Welcome to MTP Training

In the **Chat box**, please…

…tell us your name/organization, and what you hope to learn today.

Metropolitan Transportation Plan Training for the NC Capital Area Metropolitan Planning Organization (CAMPO)

December 17, 2020

Logistics

- Presentation with Q&A breaks
- Attendees can post questions anytime in the Chat
- Side Panels – Participants, Polling, Chat
- Meeting Recorded

Today's Presentation Team

Chris Lukasina, CAMPO Executive Director

Shelby Powell, CAMPO Deputy Director

Alex Rickard, CAMPO Deputy Director

Bonnie Parker, CAMPO Public Engagement Planner

Expectations for MTP 101

Understanding of:

- Metropolitan Transportation Plan in general (What)
- MTP Development Partners (Who)
- MTP Development Milestones (How)
- Relevance to you and your community's role

Poll #1:

Are you an Executive Board or TCC Member or Alternate?

Please select your answer using the “polling” panel – typically found on the right side of the screen.

Poll #2:

Why do we develop an MTP?

- Regional coordination
- Focus large investments on long-term goals while prioritizing for real, forecasted conditions
- Regular updates to account for changes in data and community goals
- It's a federal requirement
- Verify funding ability
- One vision for the region
- Coordination across jurisdictions
- Regional significance

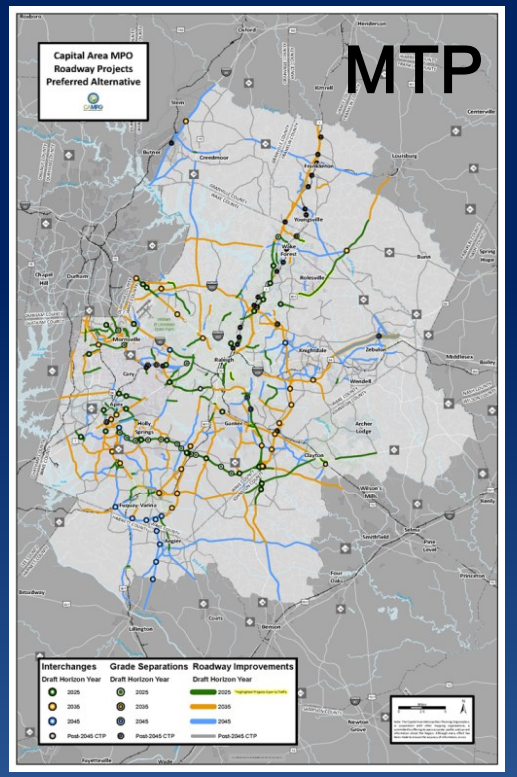
What is an MPO?

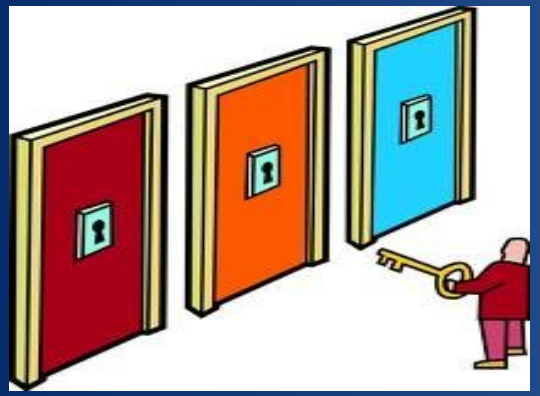
An MPO is:

- Federally mandated and funded
- Transportation policy-making organization
- Made up of representatives from local governments and governmental transportation authorities
- Conducts the 3-C planning process in the region (Continuing, Cooperative and Comprehensive)

MPO Functions

1. Establish a fair & impartial setting
2. Evaluate transportation alternatives
3. Maintain a Metropolitan Transportation Plan (MTP)
4. Develop a Transportation Improvement Program (TIP)
5. Involve the public – residents + key affected sub-groups





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MPO Primary Responsibilities

(MTP) Metropolitan Transportation Plan

(formerly Long-Range Transportation Plan - LRTP)

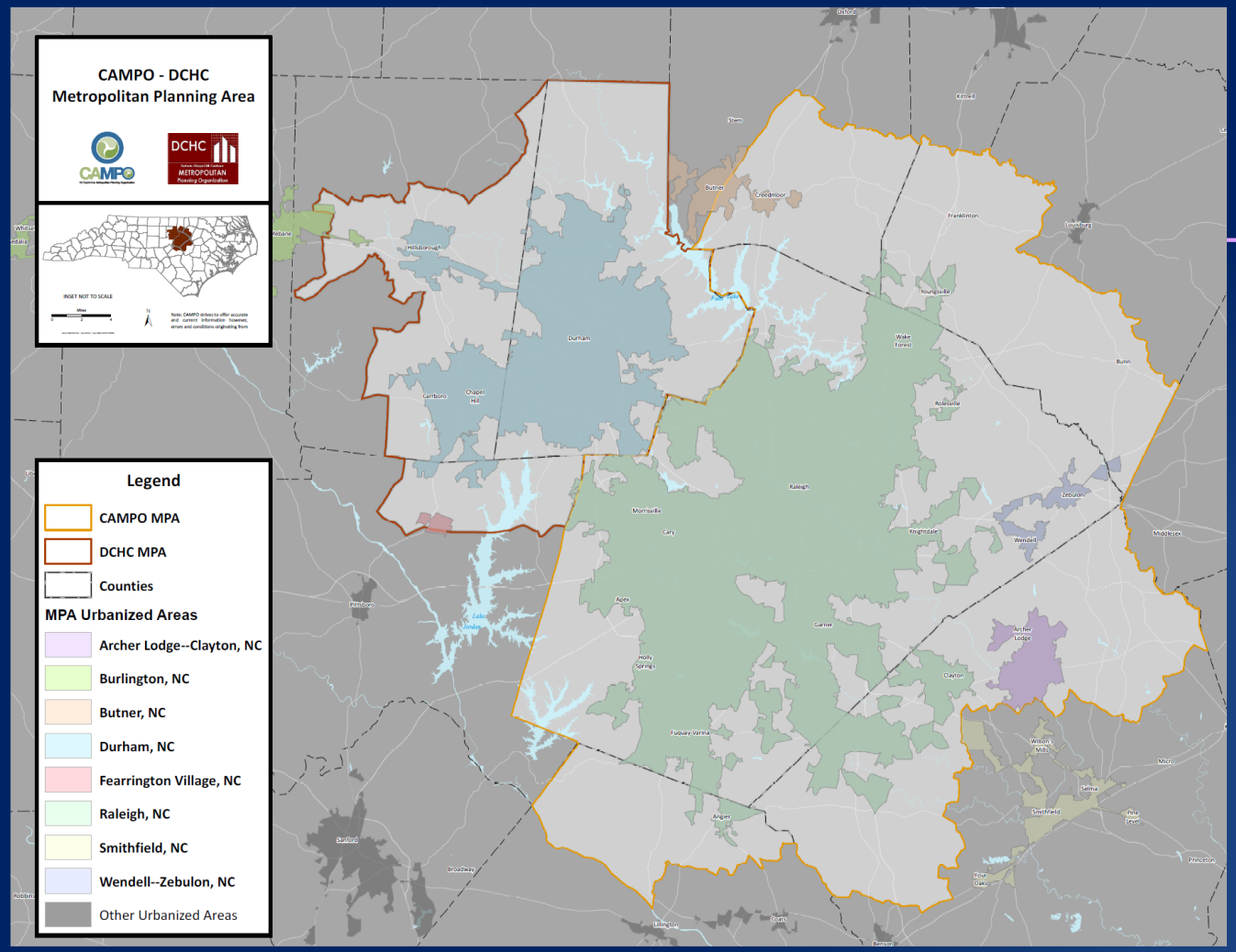
- Must cover 20+ years, updated every 4 years
- MTP Revenues and Costs **must balance**

(TIP) Transportation Improvement Program

- Determines regional transportation priorities, in cooperation with NCDOT
- Identifies State, Federal and local funding
- Must be consistent with MTP

(NAAQS) National Ambient Air Quality Standards

- MTP and TIP must meet AQ emissions regulations
- Federal funding withheld if Plans not "conforming"
- AQ Modeling for DCHC and CAMPO

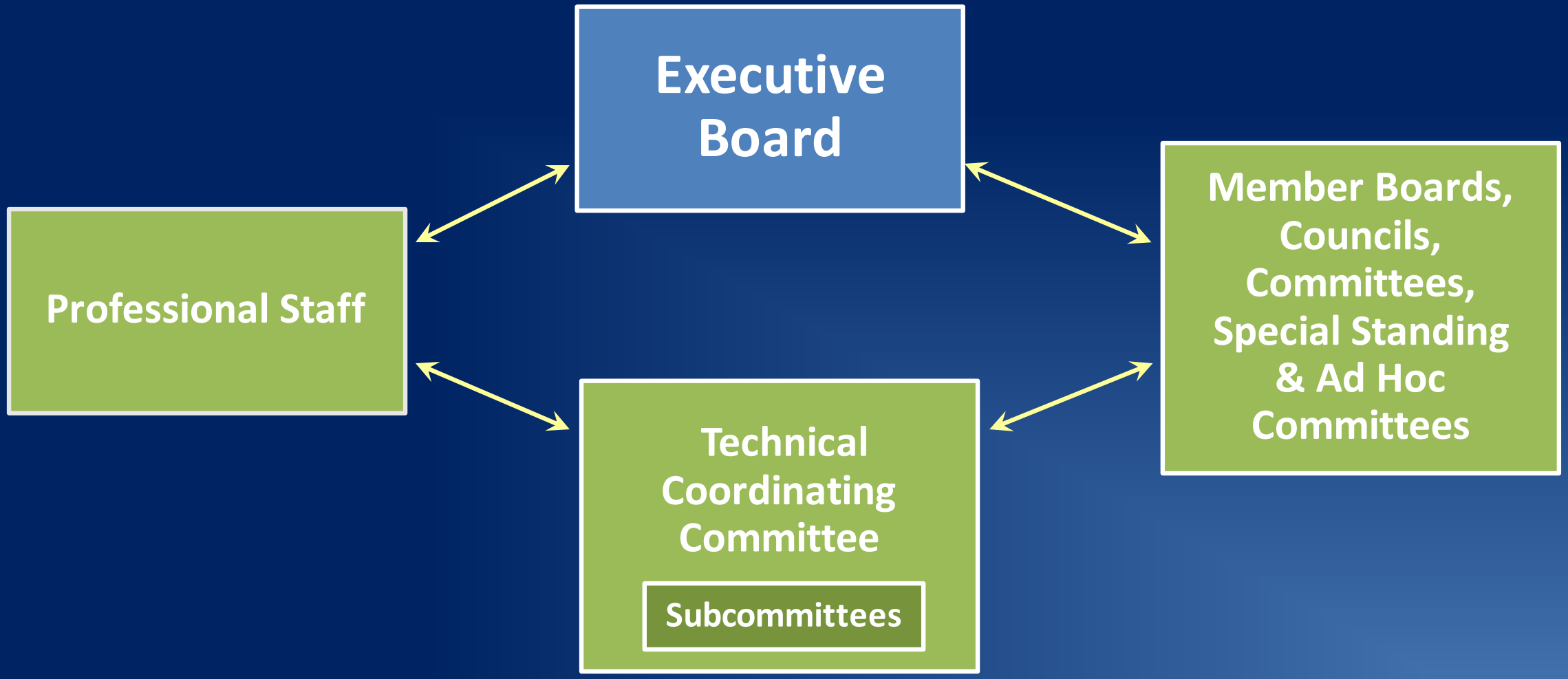


CAMPO

- Elected officials and staff representing 5 counties and 19 municipal jurisdictions
- All of Wake and parts of Franklin, Granville, Harnett, & Johnston Counties
- Combined 2017 population of 1.27 million (12% of NC)

www.campo-nc.us

Our MPO Structure



What is the Metropolitan Transportation Plan (MTP)?

Metropolitan Transportation Plan (MTP)

Long-range guide for major transportation investments for the North Carolina Capital Area Metropolitan Planning Organization

Recommends major transportation projects, systems, policies and strategies designed to maintain our existing systems and serve the region's future mobility needs

The Capital Area MPO MTP is integrated with land use and air quality strategies and goals for the urban area.

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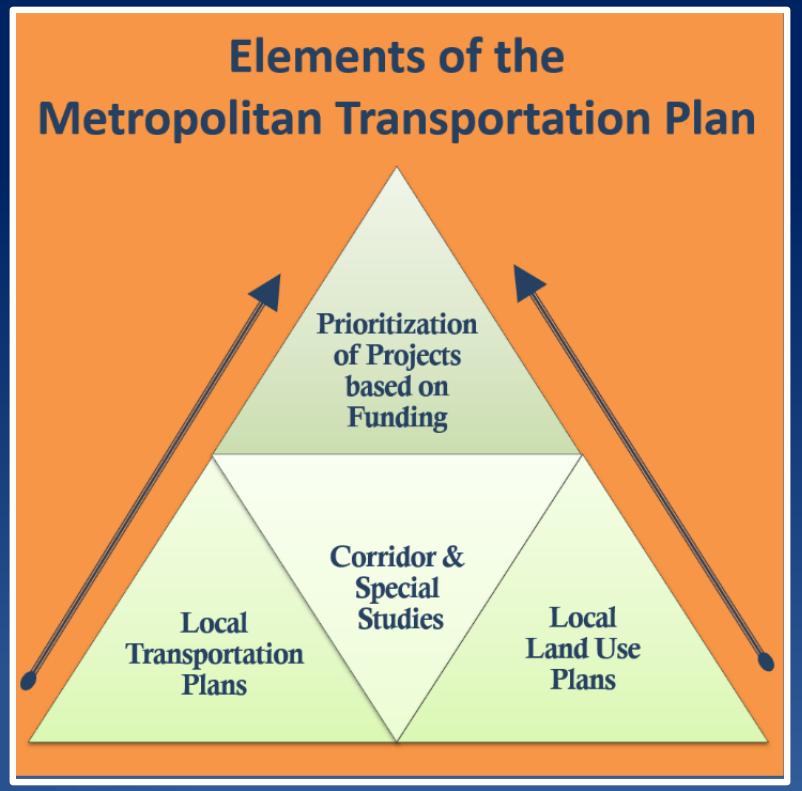
Metropolitan Transportation Plan (MTP)

- Federally Mandated
- Emphasis on preservation and efficiency improvement of existing system
- Planning horizon of at least 20 years (25 preferred)
- Updated every 4 years
- Plans for all modes of transportation
- Fiscally constrained; not a wish list
- ***Projects must be consistent with MTP if***
  - ***Funded with federal funds***
  - ***Regionally significant***
- Extensive public involvement
- Our Plan
  - Joint plan with DCHC MPO
  - Adopted by Executive Board in February 2018
  - 2050 underway

Planning Activities that feed into the MTP

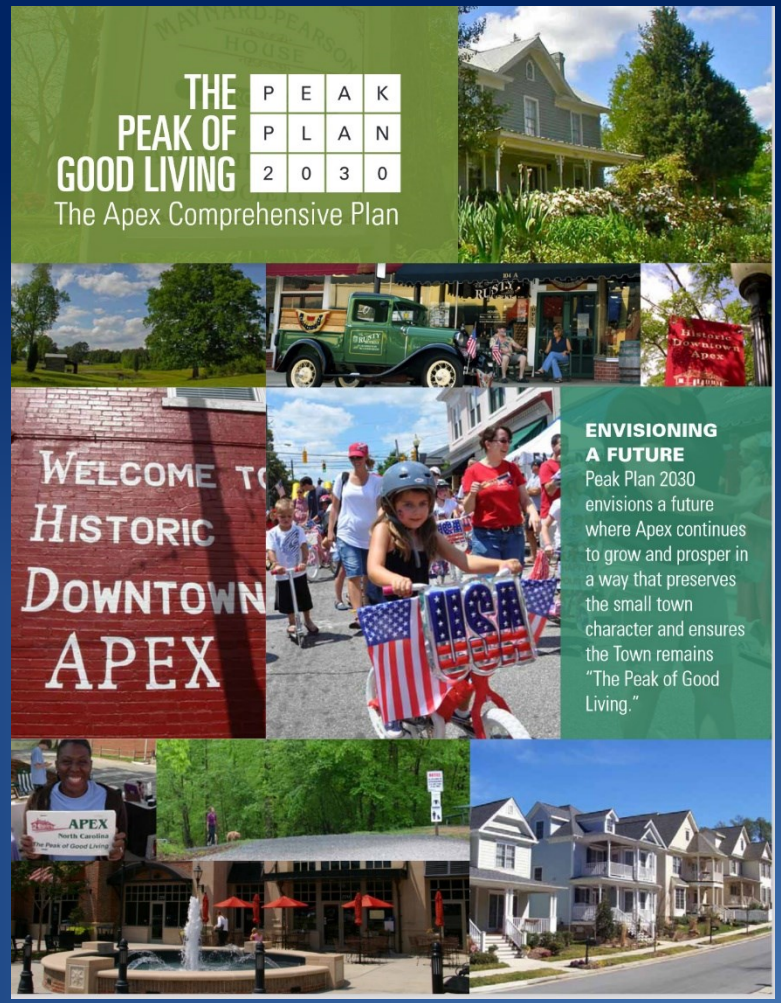
- Large Area Studies
- Corridor Studies
- Hot Spot Studies
- Other Special Studies (modal studies)
- Local Land Use and Transportation Plans
- Transit Plans (WTP)



MTP: Every four years

Example: Apex Comprehensive Plan

- Provides basis for land use assumptions for Regional CommunityViz model and future socioeconomic (SE) forecasts
- Provides local transportation recommendations and priorities
- Will help inform which projects to prioritize, by decade, during the development of the 2050 MTP



Example: Commuter Corridors Study

- Programmed in FY 2019 UPWP
- Technical analysis of some of the region's major commuter corridors
- Worked to forecast what the outcomes could be if **certain, purposely drastic and hypothetical, improvements or adjustments were made to the region's network**. Each scenario was modelled in isolation to gain a fuller understanding of what the potential impact could be.
- Will help inform which projects to prioritize, by decade, during the development of the 2050 MTP

CAMPO

COMMUTER CORRIDORS STUDY, CAPITAL AREA MPO REGION

Summary of Existing Conditions and Future Scenario Analysis

ABOUT THE STUDY

The Commuter Corridors Study was initiated in December of 2018 by the Capital Area Metropolitan Planning Organization (CAMPO), in cooperation with the North Carolina Department of Transportation (NCDOT). The purpose of the study was to understand the underlying causes of traffic congestion along major commuter corridors in the region, explore the emerging growth and mobility trends, and test hypothetical future scenarios in terms of their impacts on mobility, safety, accessibility, and the environment.

As can be seen in the forecast map shown on the other side, all interstates and highways in the region are projected to have some level of traffic congestion in the future. Traffic volumes are anticipated to exceed capacity for these roadways by year 2045. This congestion forecast is based on the region's growth projections of two million people, one million jobs, and nine million trips. These growth projections were adopted as part of the region's 2045 Metropolitan Transportation Plan (MTP). These commuter corridors serve as the economic backbone of the region as they connect the City of Raleigh's employment centers with the commercial centers, educational institutions, medical facilities, logistics centers, and suburban communities in Wake and several neighboring Counties (i.e., Durham, Chatham, Harnett, Johnston, Nash, Franklin, and Granville) as well as the Research Triangle Park (RTP). This observation led to the question:

Why is there so much red in the map despite approved plans[1] for significant roadway and transit investments?

This led to the launch of the **Commuter Corridors Study.**

PERFORMANCE MEASURES FOR FUTURE SCENARIOS[1]

FUTURE SCENARIO	NET BENEFIT (Dollar per Year)	TRAFFIC CONGESTION	TRAVEL SPEED	MODE SPLIT	TRANSIT RIDERSHIP	TRAVEL TIME & RELIABILITY	SAFETY, PHYSICAL ACTIVITY & ACCESSIBILITY
TOLL3	-123.3						
ETOD	45.5						
GIG	97.2						
MHUB	-16.3						
RESY	-85.1						

POSITIVE CHANGE NEGATIVE CHANGE NEUTRAL/MIXED CHANGE

[1]Changes in performance measures are reported based on comparison to the 2045 Adopted MTP

STUDY PROCESS AND SCOPE

The study involved a consultant team from Baseline Mobility Group and Resource Systems Group, and a technical steering committee that consisted of several CAMPO member and partner agencies. The technical steering committee guided the development and analysis of future scenarios. This included a broad-based scenario planning approach where realistic as well as unrealistic/hypothetical scenarios could be tested.

The study area included four Interstates, seven U.S. Highways, and six N.C. highways for a total of 17 corridors, listed below.

- Interstates: I-40, I-440, I-87, I-540
- U.S. Highways: US 1, US 1 Alt., US 64 Bus, US 70, US 70 Bus, US 401
- NC Highways: NC 55, NC 55 Bypass, NC 540, NC 50, NC 54, and NC 98

A total of six scenarios were developed and analyzed by the consultant team using a combination of land use, travel demand and benefit-cost analysis models[2]. All six scenarios were developed by pivoting from the socio-economic projections that are embedded in the 2045 MTP.

TECHNICAL STEERING COMMITTEE MEMBERS

NCDOT | City of Raleigh | GoRaleigh | GoTriangle
NCSU - Institute for Transportation Research and Education (ITRE)
Triangle J Council of Governments (TJCOG)
Town of Clayton | Durham-Chapel Hill-Carrboro (DCHC) MPO

[1] Statewide Transportation Improvement Program (STIP); 2045 Metropolitan Transportation Improvement Program (MTIP)
[2] The land use model used in the study is the region's Communitryiz model, the travel demand model used is the Triangle Regional Model (TRM), and the benefit cost model used is the FHWA's Benefit Cost Analysis (BCA) Tool.

BASELINE MOBILITY www.campo-nc.us twitter.com/capitalareampo www.facebook.com/NCCapitalAreaMPO RSG

FUTURE LAND USE-TRANSPORTATION SCENARIOS

The six "hypothetical" future scenarios modeled and analyzed in the study are summarized below. These six scenarios were measured using a host of traffic congestion measures such as level of traffic saturation, travel speed, travel time reliability, and modal split between Single-Occupant Vehicle (SOV), Carpool, Bus, Rail, Walking and Biking. These scenarios were also analyzed using benefit-cost measures to understand the net economic, social and environmental benefit of a scenario – see the table. More detailed information for each scenario is available at www.campo-nc.us; search "commuter corridors".

HWYX – Highway Mega Expansion: This scenario hypothetically assumed doubling of the number of General-Purpose lanes along congested commuter corridor segments in the CAMPO region including I-40, I-440, I-540, US 1, US 64, US 70, and US 401.

- **OUTCOME:** This scenario was deemed unrealistic and infeasible due to huge costs and community impacts, so it was excluded from the list of final scenarios modeled.

TOLL3 – Congestion Pricing - Dynamic Tolling: This scenario was intended to capture the emerging trend of applying tolls to ease traffic congestion in urban areas. The study assumed dynamic pricing, meaning the price fluctuates in real-time, during peak periods along the region's freeway corridors. It was also assumed that the peak toll pricing is only applicable to Single-Occupant Vehicles (SOVs) and trucks, but not to High-Occupancy Vehicles (HOVs) and buses.

- **OUTCOME:** This scenario was deemed feasible for some corridors such as I-40 and I-540 where we looked at tolling on managed lanes only, but was considered very difficult for the I-440 corridor where we looked at tolling all lanes of travel due to right-of-way restrictions and community impacts.

ETOD – Equitable Transit-Oriented Development: This scenario is a transit-emphasis scenario. It was assumed that more of the anticipated future growth can be redirected towards station areas through supportive zoning policies and other incentives. The study assumed 50 percent additional growth in affordable multi-family, office and retail uses within half-mile of each planned transit station in the region, and 100 percent increase in transit frequency for future transit routes in the region.

- **OUTCOME:** This scenario was deemed realistic and feasible, and has the potential to curb future traffic congestion in the region.

RESY – Regional Resiliency: This scenario was intended to illustrate the importance of resiliency planning for traffic disruptions due to extreme weather events. The study assumed 50 percent reduction in the number of available lanes at several commuter corridor segments that were deemed to be vulnerable to flooding in an extreme weather event.

- **OUTCOME:** This scenario was deemed necessary for resiliency planning. Potential negative impacts could worsen if adequate roadway connectivity is not built into the commuter corridors.

GIG – Gig Economy of Mobile Workers: This scenario was intended to capture the emerging socio-economic trend where an increasing number of people work from home due to the growth of mobile (telecommuting), part-time, and independent workers. Guided by national estimates, the study assumed 25 percent reduction in work-related commute trips for medium-income and high-income households.

- **OUTCOME:** This scenario was deemed realistic based on current trend. It has the potential to curb freeway traffic congestion during regular commuting hours, but may cause negative impacts to off-peak travel conditions or on local arterials.

MHUB – Smart Mobility Hubs: This scenario was intended to capture the new mobility trend of using shared ride services for first-mile and last-mile trips. The study identified 13 future mixed-use center locations around the edges of the region as hypothetical future smart mobility hubs. This scenario also assumed 50 percent additional growth in household, office and retail uses within one and one half-mile band of each of the identified mobility hubs, along with high frequency premium transit service during commuting hours to connect each mobility hub with downtown Raleigh and the Research Triangle Park (RTP).

- **OUTCOME:** This scenario was deemed realistic and feasible based on current trends, and has the potential to curb future traffic congestion in the region.

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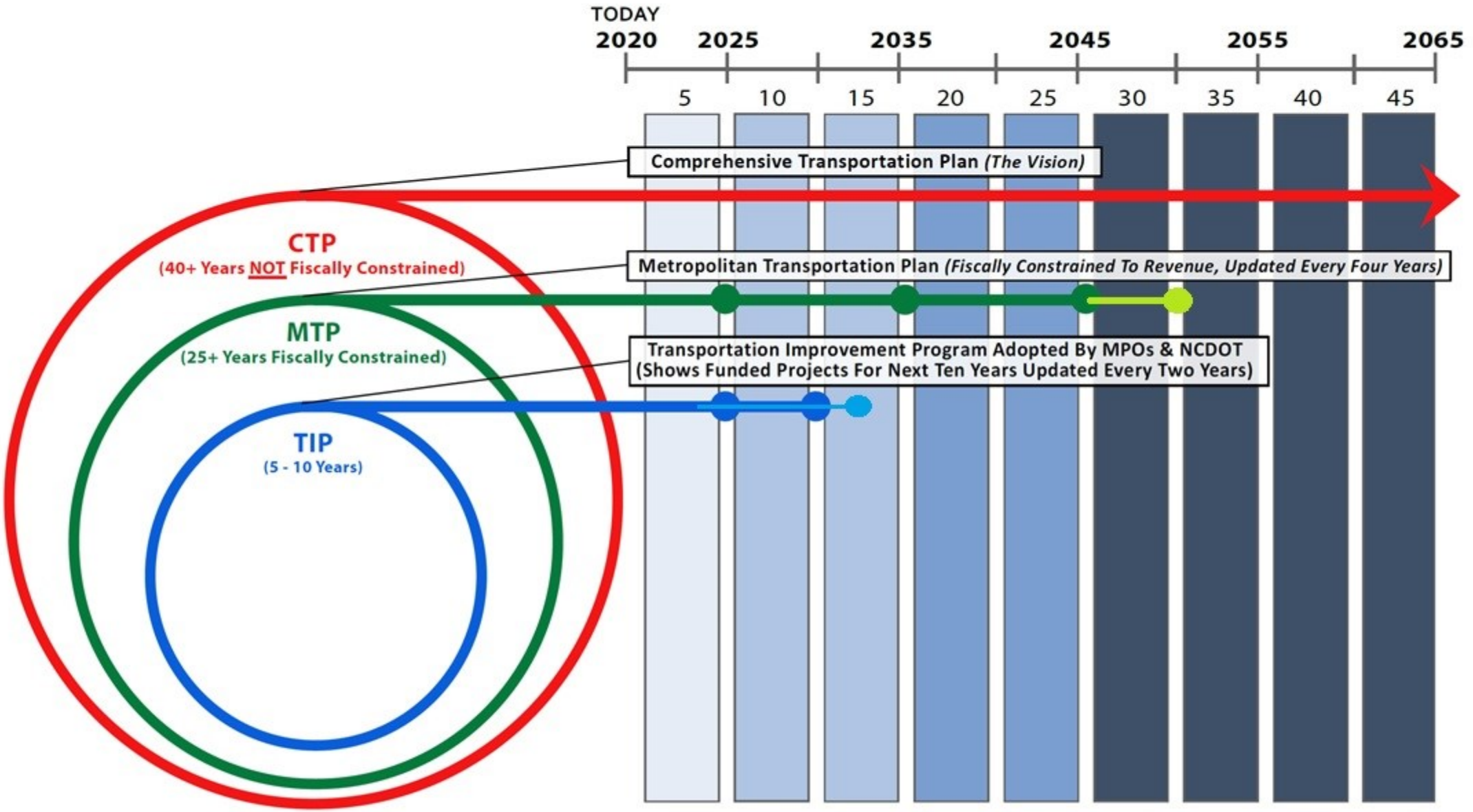
Comprehensive Transportation Plan (CTP)

A Multi-modal long-range vision plan that defines an organization's philosophy towards decisions related to the integration of transportation and land use

- Highway Plan
- Public Transit and Rail Plan
- Bicycle/Pedestrian Plan

- Depicts transportation infrastructure needed to handle the area's projected traffic for a minimum 30-50 year planning horizon – **planning beyond the MTP horizon years**
- CAMPO CTP = unfunded portion of our MTP

Transportation Planning Products



MPO Products

- Updated every 4 years
- Must cover 20+ years
- Revenues & Costs must balance
- CTP is unfunded element of MTP

- Updated every 2 years (mostly)
- Determines regional transportation priorities in coordination with NCDOT
- Identifies state, federal & local funding
- Must be consistent with MTP

- Updated annually
- Outlines annual planning and programming tasks for MPO staff
- Transit planning funding included
- Funded through 20% local match 80% federal funds

MTP Update Process

The overall process to develop the MTP typically takes 18 months, or more. CAMPO updates the MTP on a 4-5 year cycle and is currently developing the 2050 MTP.

Vision & Goals

Analysis & Evaluation

Preferred Option

Final Plan

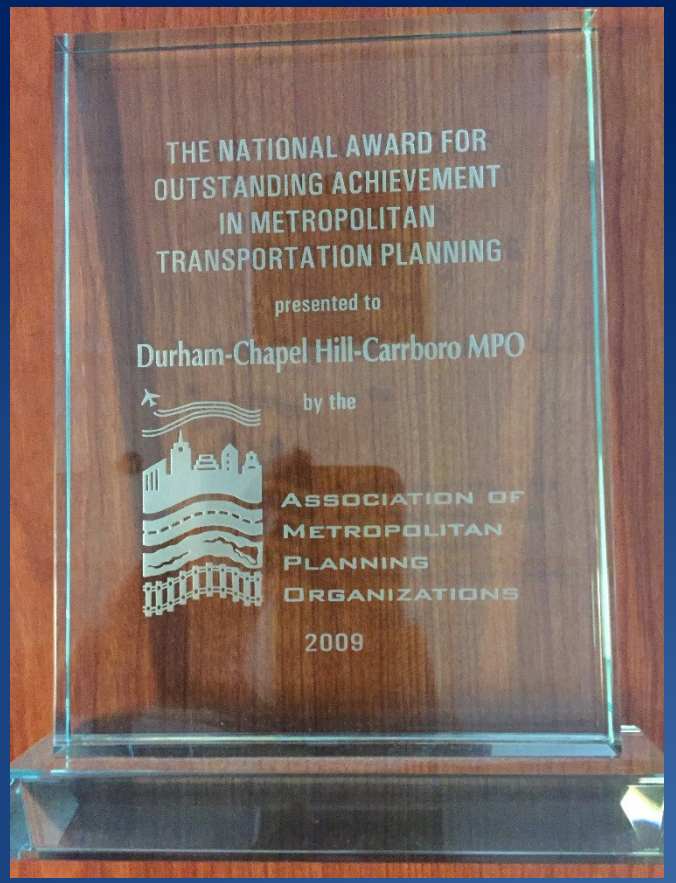
We are here

Performance-Based Planning Approach

- Goals and Objectives
- Performance Measures
- Targets
- Monitoring

MTP Development Partners

Our region has been recognized as a leader in collaborative regional planning



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Joint MTP Development

- Capital Area MPO and DCHC MPO first synchronized their LRTP update processes beginning in 2002.
- CAMPO and DCHC MPO adopted joint 2035 LRTP in 2009.

  Winner: National Award for Outstanding Achievement in Metropolitan Transportation Planning (AMPO)

- 2045 MTP adopted February 2018
  - Air quality conformity determination report adopted January 2019
- 2050 MTP development underway

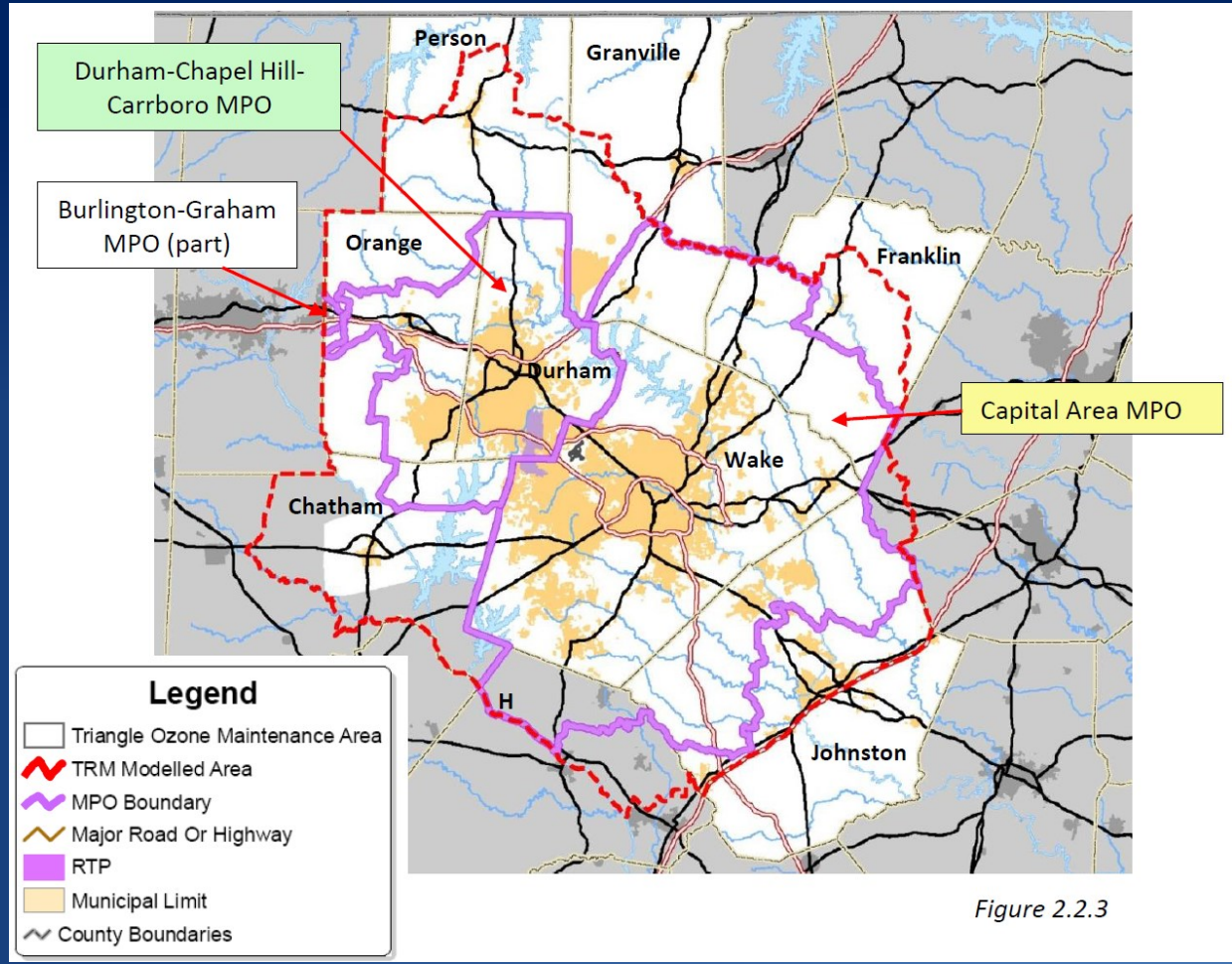
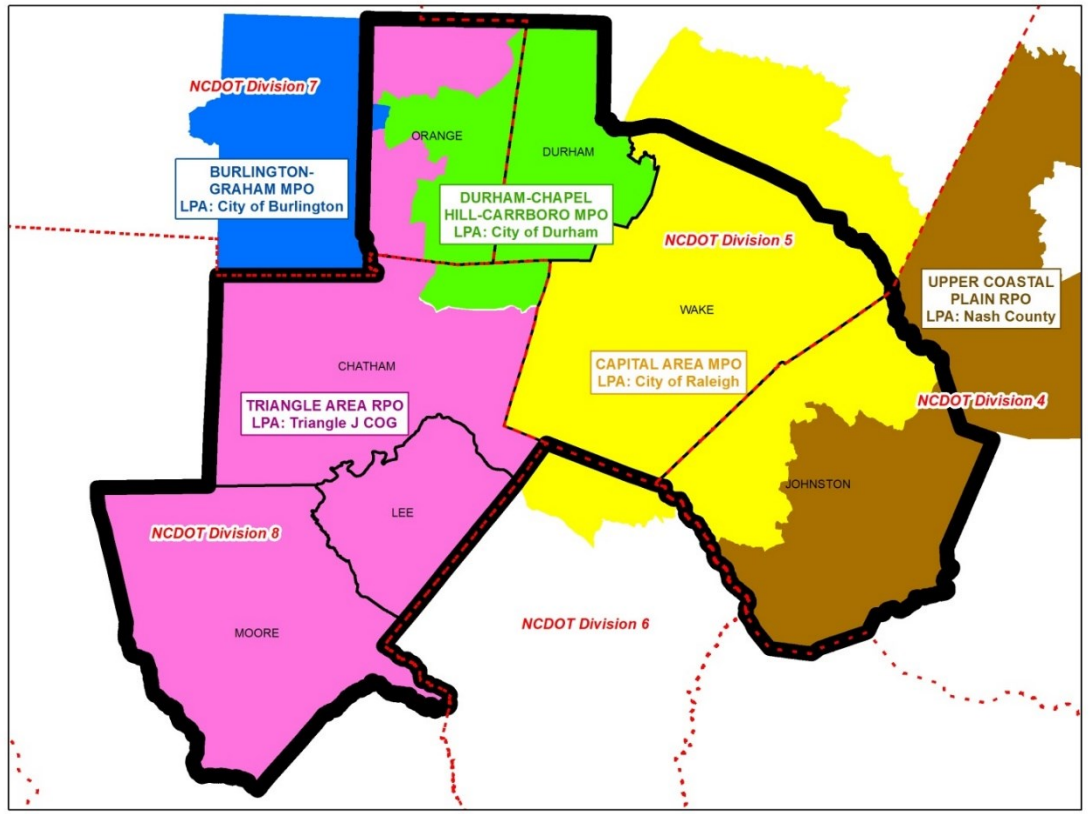


Figure 2.2.3

2045 MTP Elements Developed Together

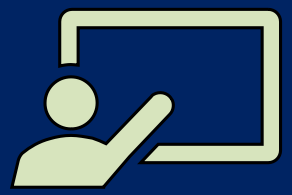
- ✓ Goals, Objectives & Performance Measures
- ✓ Regional Transportation Model (version 6)
- ✓ Population and Job Forecasts and CommunityViz Growth Allocation Tool
- ✓ Consistent Financial Plan and assumptions
- ✓ 2045 MTP scenarios and major milestones (Deficiencies & Needs, Alternatives Analysis, etc.)
- ✓ Environmental Justice methods and analysis
- ✓ Projects and programs that span MPO boundaries (e.g. I-40, Commuter Rail, US 70, NC 98, Transportation Demand Management)
- ✓ 2045 MTP Final Report

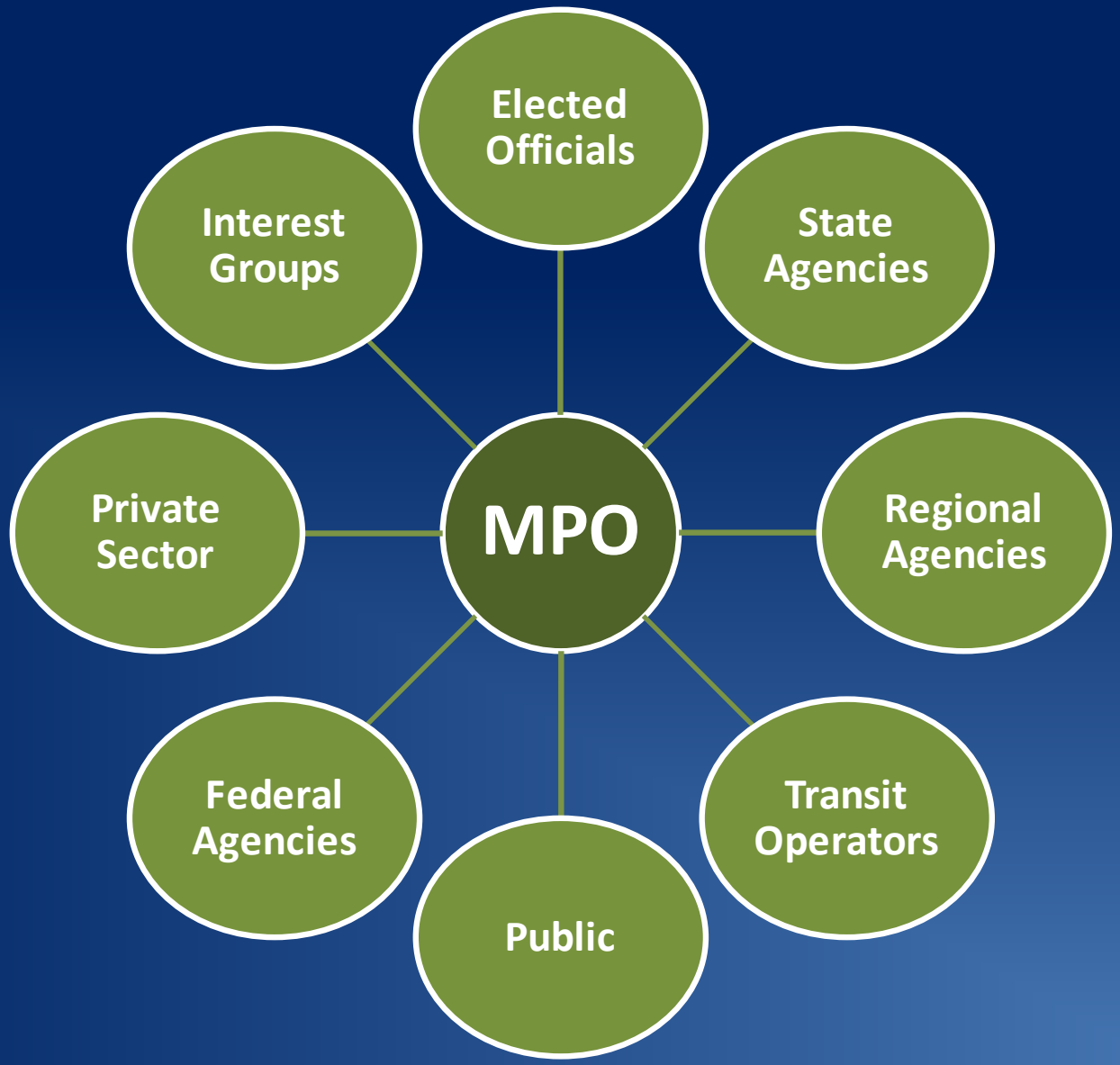
Our Partners: TJ Council of Governments (TJCOG)



- Regional coordination
- Assist with MTP development
- Administers Regional Transportation Demand Management (TDM) Program
- Coordination between other regional issues (housing, land use, water quality, etc.) and transportation

Who else is involved?





Our Partners:
YOU!

- The local governments and agencies ARE the MPO
- Stakeholder groups and the public also help inform the MTP

MTP Update Process

The overall process to develop the MTP typically takes 18 months, or more. CAMPO updates the MTP on a 4-5 year cycle and is currently developing the 2050 MTP.

Vision & Goals

Review 2045 MTP

Update Goals, Objectives, and Performance Measures

Public Engagement: Involve

We are here

Analysis & Evaluation

Preferred Option

Final Plan

Goals, Objectives and Performance Measures

Process >>> Development of DRAFT:

Review of existing Goals, Objectives, Measures

- Data analysis
- Current planning principles in our region

Result = Updated Goals and associated Objectives

- Performance Measures and any Targets will follow later in overall MTP development

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Process >>> Community Feedback

Goals of Engagement

- Awareness of MTP Update Process
- **<u>Involve</u> community re: Goals and Objectives for the region's transportation future**

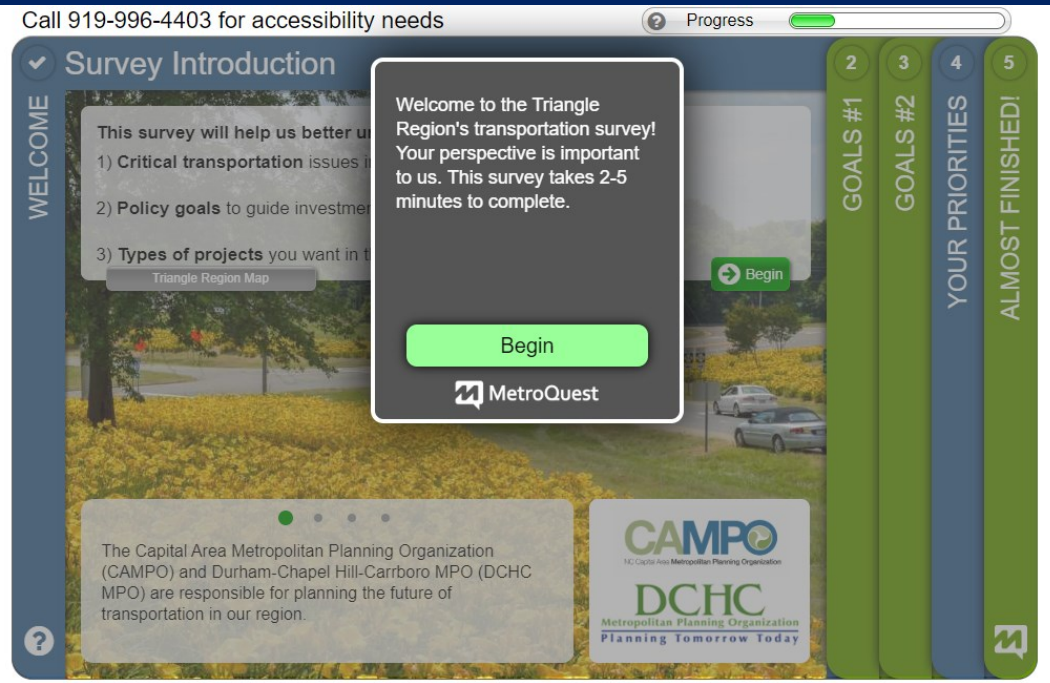
Engagement Activities

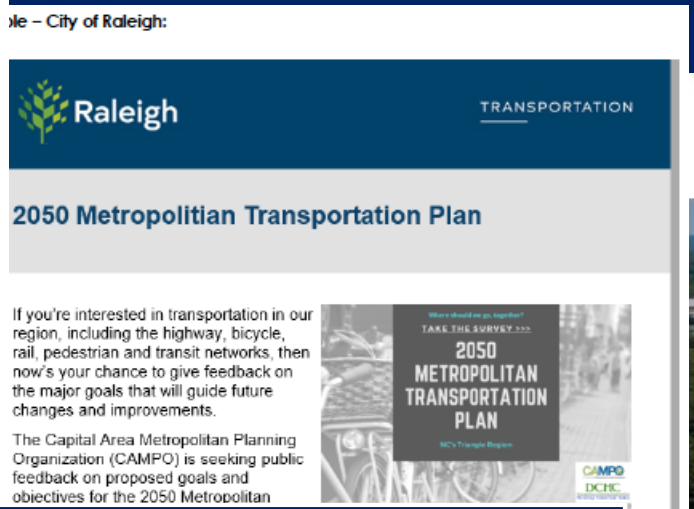
- Joint DCHC MPO and CAMPO survey using MetroQuest
- Public Comment Period before Goals Approved by Exec. Board

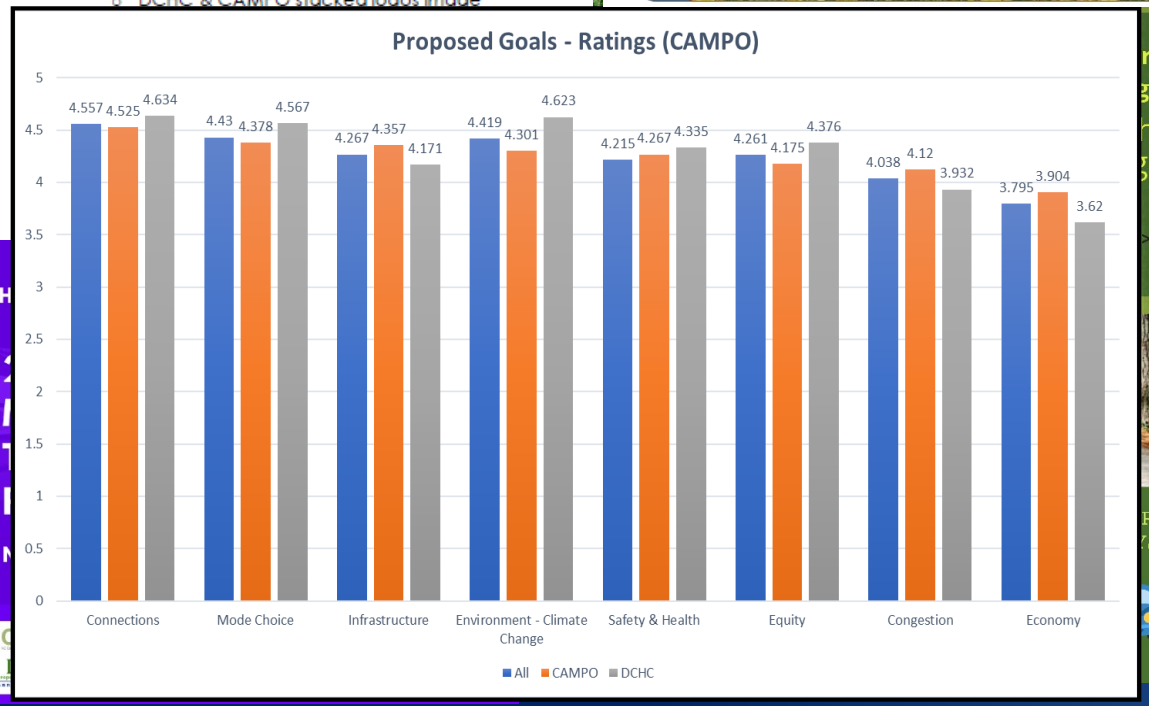
Survey Content

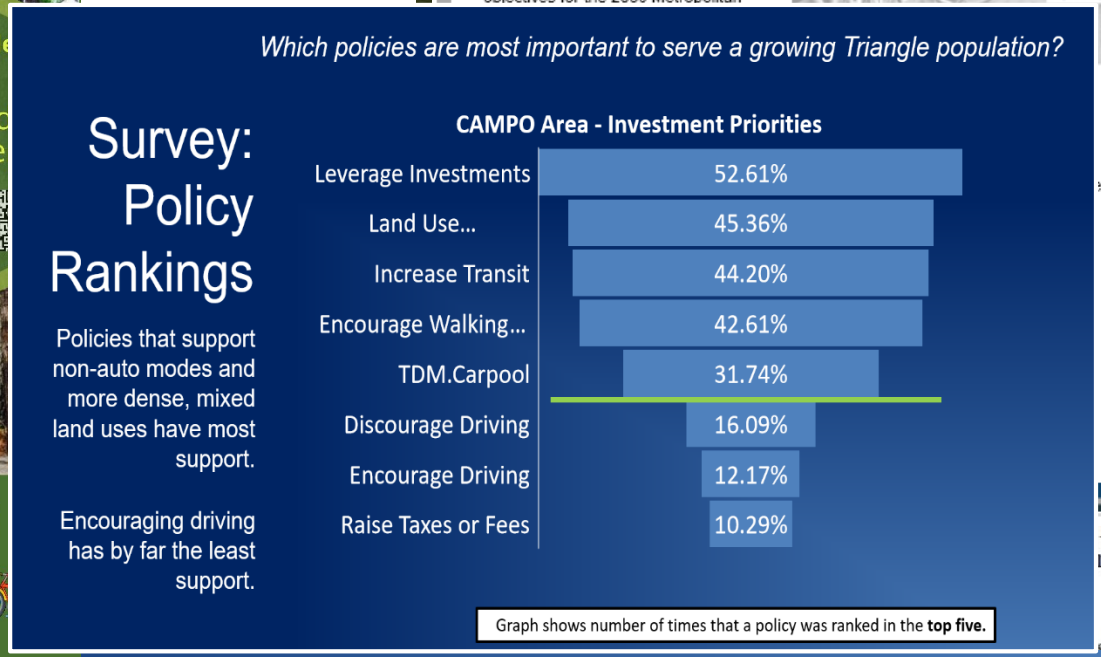
- Support for Proposed Goals
- Policy Priorities
- Demographics of Respondents
- *Available in English & Spanish*

Engagement A ID









Process >>> Update Recommendations & Executive Board Approval *(for use in MTP Development)*

- ✓ Synthesis of survey results, summary of comment themes produced
- ✓ Based on community input, staff from both MPOs updated recommendation for Goals & Objectives
- ✓ Approved by Exec. Board in late August 2020
- Survey results and policy priorities continuously reviewed for influence on next steps (scenario planning)

2050 Goals & Objectives - Approved

GOAL 1: Protect the Human and Natural Environment and Minimize Climate Change

Obj. A: Reduce mobile source emissions, GHG, and energy consumption

Obj. B: Reduce negative impacts on natural and cultural environment

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GOAL 2: Connect People & Places

Obj. A: Connect people to jobs, education and other important destinations using all modes

Obj. B: Ensure transportation needs are met for all populations (especially the aging and youth, economically disadvantaged, mobility impaired, minorities)

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2050 Goals & Objectives - Approved

GOAL 3: Promote and Expand Multimodal & Affordable Choices

Obj. A: Enhance transit services, amenities and facilities

Obj. B: Improve bicycle and pedestrian facilities

Obj. C: Increase utilization of affordable non-auto travel modes

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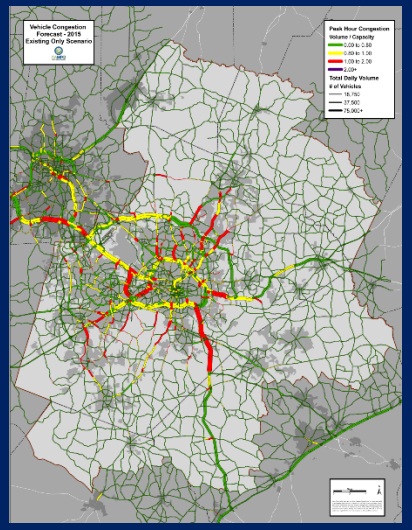
Goal 4: Manage Congestion & System Reliability



Obj. A: Allow people and goods to move with minimal congestion, time delay, and greater reliability

Obj. B: Promote Travel Demand Management (TDM, such as carpool, vanpool and park-and-ride)

Obj. C: Enhance Intelligent Transportation Systems (ITS, such as ramp metering, dynamic signal phasing and vehicle detection systems)

2050 Goals & Objectives - Approved

GOAL 5: Improve Infrastructure Condition & Resilience

Obj. A: Increase proportion of highways and highway assets in 'Good' condition

Obj. B: Maintain transit vehicles, facilities and amenities in the best operating condition.

Obj. C: Improve the condition of bicycle and pedestrian facilities and amenities

Obj. D: Promote resilience planning and practices.

GOAL 6: Ensure Equity & Participation

Obj. A: Ensure that transportation investments do not create a disproportionate burden for any community

Obj. B: Promote equitable public participation among all communities

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Questions?

Attendees:
Do you need any clarity on Vision and Goals development?

Use Chat Box

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MTP Update Process

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Vision & Goals

Review 2045 MTP

Update Goals, Objectives, and Performance Measures

Public Engagement: Involve

Analysis & Evaluation

We are here

Examine Data on Existing Conditions

Forecast Future Problems (Deficiencies)

Develop & Evaluate Alternative Scenarios

Public Engagement: Consult

Preferred Option

Final Plan

Socio-Economic Data & the Triangle Regional Model

- An initial, critical step in developing any MTP = to forecast the amount, type and location of population and jobs for the time frame of the plan, known as Socio-Economic (SE) Guide Totals.
- Based on an understanding of community plans and data from local jurisdictions, the Office of State Planning, the US Census Bureau and independent forecasters, estimates of "base year" (2016) and "plan year" (2050) population and jobs were developed by local planners for each of the 1,701 small zones (called Traffic Analysis Zones or TAZs) that make up the area covered by our region's transportation model.
- **The SE Guide Totals are broken into**
  1) **Population Guide Totals**
  2) **Employment Guide Totals**

Process >>>>> Community Review:

Before approval by the Executive Board, the SE Guide totals are released for **public comment**.

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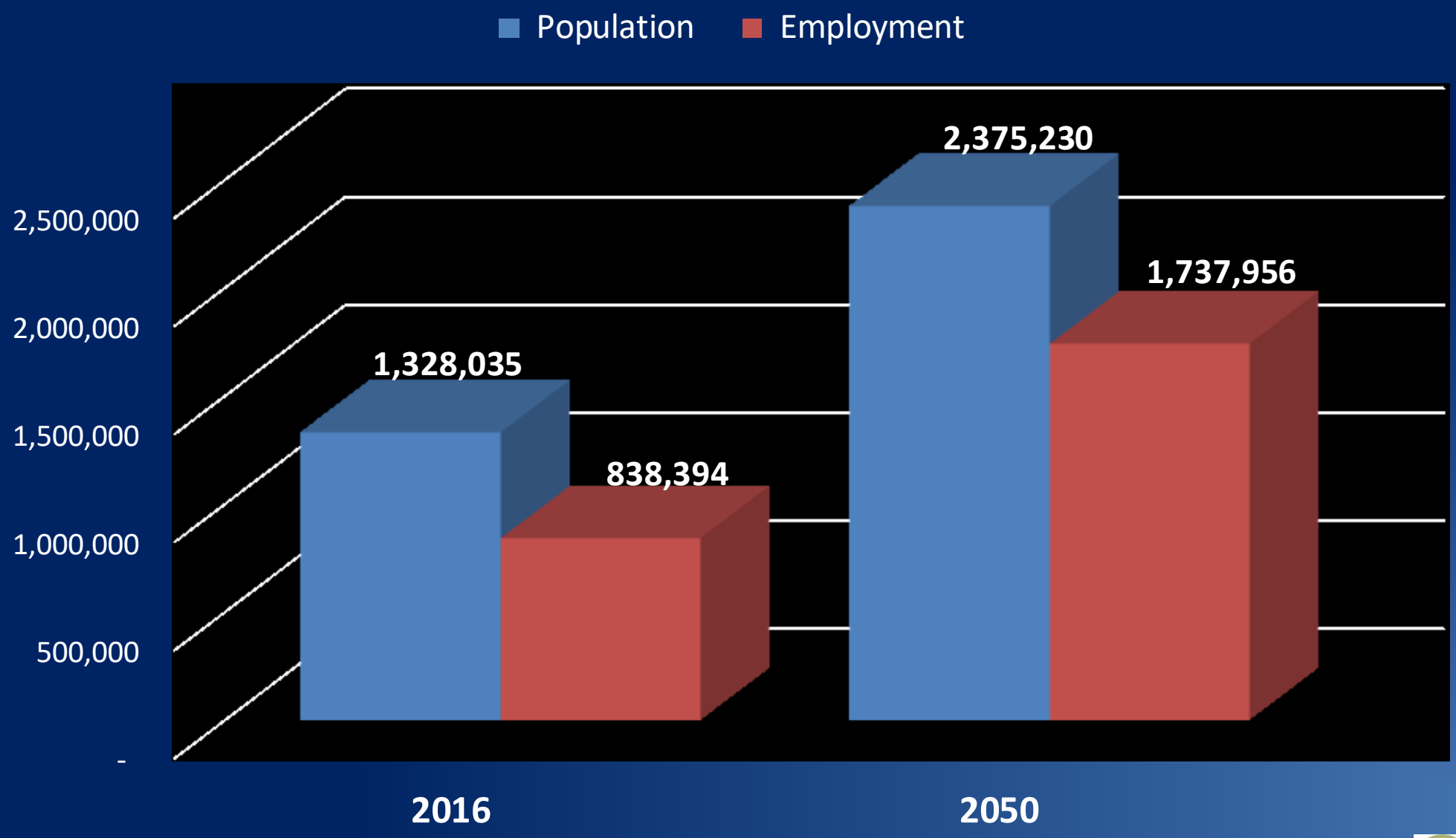
Population & Employment 2016-2050



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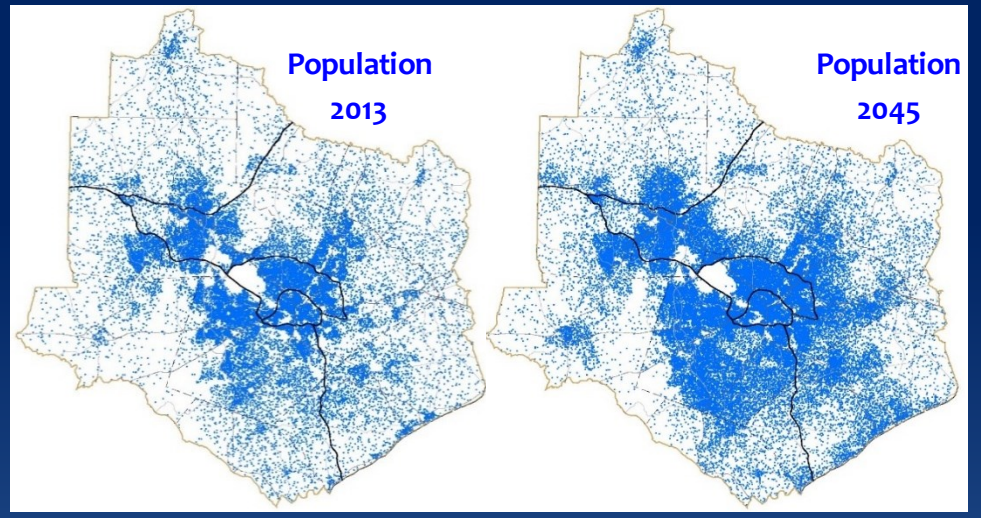
How: Beginning With The End In Mind

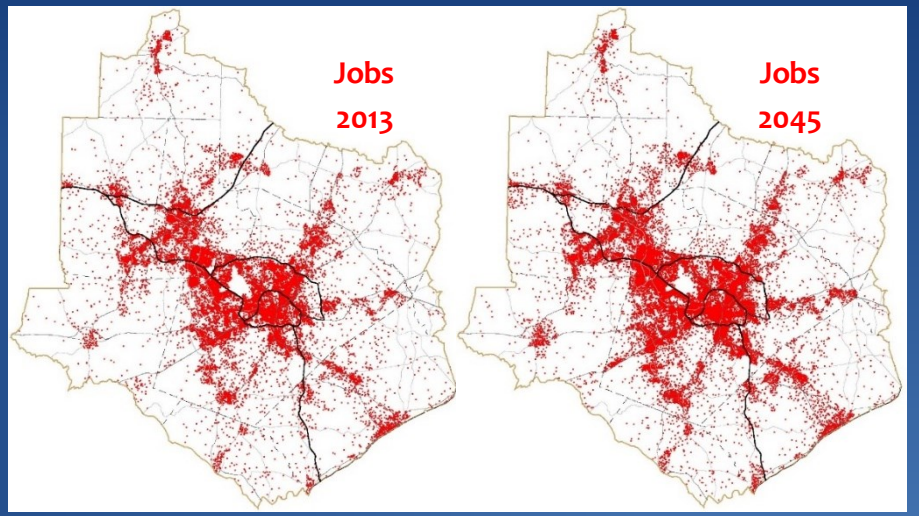
During 2021

- Creating different future growth scenarios
- Allocating growth based on the scenarios
  - **Population**
  - **Jobs**
- Evaluating the differing impacts among scenarios

Late 2021 or Early 2022

- 2050 MTP adopted by CAMPO and DCHC MPO





2045 MTP results: each dot is 50 jobs or people

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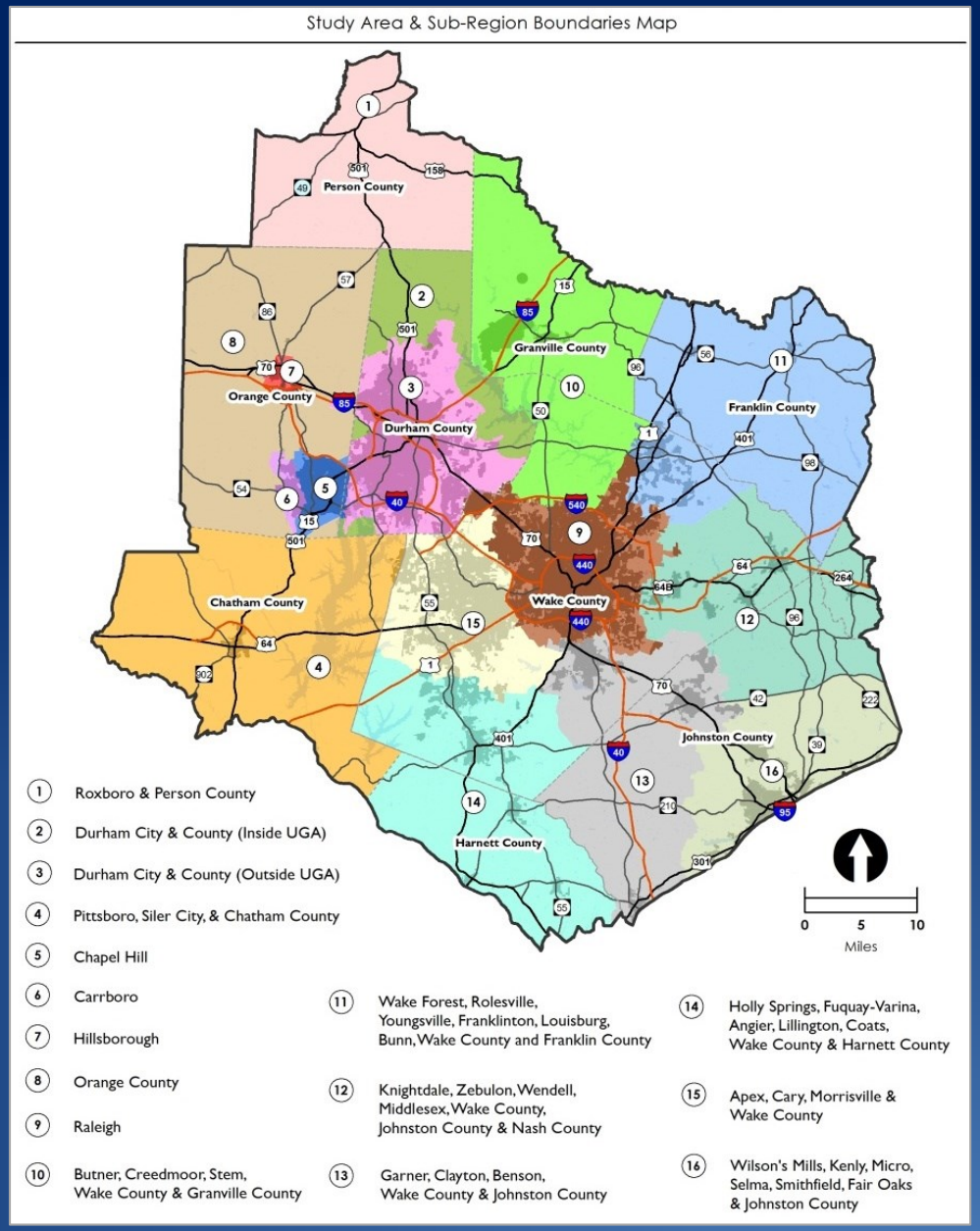
How: the CommunityViz Growth Tool

- CommunityViz is a tool to understand growth capacities and allocate future growth
- It can be used to create future development scenarios and help understand their relative impacts
- It needs 5 basic inputs



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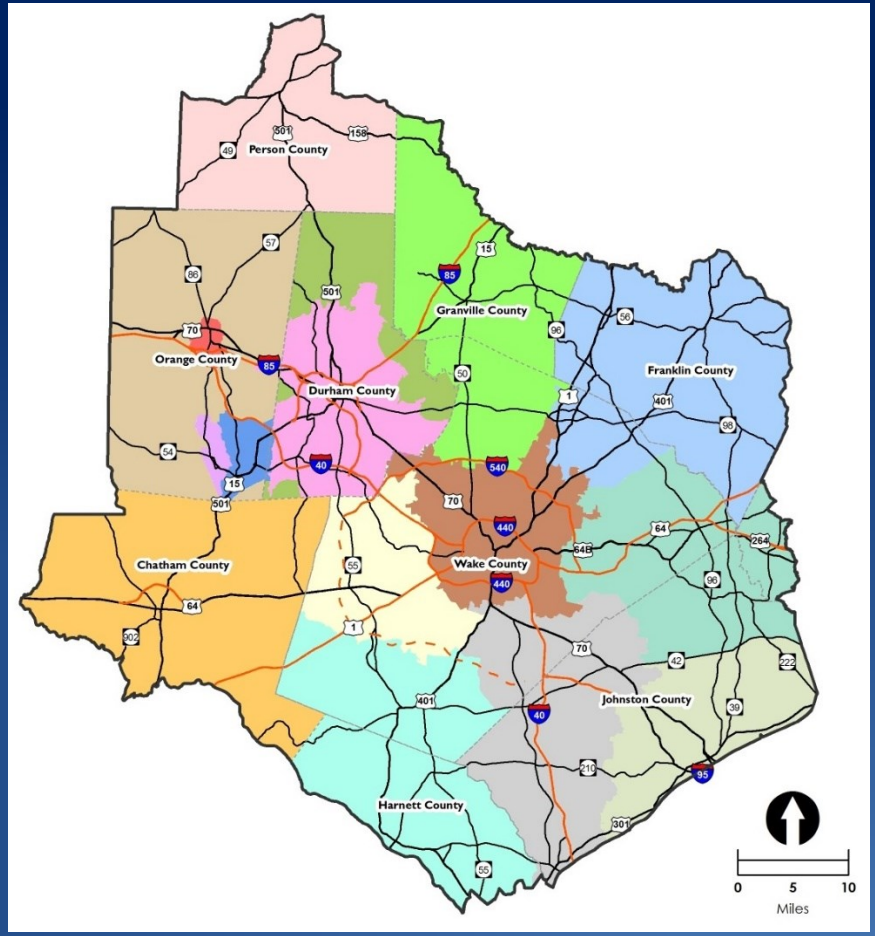
CommunityViz

Bringing Consistency to a Complex Situations

- Triangle Transportation Model Study Area
  - 3,500 square miles
  - 700,000 parcels
  - 104,370 CommunityViz grid cells
- 3 MPOs
- 4 RPOs
- 16 Model Sub-Regions
- Local Governments Involved
  - - 10 counties
  - - 40+ cities & towns



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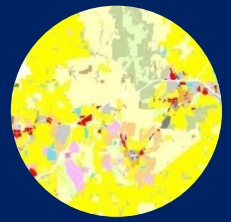
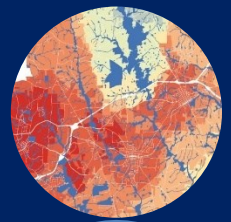
What CommunityViz Needs To Create a Scenario

The location of features that constrain development, such as water bodies, wetlands and stream buffers

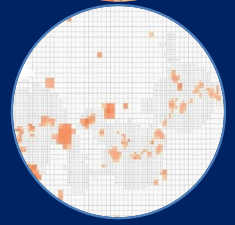


The type of place each parcel ***will become*** (and the intensity of each place type for each jurisdiction)

The current development status of each parcel relative to its future use



The factors that will influence how attractive each parcel is for development, termed land suitability



The types and amounts of growth that will be allocated, termed "growth targets"

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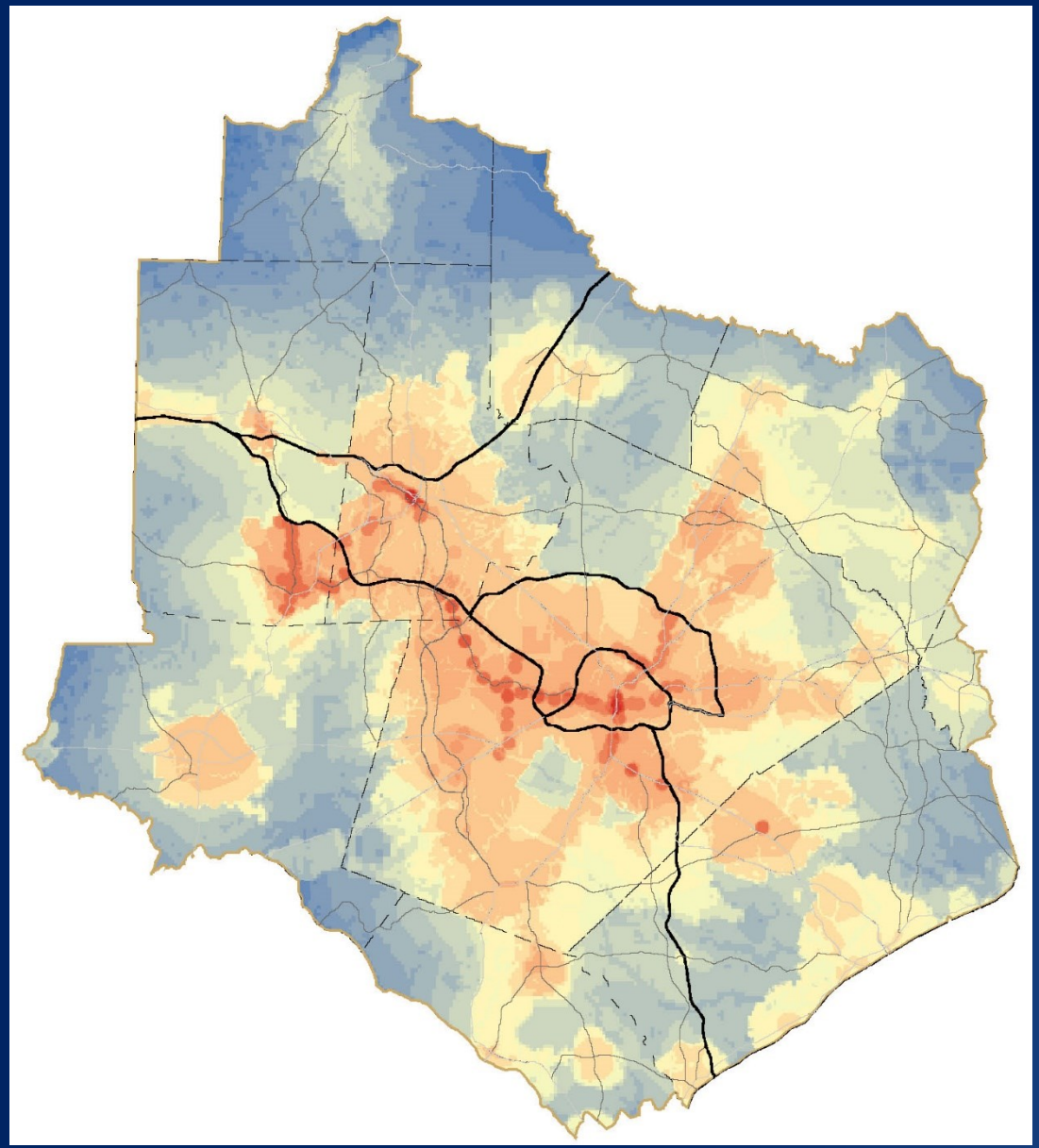

The Growth Framework

Darker red indicates higher suitability = more likely a site will be attractive for Development due to:

- Proximity to transportation investments
- Availability of sewer service
- Proximity to major activity centers
- Location within local government planned growth areas

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CommunityViz Local Guide Books & Look-Up Tables

www.tjcog.org → programs → transportation planning →
metropolitan planning organization support [scroll down to CommunityViz]

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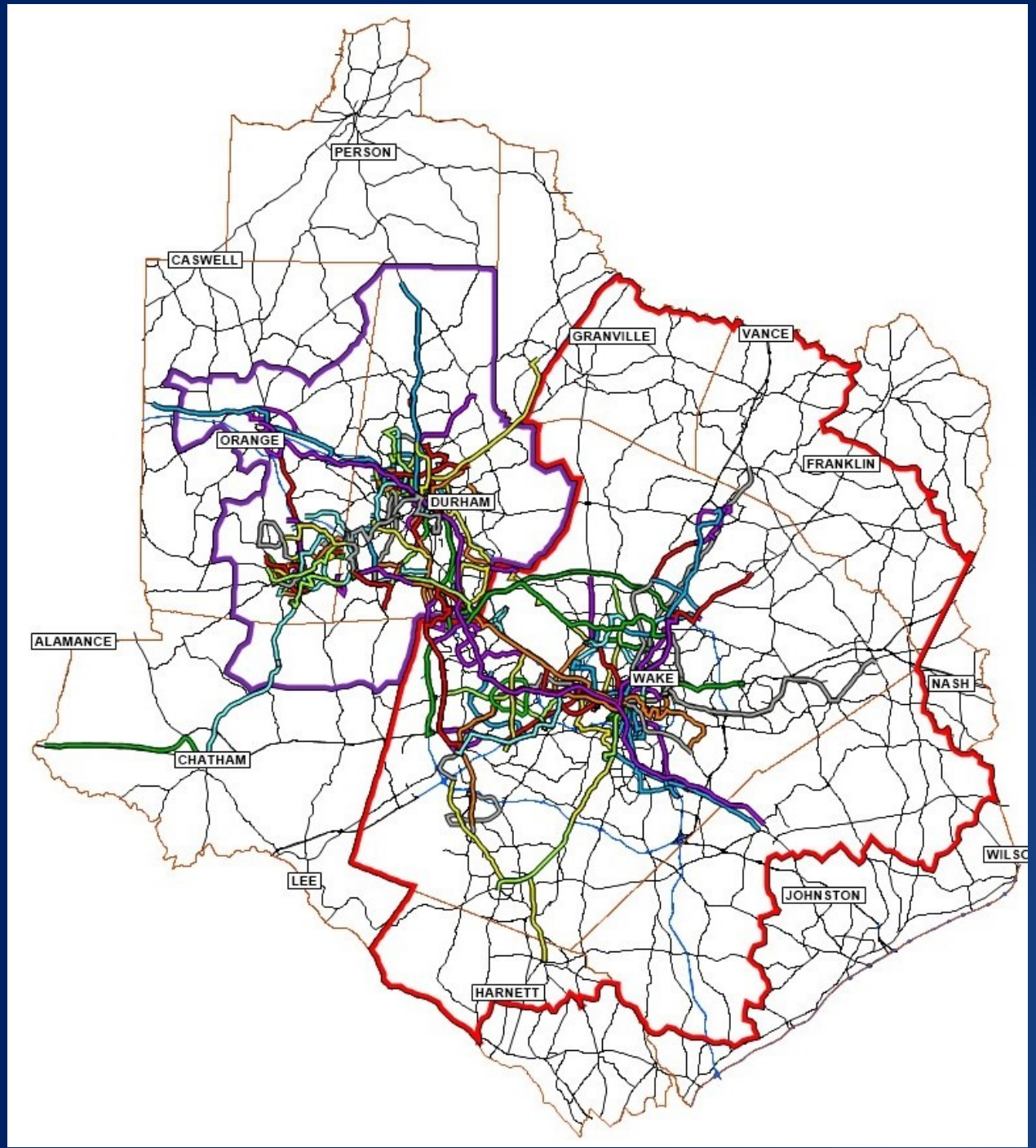
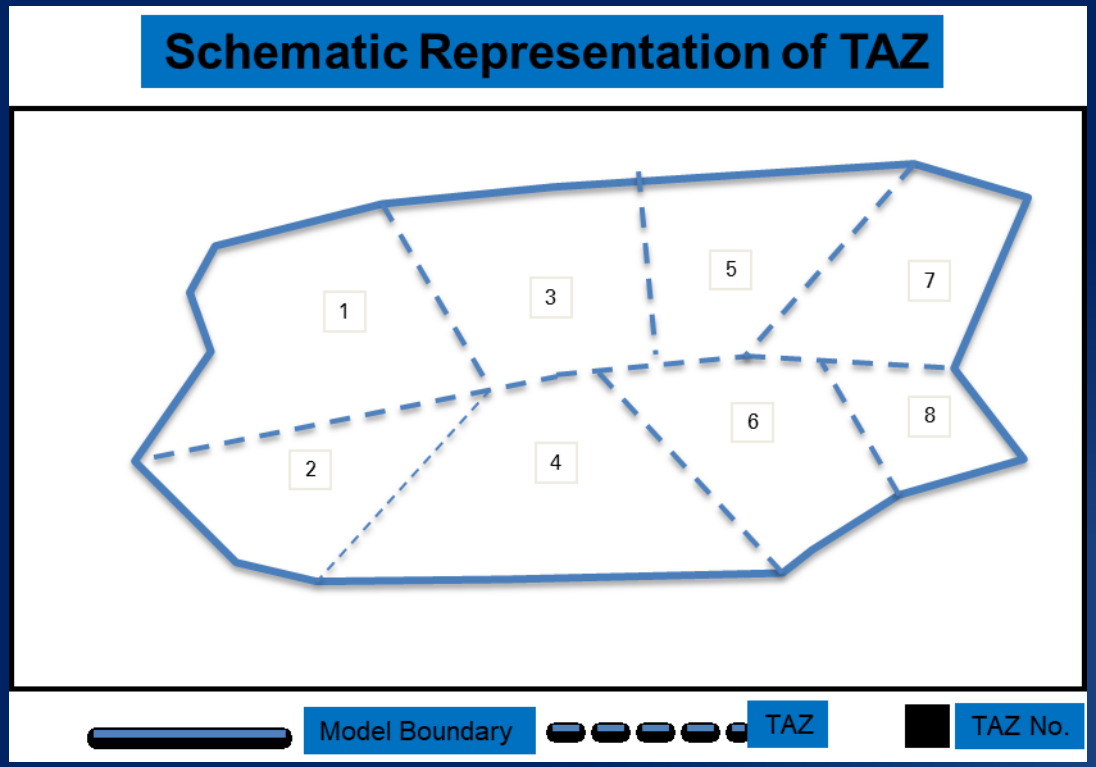
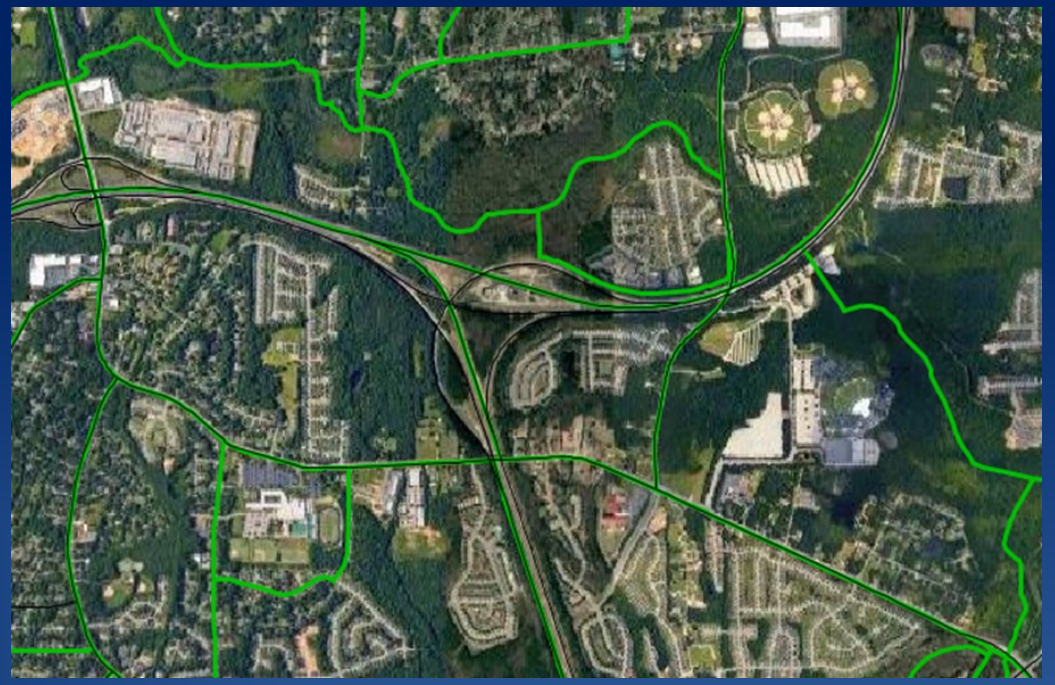


Triangle Regional Model

- Is a joint project of CAMPO, DCHC MPO, NCDOT and GoTriangle
- Is a travel demand forecasting tool for the Triangle Region
- Is a trip-based model – typical four step model
- Represents travel in the Triangle Area
- Includes all travel modes, all major road facilities, and all transit systems and routes

Key Concept - TAZ





- TAZ = Traffic Analysis Zone
- A commonsense subdivision of the study area
- Typically created along census boundaries (census block, group & tract)
- Contains similar land-use
- Why TAZs? To simplify the modeling process made

Model Application

- Forecasting future year network performance
- Understanding impacts of land use on highway traffic, transit ridership
- Testing transportation infrastructure investment strategies
  - Highways
  - Transit
  - Non-motorized
  - Air Quality Analysis (off model)
  - Cost Benefit/Pay Back Analysis (off model)

MTP Deficiency Analysis

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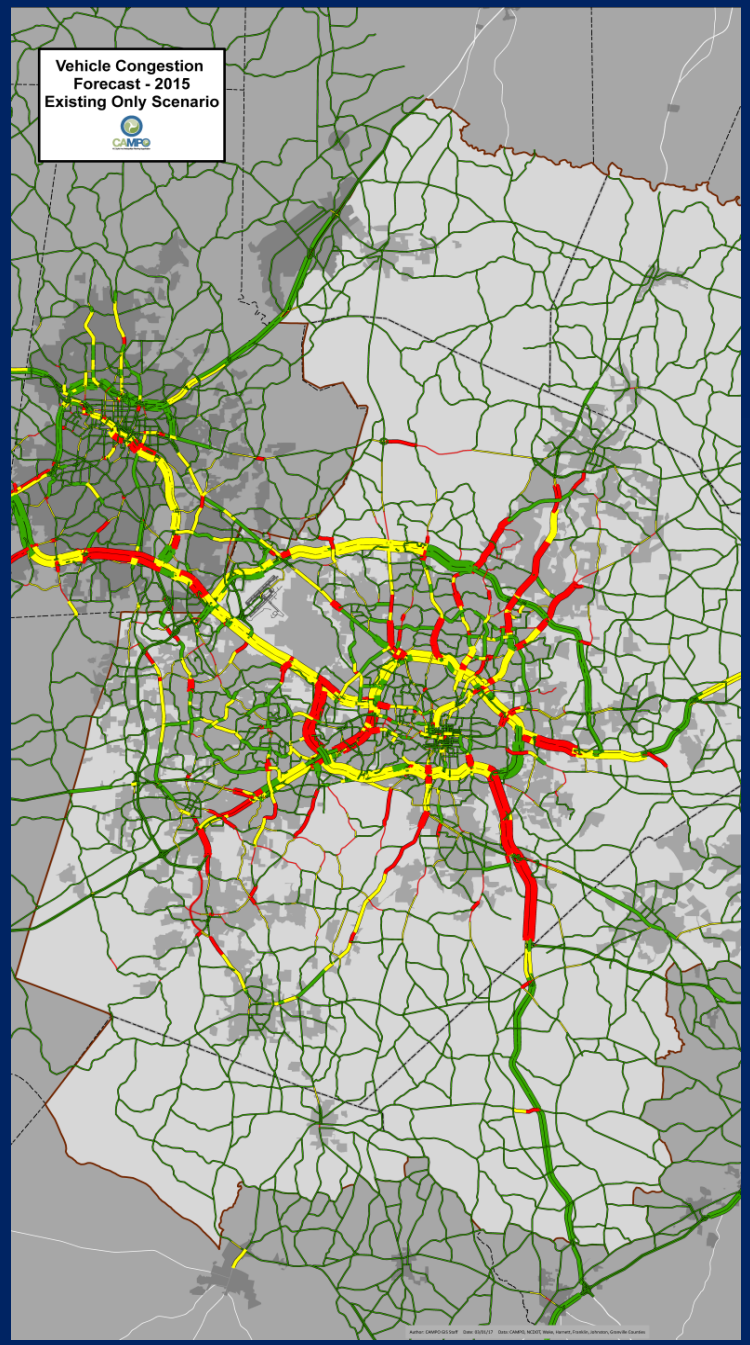


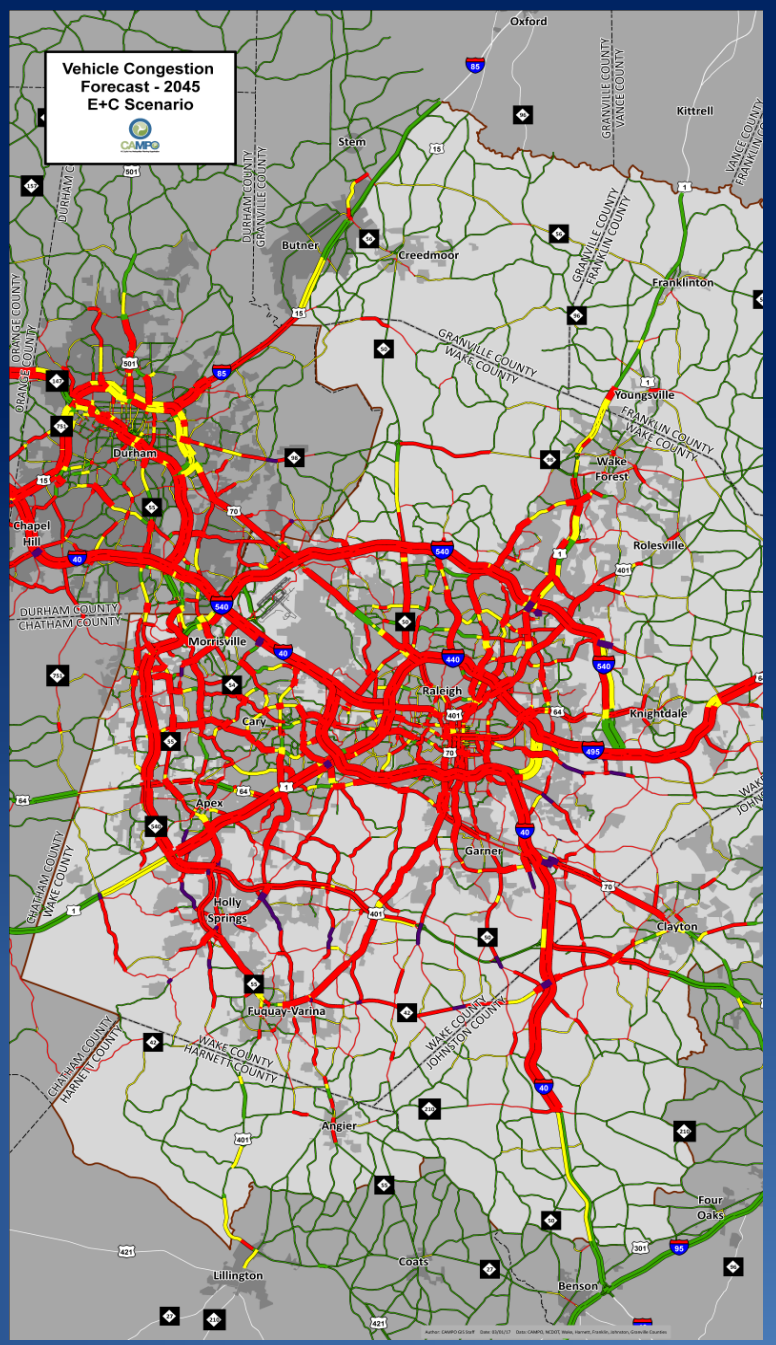
Deficiency Analysis

Measuring the Worst-Case Scenario

- Can currently committed projects handle long-term growth?

Uses the Triangle Regional Model (TRM)

- Socio-economic forecast:
  - Future plan year (e.g. 2050)
- Transportation Networks:
  - Includes “committed” transportation investments through 2025



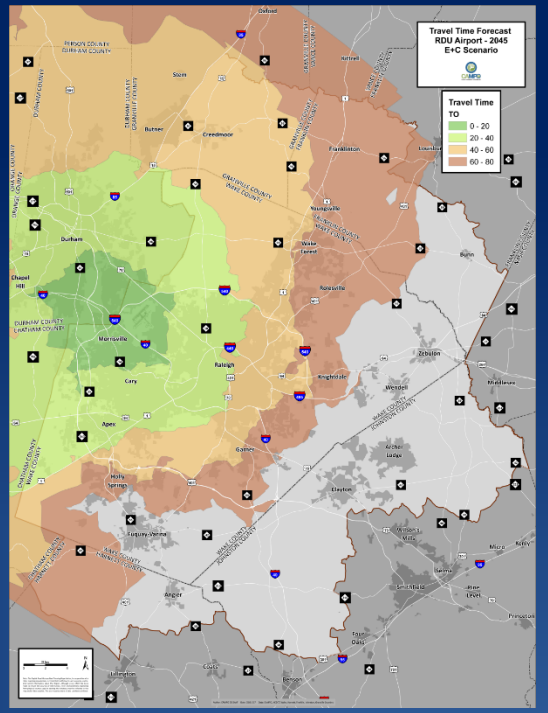
Deficiency Analysis

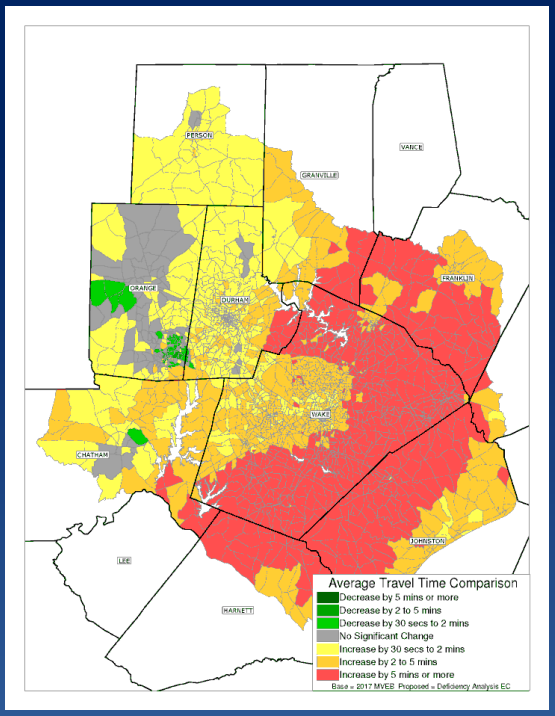
Unrealistic Scenario…

- Funding will continue past the current TIP/STIP
- Growth and behavior patterns would shift

But Useful

- Sets a baseline for all other alternatives
- Helps us determine where to spend those future dollars
- Illustrates the failure of our committed transportation improvements to meet forecasted growth in travel demand during the useful life of these investments.





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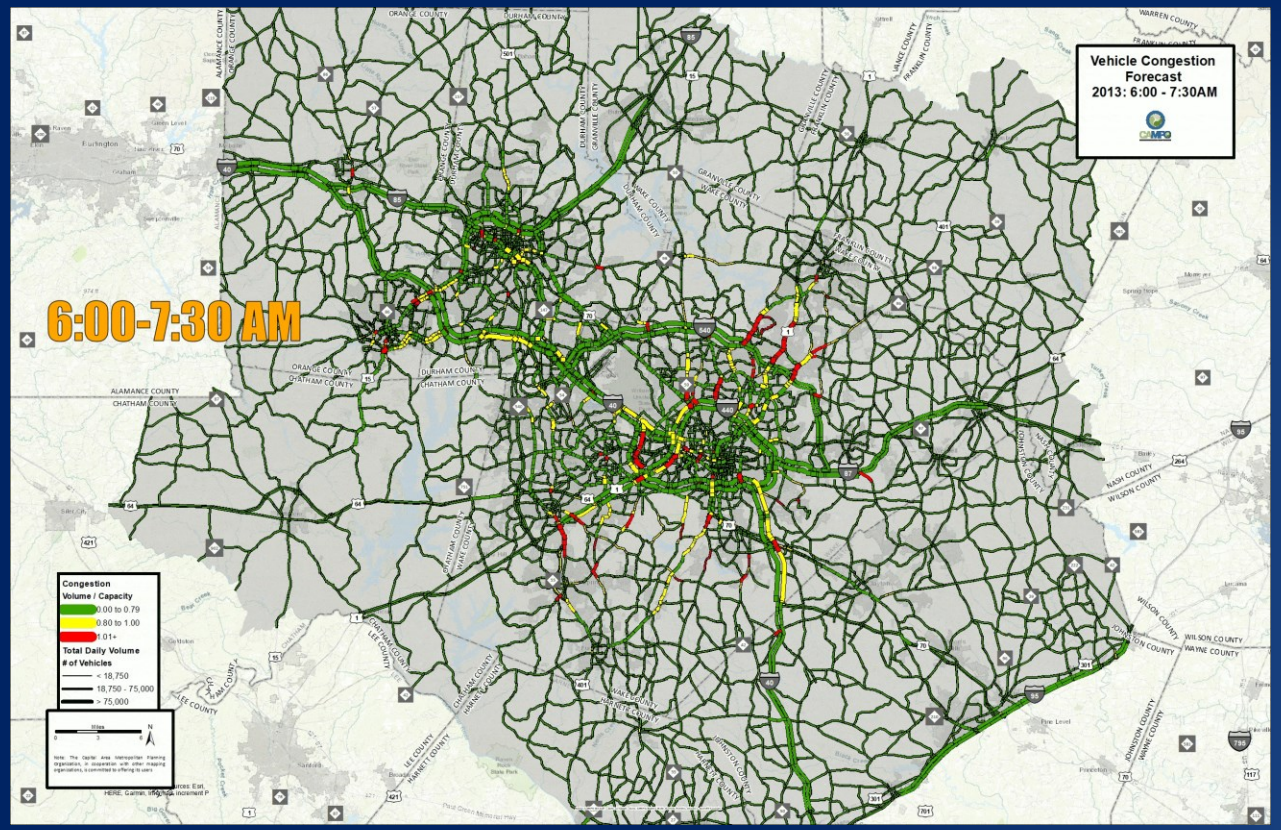
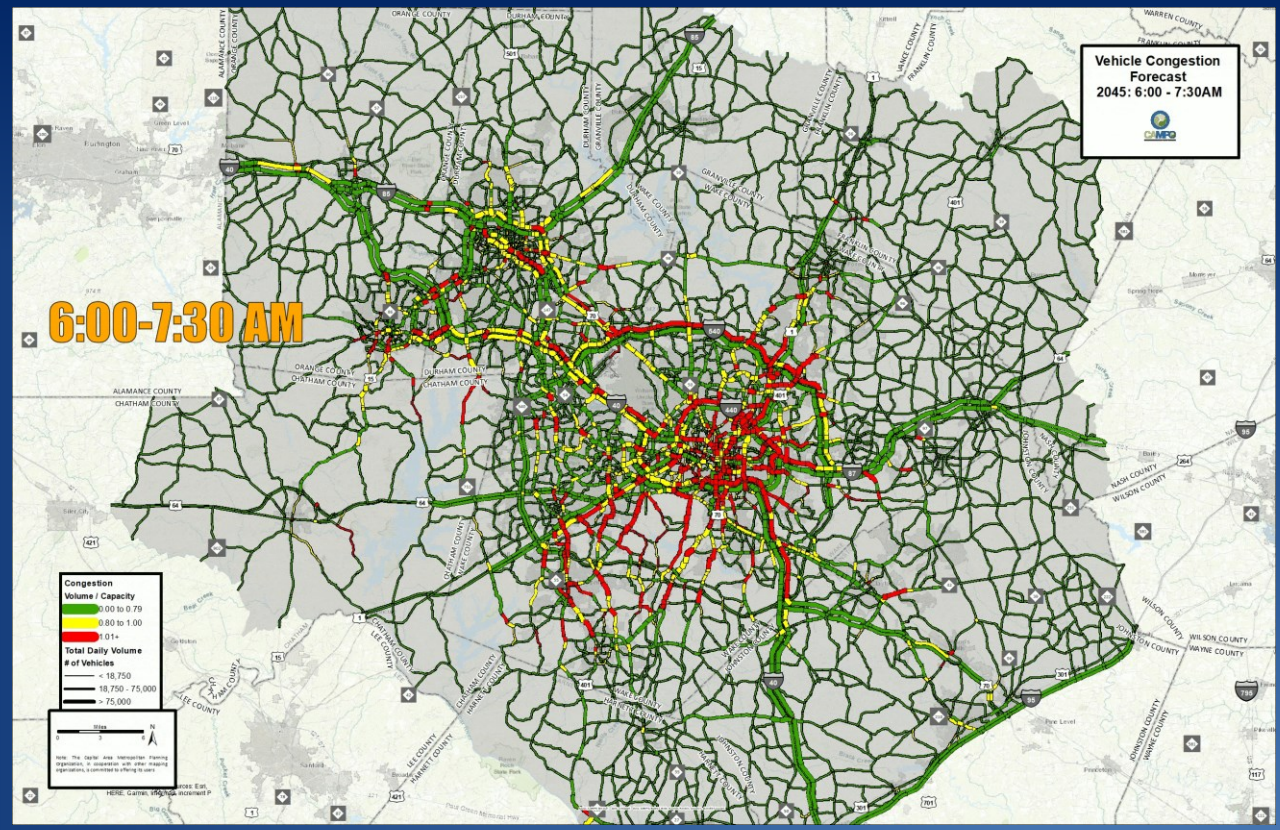
Vehicle Congestion Forecasts

2013



2045



Questions?

Attendees:

Do you need any clarity on how we **collect** data, how we **analyze** that data, or how it's used in **forecasting**?

Use Chat Box

Alternatives Analysis & Scenario Planning

Scenario planning and alternatives analysis are used to explore alternatives for growth, development, and transportation investments in the region, as well as measure against regional goals and community values.

Poll Questions

1. How well do you understand ***why*** we develop and analyze scenarios as part of the MTP?

2. How well do you understand ***how*** we will develop and analyze scenarios as part of the MTP?

Scenario Framework

"Prediction is very difficult, especially if it's about the future."

-- Nils Bohr, Nobel laureate in Physics

Connect 2050 Scenario Matrix
(example from 2045 MTP)

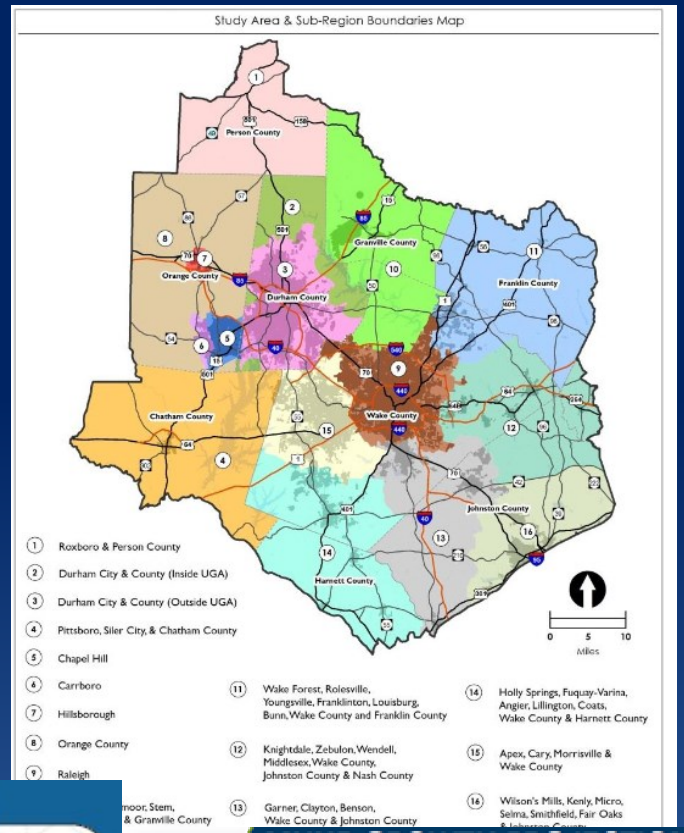
Development Foundation	Mobility Investment Foundation				
	Existing & Committed	Constrained	Moderate	Aspirational	Comprehensive Transport Plan
Existing or Underway	This cell is the base for all scenarios				
Existing Zoning		✓			
Community Plans			Community Plans Scenario		
Aspirational			✓	Aspirational Scenario	
Build-Out					If unlimited $ and capacity growth

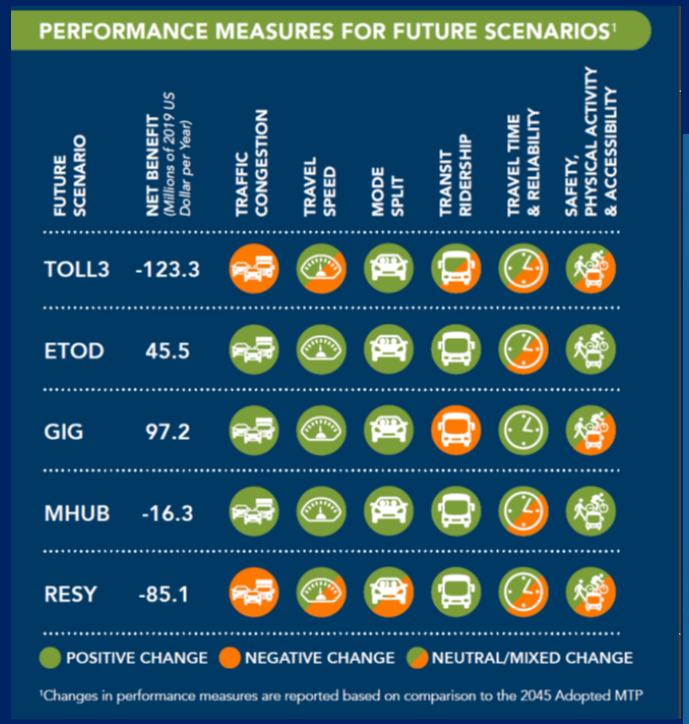
Note: Green cells were scenarios analyzed in 2045 MTP; check-marked cells were considered for analysis, but not analyzed in detail.

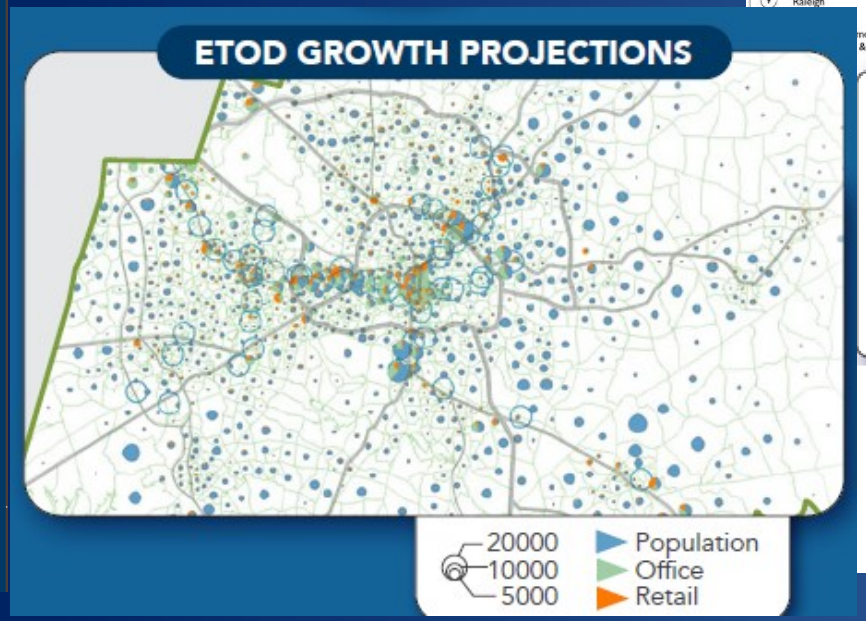
Development Foundation (Land Use)

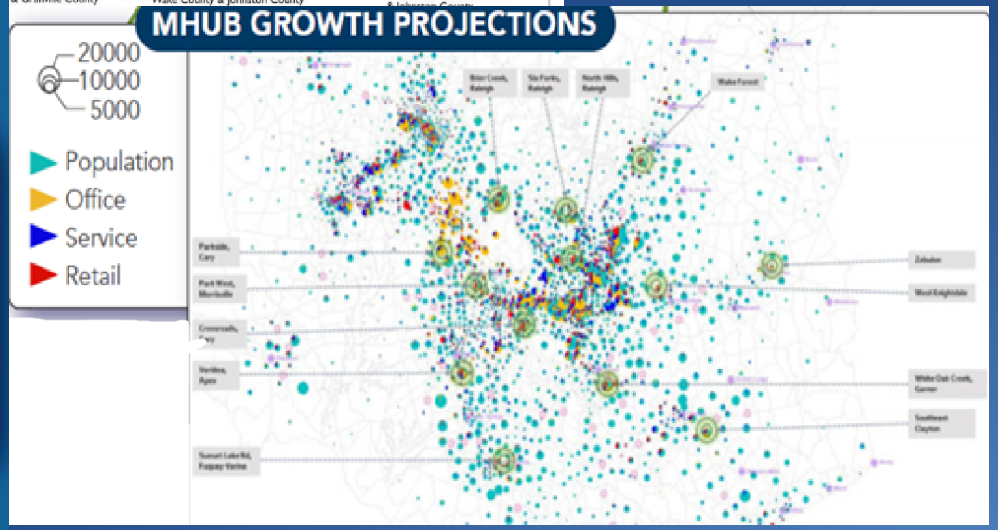
❑ Community VIZ

- Integrated with CommunityViz for households & employment
- Develop different land use allocation scenarios to model









The Development Foundation

-- a focus on important trip origins and destinations --

Key Hubs

Hubs	Description	Examples
 Anchors	Places with the highest concentrations of jobs and services, plus places with moderate intensity and an anchor institution that can influence mobility-based policy decisions	• Metropolitan CBDs • Major Universities • Medical Centers • Research Triangle Park
 Mainstays	Places with regionally significant concentrations of jobs, either outright or in comparison to their surroundings	• Many mid-sized town and city centers • Some suburban centers, often along major transportation corridors

REINVEST Neighborhoods – equity centered places

RE	Race/Ethnicity – the degree to which a neighborhood is home to people who are Black, Indigenous or People of Color (BIPOC).
IN	Income – the degree to which people in the neighborhood live in households with lower annual incomes.
VE	Vehicles – the degree to which households in the neighborhood report having no vehicles available
ST	Status – the degree to which a neighborhood has a specific characteristic, e.g. the # of legally-binding, affordability-restricted (LBAR) housing units

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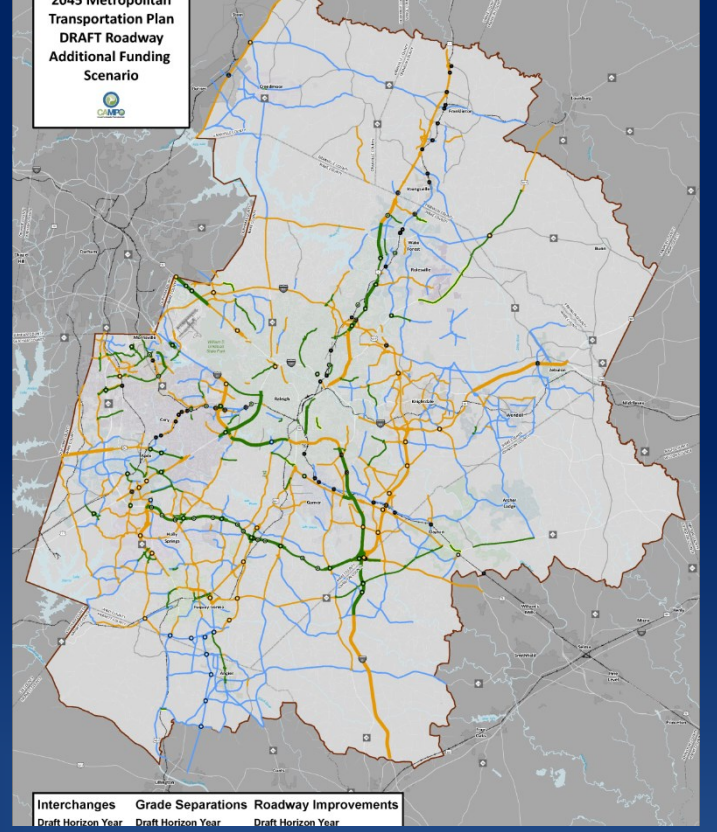
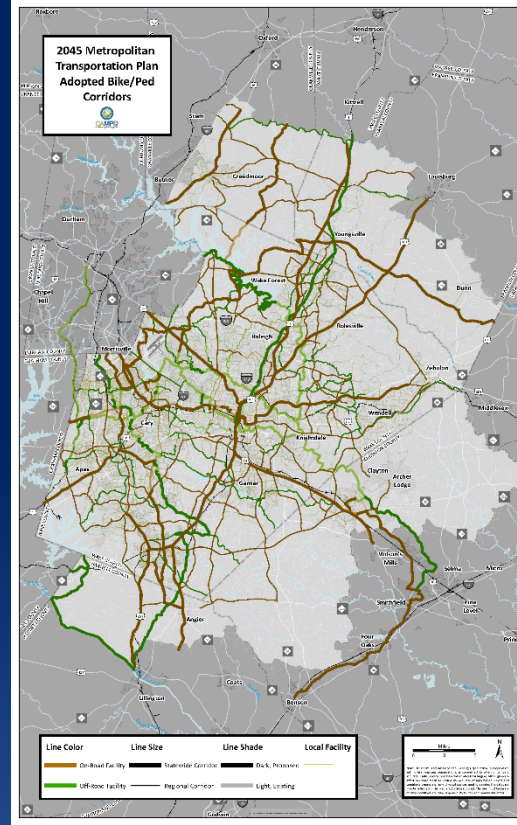
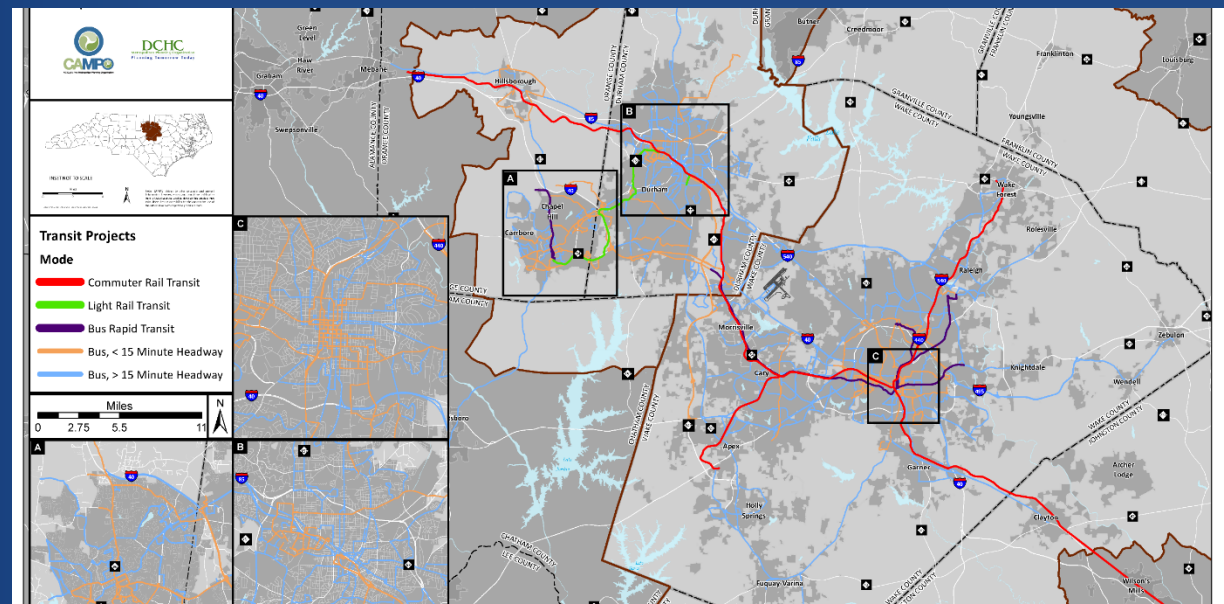
Mobility Investment Foundation (Transportation)

Future Transportation Network

- Existing Facilities
- "Universe of Projects":
  - Programmed projects
  - Recommendations from local plans, special studies, modal studies
  - Deficiency analysis
- Develop different transportation networks scenarios to model

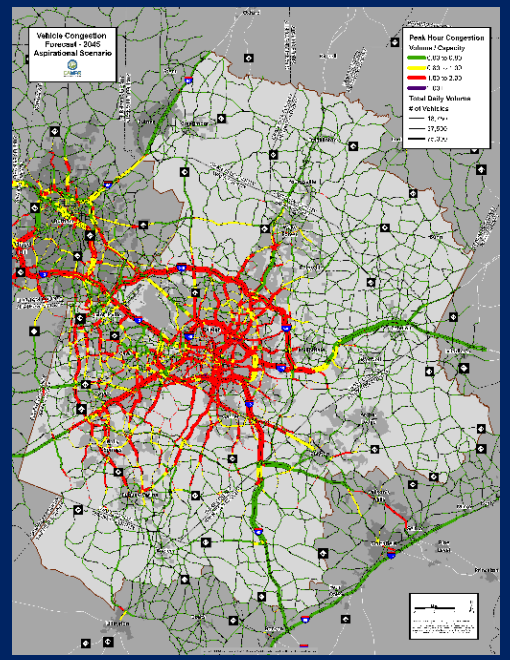




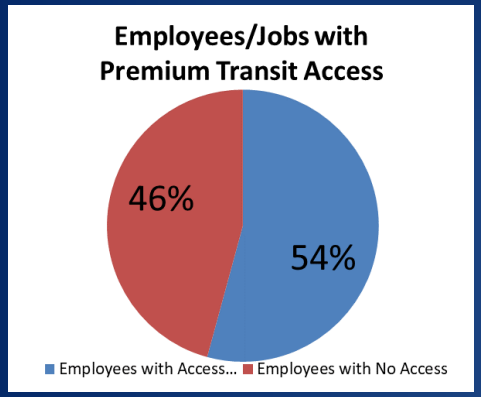


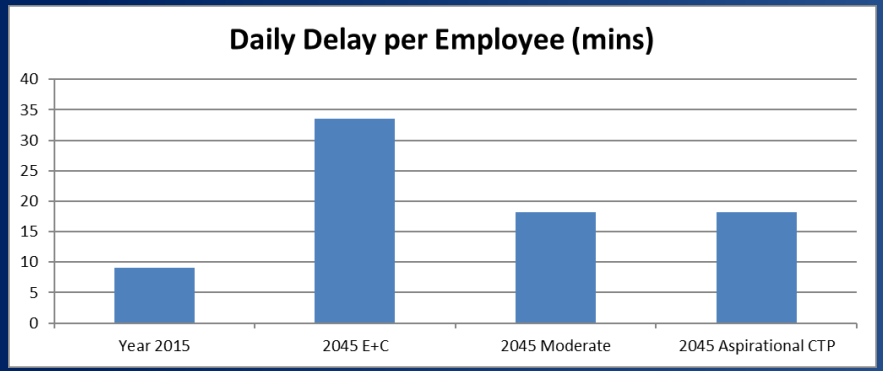
Analyze Alternatives

- Review model results
- Compare across alternatives
- Measure performance of outcomes



Visualizations

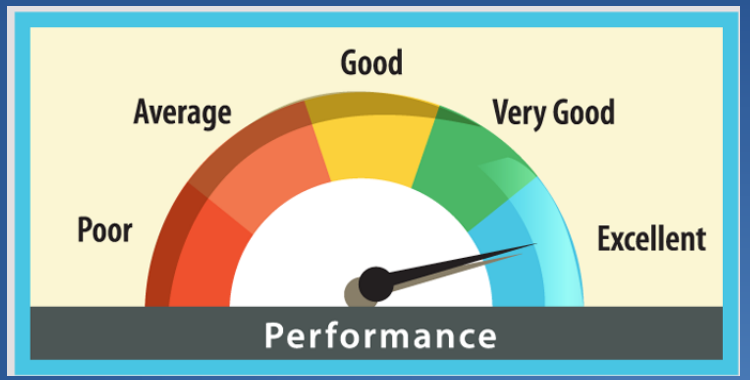




Goal/Objective	Source	Performance Measures	Data	Desired	Actual	Trend
Goal I -- Protect Environment and Minimize Climate Change A. Reduce mobile source emissions, GHG, and energy consumption	**Who did What?** Wei used TRM V6 and MOVES 2014 to generate county level data for moderate, aspirational and E+C scenarios. Andy used August data from aspirational scenario to compute totals and per capita data, and created method to generate gasoline consumption and CO data. **Available from last MTP cycle?** Detailed notes, workbooks and Wei's technical memorandum. **Update now? Do for 2050 MTP?** Yes, update if new TRM data available. Yes, keep for 2050 MTP. Easy for public to understand. Complex calculations but data and method are available.	1. Total and per capita transportation GHG (CO_2), ozone (NO_x), CO, and particulate matter emissions (in kilograms; August)	Total (three-county area inside TRM) 2013 CO_2: 7m 2045 CO_2: 6.3m 2013 NO_x: 11,106 2045 NO_x: 2,116 2013 CO: 86,903 2045 CO: 39,891 2013 PM: 268 2045 PM: 100	↓	↓	-52%
			Per Capita (three-county area inside TRM) 2013 CO_2: 15.1 2045 GHG: 8.8 2013 NO_x: 0.024 2045 NO_x: 0.003 2013 CO: 0.19 2045 CO: 0.06 2013 PM: 0.0006 2045 PM: 0.0001	↓	↓	-70%
		2. Total and per capita mobile energy consumption (daily gallons of auto gasoline)	Total (three-county area inside TRM) 2016: 737,096 2045: 668,031	↓	↓	-9%
			Per Capita (three-county area inside TRM) 2016: 1.6 2045: 0.9	↓	↓	-42%
Goal I B. Reduce the negative impacts on the natural and cultural environment	**Who did What?** Andy used final financial data and highway table to calculate. **Available from last MTP cycle?** Workbooks and notes **Update now? Do for 2050 MTP?** Can't update until new 2050 MTP. Yes, keep for 2050 MTP if need PM for Objective I.B. Relatively simple calculations and data is easily available. However, this PM is not highly indicative of how the MPOs "reduce the negative impacts on the natural and cultural environment."	1. Proportion of planned investment in existing highways	2040 MTP / 2045 MTP DCHC 81% / 91%	↑	↑	14%
Goal II -- Connect People A. Connect people to jobs, education and other important destinations using all modes	**Who did What?** Wei did calculation for region for base, E+C, aspirational and moderate (but did not do by MPO). **Available from last MTP cycle?** Workbook presenting detailed results. Copy of Wei's detailed method (e.g., file and field selection formulas). **Update now? Do for 2050 MTP?** No, don't update because we already show the forecast. Yes, keep for 2050 MTP because this PM is relatively simple to complete and easy to understand.	1. Percentage of work and non-work trips by auto less than 30 minutes (use 20 or 25 minutes?)	2013 Work: 81% 2045 Work: 69% 2013 NonWork: 98% 2045 NonWork: 93% Note: this is regional data	↑	↓	-15% Work - 4% Nonwork
		2. Percentage of work and non-work trips by transit less than 45 minutes (use 40 minutes?)	2013 Work: 63% 2045 Work: 67% 2013 NonWork: 59% 2045 67% Note: this is regional data	↑		+ 7% Work +13%Nonwork
	Who did What? Paul did calculation for region (minus Hillsborough) **Available from last MTP cycle?** Nothing. **Update now? Do for 2050 MTP?** No, don't update. Maybe do for 2050 MTP. This calculation is a lot of work, if the exact same methodology and input files are not used the result will vary greatly.	3. Percentage of urbanized area within ¼ mile of pedestrian facilities	2016: 38% Note: this is regional data	↑	–	(Compare in 2018)
	Who did What? Ben Bearden did calculation by MPO. **Available from last MTP cycle?** Short note on the method and maps of the buffers. **Update now? Do for 2050 MTP?** No, don't update because already have forecast. Yes, do for 2050 MTP because takes moderate effort and the public can understand it.	4. Percentage of jobs within 1/4 mile of frequent bus transit service (15min) or 1/2 mile of fixed guideway transit service	2013: 33% 2045: 50%	↑	↑	161%

Required Performance Measures

- **Infrastructure condition:** state of good repair
- **Congestion reduction:** reduce congestion on NHS
- **Safety:** reduce fatalities and serious injuries on public roads
- **System Reliability:** improve efficiency of travel
- **Freight Movement and Economic Vitality:** improve freight networks, rural access, regional economic development
- **Environmental Sustainability:** protect, enhance the environment
- **Project Delivery:** reduce delays in development and delivery
- ***TARGETS*** *are* determined by MPOs and states



Process >>> Community Feedback – *in development*

Goals of Engagement

1. Understanding of journey so far
   - High level understanding of process and outcomes from data collection, forecasting
   - Phase I engagement – impact on scenarios being evaluated (policy priorities)

2. **<u>Consult</u> re: Alternative Scenarios – Differences and Preferences between scenarios; Revenue increases**

Engagement Activities – *current plans*

- Joint DCHC MPO and CAMPO survey
- Stakeholder Meetings
- Detailed webpage
- Online open house

Survey Content – *current plans*

- Tradeoffs among "variables" used to create alternative scenarios
- Interactive maps of scenarios
- Support for alternative revenue sources

Poll Questions

1. Now, how well do you understand ***why*** we develop and analyze scenarios as part of the MTP?
2. Now, how well do you understand ***how*** we will develop and analyze scenarios as part of the MTP?

MTP Update Process

The overall process to develop the MTP typically takes 18 months, or more. CAMPO updates the MTP on a 4-5 year cycle and is currently developing the 2050 MTP.

Vision & Goals

Review 2045 MTP

Update Goals, Objectives, and Performance Measures

Public Engagement: Involve

Analysis & Evaluation

We are here

Examine Data on Existing Conditions

Forecast Future Problems (Deficiencies)

Develop & Evaluate Alternative Scenarios

Public Engagement: Consult

Preferred Option

Select Preferred Option

Analyze Fiscal Feasibility

Confirm Preferred Option

Evaluation Strategies:
Transportation, Land Use, Access, Investment and Funding

Public Engagement: Consult

Final Plan

The Preferred Alternative

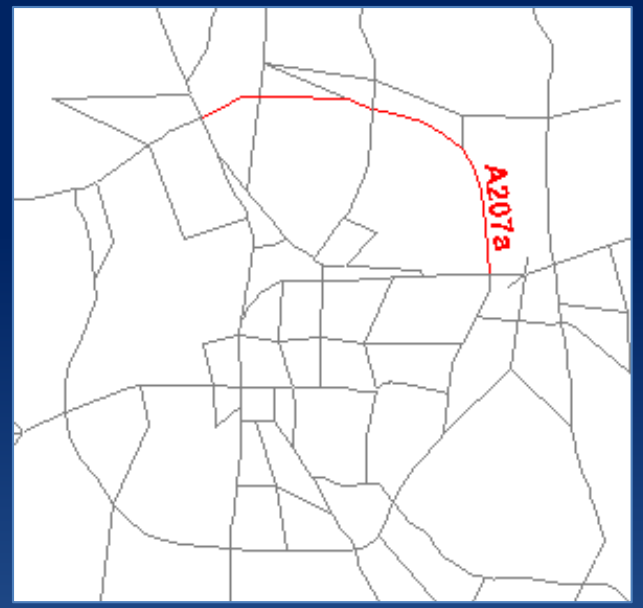
Sorting the Projects by Horizon Year

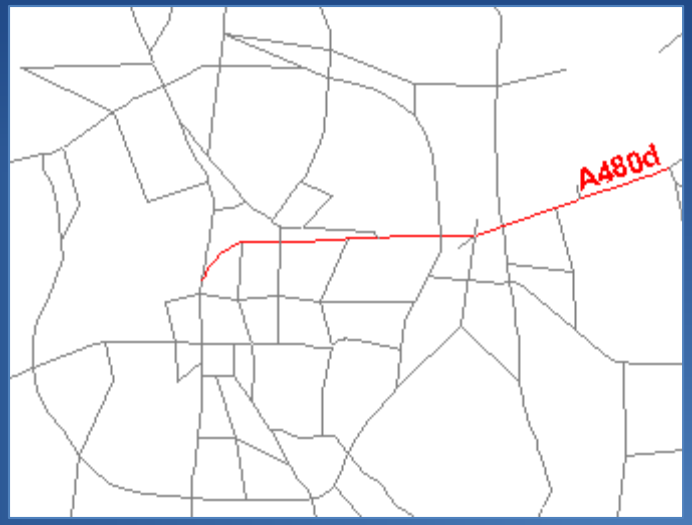
- Initial fiscal constraint application
- First cut "payback period" method
- Adjustments and fine tuning (*critical step*)*
  - Safety
  - Equity
  - Local Priority
  - Project Impacts (positive/negative)
  - Performance Measures (macro view)

*Project elements are analyzed before and during development of the MTP (e.g. special studies, local plan development).

Calculating Payback Period

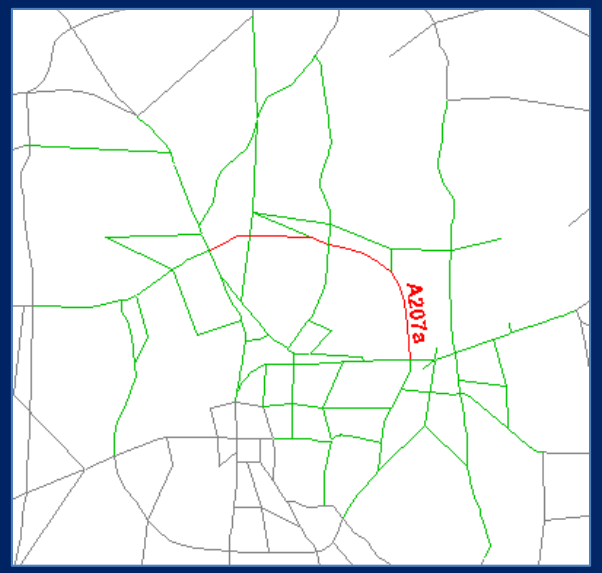
- Benefit/cost based tool
- Ideally, you would want to run a no-build scenario, and then another scenario for each project to measure impact
  - *600+ CTP projects makes this impractical*
- Need a process to approximate benefits of competing projects in the same model run
- Every link in the model has delay calculated with and without both projects
  - (For the MTP, this comes from the Deficiency Analysis model scenarios)





Calculating Payback Period

- Select all links within a buffer of A207a



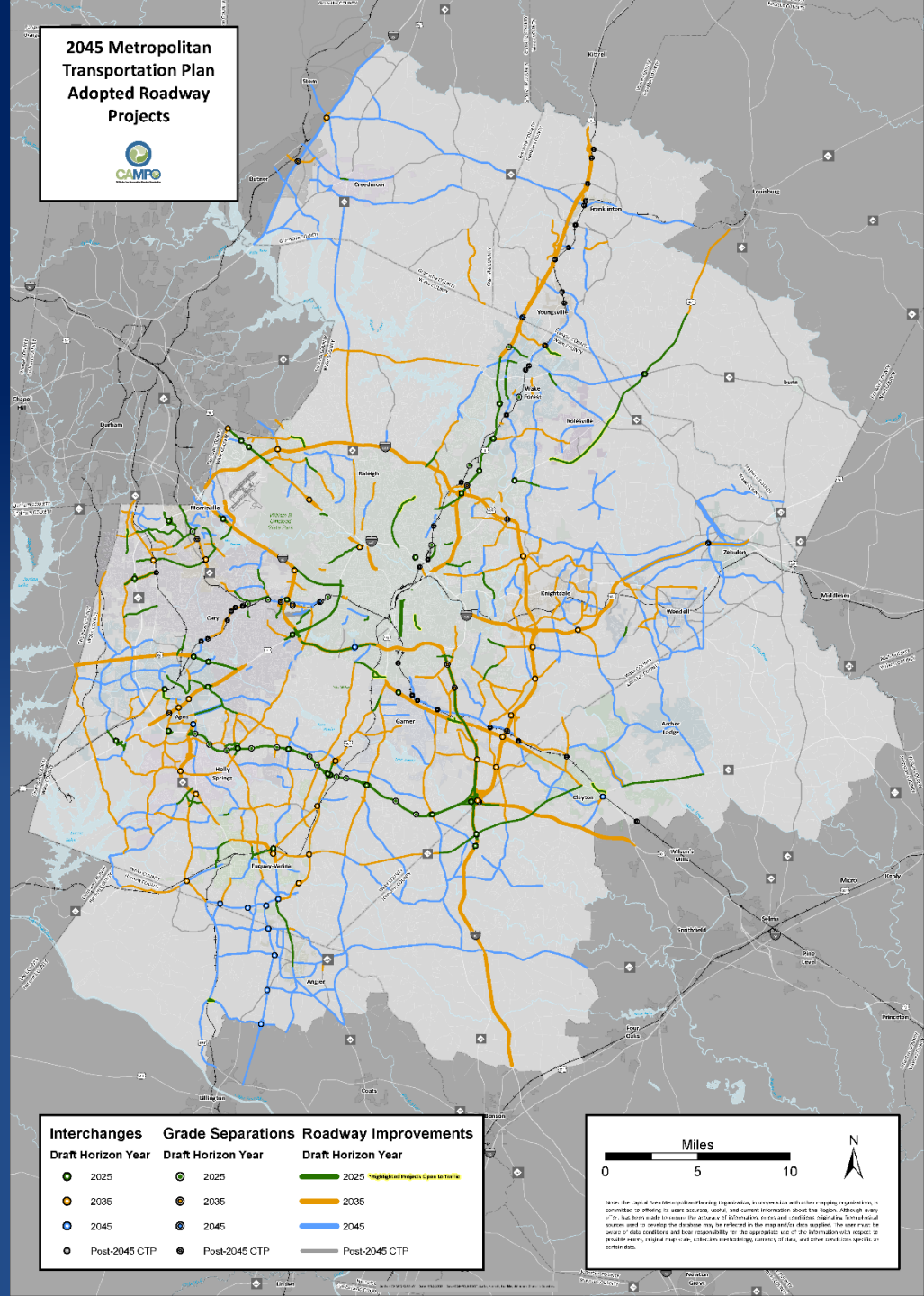
Total Change in Delay on All Links <1 Mile			
3,388 hr reduction			
Final Table			
Project ID	VMT	% VMT	Delay Credit
A207a	85,685	58%	1,960.24
A480d	62,405	42%	1,427.66

- Add up the VMT on A207a and A480d within that buffer area
  - (i.e. exclude VMT on A480d outside that buffer)

Horizon Years

- Ten year "buckets" used in the MTP.
  (Represented by different colors on the map)

- Each decade includes all of the existing transportation facilities, plus the new facilities that will be built and in use during that timeframe



Process >>> Community Feedback – *to be fully developed*

Goals of Engagement

1. Understanding of journey so far
   - High level understanding of process and outcomes from forecasting and scenarios reviewed
   - Phase II engagement – impact on selection of a preferred alternative

2. **<u>Consult</u> re: Preferred Scenario – Projects & designated horizon decade; Potential funding gaps and revenue increases**

Engagement Activities – *anticipated*

- Solicitation of review & feedback
- Detailed webpage
- Online open house

Tactics - *anticipated*

- Interactive map of preferred scenario with comment option
- Support for alternative revenue sources

Fiscal Constraint & Financial Planning

Poll Questions

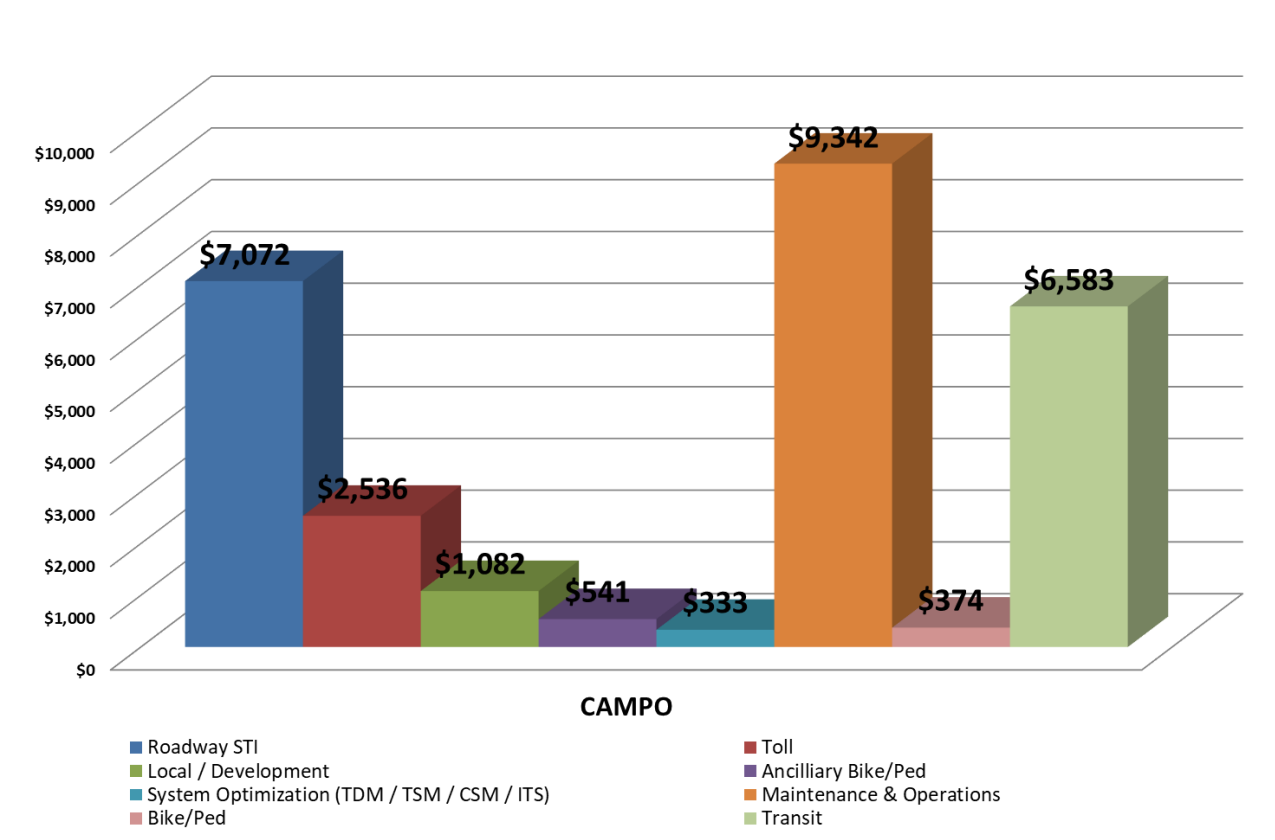
1. How well do you understand ***why*** we develop the financial forecast and fiscal constraint as part of the MTP?

2. How well do you understand ***how*** we will develop the financial forecast and fiscal constraint as part of the MTP?

Building the MTP Financial Forecast & Fiscal Constraint

So how do we do this?

MTP Funding Categories



2045 MTP Funding Categories

- Some funding categories are limited in use (e.g. toll funding, STI funding, Wake Transit funding)
- Some funding categories are accounted for prior to selecting project expenditures (e.g. maintenance & operations, system optimization)
- Some funding is already decided (e.g. TIP/STIP)
- Some funding categories are dependent on development activity

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MTP Revenue & Expenditure Assumptions

Revenue Assumptions

Roadway Projects:

- NCDOT model for gas taxes and fees
- Annual inflation factor (cost and revenue)
- Toll projects estimates based on latest NCTA forecast (tolls, bonds, and gap funding if needed
- Local and private funding

Transit Projects:

- Computed trend for each transit system for:
  - Federal/State/Local funding
  - Capital/Operations & Maintenance
  - Farebox recovery
- Local Option Funding (Wake Transit Funding)

Project Expenditures

Roadway Projects:

- NCDOT/Project Development cost estimates
- Cost calculator tool
- Annual inflation factor (cost and revenue)
- Toll projects estimates based on latest NCTA forecast (tolls, bonds, and gap funding if needed)

Transit Projects:

- Project Sponsor cost estimates
- Cost calculator tool (WTP model)
- Capital/Operations & Maintenance

MTP Revenue Forecast

Our Revenue Forecast is derived from:

- 1st Decade:
  - Draft TIP/STIP (10 yr Work Program)
- 2nd & 3rd Decades:
  - "Traditional" Federal & State Funds
  - MPO portion based NCDOT Financial Forecast
- Transit Funds
  - *Wake Transit Plan Forecast (modified/extended)*
- Local Revenue
  - Based on Local CIPs / Development Activity
- Potential New Revenue Assumptions

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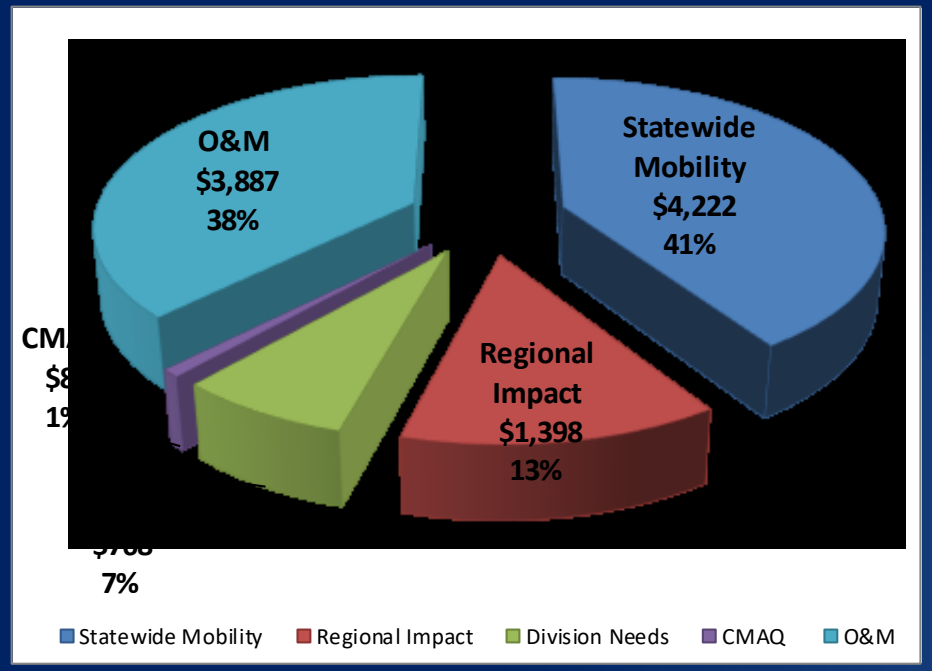
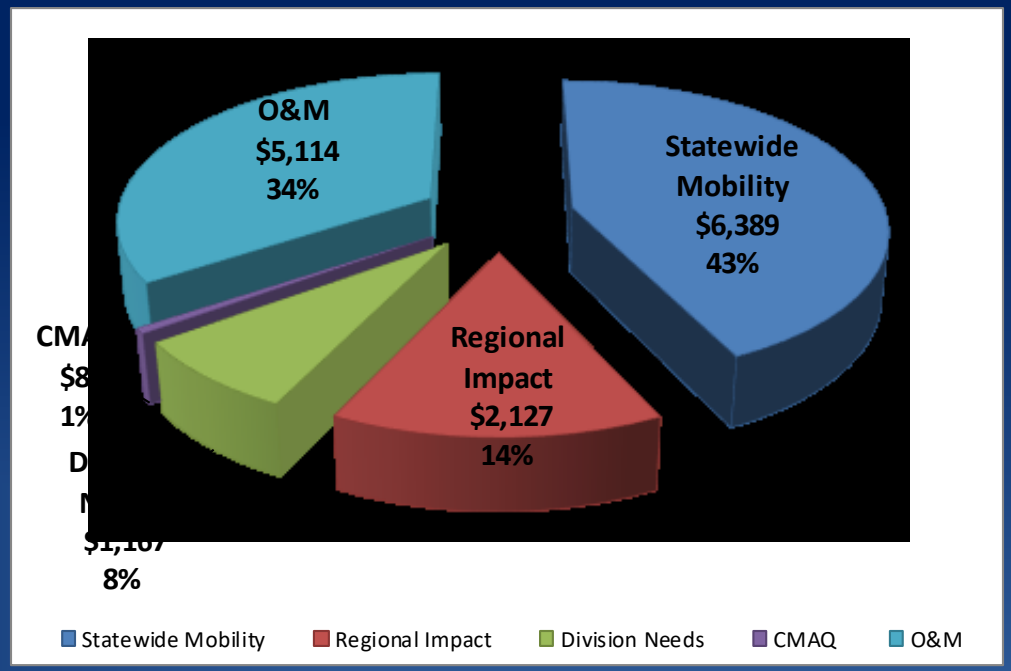
2045 **Preliminary** Financial Forecast *(Traditional Funding)*

Moderate



- Federal Revenues grow based on FAST Act growth
- Regular adjustments for the gas tax rate (CPI based)

Aspirational



- Builds off of the Moderate revenue assumptions
- State/federal revenues increase to extend final STIP programming levels and maintained through 2045
- Potential New Revenue Assumptions

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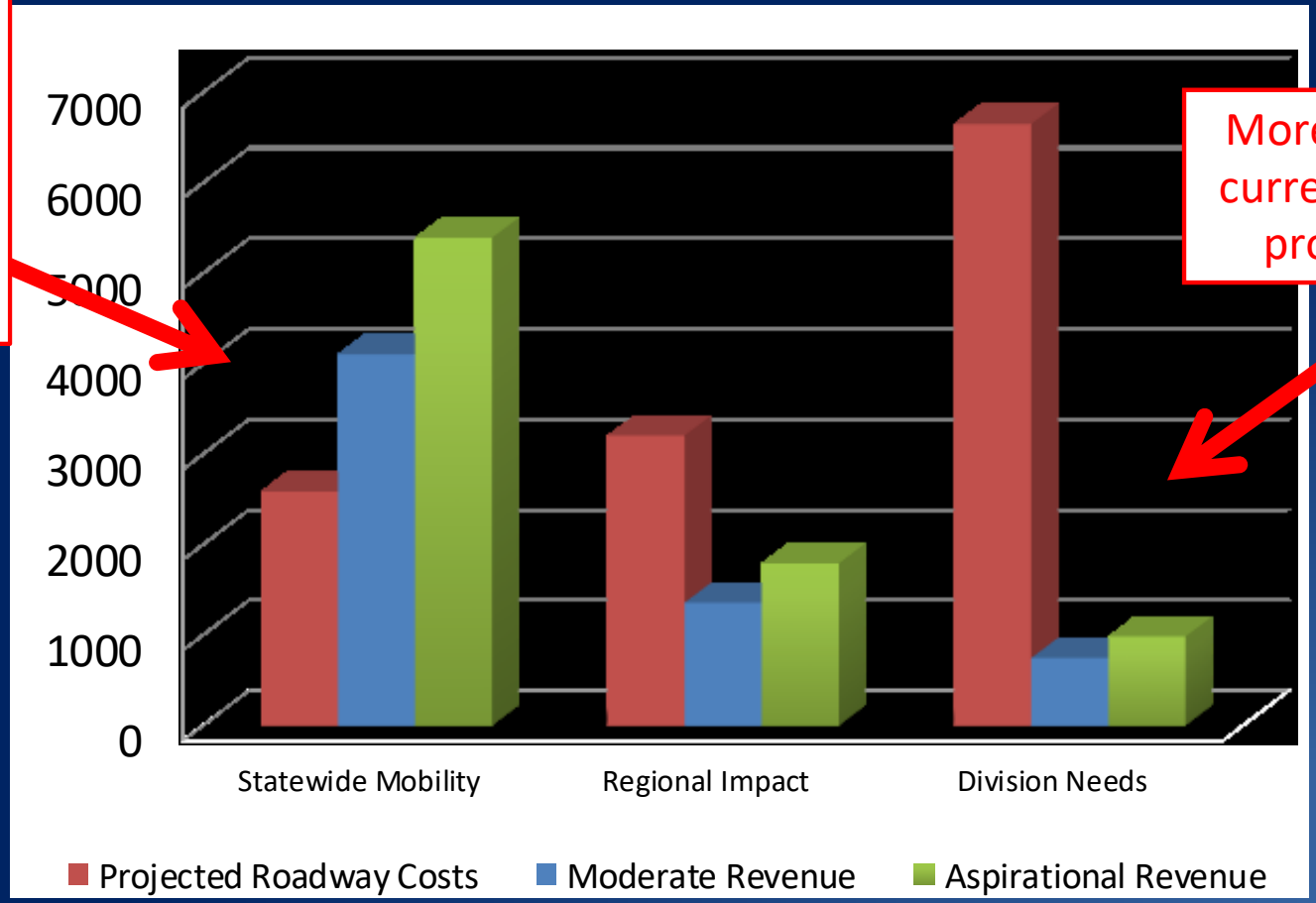
Comparing Revenue vs. Project Costs (Roadway)

STI Revenue is a statewide competition and not guaranteed



More cost than current revenue projections

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New/Additional Revenue Assumptions

- Replacement of current gas tax-based system
- Revenue source in addition to gas tax
- What we have looked at in the past:
  - Sale tax based
  - VMT based
  - Property tax based
  - Other user fee based
  - Funding levels and rules

- Any new/additional assumed revenue must meet regulatory requirements to be included in the MTP *(federal reasonableness check)*.

What has changed for 2050 MTP?

- At the federal level (FAST ACT)
  - Funding levels and rules
  - Performance based approach has matured
- At the state level (STI)
  - Project eligibility vs. funding availability
  - Modal & functional funding rules
- At the regional/local level
  - Updated and adopted Wake Transit Plan
  - Local funding

CONTINUED CHALLENGES

The gap between the region's transportation needs and available funding presents several challenges that we must soon address:

- Short and long term non-traditional funding sources
- **Local and regional revenue options**
- Advancement of MTP projects to implementation consistent with the air quality conformity project implementation schedule.
- Monitoring regional growth to ensure the Plan stays abreast of the region's needs

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Questions?

Attendees:
Do you need any clarity on how we **forecast revenues to adhere to the fiscal constraint requirement**?

Use Chat Box

UPDATE: We are skipping final poll question – will capture in follow-up survey via email.

MTP Update Process

The overall process to develop the MTP typically takes 18 months, or more. CAMPO updates the MTP on a 4-5 year cycle and is currently developing the 2050 MTP.

Vision & Goals

Review 2045 MTP

Update Goals, Objectives, and Performance Measures

Public Engagement: Involve

Analysis & Evaluation

We are here

Examine Data on Existing Conditions

Forecast Future Problems (Deficiencies)

Develop & Evaluate Alternative Scenarios

Public Engagement: Consult

Preferred Option

Select Preferred Option

Analyze Fiscal Feasibility

Confirm Preferred Option

Evaluation Strategies:
Transportation, Land Use, Access, Investment and Funding

Public Engagement: Consult

Final Plan

Finalizing Fiscal Constraint

Air Quality Conformity

Adoption

Implementation Strategy:
Phasing, Financing Responsibilities, Institutional Structures

Public Review

MTP Adoption

- Approval pending AQ
  - Initial approval of the MTP by CAMPO Executive Board
  - Projects and programs then undergo Air Quality Conformity process

- Air Quality Conformity Process:
  - MTP must comply with federal air quality regulations
  - Conformity analysis demonstrates that the total ozone-causing pollution expected from all planned transportation projects are within limits established in the State Implementation Plan

- Final Adoption
  - Final action by CAMPO Executive Board to incorporate the Air Quality Conformity Determination of the MTP

Process >>> Community Feedback – *to be fully developed*

Goals of Engagement

1. Understanding of journey overall
   - All phases of engagement & community influence
   - Changes made to preferred alternative

2. **<u>Public Review</u> of Final Plan**
   - Seek review and comments on final projects list and final report narratives before approved by Executive Board

Engagement Activities – *anticipated*

- Solicitation of review & feedback
- Detailed webpage
- Public comment period & public hearing

Tactics - *anticipated*

- Interactive map of updated, final preferred alternative with comment option
- Posting of final report

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Changes to the MTP

Technical Corrections

- Update/revision that includes minor changes to:
  - Project/project phase costs,
  - Minor changes to funding sources of previously-included projects
  - Minor changes to project/project phase initiation dates.
- Does not require:
  - Public review and comment
  - Redemonstration of fiscal constraint
  - AQ conformity determination (in nonattainment and maintenance areas).

Amendments

- Major change to a project, including:
  - Addition or deletion of a project
  - Major change in project cost,
  - Major change to project/project phase initiation dates
  - Major change in design concept or design scope (e.g., changing project termini or the number of through traffic lanes).
- DOES require:
  - Public review and comment
  - Redemonstration of fiscal constraint
  - AQ conformity determination when applicable.

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Upcoming 2050 MTP Milestones

Item	Anticipated Schedule
Deficiency Analysis	February – March 2021
Alternatives Analysis Review	April – June 2021
Revenue Forecast Updates	April - Aug. 2021
Preliminary Draft Financial Plan	June 2021
“Final” Draft Plan	August/September 2021
Public Hearing	Fall 2021
Adopt 2045 Plan	October - November 2021
Air Quality Conformity	November – February 2022
Final Plan Adoption	February 2022

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Key Takeaways

- One vision for the region
- Coordination across jurisdictions
- Your continued, active participation
- Project funding
- Regional significance
- Continued challenges

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Recipe for Your MTP Success

- Stay plugged in
- Stay involved
- Have an active conduit to the process
- Share your community's data, policies, priorities
- Encourage your community's participation

Be Thinking About…

- The next 25-30 years will be very different from the last. Our transportation systems will need to be more robust to serve the diverse and growing needs of our region.

- What important transportation priorities should be part of one or more scenarios?

- What else should we be mindful of as we consider long term investments for mobility within the Triangle?

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Wind Down…

– Follow up materials will be sent via email
  - Link to slides - PDF
  - Link to recording – posted to YouTube

– Post-webinar survey – please complete it!

– We are here for you! Send questions, thoughts, ideas…
https://www.campo-nc.us/about-us/staff

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Want more?

Upcoming Trainings:

1) MPO 101
2) Triangle Regional Model – stay tuned for details

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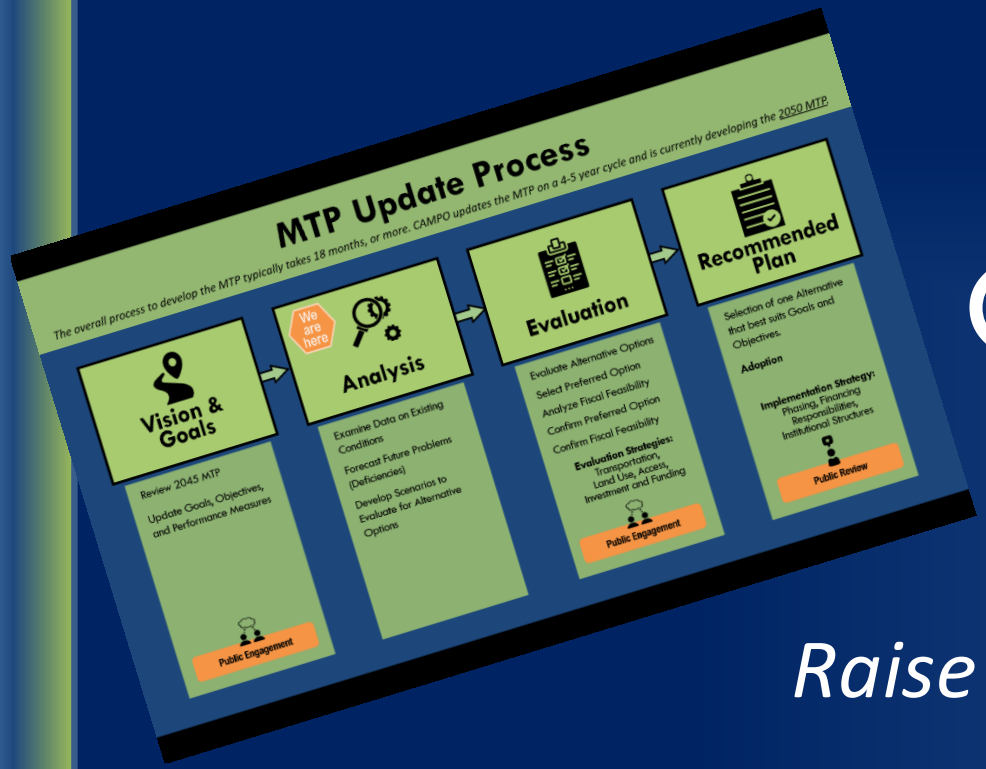
The End



Questions?

Raise Hand or Use Chat Box

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