

DURHAM • CHAPEL HILL • CARRBORO

**DCHC**

METROPOLITAN PLANNING ORGANIZATION

PLANNING TOMORROW'S TRANSPORTATION

# 2050 Metropolitan Transportation Plan – Alternatives Analysis –

[www.bit.ly/2050MTP-AltsAn](http://www.bit.ly/2050MTP-AltsAn)

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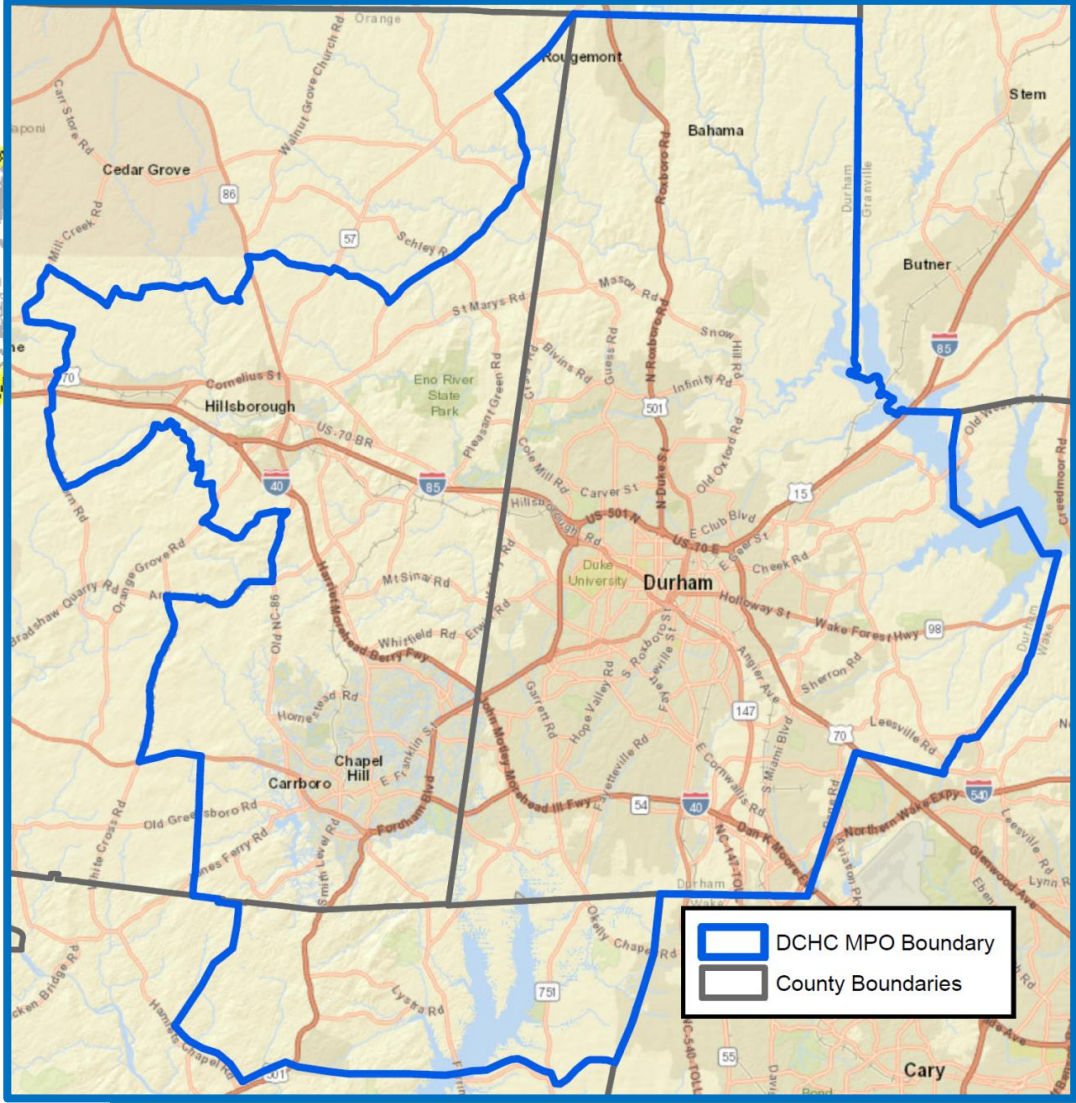
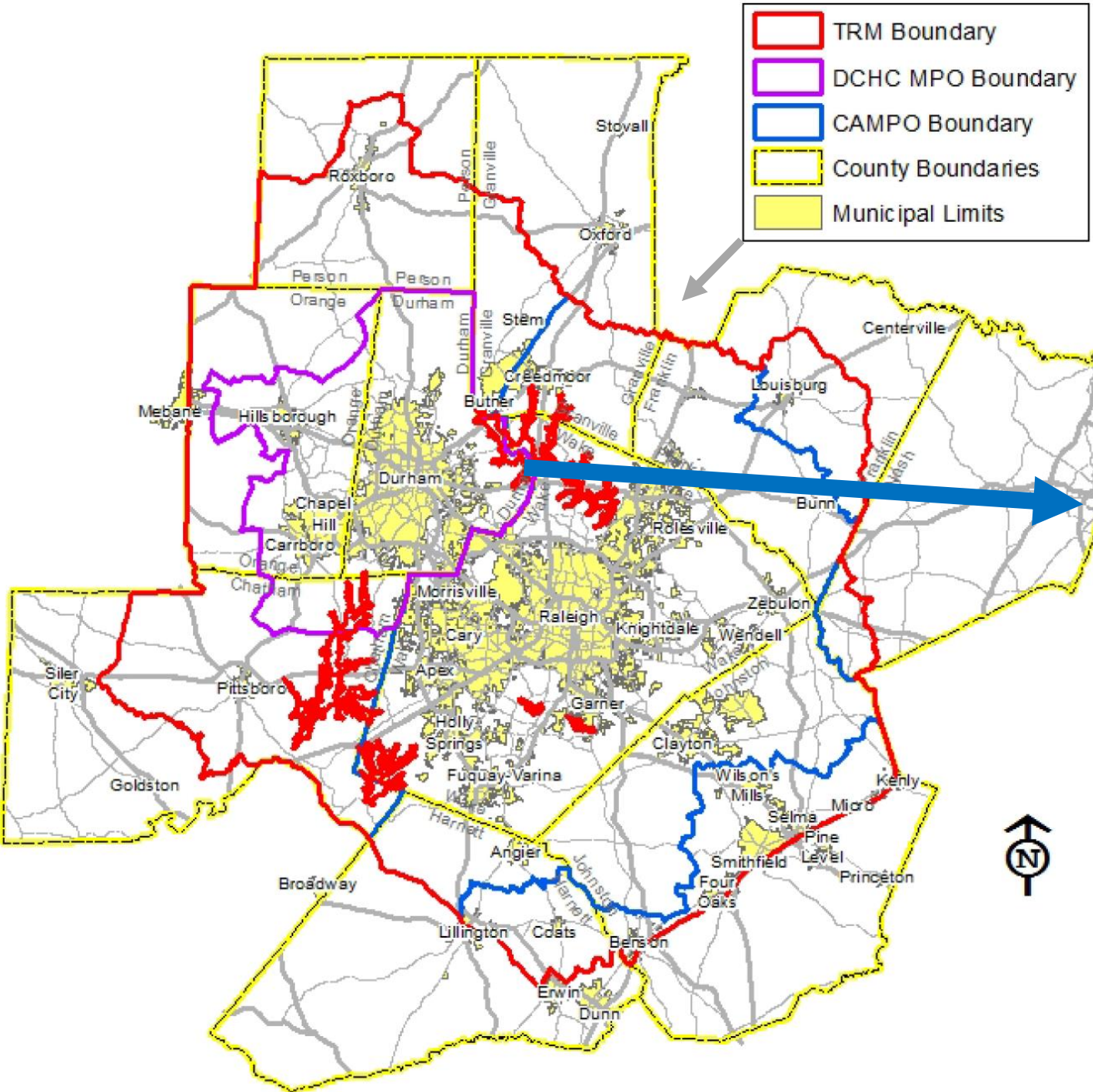
# Presentation Outline

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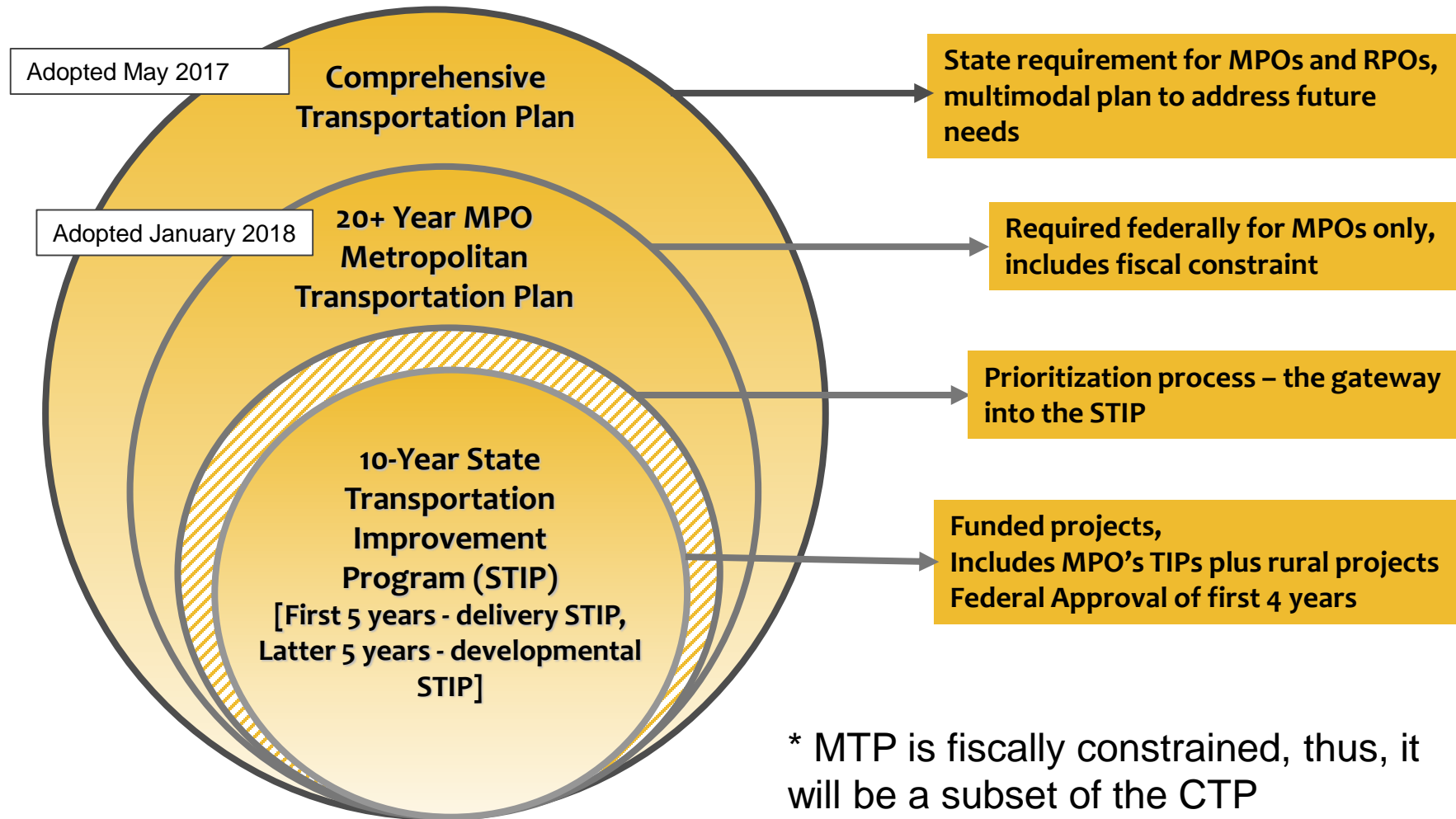
- DCHC MPO
- 2050 MTP
- Results from Goals survey
- Alternatives Analysis
- Scenarios
- Demographics and Land Use
- Metrics and Maps
- Next Steps

\*\*\*Go straight to documents and maps wherever you see link in these slides.

# What is DCHC MPO Area?



# Transportation Planning Framework



# Previous Public Comment

Before review Deficiency Analysis data, remember what public has already told us...

## MPO Goals Survey

Highest ranked policies:

- Encourage biking and walking
- Increase transit service
- Coordinate land use and transportation
- Increase car pools and ride shares

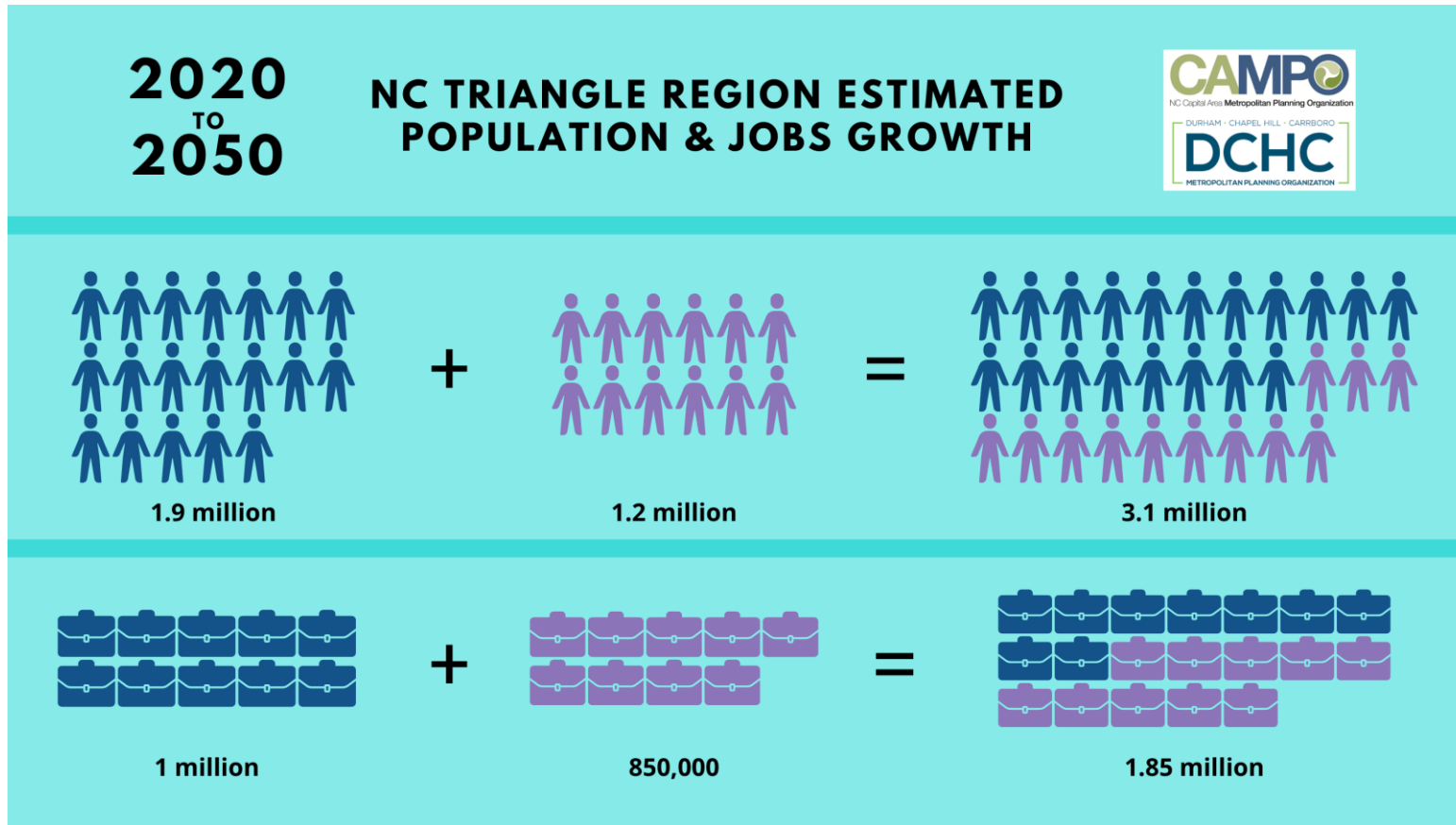
See Goals web page ([click here](#))  
for Goals & Objectives and  
survey response details.

## MPO Goals Survey

Most common themes:

- Reduce personal vehicle dependence
- Protect environment; increase sustainability
- Support low-income & minority populations
- Enhance transit connectivity
- Increase bicycle and pedestrian infrastructure

# Demographics



Population				
County	2016	2050	2016-2050	% change
Chatham*	46,051	103,345	57,294	124%
Durham	300,939	458,906	157,967	52%
Orange	143,678	193,477	49,799	35%
<i>Total</i>	<i>490,668</i>	<i>755,729</i>	<i>265,061</i>	<i>54%</i>
Employment				
County	2016	2050	2016-2050	% change
Chatham*	11,358	24,426	13,068	115%
Durham	217,114	401,168	184,054	85%
Orange	71,516	116,769	45,253	63%
<i>Total</i>	<i>299,988</i>	<i>542,363</i>	<i>242,375</i>	<i>81%</i>

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

# Alternatives Analysis

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- Purpose: staff, public and Board discuss different land use and transportation possibilities
- *Preferred Option* likely to be mixture of the assumptions and projects from Alternatives Analysis scenarios
- Alternatives not fiscally-constrained
- Today's presentation has overview -- Full complement of tables and maps on Web site

# The Scenarios

## Plans & Trends Scenario

Also known as *business-as-usual*, this scenario distributes 2050 population and employment based on current land use plans and policies, and creates an improved transportation system based on the current long-range transportation plan.

→ Includes N-S BRT, CRT Dur-Ral, **US 15-501 RCI (reduced conflict intersections), NC 751 widening, and Jack Bennett/Lystra modernization.**

## Shared Leadership Scenario

This scenario could be called the *we-can-do-better* scenario. It increases the intensity and mix of land use at major employment hubs and travel corridors, and assumes additional transportation funding for transit facilities, services, and a few roadway improvements.

→ Add 15-501 BRT, higher CRT Dur-Ral

## All Together Scenario

This *balanced-and-equitable* scenario increases the intensity and mix of land uses at major employment hubs and travel corridors, and works to link minority, low-income, and zero-car households to jobs. This scenario focuses on biking and walking facilities, and provides transit services in major commuting corridors, often instead of increased roadway capacity.

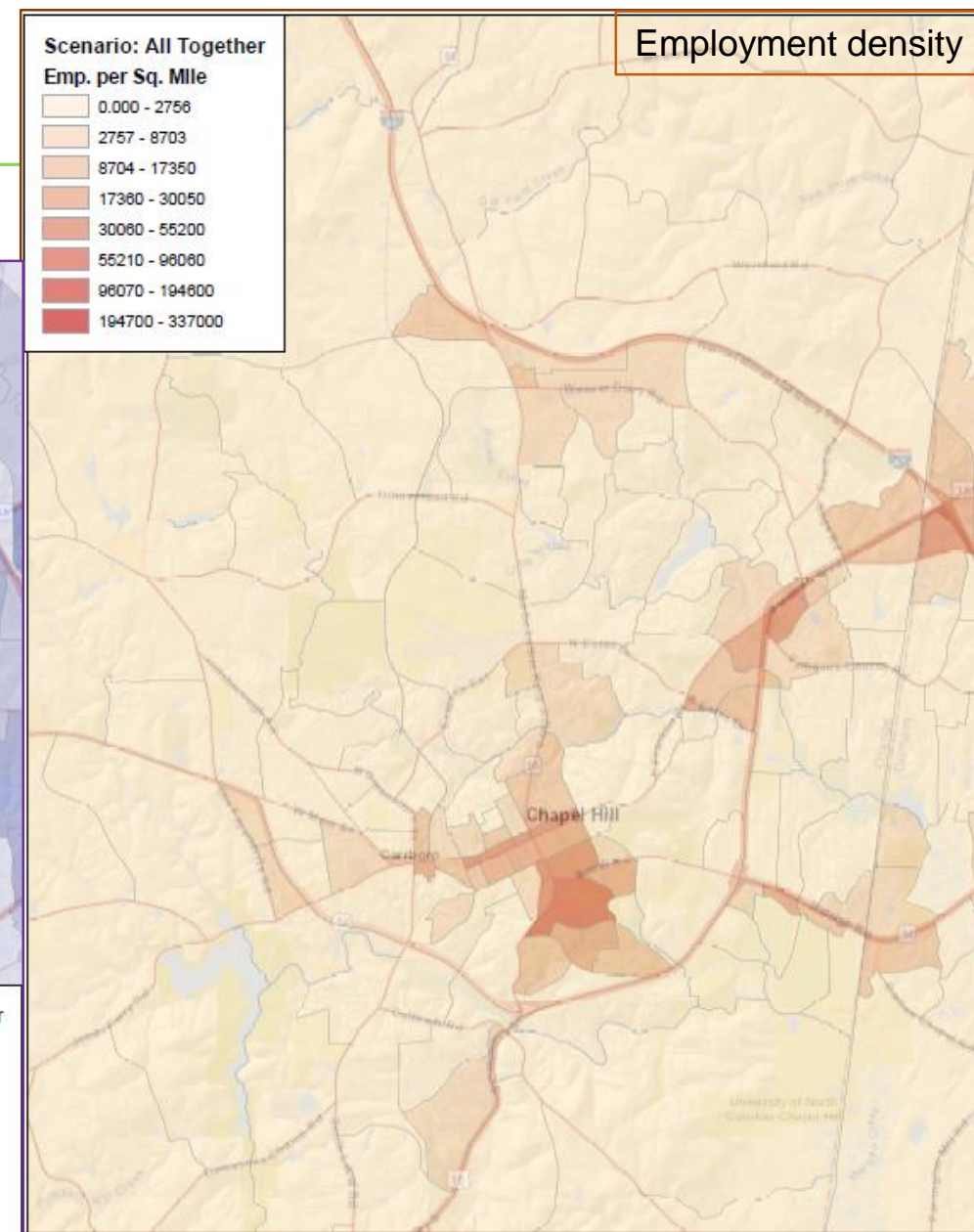
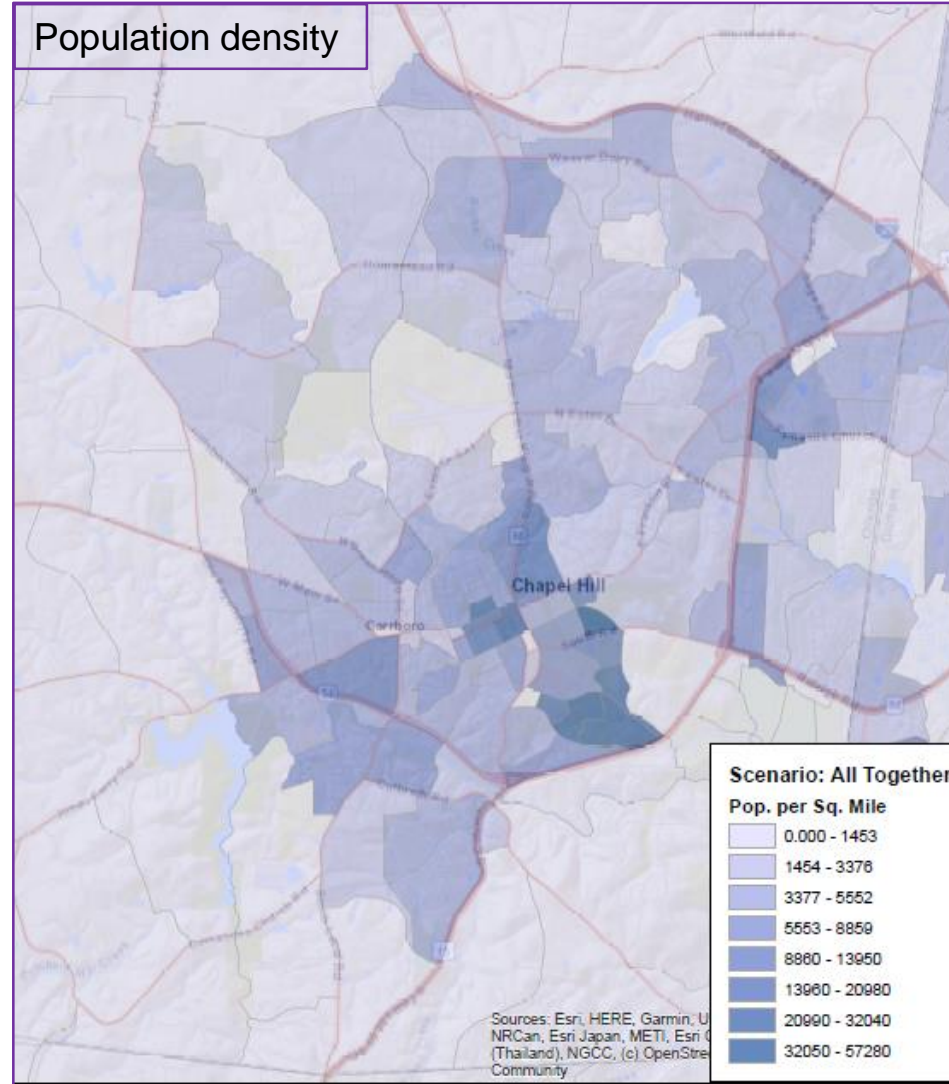
→ Add CRT to Mebane, NC 54 BRT, **High-Freq to P'boro/H/boro**, Complete Streets

Scenario descriptions -- [Link](#)



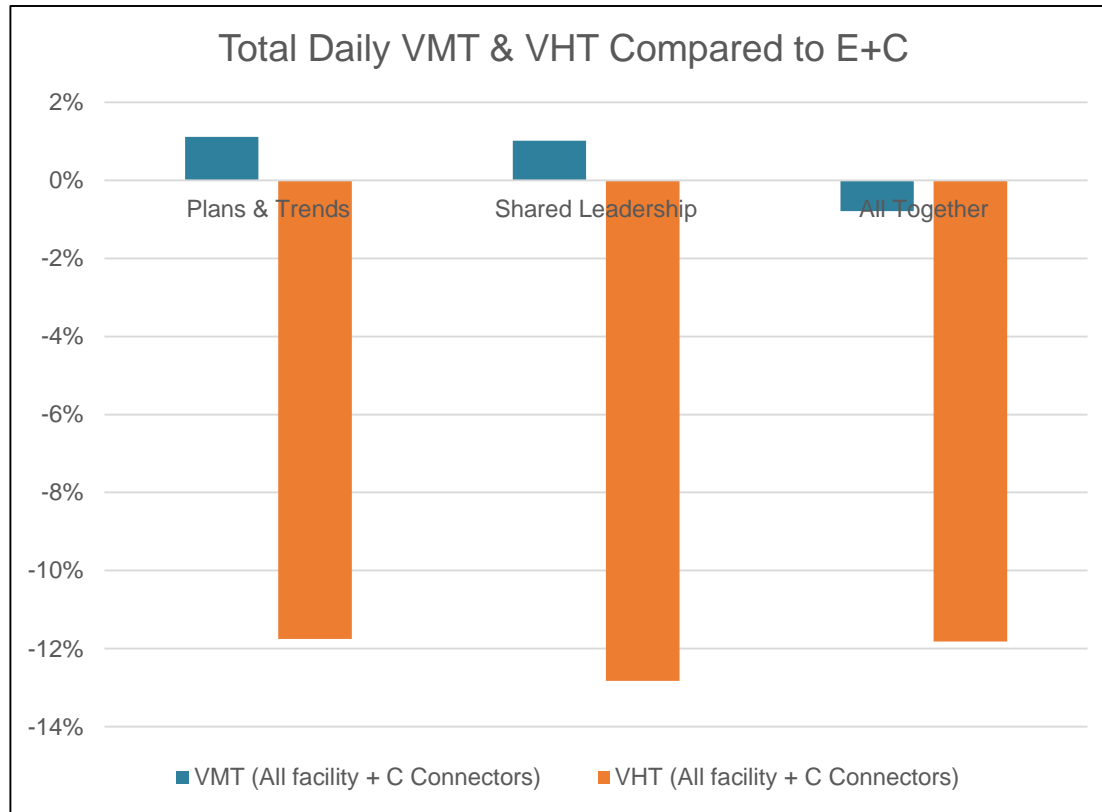
# Land Use

- Two key land use assumptions used in scenarios:
  - Extension of current land use plans and policies
  - Increased density and mixed uses at employment hubs and travel corridors
- Web site has interactive “heat” maps



Population and employment density maps -- [Link](#)

# Metrics: VMT and VHT



- Full table of Measures of Effectiveness (MOEs) – [Link](#)
- Key MOE graphs -- [Link](#)

- Compared to the E+C scenario (No Build):
  - VMT (vehicle miles traveled) increases except for the All Together scenario.
  - VHT (vehicle hours traveled) decreases in all three scenarios
- At the regional and MPO level, there is little difference among the three scenarios in VMT, VHT, travel time, travel distance, overall congestion, and mode share. All Together has slight advantage, e.g. lower VMT and VHT.

# Metrics: Emissions

Emissions	Year ==>	2016	2050	2050	2050	2050	% change
Pollutant	Scenario ==> Unit of Measure	Existing	Existing + Committed	Plans & Trends	Shared Leadership	All Together	2016 to 2050
Carbon Monoxide (CO)	1,000 kilograms	317	177	187	183	178	-44%
Nitrous Oxides (NOx)	1,000 kilograms	25	8	9	9	8	-68%
Volatile Organic Compounds (VOC)	1,000 kilograms	18	11	12	12	12	-37%
Particulate Matter (PM2.5)	1,000 kilograms	0.54	0.31	0.32	0.31	0.31	-43%
Carbon Dioxide (CO2)	1 million kilograms	28	32	34	33	32	16%
Daily Energy Consumption per capita	gallon of gasoline	1.6	1.8	1.9	1.9	1.8	16%

- Despite VMT climbing over **75%** from 2016 to 2050, all pollutants decrease except CO2, which climbs 16%.
- Emissions model (MOVES3) assumes increasing energy efficiency (e.g., miles per gallon) and declining tailpipe emissions.
- VMT among scenarios is similar, thus emission very similar. All Together is lowest among the three scenarios.

More on VMT and Emissions -- [Link](#)

# Metrics:

## Key Measures

- As we invest more, the measures move in a positive direction.
- However, the movement is not large. Measure values are very similar.

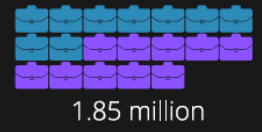
Pop. Growth



# Key Performance Measures

2050 MTP Alternative Scenarios

Jobs Growth



Measure:	DEFICIENCIES & NEEDS (BASELINE)	PLANS & TRENDS	SHARED LEADERSHIP	ALL TOGETHER
Avg Auto Commute Time - DCHC	24 min	22 min	21 min	21 min
Avg Auto Commute Time - CAMPO	34 min	30 min	29 min	26 min
Delays: Daily DCHC				
Delays: Daily CAMPO				
Highway Lane Miles DCHC				
Highway Lane Miles CAMPO				
Transit Service Miles Triangle				
Transit Ridership Triangle				
Jobs near Transit DCHC	23%	66%	66%	66%
Jobs near Transit CAMPO	19%	42%	44%	44%
Gas Consumption Increase - Triangle	15%	23%	20%	16%
Funding Required	\$\$	\$\$\$	\$\$\$ \$ (Added State)	\$\$\$ \$ (Added State & Local)

# Metrics: Equity Measures

*At this time, staff is working on equity measures using the Triangle Regional Model (TRM). Meanwhile, the following statistics from the NCDOT Integrated Mobility Division demonstrate how the transportation system can reflect and reinforce disparities.*

On average, communities of color have

- lower vehicle ownership rates,
- live further from work,
- are more likely to depend on public transportation, and,
- are more likely to be involved in a crash as a pedestrian.

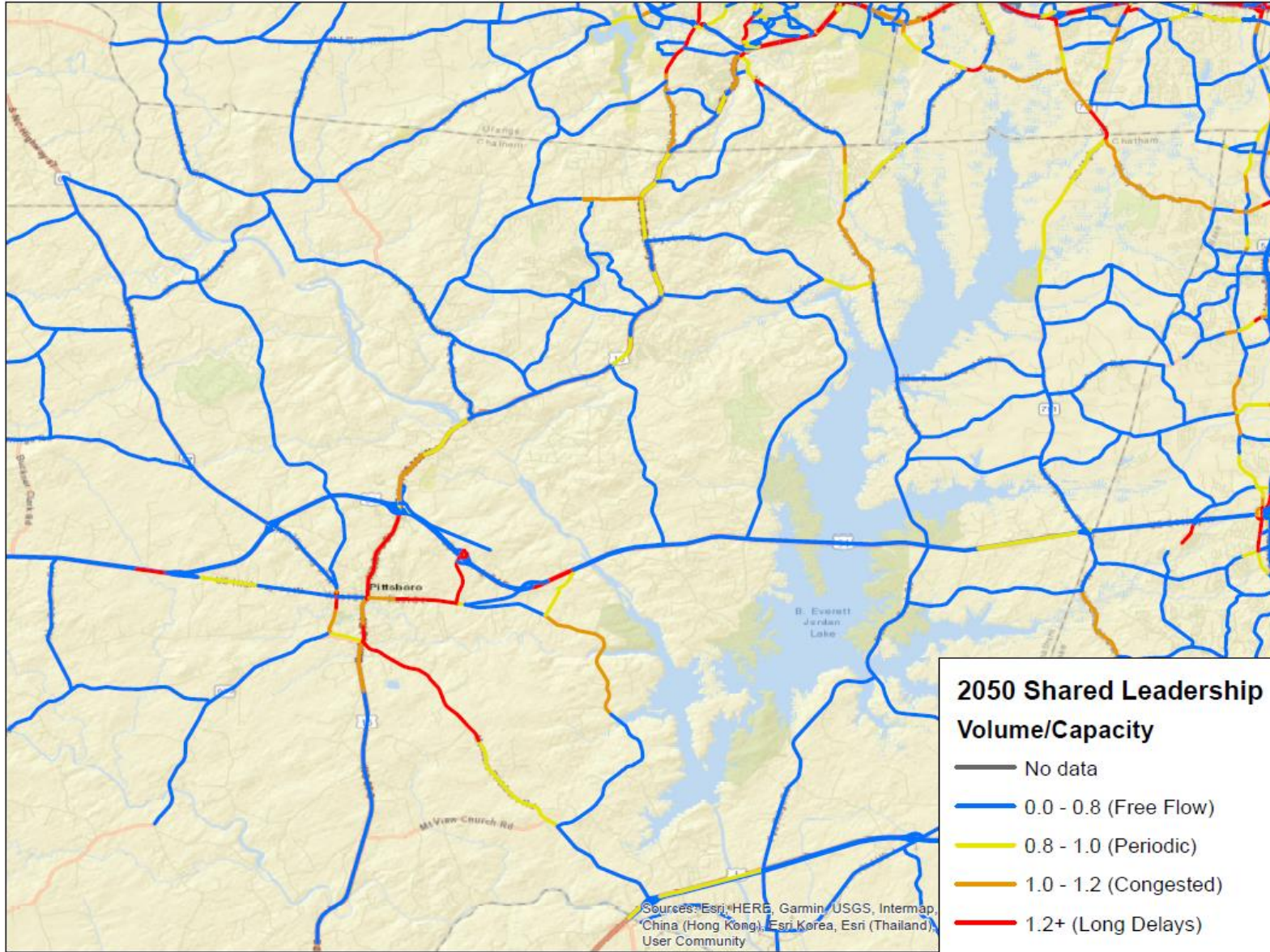
In N.C., communities of color are nearly three times more likely to live in a household without a car (National Equity Atlas).

Over 60% of transit riders in N.C. are people of color compared to about 30% of the entire population (Census ACS data).

Between 2015 - 2019, 55% of pedestrians, on average, involved in crashes in N.C. were people of color compared to about 30% of the population (HSRC Ped Bike Crash Data).

Average commute time by transit in N.C. is 43 minutes compared to 24 minutes for the average drive making a commute (National Equity Atlas).

# Metrics: Congestion Maps



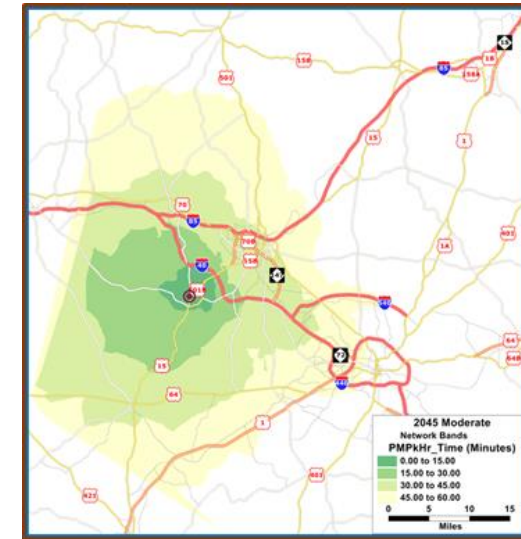
- This is the congestion map for the Shared Leadership scenario, which has the highest highway investment among the scenarios.
- Congestion will be present in central Pittsboro and north/south roadways in northeast Chatham County.

Congestion maps -- [Link](#)

# Metrics

- Measure of Effectiveness (MOEs) →
- Current measures: safety; travel time; and TDM program
- Travel Choice Neighborhoods (in development)
- Isochrone maps →
- Travel Time →

Alternative (Scenario) =		Baseline	E+C	Plans & Trends	Shared Leadership	All Together
<b>1 Performance Measures</b>						
1.1 Total VMT (daily)						
1.1.1	All Facility+C Connectors	14,516,717	22,620,357	22,873,253	22,849,537	22,442,832
1.1.1a	All Facility+C Connectors (per capita)	33	34	34	34	34
1.2						
1.2.1 All Facility+C Connectors						
1.2.1	All Facility+C Connectors	365,641	725,075	639,884	632,091	639,392
1.2.1a	All Facility+C Connectors (per capita)	0.82	1.09	0.96	0.95	0.96



2050 (All Together) AFTERNOON Peak Hour Travel Time (minutes)						
To ==>	Durham DWTN	RTP	Raleigh DWTN	Chapel Hill	H'borough	Pittsboro
Durham DWTN		21	57	43	30	68
RTP	19		43	35	37	54
Raleigh DWTN	56	43		70	72	84
Chapel Hill	45	38	72		37	51
Hillsborough	30	35	68	30		56
Pittsboro	52	40	65	37	49	

# Schedule & Public Engagement

- Released July 29th (with CAMPO)
- Comment Period: 7/29/21 through 9/15/21 (exceeds 42-day policy)
- Web page – Click Alternatives tab at this [link](#)
- Survey -- [link](#)
- Online workshops (with CAMPO), August 19, 12 noon and 4:30pm
- Present to local boards and commissions, list on web page
- In-person pop-ups (in development)
- Four Focus groups for community of concern (Sept.)
- Public hearing at September 1<sup>st</sup> Board meeting
- Notifications: Email service; public affairs notices; social media



# Web Site and Maps

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- Summary of Alternatives (scenarios) -- [Link](#)
- Public Engagement opportunities
- Interactive maps:
  - Land Use for Alternatives -- [Link](#)
  - Roadway congestion -- [Link](#)
  - Transportation network for Alternatives (in development)
- Performance Measures

[www.bit.ly/2050MTP-AltsAn](http://www.bit.ly/2050MTP-AltsAn)

# Next Steps

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- Complete public engagement activities and review feedback
- Coordinate with local counties and jurisdictions, and county plans.
- Joint DCHC MPO and CAMPO Board meeting, September 29
- Release Preferred Option in October
- Adopt 2050 MTP in February 2022