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PLANNING TOMORROW'S TRANSPORTATION

2050 Metropolitan Transportation Plan – Alternatives Analysis –

Andy Henry, andrew.henry@durhamnc.gov, August 11, 2021

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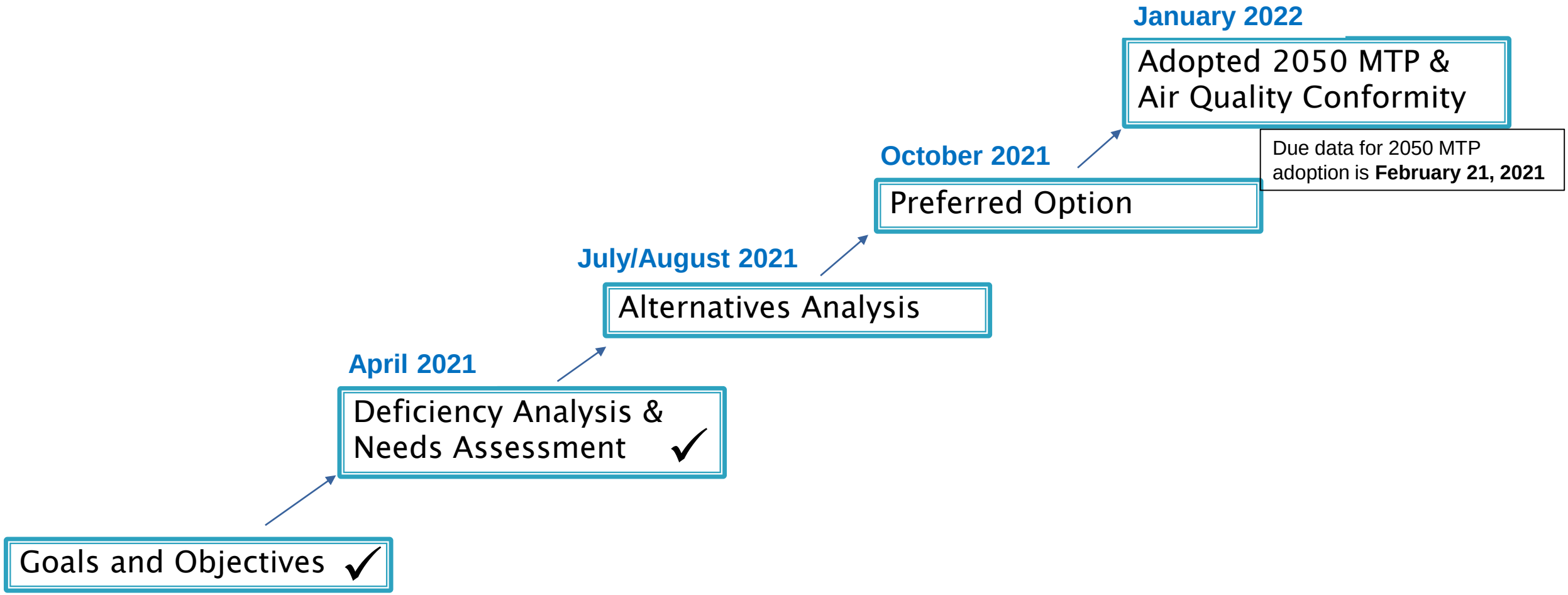
Presentation Outline

- Schedule
- Public Engagement
- Web site
- Land Use and Scenarios
- Metrics and Maps
- Next Steps

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

2050 MTP Milestones



Schedule & Public Engagement

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- 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 4pm
- Present to local boards and commissions, list on web page
- In-person pop-ups (in development)
- Possible focus groups for community of concern (in development)
- Public hearing at September 1st Board meeting
- Notifications: Email service; public affairs notices; social media

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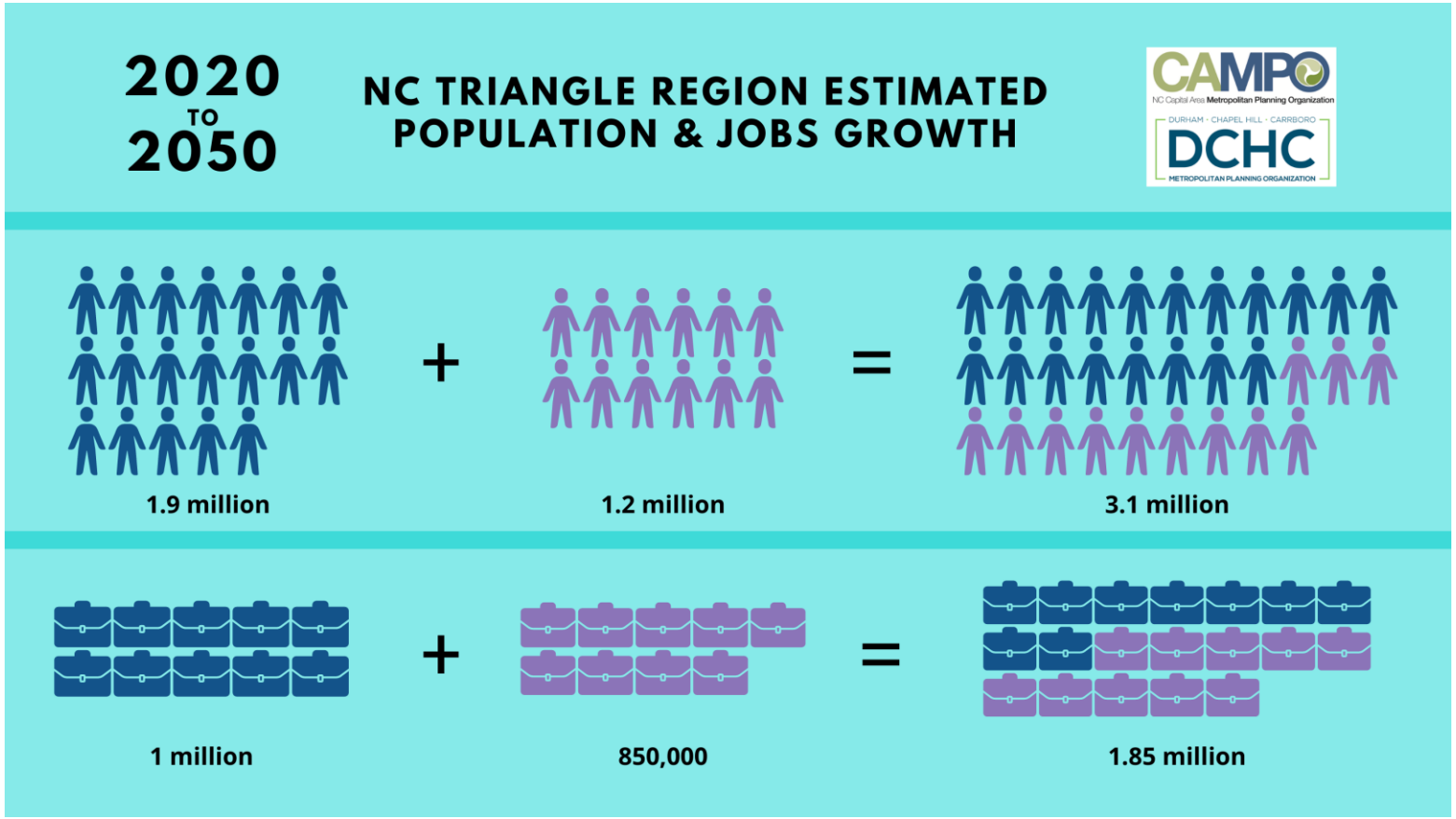
Web Site and Maps

- 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

Demographics



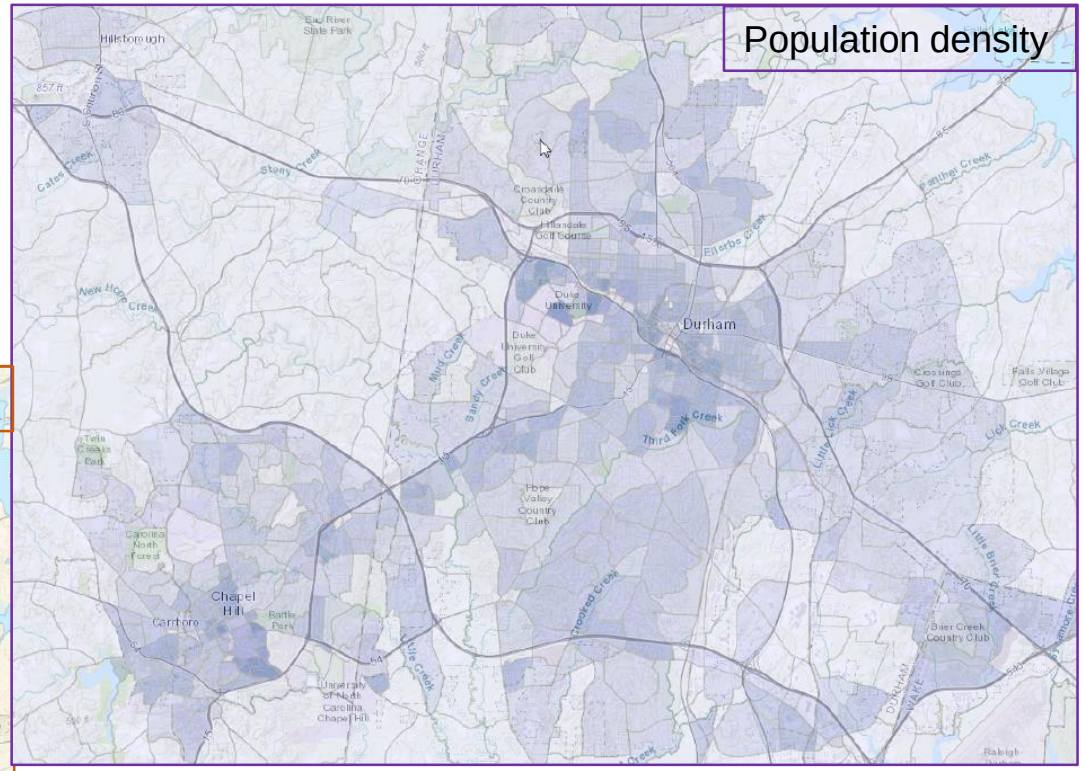
Population				
County	**2016**	**2050**	**2016-2050**	% change
Chatham*	46,051	103,345	57,294	124%
Durham	300,939	458,906	157,967	52%
Orange	143,678	193,477	49,799	35%
Total	*490,668*	*755,729*	*265,061*	*54%*

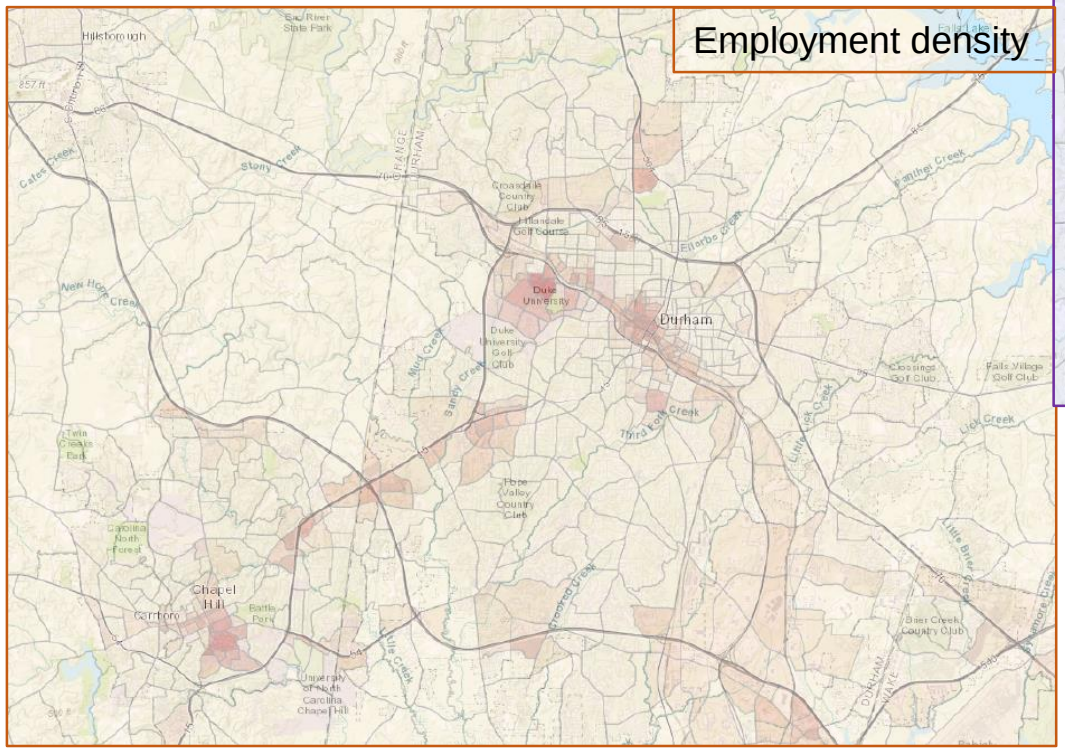
Employment				
County	**2016**	**2050**	**2016-2050**	% change
Chatham*	11,358	24,426	13,068	115%
Durham	217,114	401,168	184,054	85%
Orange	71,516	116,769	45,253	63%
Total	*299,988*	*542,363*	*242,375*	*81%*

* Only includes portion of Chatham County in modeling area.

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

The Scenarios

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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.

Shared Leadership Scenario

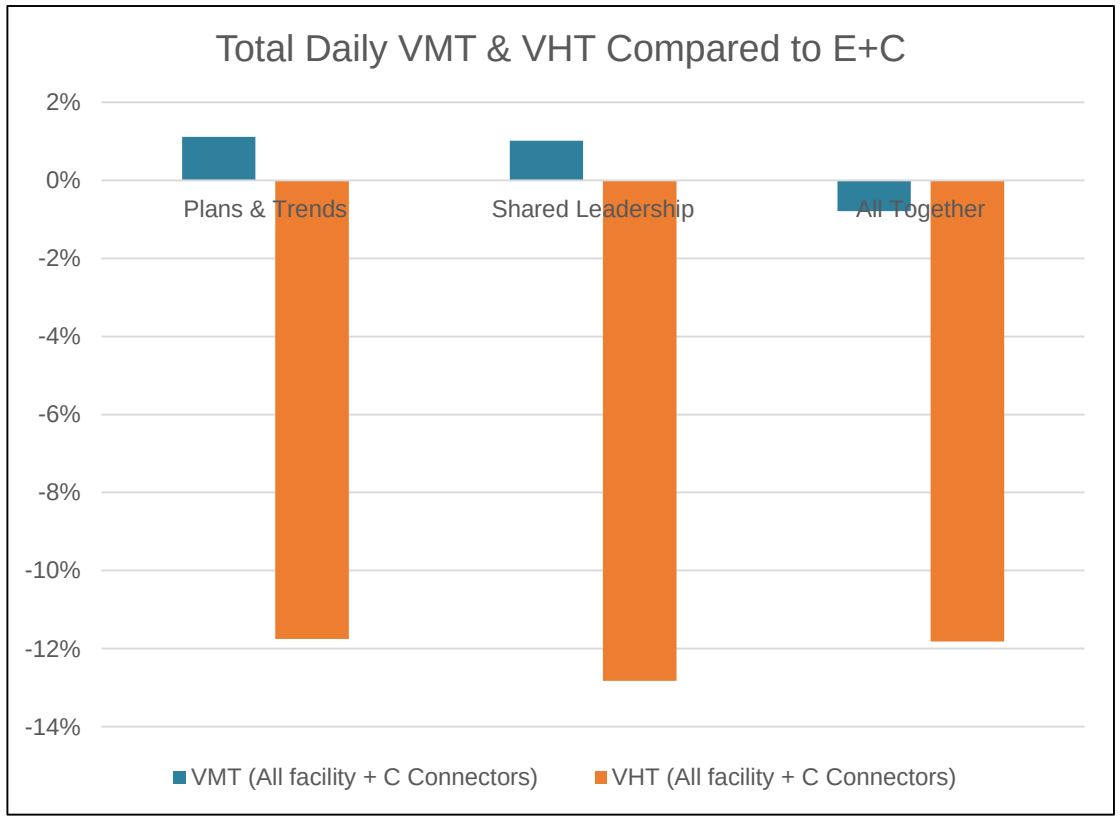
This scenario could called the *we-can-do-better* scenario. It increases the intensity and mix of land use at major employment hubs and travel corridors, and assumes additional transportation funding for transit facilities, services, and a few roadway improvements.

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.

Scenario descriptions -- 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.

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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%

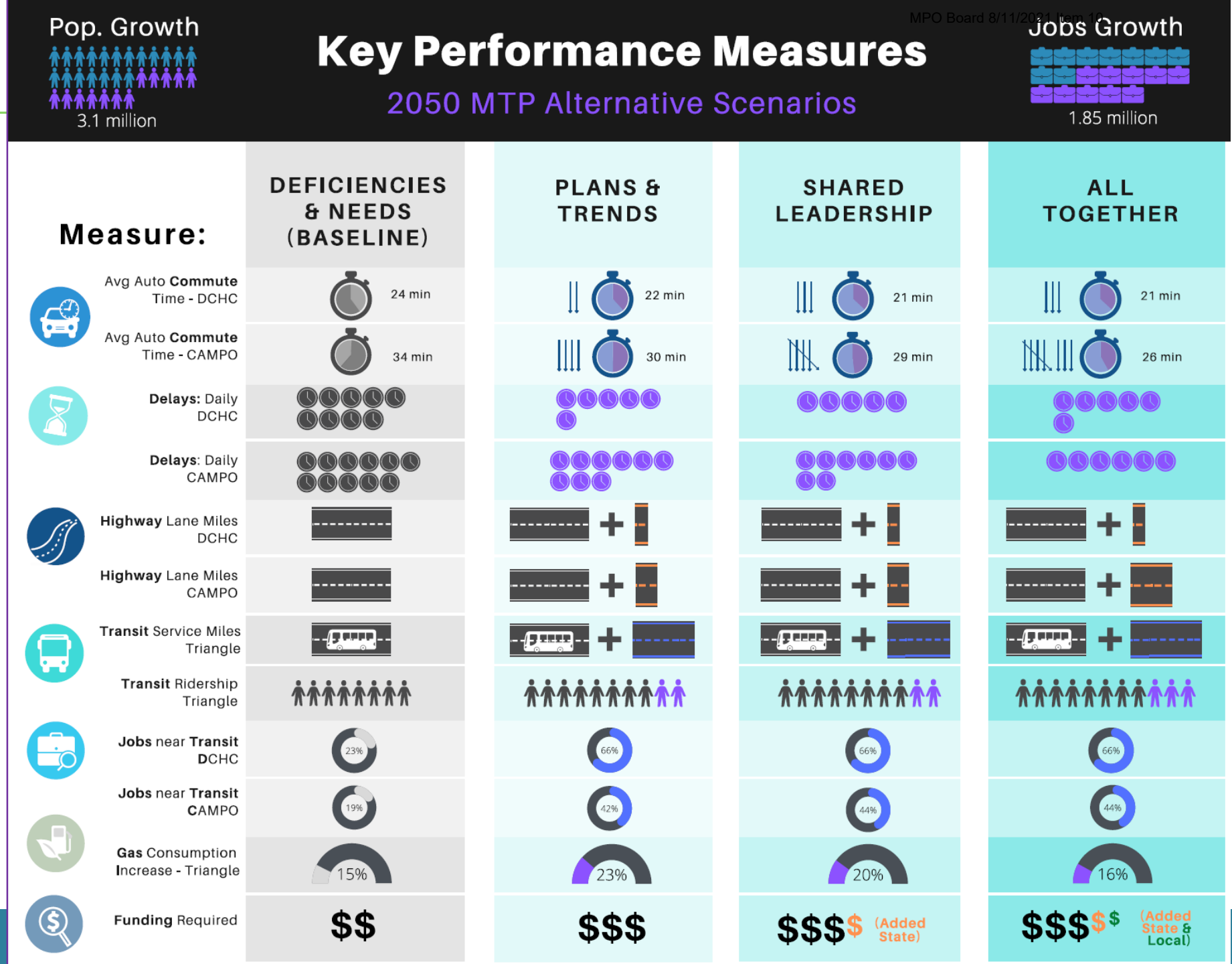
- Despite VMT climbing over 75% from 2016 to 2050, all pollutants decrease except CO2, which climbs 16%.
- Emissions model (MOVES3) likely assumes increasing energy efficiency (e.g., miles per gallon) and declining tailpipe emissions.
- VMT among scenarios is similar, thus emission very similar. All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



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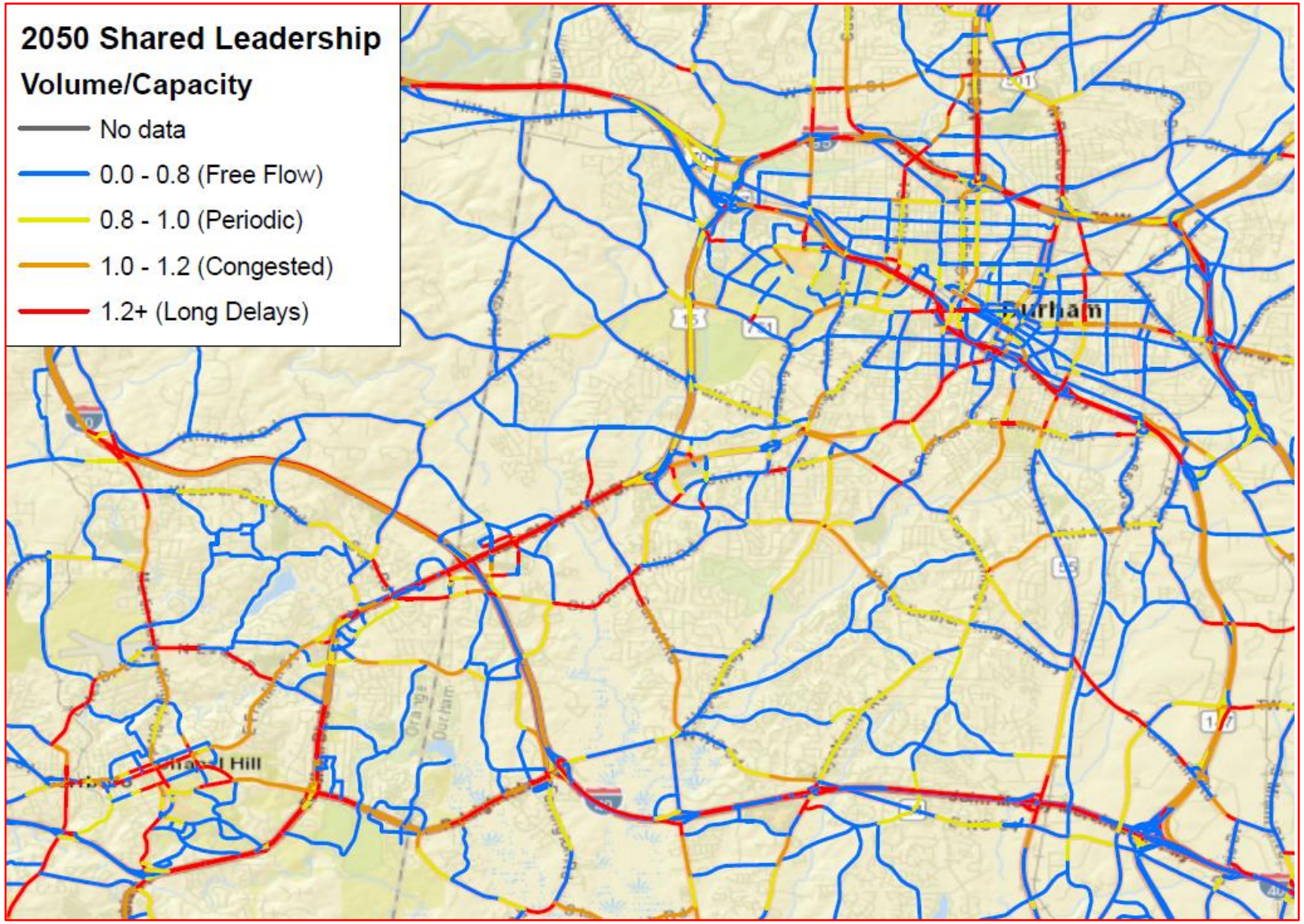
Metrics: Congestion Maps



- This is the congestion map for the Shared Leadership scenario, which has the highest highway investment among the scenarios.
- Congestion will persist on the interstates and major commuting corridors.

Congestion maps -- Link

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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 North Carolina, 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 North Carolina are people of color compared to about 30% of the entire population (Census ACS data).
- Average commute time by transit in North Carolina is 43 minutes compared to 24 minutes for the average drive making a commute (National Equity Atlas). Because communities of color are less likely to have access to a vehicle and more likely to use transit, average commute time for communities of color is higher.
- There is also a noticeable disparity in pedestrian safety for communities of color. Between 2015 and 2019, 55% of pedestrians, on average, involved in crashes in North Carolina were people of color compared to about 30% of the population (HSRC Ped Bike Crash Data).

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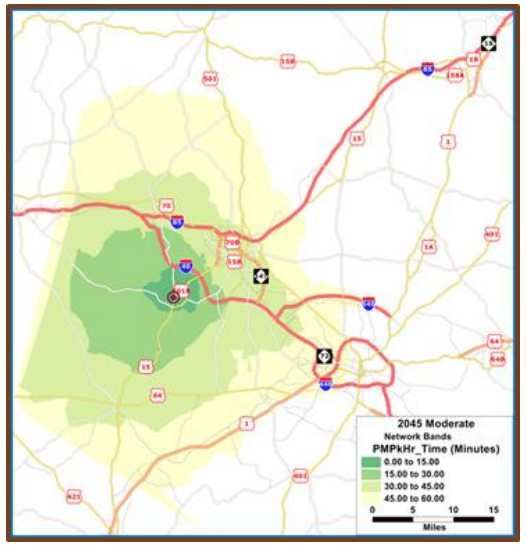
Metrics

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

	Alternative (Scnearios) =	Baseline	E+C	Plans & Trends	Shared Leadership	All Together
1	**Performance Measures**					
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	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	

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Next Steps

- Complete public engagement activities and review feedback
- Technical work to support Preferred Option
- Coordinate with Durham and Orange county transit plans
- Joint DCHC MPO and CAMPO Board meeting, September 29