

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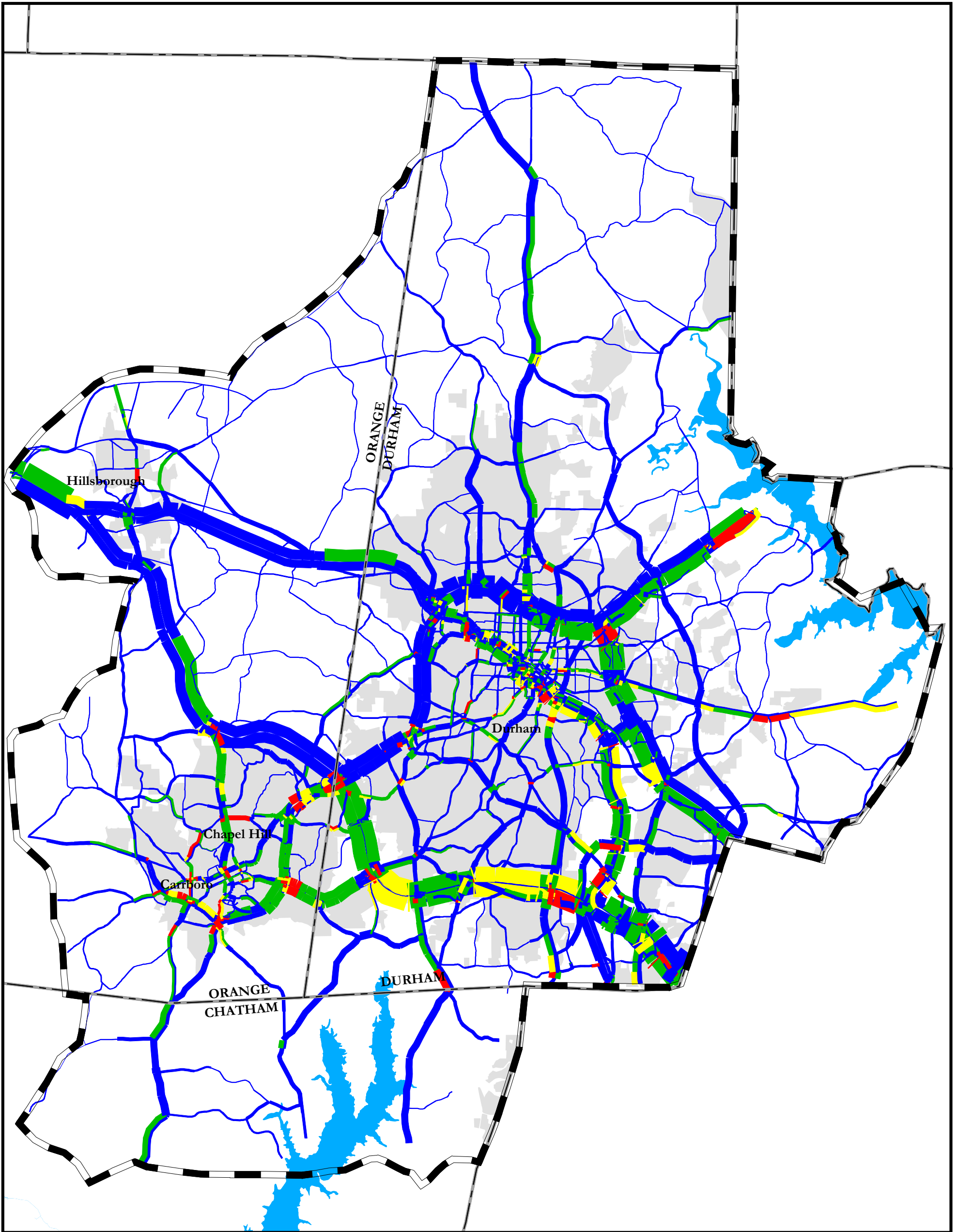
2035 Afternoon Peak Hour
 Volume over Capacity Ratio (VoC)
 Alternative 2b

**Comprehensive
 Transportation Plan**
 Buildout Land Use Scenario
 DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming implementation of the comprehensive transportation plan for the buildout land use scenario.

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2035 Afternoon Peak Hour

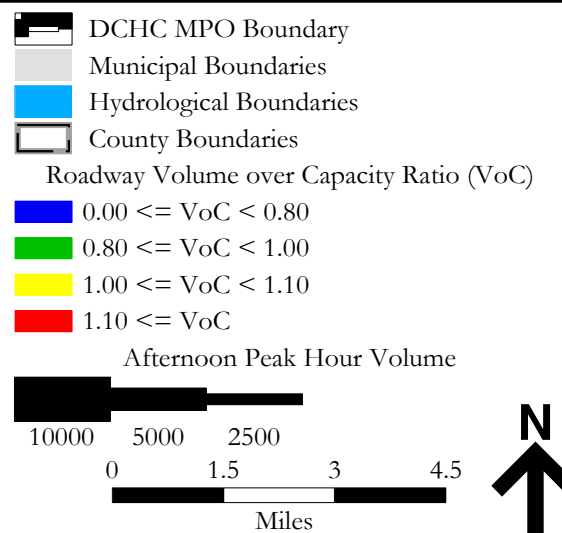
Volume over Capacity Ratio (VoC)

Alternative 3a

Highway Intensive

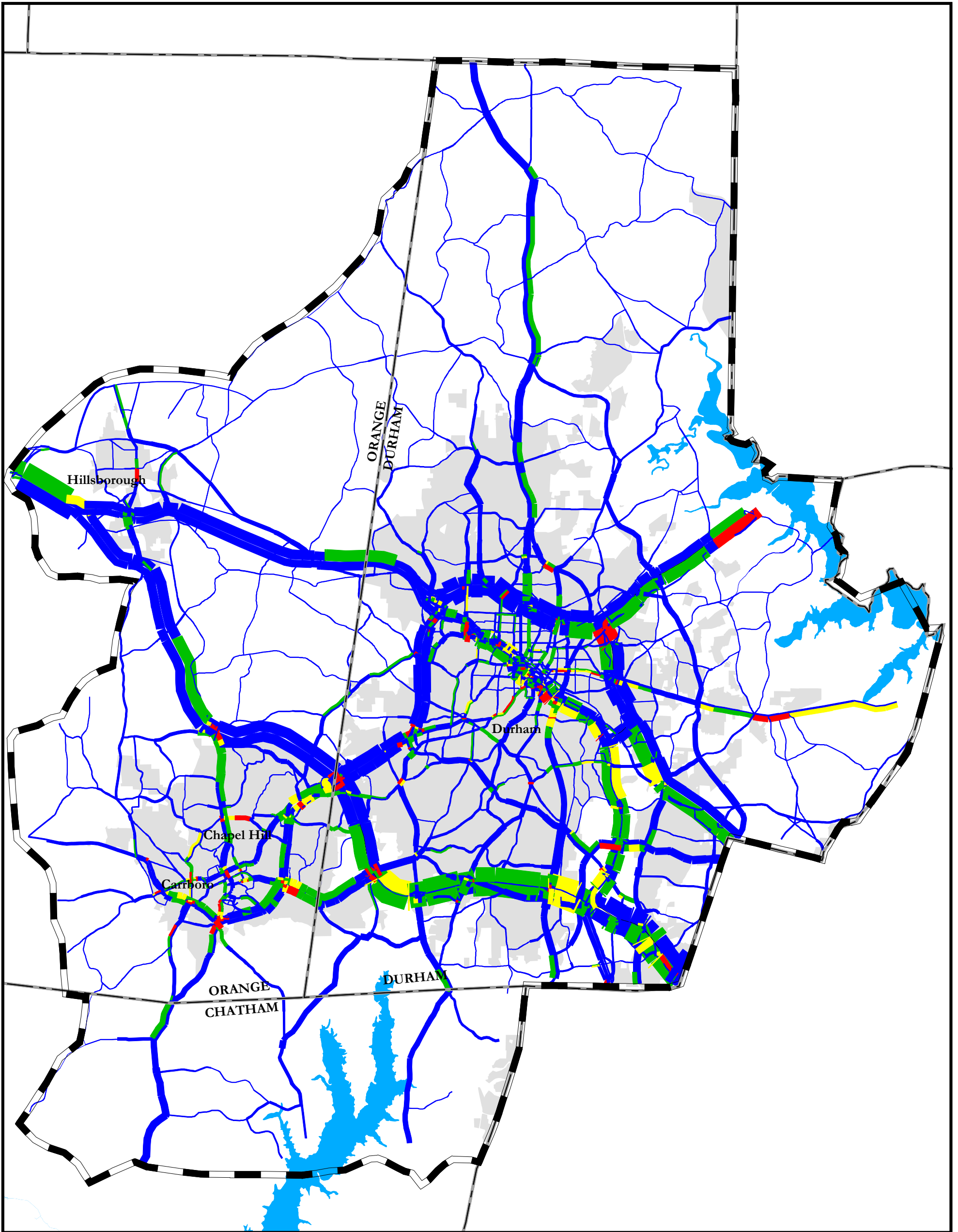
Baseline Land Use Scenario

DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming a highway-intensive transportation system for the baseline land use scenario.

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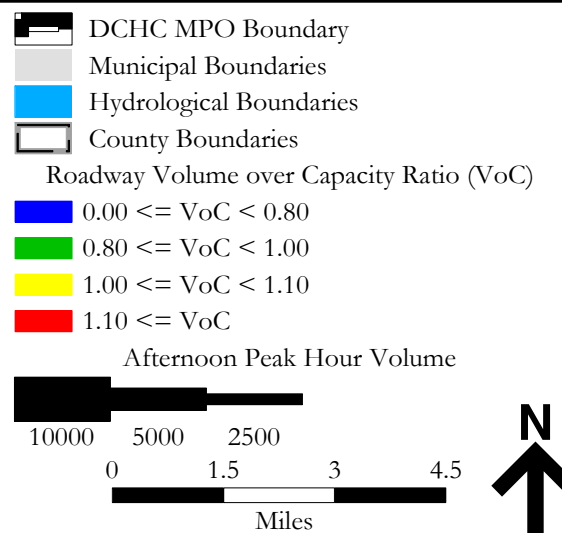


2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 3b

Highway Intensive

Constrained Land Use Scenario

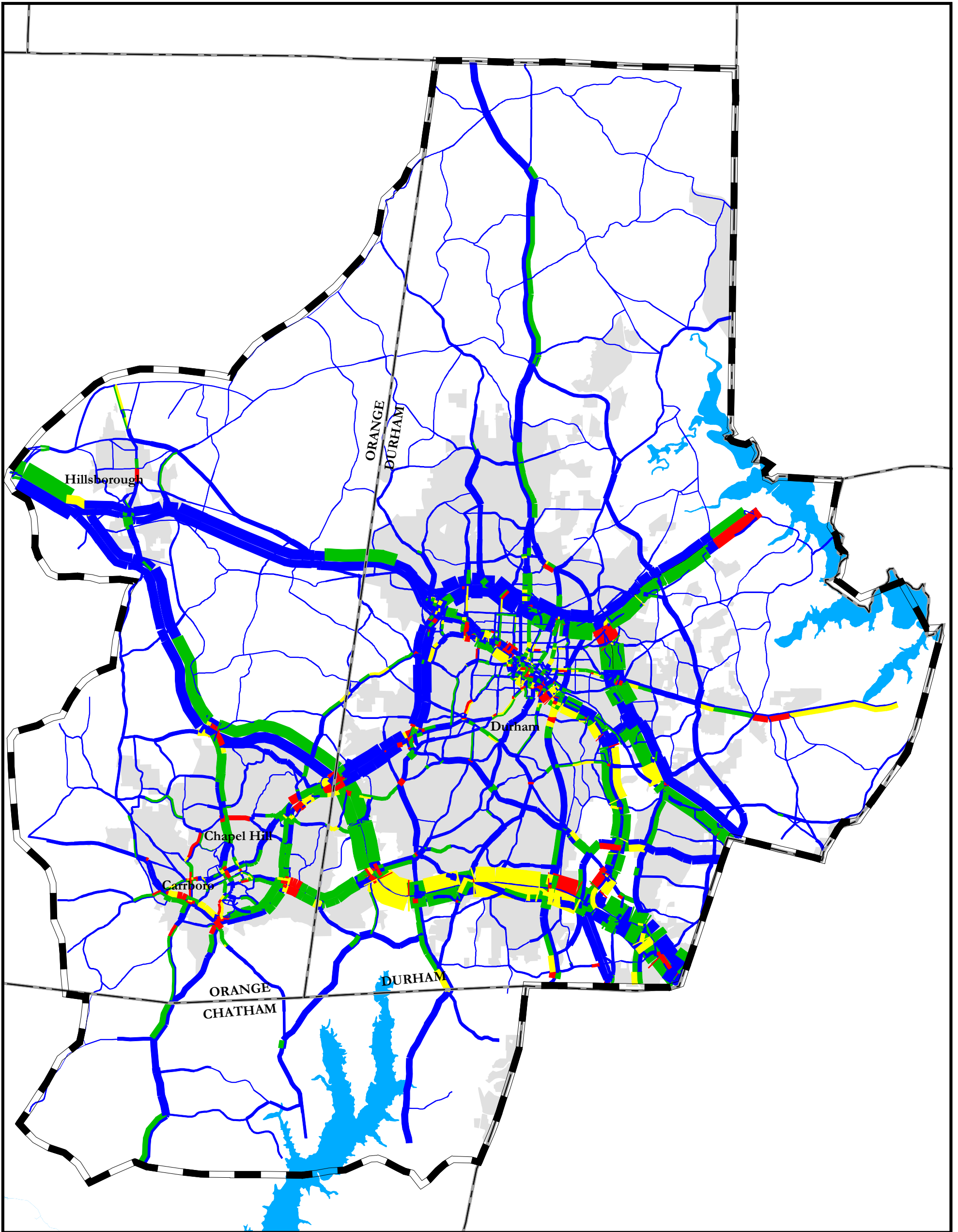
DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming a highway-intensive transportation system for the constrained land use scenario.

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2035 Afternoon Peak Hour

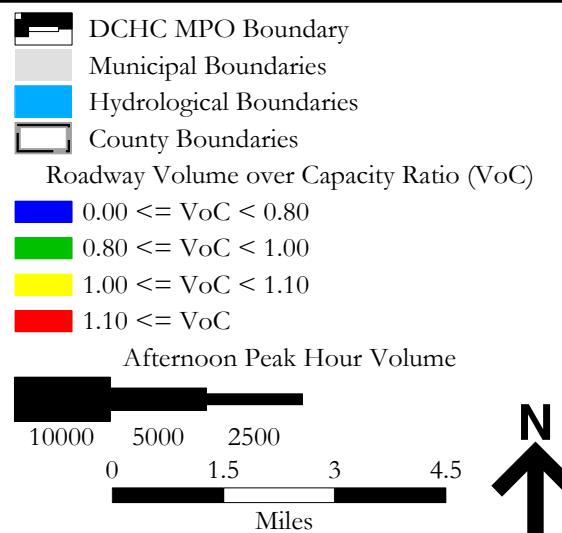
Volume over Capacity Ratio (VoC)

Alternative 3c

Highway Intensive

Corridor Land Use Scenario

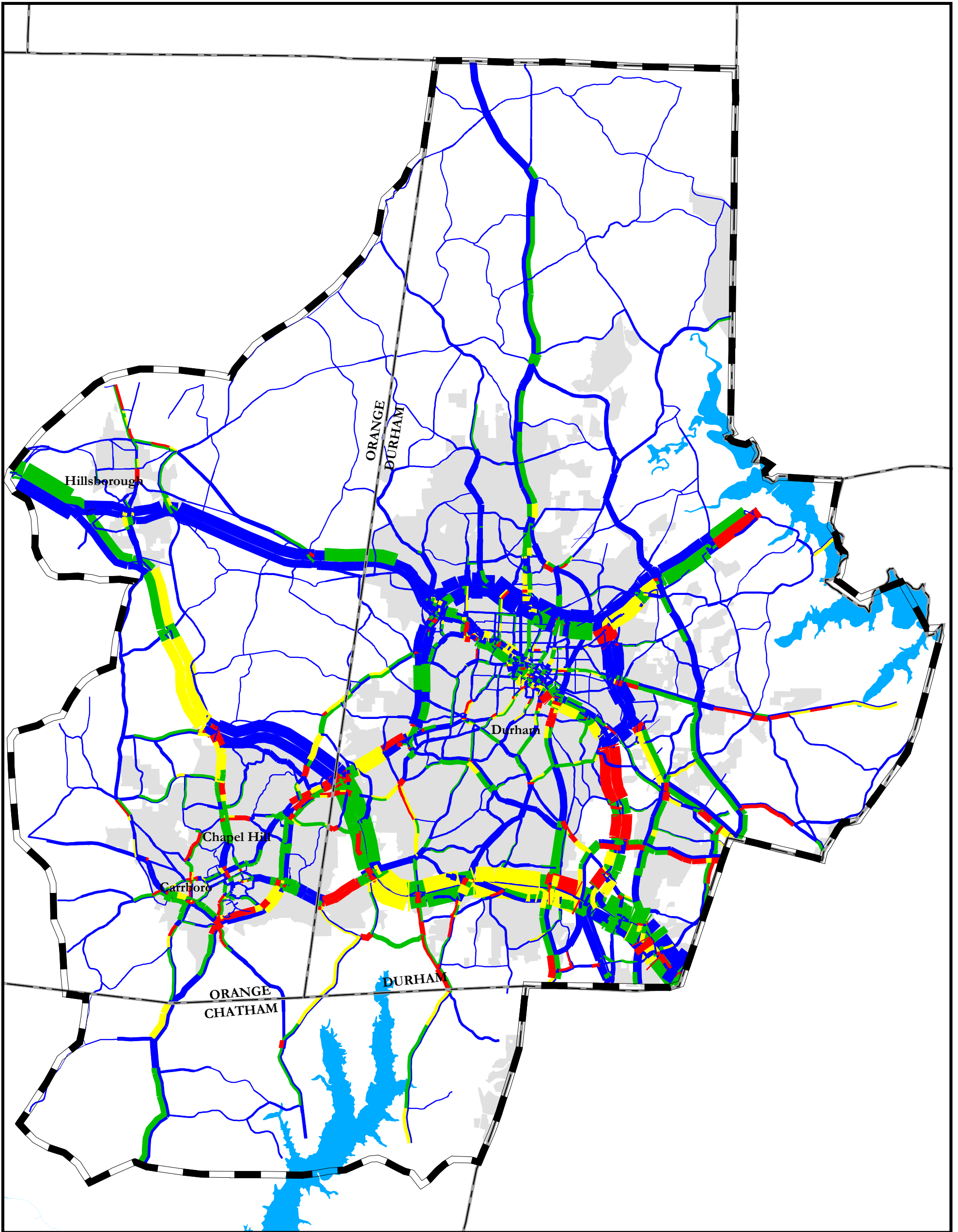
DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming a highway-intensive transportation system for the corridor land use scenario.

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2035 Afternoon Peak Hour

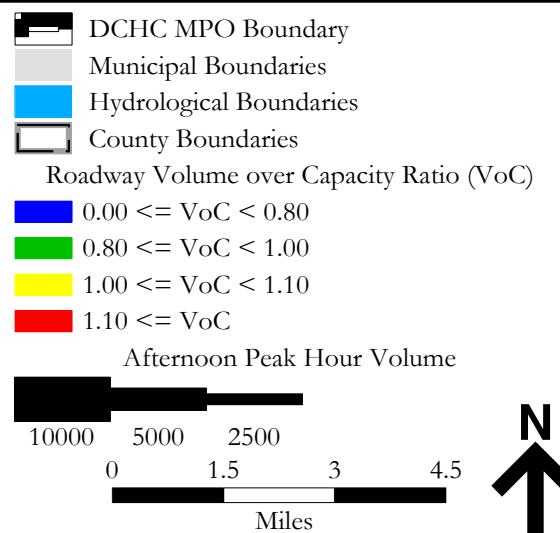
Volume over Capacity Ratio (VoC)

Alternative 4a

Fixed Guideway Tall STAC

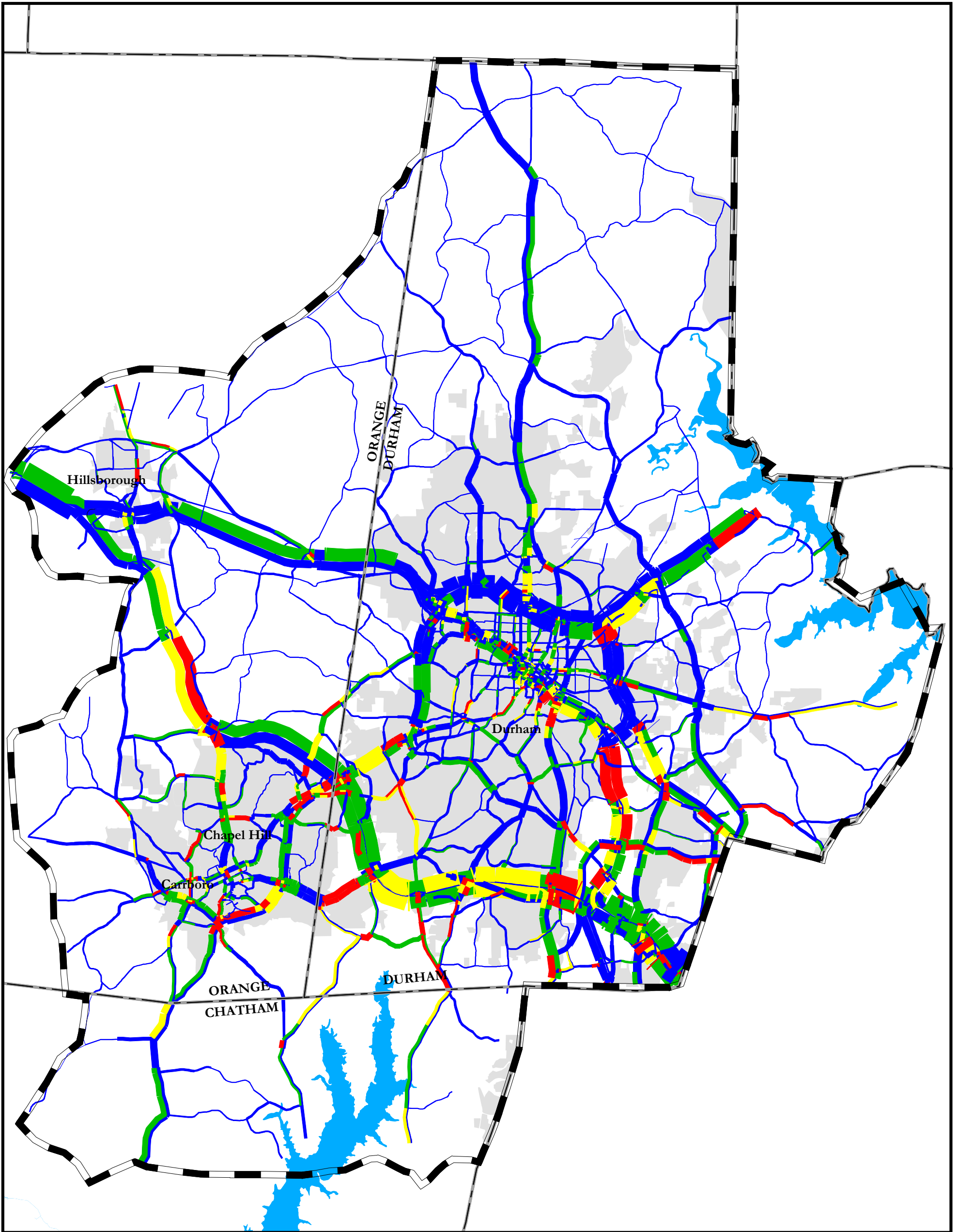
Baseline Land Use Scenario

DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming a fixed guideway tall STAC transportation system for the baseline land use scenario.

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2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 4b

Fixed Guideway Tall STAC
Corridor Land Use Scenario
DCHC MPO Area

- DCHC MPO Boundary
- Municipal Boundaries
- Hydrological Boundaries
- County Boundaries

Roadway Volume over Capacity Ratio (VoC)

- 0.00 <= VoC < 0.80
- 0.80 <= VoC < 1.00
- 1.00 <= VoC < 1.10
- 1.10 <= VoC

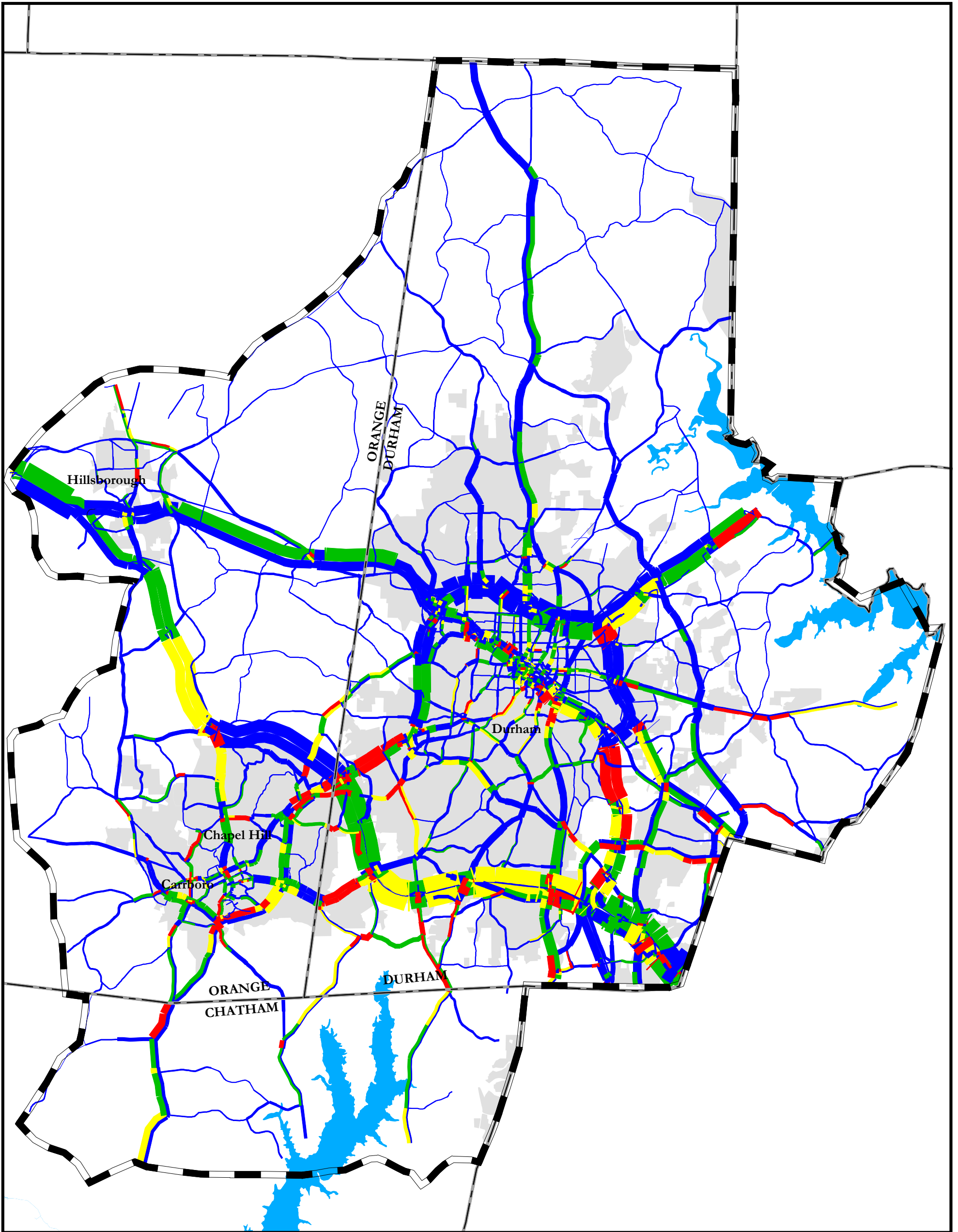
Afternoon Peak Hour Volume

10000 5000 2500
 0 1.5 3 4.5
 Miles




This map represents the ratio between projected roadway volume and capacity, assuming a fixed guideway tall STAC transportation system for the corridor land use scenario.

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2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 4c





Fixed Guideway Tall STAC
Transit Nodes Land Use Scenario







This map represents the ratio between projected roadway volume and capacity, assuming a fixed guideway tall STAC transportation system for the transit nodes land use scenario.

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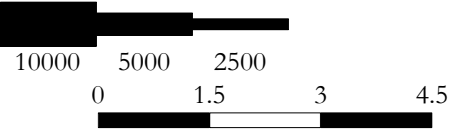
DCHC MPO Area

-  DCHC MPO Boundary
-  Municipal Boundaries
-  Hydrological Boundaries
-  County Boundaries


Roadway Volume over Capacity Ratio (VoC)

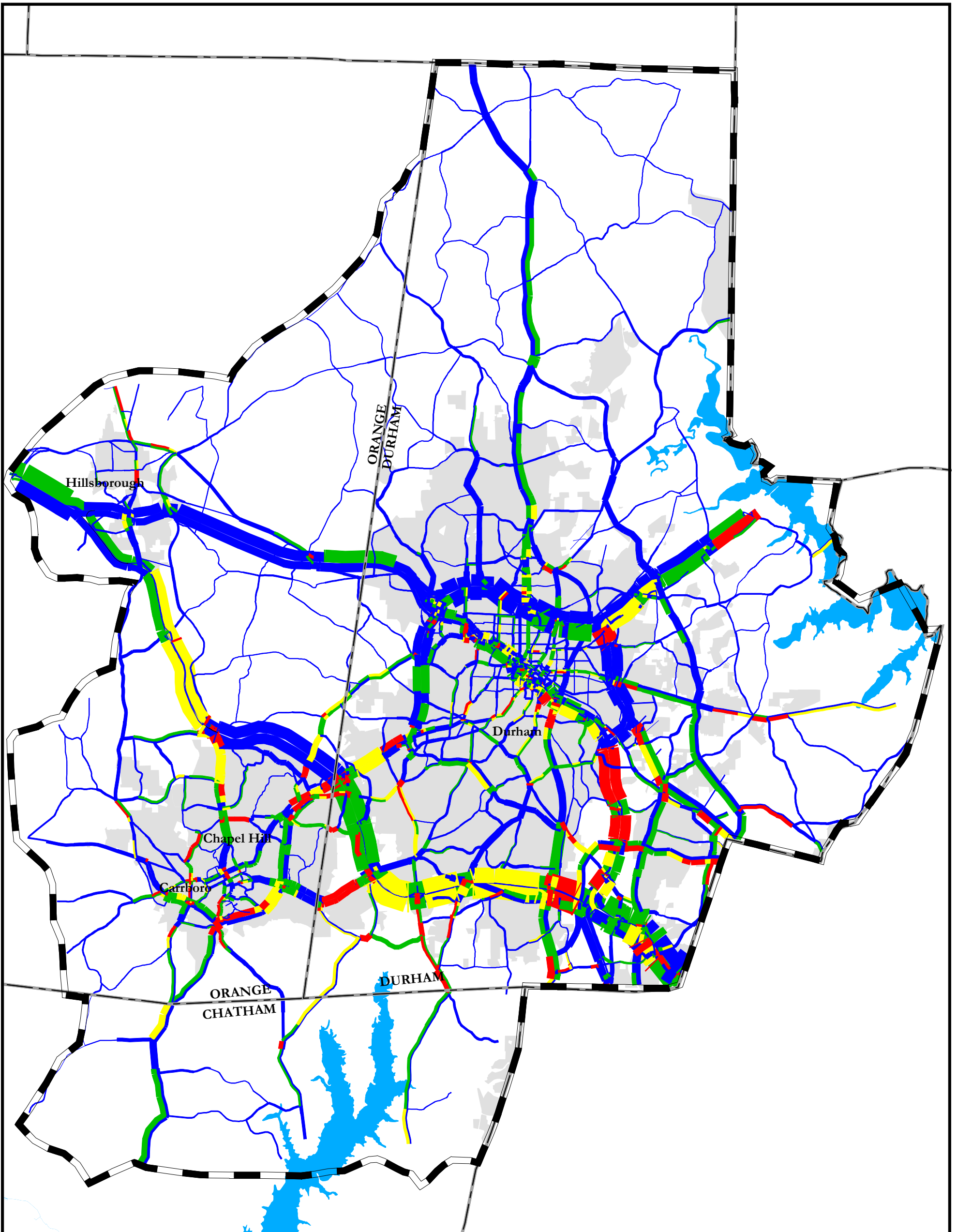
-  0.00 <= VoC < 0.80
-  0.80 <= VoC < 1.00
-  1.00 <= VoC < 1.10
-  1.10 <= VoC

Afternoon Peak Hour Volume



10000 5000 2500
0 1.5 3 4.5
Miles





2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 5a

Bus Transit
Baseline Land Use Scenario
DCHC MPO Area

- DCHC MPO Boundary
- Municipal Boundaries
- Hydrological Boundaries
- County Boundaries

Roadway Volume over Capacity Ratio (VoC)

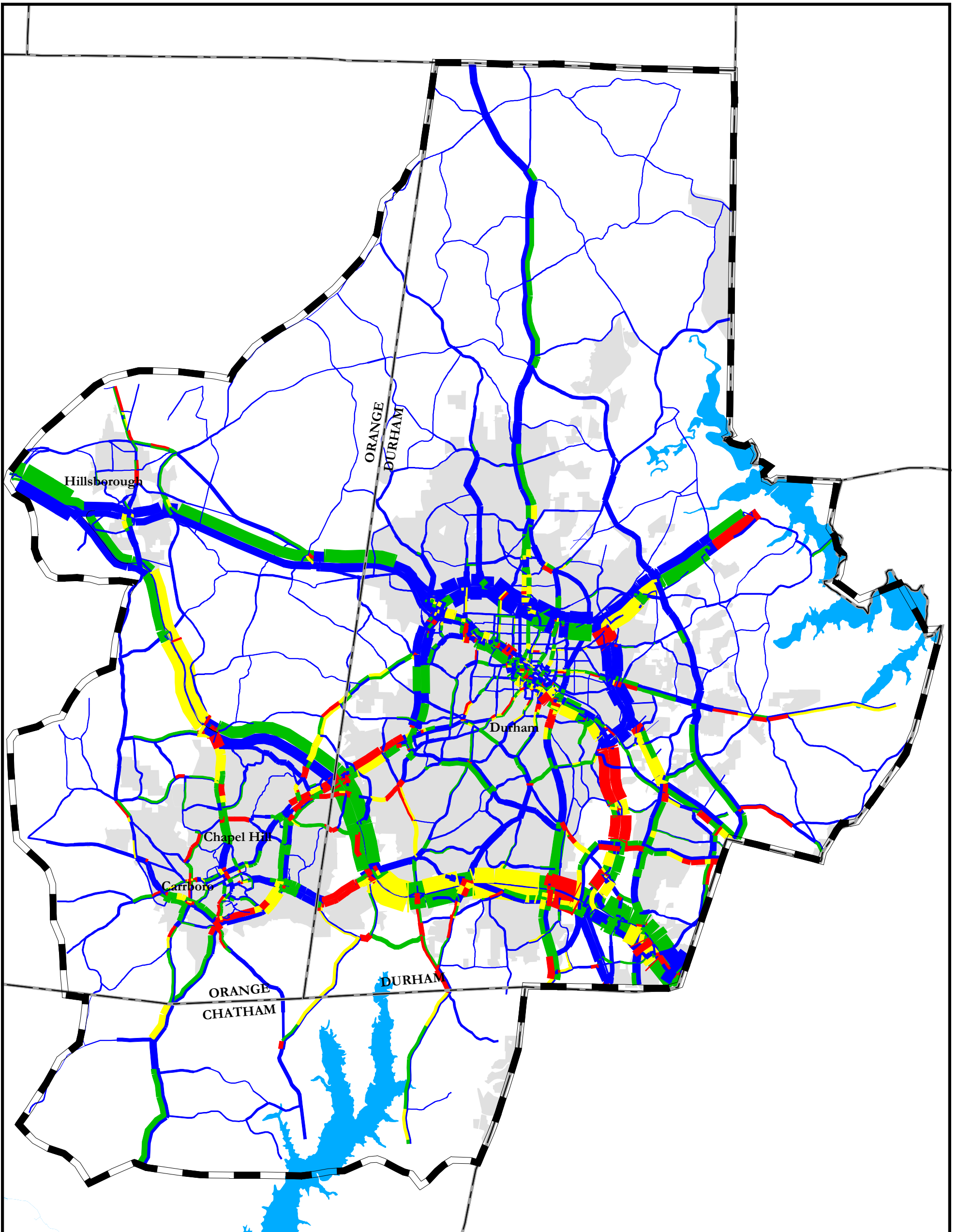
- 0.00 <= VoC < 0.80
- 0.80 <= VoC < 1.00
- 1.00 <= VoC < 1.10
- 1.10 <= VoC

Afternoon Peak Hour Volume

10000 5000 2500
 0 1.5 3 4.5
 Miles

This map represents the ratio between projected roadway volume and capacity, assuming a bus transit transportation system for the baseline land use scenario.

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2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 5b

Bus Transit
Corridor Land Use Scenario
DCHC MPO Area

- DCHC MPO Boundary
- Municipal Boundaries
- Hydrological Boundaries
- County Boundaries

Roadway Volume over Capacity Ratio (VoC)

- 0.00 ≤ VoC < 0.80
- 0.80 ≤ VoC < 1.00
- 1.00 ≤ VoC < 1.10
- 1.10 ≤ VoC

Afternoon Peak Hour Volume

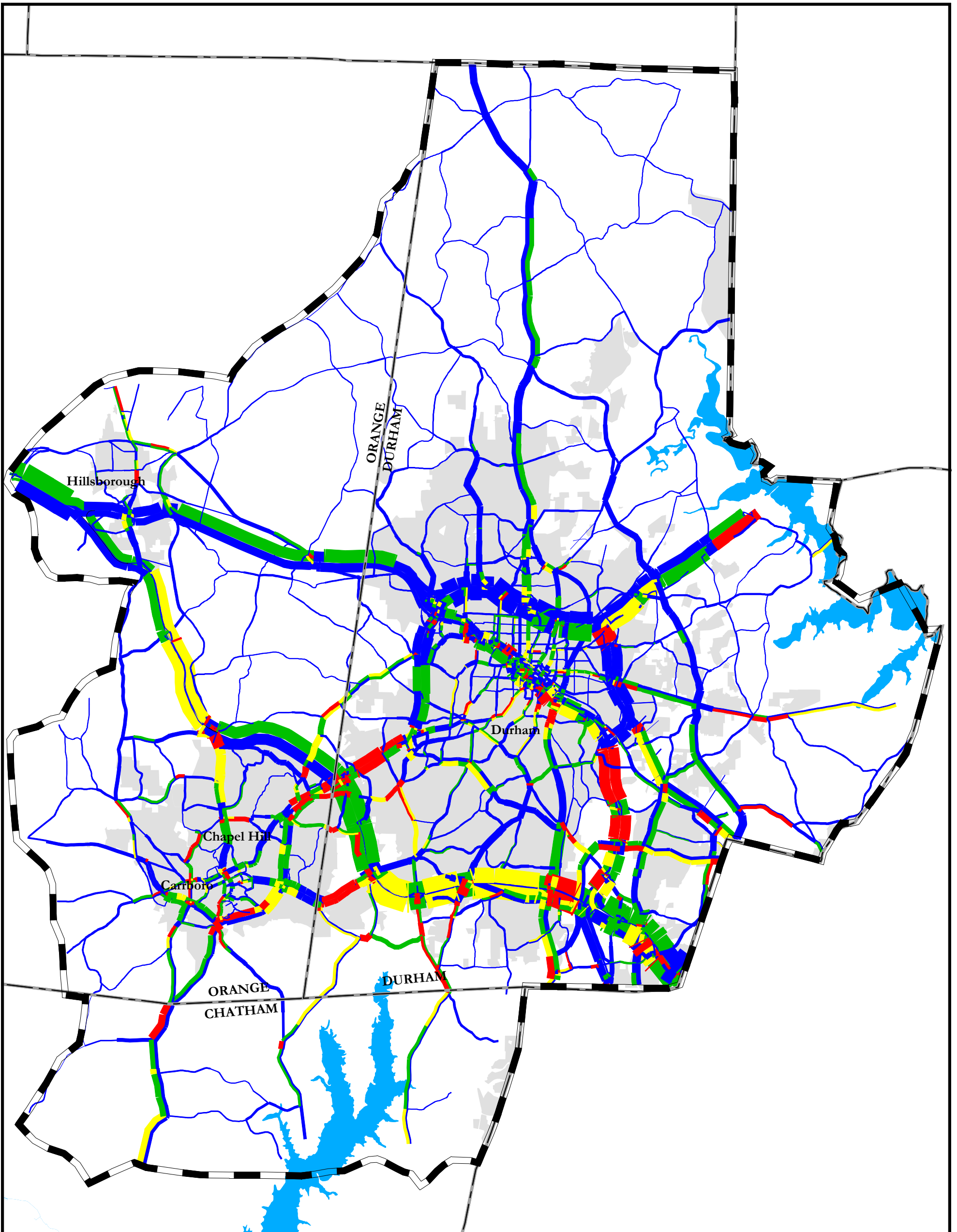
10000 5000 2500
 0 1.5 3 4.5
 Miles



This map represents the ratio between projected roadway volume and capacity, assuming a bus transit transportation system for the corridor land use scenario.

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2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 5c

Bus Transit
Transit Nodes Land Use Scenario
DCHC MPO Area

- DCHC MPO Boundary
- Municipal Boundaries
- Hydrological Boundaries
- County Boundaries

Roadway Volume over Capacity Ratio (VoC)

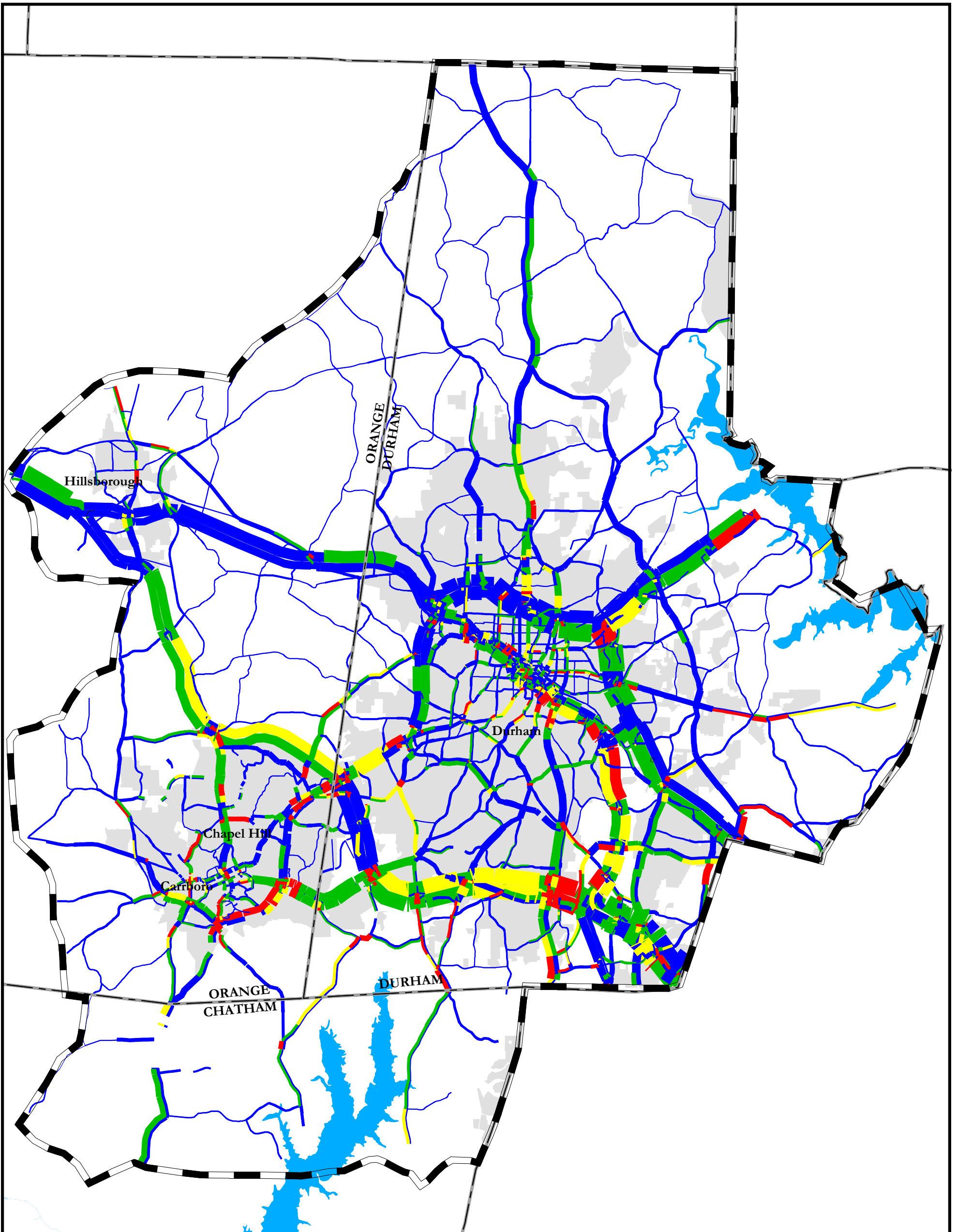
- 0.00 <= VoC < 0.80
- 0.80 <= VoC < 1.00
- 1.00 <= VoC < 1.10
- 1.10 <= VoC

Afternoon Peak Hour Volume



This map represents the ratio between projected roadway volume and capacity, assuming a bus transit transportation system for the transit nodes land use scenario.

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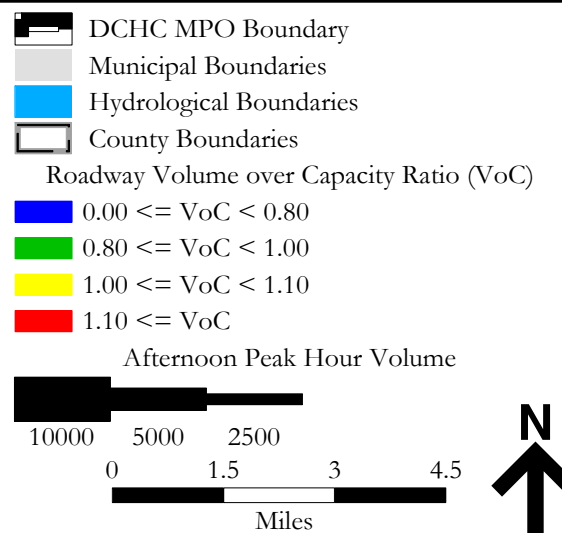


2035 Afternoon Peak Hour
 Volume over Capacity Ratio (VoC)
 Alternative 6a

Moderate Multimodal

Baseline Land Use Scenario

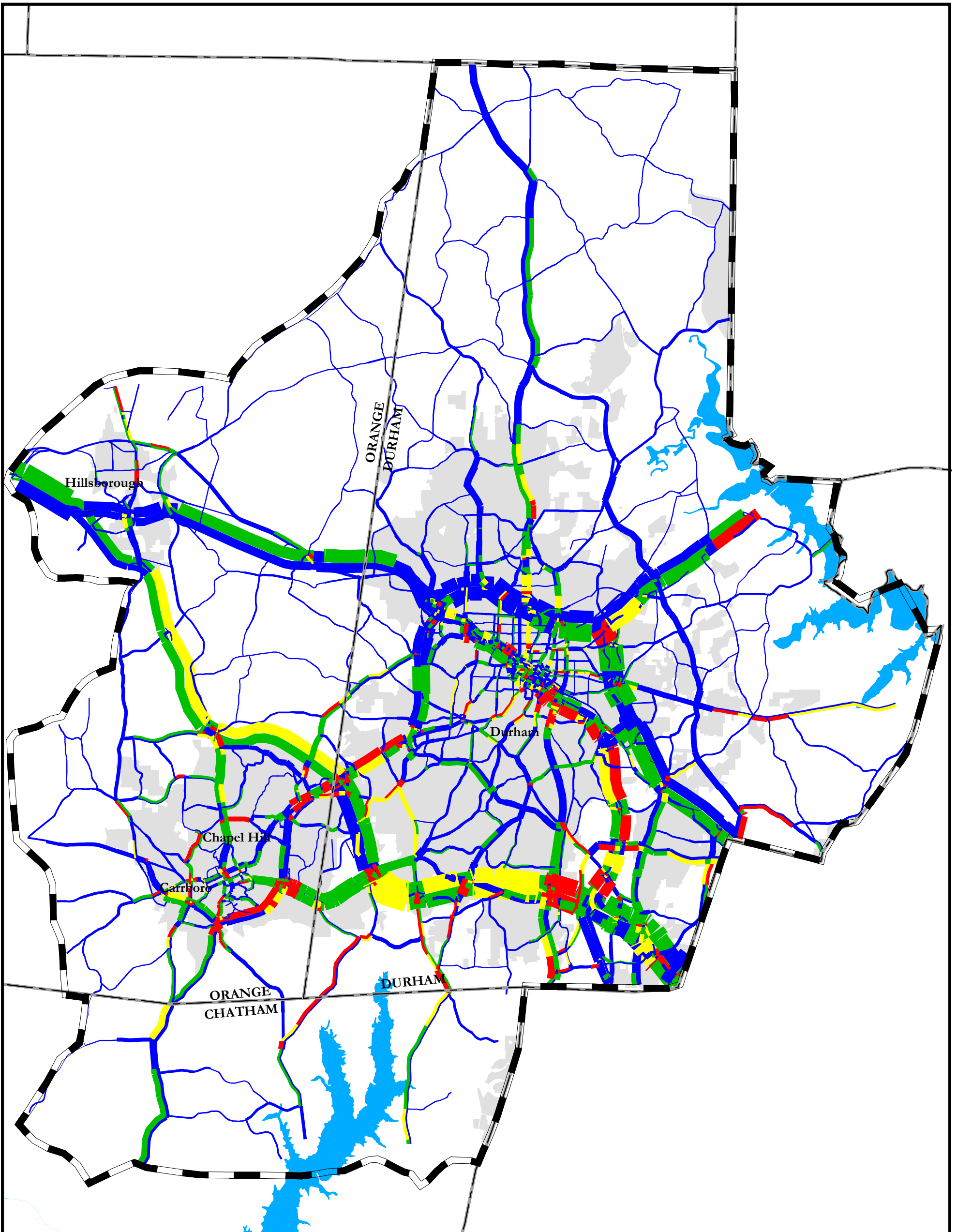
DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming a moderate multimodal transportation system for the baseline land use scenario.





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2035 Afternoon Peak Hour
 Volume over Capacity Ratio (VoC)
 Alternative 6b

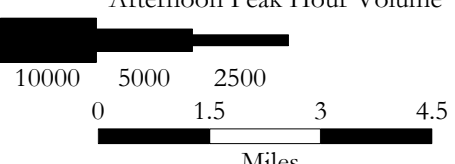
**Moderate
 Multimodal**
 Corridor Land Use Scenario
 DCHC MPO Area

-  DCHC MPO Boundary
-  Municipal Boundaries
-  Hydrological Boundaries
-  County Boundaries

Roadway Volume over Capacity Ratio (VoC)

-  0.00 <= VoC < 0.80
-  0.80 <= VoC < 1.00
-  1.00 <= VoC < 1.10
-  1.10 <= VoC

Afternoon Peak Hour Volume

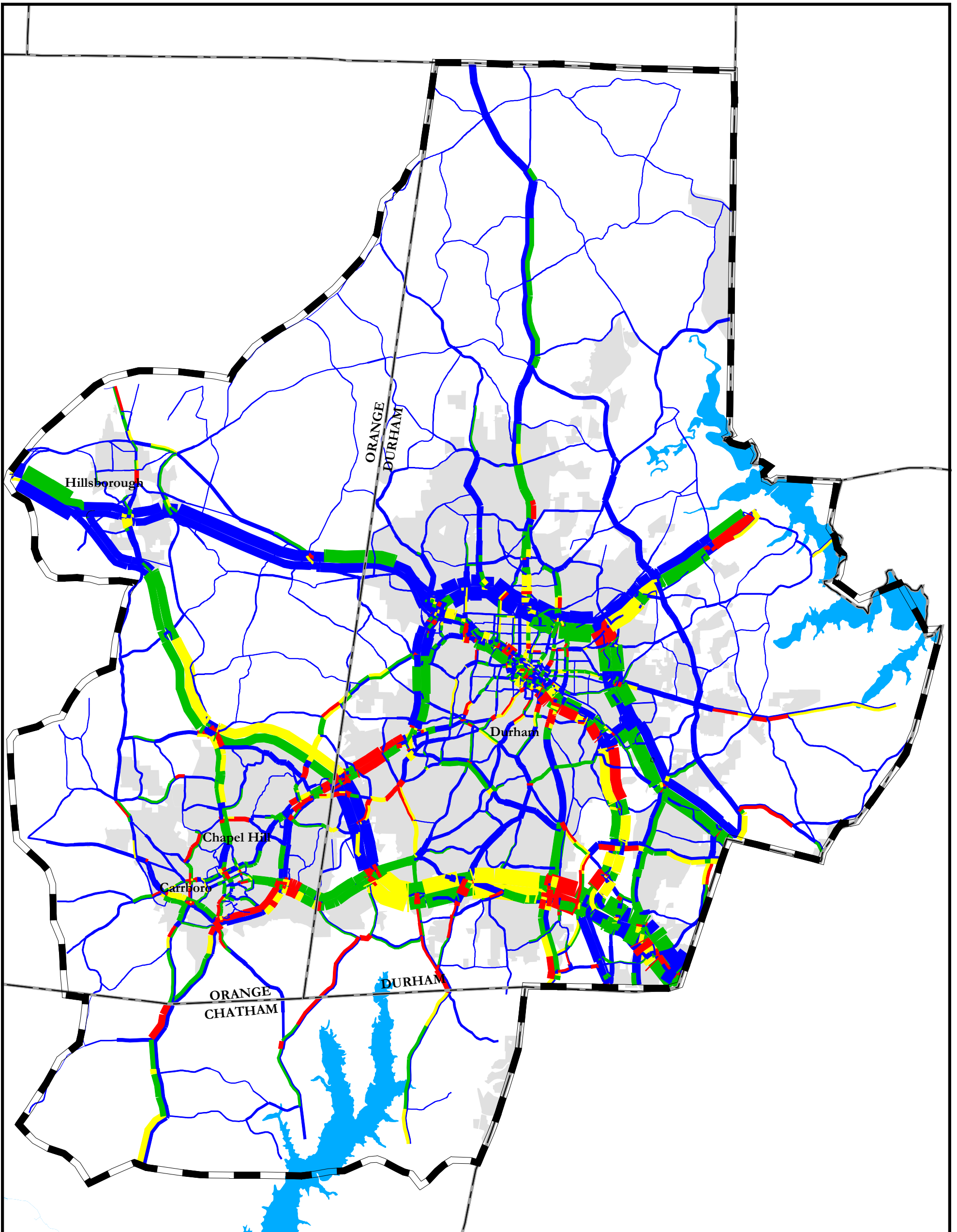


N
↑



This map represents the ratio between projected roadway volume and capacity, assuming a moderate multimodal transportation system for the corridor land use scenario.

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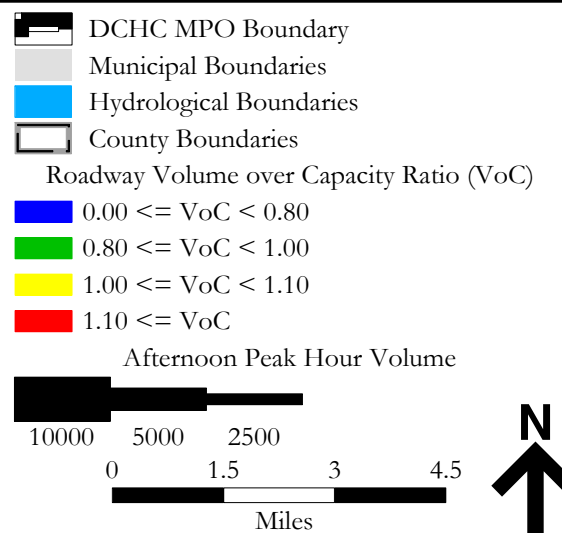


2035 Afternoon Peak Hour
Volume over Capacity Ratio (VoC)
Alternative 6c

Moderate Multimodal

Transit Nodes
Land Use Scenario

DCHC MPO Area



This map represents the ratio between projected roadway volume and capacity, assuming a moderate multimodal transportation system for the transit nodes land use scenario.

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