



# 2045 Metropolitan Transportation Plan (MTP)

## Deficiency Analysis

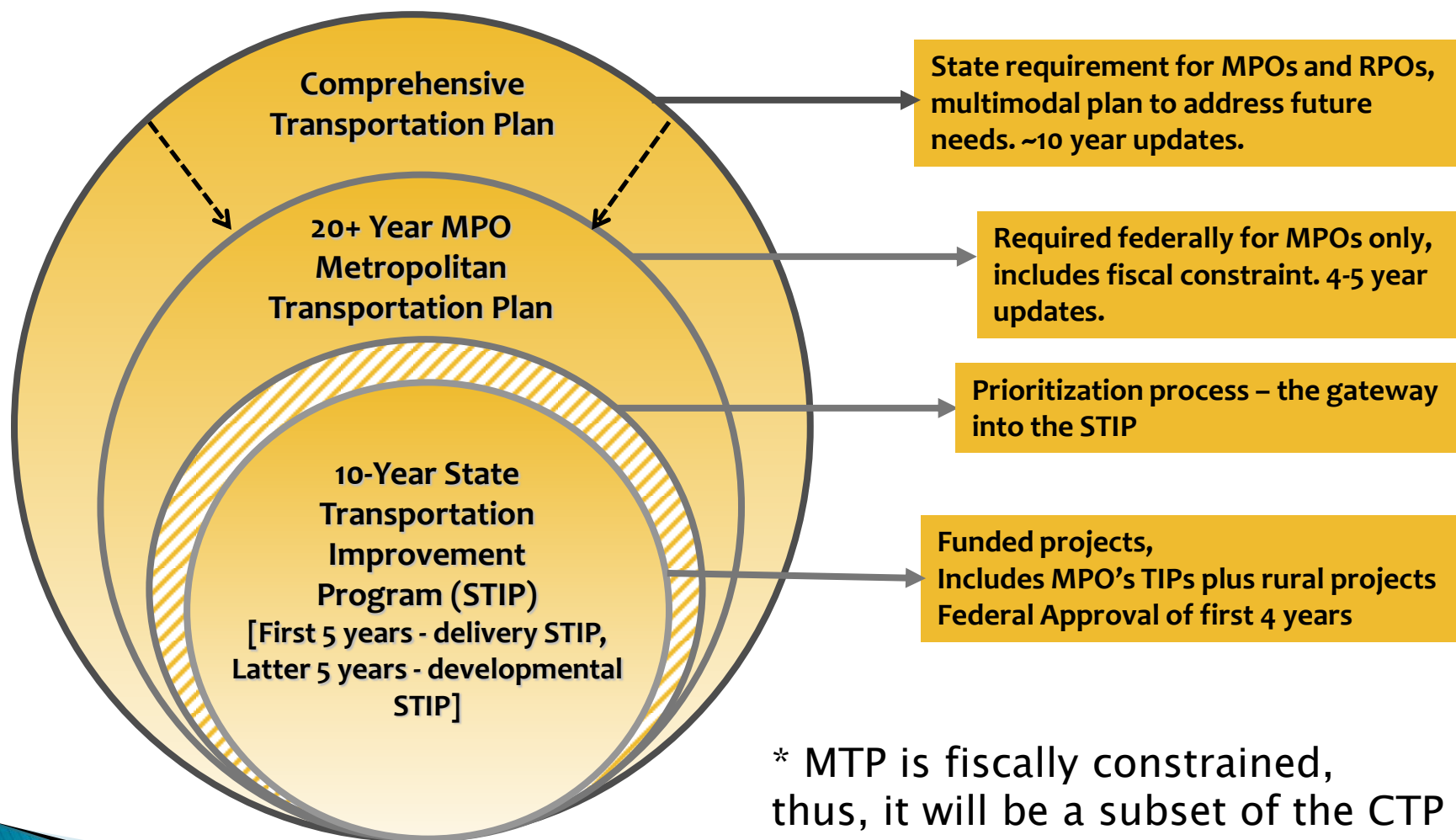
[www.bit.ly/DCHC-MTP](http://www.bit.ly/DCHC-MTP)

MPO Board  
June 6, 2017

# Presentation Outline

- ▶ Background and Purpose
- ▶ SE Data Update
- ▶ Deficiency Analysis tools
- ▶ Schedule

# Transportation Planning Framework



# Deficiency Analysis Purpose

- ▶ Purpose: staff, public and Board familiar with deficiencies
- ▶ Today's presentation has highlights.
- ▶ Full complement of tables and maps on Web site
- ▶ We will often reference deficiency maps and documents through MTP development

# Socioeconomic Data

## Guide Totals

Population				
County	2013	2045	2013-45	% change
Chatham*	41,543	72,110	30,567	74%
Durham	286,210	475,091	188,881	66%
Orange	139,289	194,867	55,578	40%
<i>Total</i>	<i>467,042</i>	<i>742,068</i>	<i>275,026</i>	<i>59%</i>
Employment				
County	2013	2045	2013-45	% change
Chatham*	9,339	17,718	8,379	90%
Durham	192,877	342,910	150,033	78%
Orange	64,212	107,791	43,579	68%
<i>Total</i>	<i>266,428</i>	<i>468,419</i>	<i>201,991</i>	<i>76%</i>

Fast growth, especially Durham and Chatham counties.

Employment growth outpaces population growth.

\* Only includes portion of Chatham County in the modeling area.



# Socioeconomic Data

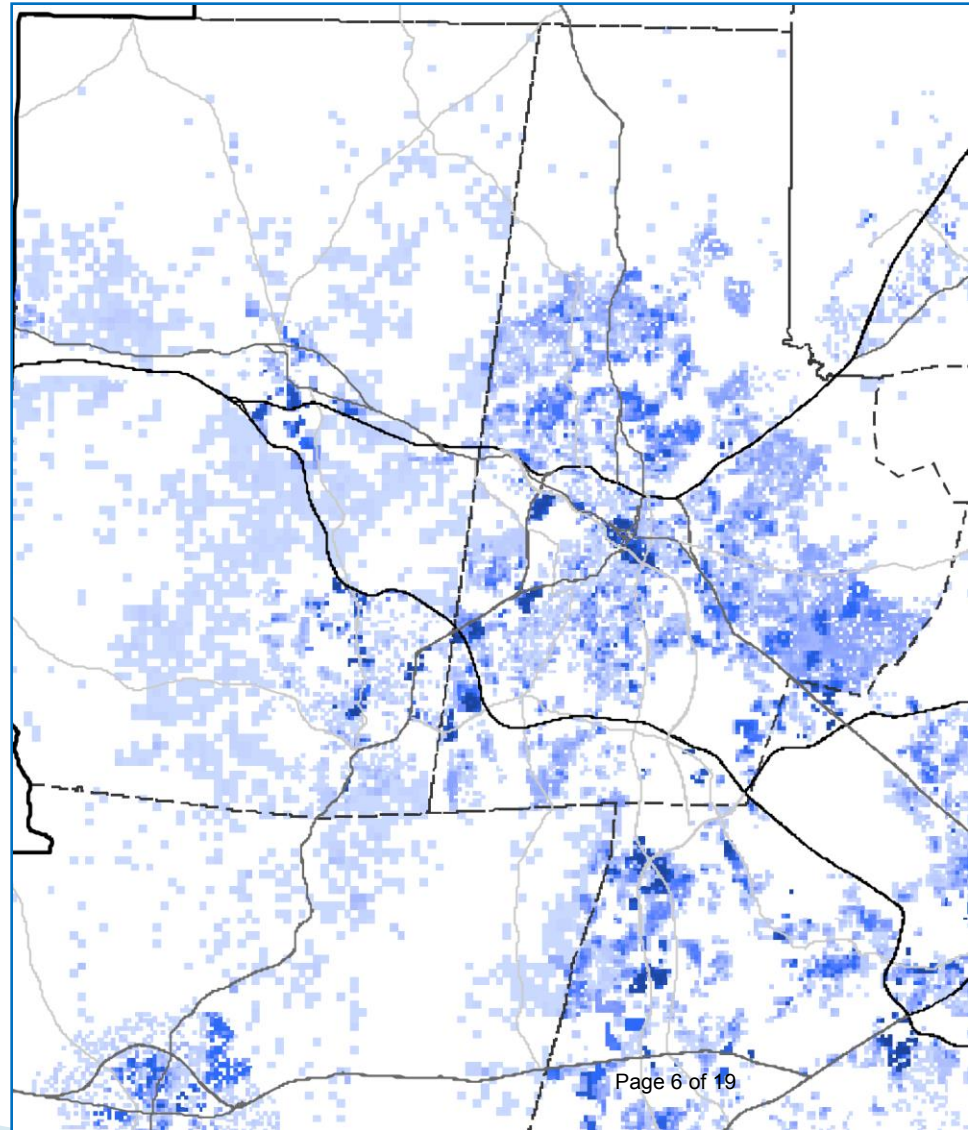
## Community Plan -- Population

Community Plan allocates guide total population based on local land use plans and policies.

Note clusters along light rail and bus rapid transit lines.

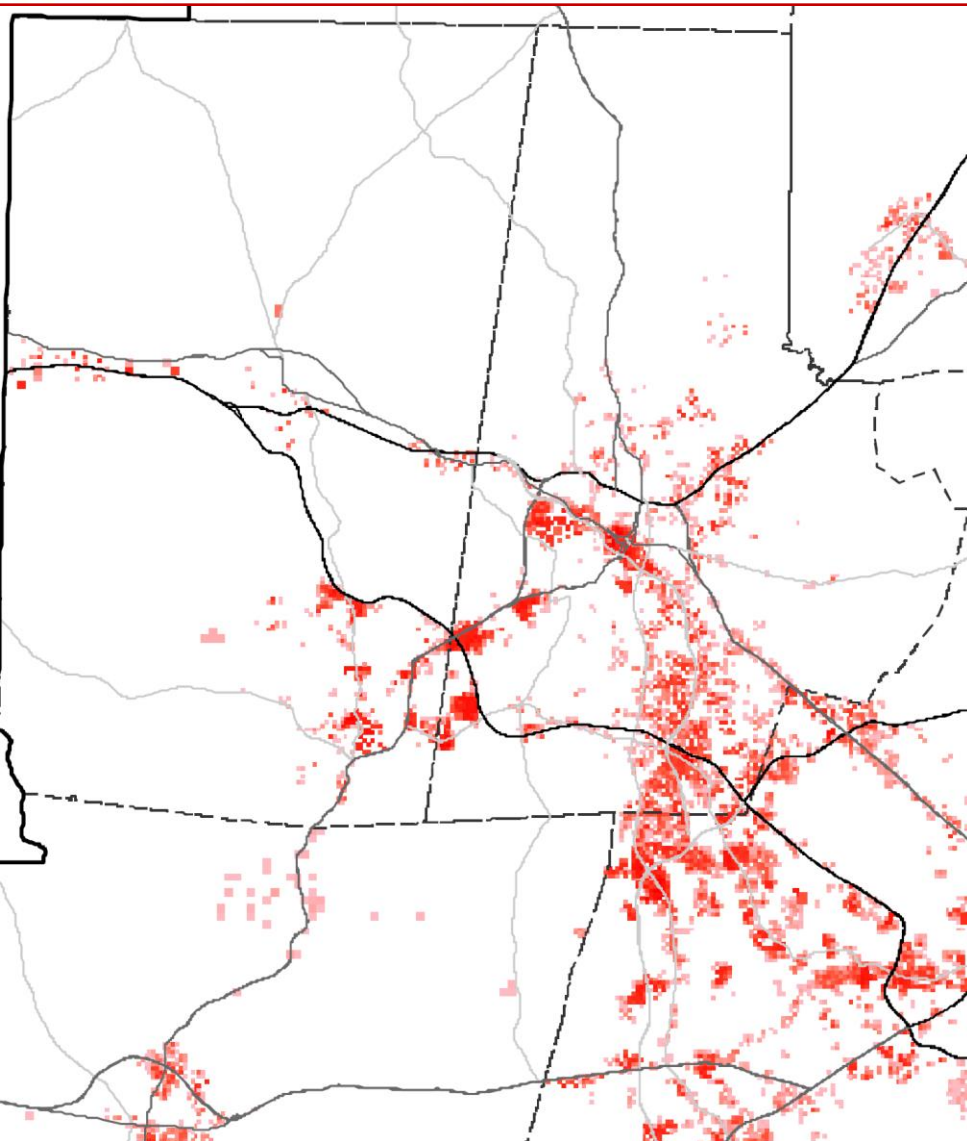
Durham County has spread north and east.

Much of Orange County growth is in towns.



# Socioeconomic Data

## Community Plan -- **Employment**



Community Plan – based on local land use plans and policies.

Note clusters along light rail and bus rapid transit lines.

RTP and vicinity receive quite a bit of growth

\* Larger maps and allocation tables available on Web page.

# Performance Measures Background

- ▶ General indicators of overall system:
  - Mobility Performance (e.g., travel time)
  - Mode Choice
  - Travel volume (e.g., VMT, VHT)
- ▶ Not specific to corridor or project.
- ▶ Useful for overall comparison of MTP Alternatives



# Performance Measures

## Vehicle Miles Traveled (VMT) & Vehicle Hours Traveled (VHT)

Name =		Current	E+C	2013 to
SE Data ==>		2013	2045	2045 E+C
Transportation Network ==>		2013	E+C	Change
<b>1</b>	<b>Performance Measures</b>			
1.1.1	Total Vehicle Miles Traveled (VMT-daily)	12,698,821	21,108,837	66%
1.1.1a	Total Vehicle Miles Traveled (VMT-per capita)	30	31	3%
1.2.1	Total Vehicle Hours Traveled (VHT-daily)	314,735	665,310	111%
1.2.1a	Total Vehicle Hours Traveled (VHT-per capita)	0.75	0.99	31%

VMT and VHT will dramatically increase in the Existing-plus-Committed (E+C) scenario.

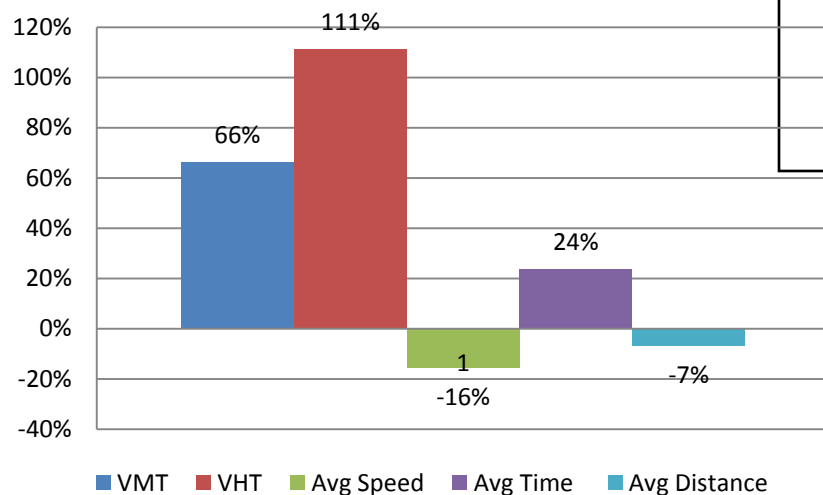
VMT driven by population (59% population increase) (note: VMT per capita is stable)

VHT growth outpaces VMT because of congestion

# Performance Measures

## Changes in Mobility Measures

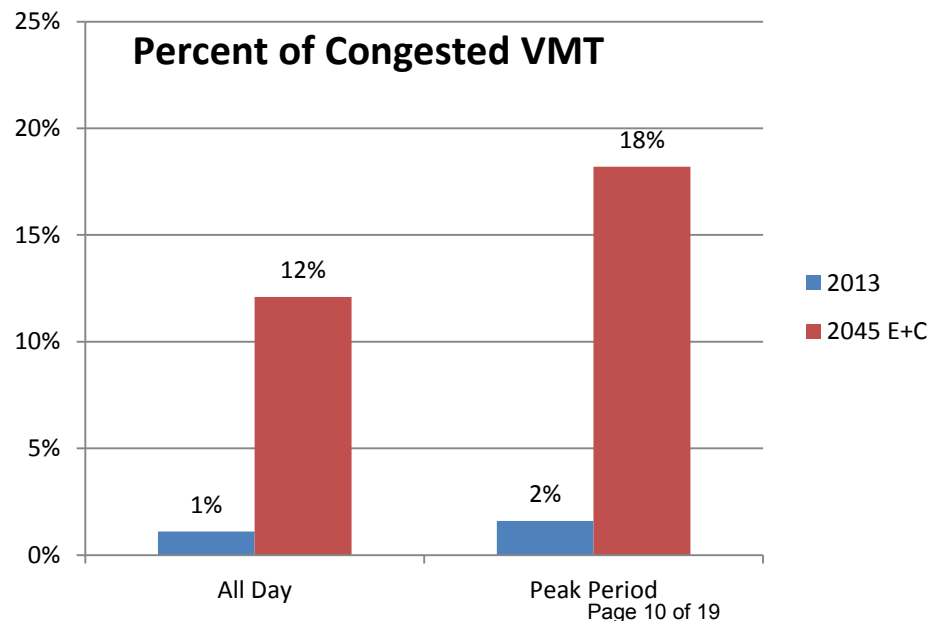
Percent Change: 2013 to E+C



- ▶ Speed and distance decline.
- ▶ Travel time increases.

- Large increase in congested VMT

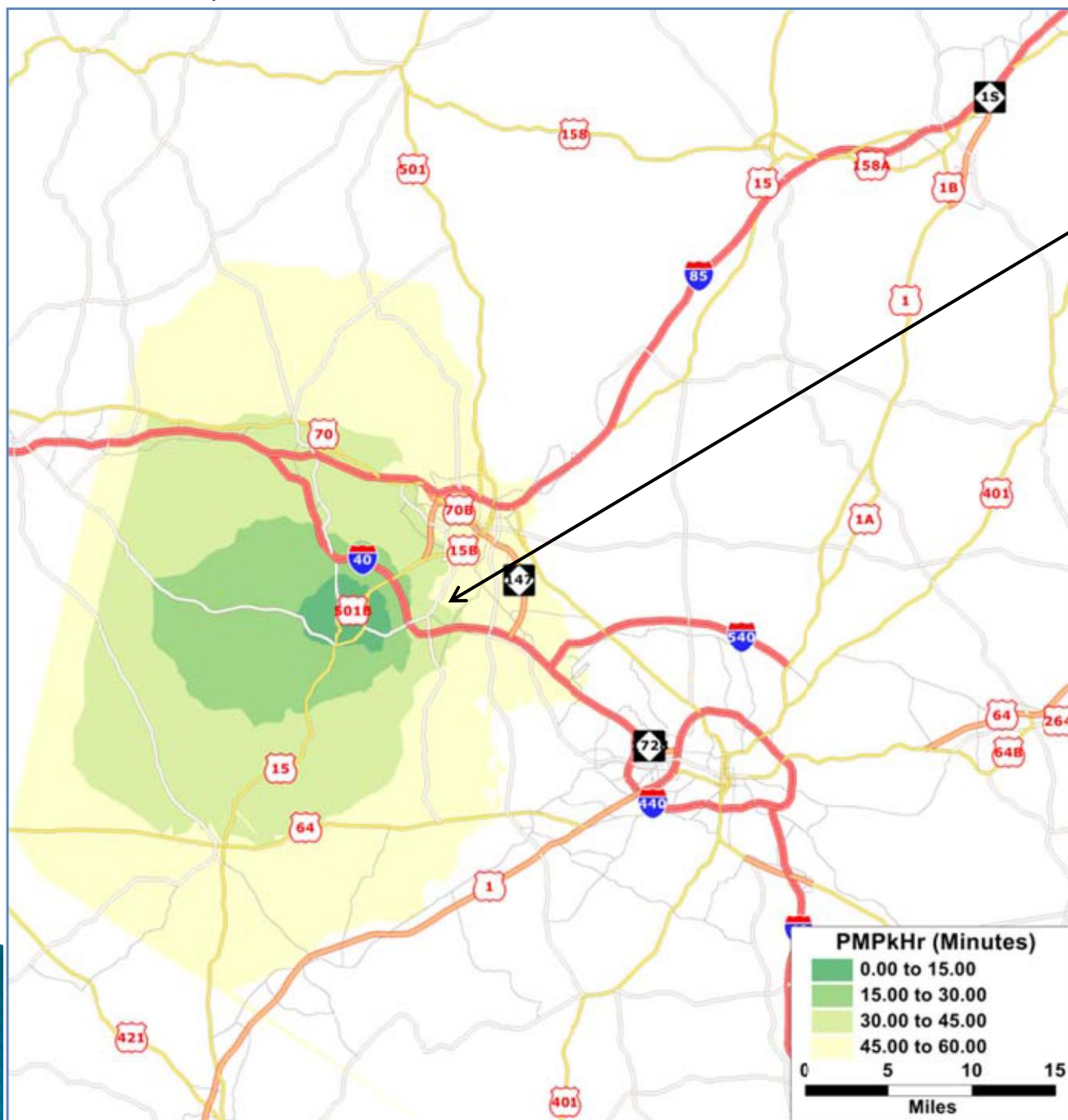
Percent of Congested VMT



# Travel Isochrones

## Background

- ▶ More specific than Performance Measures – can start to see corridor mobility.
- ▶ Based on afternoon commute from four selected centers:
  - Downtown Durham
  - Chapel Hill/Carrboro
  - RTP
  - Downtown Raleigh
- ▶ Map illustrates “contours” for 15–, 30–, 45–minute, etc. commutes from the centers.
- ▶ Two maps for each center:
  - 2013
  - E+C (2045 SE Data using E+C network)



Contours narrow dramatically in afternoon peak hour leaving Chapel Hill to the east.

# Travel Time

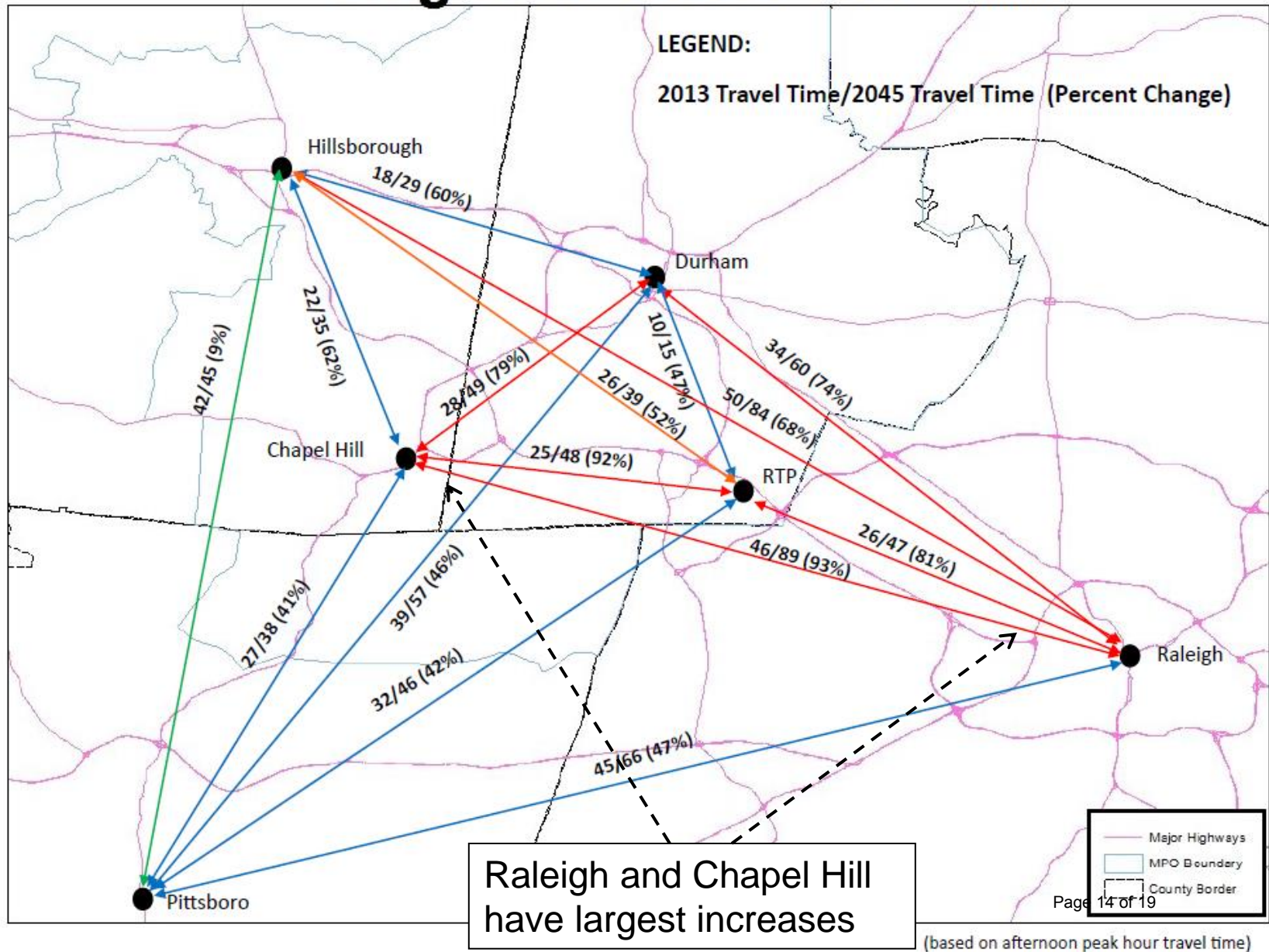
## Background

- ▶ Shows mobility forecasts to/from regional centers.
- ▶ Uses AM and PM peak hour (“peak of the peak”).
- ▶ Based on commute to/from six selected centers:
  - Downtown Durham
  - Chapel Hill/Carrboro
  - RTP
  - Hillsborough
  - Pittsboro
  - Downtown Raleigh
- ▶ Presented two ways 2013 and E+C:
  - Tables with morning and afternoon peak hour
  - Map of afternoon peak hour
- ▶ Full set of tables on Web site.



Hotter the line color = larger % increase

# Regional Travel Time In Minutes



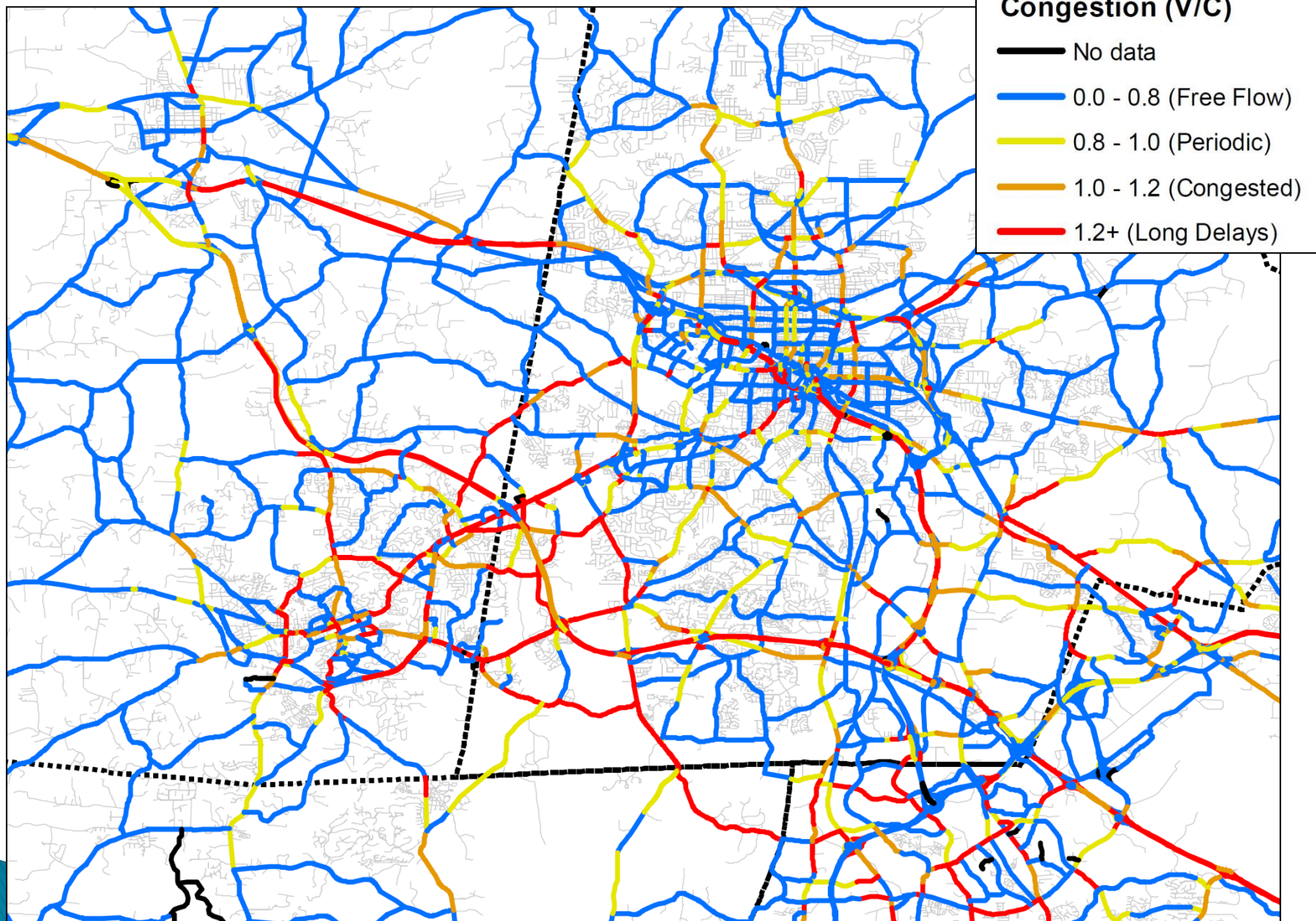
# Congestion Maps (V/C)

## Background

- ▶ Maps show the forecasted congestion on specific road segments: Daily and Afternoon Peak Hour will be available
- ▶ "V/C" means the 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.)
- ▶ 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.

- ▶ Web site has county-level and close-up map views.





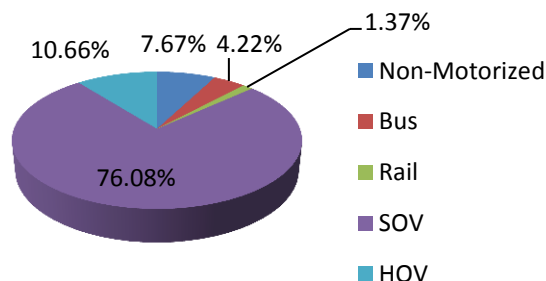
# **\*\*Coming Attractions\*\***

## In the Alternatives Analysis

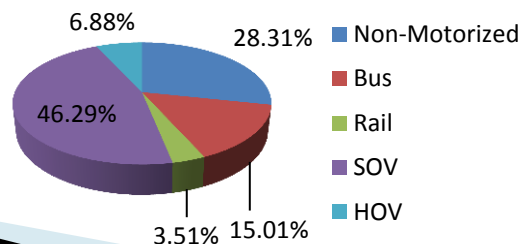
### 1 – Travel Choice Neighborhoods

- Compares mode choice for region with areas that have access to high end transit

**All TAZs**

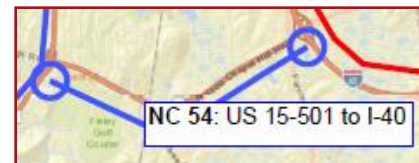


**Half Mile (Rail)**



### 2– Corridors

- Shows congestion level and travel time costs of selected corridors



**I-40 westbound (NC 147 to US 15-501) -- PM Peak, So**

Scenario	Travel Time (min.)	TTI	VOT/hour
2013 Baseline	9.8	1.2	\$ 8,679
2045 E+C	11	1.4	\$ 10,000
Moderate1: 2040 MTP/CP	10	1.5	\$ 13,000
Moderate3: 2040 MTP, Hwy+, No FG/CP	15	1.8	\$ 15,000
Aspirational1: 2040 MTP, Transit+/AIM High	11.5	1.2	\$ 10,000
Aspirational2: 2040 MTP/AIM High	12	1.4	\$ 12,000
Project cost in 2045 MTP = \$224 million			

# Schedule

## Dates to Remember

- 2/27/18 = MPO must incorporate safety targets
- 4/10/18 = MPO is in a plan lapse (no new federal actions)
- 5/27/18 = MTP must be FAST Act compliant



# Schedule

## Board Actions

- ▶ June – Release Deficiency Analysis
- ▶ August – Release Alternatives Analysis  
(full set of public input activities)
- ▶ October – Release Locally Preferred Alternative (LPA)
- ▶ December – Adopt 2045 MTP

Air Quality  
Determination  
Report is not  
required.

