9. Critical Factors in the Planning Process

Our transportation investments influence more than just our ability to get from one place to another. How and where we develop roads, transit lines and other transportation services impact other things we value. The health and well-being of the natural environment, our neighborhoods, and those who live in them are vital to maintaining the quality of life our region is known for. Federal law recognizes these important considerations by requiring that Metropolitan Transportation Plans specifically address thirteen planning factors:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- Increase the safety of the transportation system for motorized and nonmotorized users.
- Increase the security of the transportation system for motorized and nonmotorized users.
- Increase accessibility and mobility for people and freight.
- Protect and enhance the environment.
- Promote energy conservation.
- Improve quality of life for the community.
- Promote consistency between transportation improvements and planned State and local growth and economic development patterns.
- Enhance the integration and connectivity of the transportation system for all modes.
- Promote efficient system management and operation.
- Emphasize the preservation of the existing transportation system.
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation
- Enhance travel and tourism

Here is a matrix of how the MTP Goals relate to the critical factors, with a short explanation of each after the matrix. The matrix is based on a first evaluation of the objectives and measures under each goal. If there is a direct link to a critical factor, then a full mark is given. If the goal and its associated objectives provides opportunity to meet a critical factor without a direct linkage, then it is given a half mark. In addition, there are 4 additional Environmental Justice measures that do not have an equivalent critical factor or combination of factors: displacement, equity, social (community cohestion/disruption), and aesthetics. Displacement is project specific and not useful to assess at the system level. The other EJ measures are in a separate table that follows the critical factors table.

In addition to the review of goals to critical factors, this section highlights the following topics in greater detail:

- *Air quality*: demonstrating that transportation plans will further clean air goals and meet air pollutant standards;
- *Environmental Justice*: showing how transportation plans relate to communities that have been historically underserved or disproportionately impacted by transportation investments; and
- *Safety and Security*: addressing how the transportation plans and the organizations that implement them promote safer and more secure travel choices.

Connect People	Promote Multimodal & Affordable Travel Choices	Manage Congestion and System Reliability	Stimulate Economic Vitality	Ensure Equity and Partici-pation	Improve Infra-structure Condition	Protect the Environment and Address Climate Change	Promote Safety and Health
Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency							
●	◑	●	●				
Increase the safety of the transportation system for motorized and nonmotorized users							
◑		◑			◑		●
Increase the security of the transportation system for motorized and nonmotorized users							
				◑			●
Increase accessibility and mobility for people and freight							
●	●	◑	●	◑			◑
Protect and enhance the environment							
	◑	◑			◑	●	◑
Promote energy conservation							
◑	◑					●	
Improve quality of life for the community							
●	◑	●		●			
Promote consistency between transportation improvements and planned State and local growth and economic development patterns							
◑			●				
Enhance the integration and connectivity of the transportation system for all modes							
●	◑	●	●				
Promote efficient system management and operation							
●		●	●		●	◑	◑
Emphasize the preservation of the existing transportation system							
		◑	◑		●	◑	
Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation							
		●				◑	
Enhance travel and tourism							
◑	◑	◑	●		◑		●

Additional Environmental Justice Items

The environmental justice measures not included in the following table are considered to be included already as critical factors. Except for displacement which was not appropriate to apply at the regional scale, the 3 measures not covered by critical factors are in the table. The measures that are already covered:

Safety—covered by "Increase the safety…" critical factor.

Accessibility—covered by "Increase accessibility…" critical factor.

Mobility—covered by multiple critical factors, notably "Enhance integration and connectivity…", Promote efficient system management…", and "Emphasize the preservation of the existing transportation system."

Environmental—covered by "Protect and enhance the environment."

Displacement—not addressed at this scale, but still nominally covered by "Improve quality of life…"

Connect People	Promote Multimodal & Affordable Travel Choices	Manage Congestion and System Reliability	Stimulate Economic Vitality	Ensure Equity and Partici-pation	Improve Infra-structure Condition	Protect the Environment and Address Climate Change	Promote Safety and Health
Equity							
◑	◑			●			◑
Social							
◑	◑			●			◑
Aesthetics							
	◑				◑		

Goal: Connect People

The MTP addresses five critical factors directly and four additional factors indirectly with its "Connect People" goal. It supports three critical factors directly with the objective "Connect people to jobs, education, and other important destinations using all modes." This objective supports economic vitality, enhances integration and connectivity, and promotes efficient system operation. It also gets half a mark for travel and tourism due to the mention of "important destinations using all modes, and additional half marks for safety, energy conservation, and plan consistency by promoting better connections. The remaining full mark is for the other objective: "Ensure transportation needs are met of all populations…"which addresses improving the quality of life for the community. It also indirectly addresses the Equity and Social EJ measures.

Goal: Promote Multi-modal and Affordable Travel Choices.

This goal has five direct connections to the critical factors, and is indirectly related across two additional factors. There is a direct link to increasing accessibility and mobility for people across all 3 of the objectives of this goal: Enhance transit, improve bicycle and pedestrian facilities, and increase utilization of affordable, non-auto travel modes. Additionally these objectives relate directly to protecting the environment, promoting energy conservation, improving the quality of life, and enhancing integration and connectivity for all modes. Indirect associations include enhancing travel and tourism and supporting economic vitality. It also indirectly addresses the Equity, Social, and Aesthetics EJ Measures.

Figure 1: Example of Aesthetics--Neuse River Greenway Bridge. [Image By Bz3rk - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=29878720

Goal: Manage Congestion and System Reliability: This goal addresses five critical factors and touches on five more—10 out of the 13 factors. It directly ties to economic vitality, improve quality of life, enhance the transportation system, promote efficient system operation, and improve the reliability of the transportation system. Indirectly, it also increases the safety of the transportation system, increases mobility for people and freight, emphasizes the preservation of existing system, enhances travel and tourism, and protects the

environment. The latter two are based on congestion relief being good for travel and the subsequent air quality benefits for the environment. For reference , the objectives for this goal can be applied to nearly all of the factors. The objectives are, a) Allow people and goods to move with minimal congestion and time delay, and with greater predictability, b) Promote Travel Demand Management (TDM), such as carpooling, vanpooling and park-and-ride), and c) Enhance Intelligent Transportation Systems (ITS), such as ramp metering, dynamic signal phasing and vehicle detection systems.

Goal: Stimulate Economic Vitality: This goal has a direct relation to supporting economic vitality, increasing mobility (particularly for freight), promoting consistency between other plans, efficient system management, and enhancing connectivity across modes and travel & tourism. Indirectly, it also relates to system preservation, as keeping the system in working order is important to economic vitality. The objectives for this goal are a) Improve freight movement, b) Link land use and transportation, c) Target funding to the most cost-effective solutions, d) Improve project delivery for all modes.

Goal: Ensure Equity and Participation: This directly aligns with improving quality of life for the community and Social and Equity EJ measures. Indirectly, it benefits the safety and security of non-motorized users. The objectives under this goal are a) Ensure that transportation investments do not create a disproportionate burden for any community, and b) Enhance public participation among all communities.

Goal: Improve Infrastructure Condition: This goal is directly related to promote efficient system management and operation and the preservation of the existing transportation system. It indirectly benefits safety and mobility by keeping bridges and the system in order. It indirectly benefits the EJ aesthetics measure, simply because crumbling infrastructure is not aesthetically pleasing. Objectives for this goal include a) Increase the proportion of highways and highway assets rated in 'Good' condition, b) Maintain transit vehicles, facilities and amenities in the best operating condition, and c) Improve the condition of bicycle and pedestrian facilities.

Goal: Protect the Environment and Address Climate Change: This goal is the one that directly addresses protecting and enhancing the environment and promotion of energy conservation. It indirectly promotes better air quality, which benefits efficient system operation and preservation of the existing system. It also indirectly benefits stormwater mitigation. The objectives under this goal include a) Reduce mobile source emissions, greenhouse gas emissions and energy consumption, b) Minimize negative impacts on the natural and cultural environments.

Goal: Promote Safety and Health: This goal directly addresses 3 factors directly, increasing safety for motorized and nonmotorized users, the same for security, and it enhances tourism, notably a walkable environment for visitors. Indirectly it touches on increasing accessibility, protecting the environment, and promoting efficient system management and operation. It also indirectly benefits the EJ measures Equity and Social factors. The objectives for this goal are a) Increase the safety of travelers and residents, and b) Promote public health through transportation choices.

9.1 Transportation - Air Quality Conformity

Transportation-air quality conformity ("conformity") is a way to ensure that Federal funding and approval goes to transportation activities that are consistent with air quality goals. Conformity applies to metropolitan transportation plans—such as this one, to transportation improvement programs (TIPs), and to projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in areas that do not meet -- or have recently not met -- air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as "non-attainment areas" or "maintenance areas," respectively.

A conformity determination demonstrates that the total emissions projected for a plan or program are within the emissions limits ("budgets") established by the State Implementation Plan (SIP) for air quality, and that transportation control measures (TCMs) – specific projects or programs enumerated in the SIP that are

designed to improve air quality – are implemented in a timely fashion. . All of the area within the Triangle covered by the two MPOs, except for Harnett County, is currently designated as a “maintenance area” for the 8-hour ozone standard; the effective date of this designation was December 26, 2007. In addition, Durham and Wake Counties are maintenance areas for carbon monoxide.

Determining Conformity

Regional emissions are estimated based on highway and transit usage according to transportation plans and TIPs. The projected emissions for the plan and TIP must not exceed the emissions limits (or "budgets") established by the SIP. Where TCMs are included, responsible MPOs and the North Carolina Department of Transportation (NCDOT) are required to demonstrate that TCMs are implemented in a timely fashion. In North Carolina there are currently no TCMs included in SIPs.

The Decision Process

A formal interagency consultation process involving the Environmental Protection Agency (EPA), FHWA, FTA and state and local transportation and air quality agencies is required in developing SIPs, TIPs, and transportation plans, and in making conformity determinations. Metropolitan Planning Organization (MPO) policy boards make initial conformity determinations in metropolitan areas, while the NCDOT does so in areas outside of MPOs, in consultation with affected Rural Planning Organizations (RPOs).

Four organizations are responsible for making the conformity determinations in four distinct parts of the Triangle Ozone Maintenance Area:

a. the Capital Area MPO within the CAMPO metropolitan area boundary – all of Wake County, and parts of Franklin, Granville, and Johnston counties.
b. the DCHC MPO within its metropolitan area boundary – all of Durham County and parts of Orange and Chatham counties.
c. the Burlington-Graham MPO within its portion of the metropolitan area boundary in western Orange County.
d. the NCDOT in a rural area that is comprised of those portions of Chatham, Orange, Person, Franklin, Granville and Johnston Counties that remain outside of any MPO metropolitan area boundary.

Each of these responsible organizations must make a conformity determination for its respective area in order for all of the areas to be designated in conformity.

The final conformity determination is made at the Federal level by FHWA/FTA. These determinations must be made at least every four years, or when transportation plans or TIPs are amended or updated, or within one year of the effective date of a non-attainment designation. Conformity determinations must also be made within two years after the approval of a State Implementation Plan (SIP) containing motor vehicle emission budgets or determination of adequacy of those budgets.

Appendix 7 includes the *Conformity Analysis and Determination Report* for the CAMPO and DCHC MPO 2045 Metropolitan Transportation Plans, along with the 2018-27 TIP.

9.2 Environmental Justice

The intent of environmental justice is to avoid, minimize, or mitigate disproportionately high and adverse effects on minority and low-income populations; and ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.

Environmental justice addresses fairness toward the disadvantaged and addresses the possible exclusion of racial and ethnic minorities, low-income people, the elderly, and persons with disabilities or communication barriers from decision-making. The federal government has identified environmental justice as an important goal in transportation, and local and regional governments must incorporate environmental justice into transportation planning. Capital Area MPO and DCHC MPO goals that relate to the public transportation system, the protection of the natural environment and social systems, and the public involvement process each have objectives that support environmental justice. This support must be evident throughout the transportation planning process, including those processes for the long-range transportation plan, transportation improvement program, and specific project planning.

Even though the term "environmental justice" is not in federal legislation, the concept and its application have been developed through a succession of court cases, transportation regulations, agency memoranda, and Executive Orders. Much of the legal application is based on Title VI of the Civil Rights Act of 1964 that provides protection from discriminatory actions or results from federal, or federally assisted or approved, actions. In terms of transportation planning, environmental justice seeks to ensure that the disadvantaged:

1. Have access to the decision-making process;
2. Realize benefits from investments that are commensurate with the population as a whole;
3. Do not shoulder a disproportionate share of the negative effects and burden resulting from the implementation of transportation projects; and,
4. Do not incur a disproportionate share of the financial cost.

The Capital Area MPO and DCHC MPO have carried out a comprehensive and thorough set of activities to ensure that disadvantaged persons, as characterized in federal regulations, do not suffer discrimination in the transportation planning and implementation process. These activities have been in the area of both public participation and plan analysis. The following sections describe the environmental justice activities that occurred as part of the 2045 MTP. Detailed maps are contained in Appendix 12.

Access to the Decision-making Process

The Capital Area MPO and DCHC MPO ensured that all individuals, regardless of race, ethnicity, income, age, or disability, had access to the planning process. Throughout the plan's development, documents were available for public review several times.

CAMPO staff began conducting public outreach for the Draft 2045 MTP Preferred Scenario in the fall of 2017. The overarching goal for this phase of public engagement was to inform and consult. The specific goals were to

- Increase public awareness of CAMPO and the MTP (or that an official regional transportation planning process exists) in general
- Share information and solicit feedback on the Preferred Scenario (and later the Additional Funding scenario, as well),
- Inform the public of the comment period for the current 2045 Plan Update, and,
- Increase signups for CAMPO's email updates along with Twitter and Facebook followers.

One of the commitments in a consultative process is to circle back to participants and inform them of decisions or outcomes, and how their input was used. After adopting initial and amended MTPs, MPO staff send a media release, email update, website update, and social media posts advertising the adoption, along with a spreadsheet of comments received including an MPO response for each comment.

Outreach Mechanics

Each MPO has conducted outreach in ways that are most attuned to their audiences and consistent with their public engagement policies.

During the Fall of 2017, for the Draft 2045 MTP:

- CAMPO staff attended 10 public meetings or events to conduct outreach activities
- The CAMPO MTP website was regularly updated,
- Facebook, LinkedIn, and Twitter posts were sent (Facebook campaign reached 11,500+ people),
- Multiple emails were sent to CAMPO's community contacts,
- Several community partners shared information (RTA, RTP, GoTriangle, GoRaleigh, local Jurisdictions)

Public comments have come through a variety of sources, both official and unofficial. This includes verbal conversations with staff at public meetings, handwritten comment card submissions, emails, comments on Facebook, official letters from member jurisdictions, etc.

In the DCHC MPO, documents were available online and at all the MTP public meetings. Notice of the public review periods was published in local newspapers and sent by email and post office mail. Environmental justice community organizations and neighborhoods are included on the DCHC MPO's email and mail lists.

In addition, the DCHC MPO held public workshops for review of the Goals and Objectives, socioeconomic data and alternatives analysis. The DCHC MPO held three to four public workshops for each review period. These workshops were held throughout the MPO: one in Hillsborough, one in Chapel Hill/Carrboro, one in Pittsboro and one in Durham. The Hillsborough, Chapel Hill and Durham workshops were held at locations along public transportation routes. The Pittsboro workshop was not on a public transportation route because Pittsboro does not have bus service. Accommodations were made at public meeting and hearings for the disabled.

Plan Benefits

The investments in transportation infrastructure included in the 2045 MTP will benefit the MPO's population in many ways including increased mobility, safety, time savings, economic development, and recreational opportunities. The investment in transit in particular will benefit low income populations that do not have access to personal vehicles and the disabled who may not be able to operate personal vehicles. Currently, tens of thousands of households in the Triangle do not have personal vehicles. The travel forecasts for the 2045 MTP estimate that a majority of transit trips will be made by people from households that do not have cars or low-income households with cars.

For the plan analysis, the DCHC MPO included performance targets that measured some of the plan's benefits to environmental justice communities including the percentage of the environmental justice population that lives within a ¼ mile of transit. The 2045 MTP results in the percentage of poverty households that lives within a ¼ mile of transit rising from 62% in the "no build" scenario to 65% with implementation of the 2045 Plan.

The bicycle and pedestrian network in the 2045 MTP is a composite of local government bicycle and pedestrian plans. Most of these local planning efforts included environmental justice criteria for project selection. Furthermore, the map of the bicycle network shows that the bicycle facilities are well distributed across the MPO – nearly all non-subdivision streets include on-road bicycle facilities in the plan. Therefore, the connectivity, safety, and recreational benefits that bicycle facilities provide are fairly distributed among the MPO's population.

Negative Project Impacts

Investments in transportation infrastructure can have some negative impacts to some of the MPOs' population. While road widening projects may increase overall mobility, the residents near the project may be impacted negatively by increased traffic through their neighborhoods, increased vehicle speeds, land acquisition for necessary right-of-way, relocations of homes and businesses, a change in neighborhood character and land uses, etc. A project's net impact is not always clear and may be perceived differently by different residents. Although it is difficult at a regional systems level to assess the overall impact of the highway projects included in the 2045 MTP, the two MPOs did complete several analyses of the potential negative impacts the projects may have on environmental justice communities.

During the development of the 2045 MTP, MPO staff often qualitatively evaluated individual projects for potential negative impacts and often eliminated projects that had significant potential negative impacts. Staff eliminated some projects based on factors such as limited right-of-way, neighborhood and community characteristics, and the historical impact of urban renewal.

The two MPOs analyzed the potential impact of the 2045 MTP highway projects and transit corridors to ensure that the potential negative project impacts were not disproportionately impacting environmental justice communities and that project benefits were also equitably distributed. Individual projects in the 2045 MTP may have significant negative impacts that will be studied more in depth during project development and design. These negative impacts are often able to be mitigated by context sensitive design.

Determining A Community Of Concern (CofC)

The MPOs explored different methods to get at the fundamental question, "What is a community of concern?" Three principles guided the analysis:

1. If everyone is special, no one is special; we do not want to set the threshold too low or it could mask real and important differences between locations,
2. Be as inclusive as possible in light of the above; we do not want to leave areas out that could sustain meaningful negative impacts from the decisions we make, and
3. The final analysis should yield a pattern that allows for targeted outreach and a meaningful analysis of transportation investments.

The MPOs analyzed the data values and sources used for the protected classes that were evaluated:

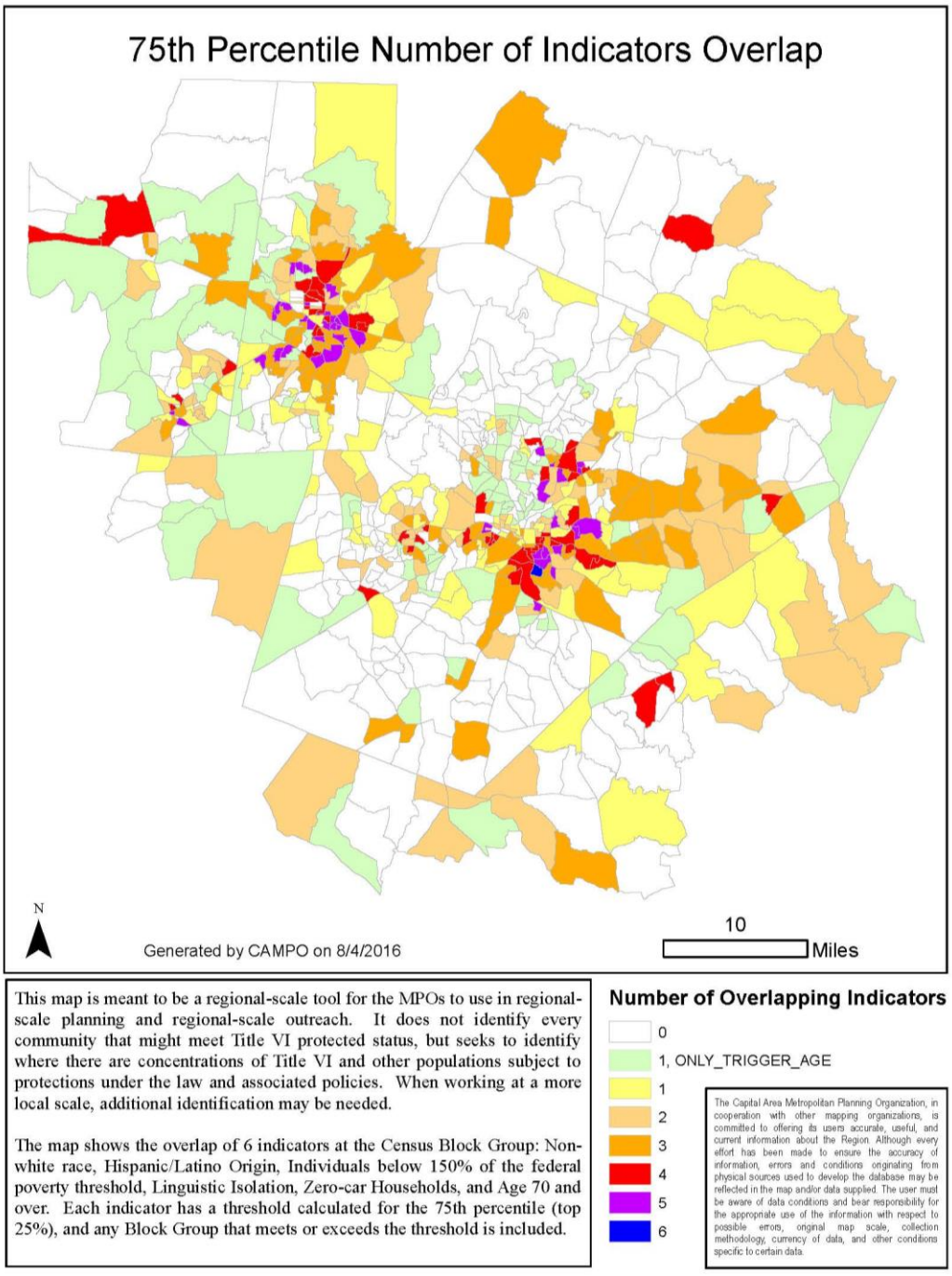
1. Use of Census Block Groups in the 2-MPO region as the geographic unit. This is because they are updated each year, and some data are only available at this scale. It also helps compare urban, suburban, and rural areas in an "apples-to-apples" way.
2. Choice of which metric we use. By choosing to use the "median" as our measure, it gets around any extremes that may exist within the block group. For instance, if a millionaire has a house in a block group where most residents are low-income, the "mean" (what most people think of as the "average") will give a misleadingly high value. By using a median, the primary makeup of the block group is reflected because extremes will not have as much impact.
3. Measuring each item we evaluate as a percentage. This also helps to create an "apples-to-apples" comparison for urban, suburban, and rural parts of the region.

The MPOs also tried to match the data that are available to the protected classes under the Title VI Program Coverage umbrella. Choosing what gets measured can impact the outcome. Regional partners sat down with other regional stakeholders involved in the statistical definition of what goes into identifying CofCs on February 4, 2016. CAMPO, DCHC MPO, Triangle J Council of Governments and NCDOT Community Studies staff reviewed existing methodologies and a draft proposal using percentiles to determine appropriate thresholds. The group reconvened August 2nd with FHWA and NCDOT's Office of Civil Rights included as well.

In looking at what to measure, some things came to light: Even though gender is a protected class, the even distribution of men and women did not make it a useful measure geographically. As such, it is the one protected class that was not used for determining CofCs. The same was true for disability in terms of where people are, but for the people affected the most by transportation investments, the group supported using Zero-car Households as a surrogate measure. Using a composite "minority" measure may miss some key groups. As an example, a block group that might be included for "Black alone" only needs around 32% of the block group to identify as Black. In a single minority measure, the threshold is around 57%, and if no other minorities are present this might miss too many people that need to be included. The final selection of how to measure led to using "Non-white Race" and "Hispanic/Latino Origin" as separate variables.

By using regional-scale, planning level proxies for actual EJ communities, this analysis is just a guidance or screening tool to begin the identification of the actual communities.

Figure 9.2.1



The two MPOs determined the percent of total 2045 MTP highway project length and the percent of total 2045 MTP cost by project type that were in any block group with the presence of any protected class in the top quartile (top 25%). The results of this analysis are shown in the Figures below. Transit investment corridors were also analyzed for length, but not cost since they are not project-specific.

Figure 9.2.2 Project Portfolio Impact on Communities of Concern

CofC=Community of Concern	Region Total Miles	Region Miles in CofC	Percent in CofC	Total Investment	Total Investment in CofC	Percent Investment in CofC
New Location Highway	215	144	67%	$ 3,011,713,868	$ 1,664,872,717	55%
All Other Highway	280	200	71%	$ 2,891,765,233	$ 2,087,208,674	72%
Existing Highway Widening	886	522	59%	$11,292,639,288	$ 6,536,393,574	58%
Transit Corridors[1]	1693	1431	85%	Cost Not Reported-Corridor not Project		

	CAMPO Total Miles	CAMPO Miles in CofC	Percent in CofC	Total Investment	Total Investment in CofC	Percent Investment in CofC
New Location Highway	166	100	60%	$ 2,654,150,868	$ 1,335,413,138	50%
All Other Highway	182	112	62%	$ 1,825,195,233	$ 1,084,867,111	59%
Existing Highway Widening	711	379	53%	$ 8,248,301,288	$ 4,187,251,716	51%
Transit Corridors[1]	867	601	69%	Cost Not Reported-Corridor not Project		

	DCHC Total Miles	DCHC Miles in CofC	Percent in CofC	Total Investment	Total Investment in CofC	Percent Investment in CofC
New Location Highway	49	44	90%	$ 357,563,000	$ 329,459,579	92%
All Other Highway	98	88	90%	$ 1,066,570,000	$ 1,002,341,562	94%
Existing Highway Widening	175	142	81%	$ 3,044,338,000	$ 2,349,141,858	77%
Transit Corridors[1]	905	830	92%	Cost Not Reported-Corridor not Project		

Looking at the tables above and the maps below, a pattern of even distribution of projects across the region is apparent for highway projects. Regionally, nearly all of DCHC MPO triggers for one of the Communities of Concern. Age tends to trigger in many places where other issues like race and poverty do not. One project to note in DCHC is the Northern Durham Parkway. It is a new location roadway project with Communities of Concern along its entire length. However, this project is slated to be a boulevard, providing both access and mobility benefits to mitigate its impacts. It is one of two projects (along with Sherron Road widening) that will draw traffic off of NC 98 between US 70 and Sherron Road that will allow a road diet on NC 98. The road diet will increase safety for pedestrians in the NC 98 corridor, many of whom are also transit users (based on draft NC 98 study). This shows that the new location roadway will have additional, beneficial impacts to EJ populations even outside the immediate vicinity of the new road.

At the regional scale, the Northern Durham Parkway is also balanced by the remaining sections of I-540 in southeastern CAMPO. This new location freeway only minimally impacts identified Communities of Concern. Many impacts from new location freeways can be negative (noise, air pollution, reduction of connectivity) without providing access or mobility benefits to EJ populations. Therefore, minimizing this project's impact to

[1] Because transit corridors are regional in nature, a corridor may be counted more than once for the single MPO totals. For example, any bus service or commuter rail that crosses the MPO boundary but affects both MPOs would be counted for each MPO.

Communities of Concern is an important factor to consider. Overall, the two projects provide a good example of how the region balances the provision of transportation infrastructure to equitably share benefits and burdens.

Transit projects are concentrated around urbanized parts of the MPO, with the downtowns as focal points for many corridors. This makes for an uneven distribution, but is the nature of transit service to need a critical mass of people and activity. Parts of the region that are less urbanized are still served by on-demand service providers which are not map-able. Even so, a corridor with low concentrations of Comminities of Concern like NC 55 in western Wake county is offset by the US 64 corridor in eastern Wake County.

Bicycle and pedestrian projects are done programmatically in DCHC MPO. CAMPO includes all locally-identified projects programmatically, though it does identify priority corridors of regional and statewide significance, such as the Mountains to Sea Trail. Many bicycle and pedestrian projects are concentrated in the cities and towns of the region due to the same critical mass of people and activities needed for transit are also needed to make the construction and maintenance of facilities like sidewalks and bike lanes feasible. Because of the programmatic nature of their implementation, bicycle and pedestrian projects are not mapped.

Since the way benefits and burdens apply is unique to each project and very specific to small-area conditions, it is difficult to assess benefits and burdens at a regional scale. Again, this analysis does not substitute for the individual project analyses that will be completed for each project during that project's development. However, below is a table of potential benefits and burdens that can be a useful tool for the assessment of the regional portfolio of projects. It is based on initial work done by the Savannah, Georgia MPO and used by the DCHC MPO in their 2014 Environmental Justice Report. The table uses the format of those preceding tables, but is updated to reflect the way the projects were grouped for this analysis. This provides more detail between roadway project types than the original. Examples of potential benefits and burdens were also updated to reflect the new groupings, as well as new information around what those benefits and burdens might potentially be, and what mitigation strategies might be used. One major change to note from the original tables is that benefits do not require a mitigation strategy, and are now listed in separate table rows from burdens, which do require them.

Bicycle and Pedestrian			
Project Group	**Potential Benefits**	**Potential Burdens**	**Mitigation Strategy Examples**
Bicycle and Pedestrian	Reduced Emissions		
Bicycle and Pedestrian	Reduced Parking Need		
Bicycle and Pedestrian	Community Health Improvements		
Bicycle and Pedestrian	Increased Pedestrian Safety		
Bicycle and Pedestrian		Impact to motor vehicle capacity	Use ITS to make timing of ped crossing signals as efficient as possible for all users
Bicycle and Pedestrian		Impact to motor vehicle travel times	Grade separate bike and pedestrian crossings where feasible
Bicycle and Pedestrian		Additional conflicts at intersections	Add pedestrian crossing time to signal; add bike boxes at intersections for in-road cyclists or separate bike signals for cycletracks
Bicycle and Pedestrian		Need for additional right-of-way	reduce vehicular lane width--has added benefit of slowing motor vehicle speeds around bike and ped facility users
Bicycle and Pedestrian		Need for additional structures/other construction concerns (like cut and fill)	co-locate facilities at pinch-points or environmentally sensitive areas

New Location Roadway			
Project Group	**Potential Benefits**	**Potential Burdens**	**Mitigation Strategy Examples**
New Location Roadway	Increased Connectivity and Mobility		
New Location Roadway	Increased Operational Efficiency and Network Redundancy		
New Location Roadway	Economic Impacts-freight efficiency, catalyst for land use changes		
New Location Roadway	Reduced Travel Time		
New Location Roadway		Induced Demand--Add VMT	Construct new facilities as variable rate tolled facilities that can have dynamic pricing based on peak hour demand; include bike and ped facilities to encourage short trips to not use motor vehicles
New Location Roadway		Noise and emissions impacts to existing land uses & neighborhoods	Construct noise walls where warranted; reduce speeds and minimize signalized intersections for idle reduction
New Location Roadway		New traffic patterns can push congestion to new locations	Find those locations in the model and plan for them accordingly in the MTP
New Location Roadway		For freeways and expressways--benefits only to motor vehicle users without additional provisions for bike and ped; transit benefits only to express bus service	Include bike & ped provisions as part of roadway project; provide for BRT stops along corridor where service is likely.

Roadway Operational Improvements			
Project Group	**Potential Benefits**	**Potential Burdens**	**Mitigation Strategy Examples**
Roadway Operational Improvements	Reduce crashes and/or crash intensity		
Roadway Operational Improvements	Increase operational efficiency		
Roadway Operational Improvements	Reduced Travel Time		
Roadway Operational Improvements		Increased congestion and reduced access to adjacent land uses during construction	Re-route traffic to major roads where possible; Limit construction closures to nights and weekends
Roadway Operational Improvements		Additional shoulder or other changes can increase corridor width (impinging on adjacent property)	Use curb and gutter instead of open swale to reduce footprint
Roadway Operational Improvements		Adjustment period for user behavior (roundabouts, DDIs, often confusing at first)	Education and outreach campaign prior to opening of new traffic pattern

Transit Corridors			
Project Group	**Potential Benefits**	**Potential Burdens**	**Mitigation Strategy Examples**
Transit Corridors	Improves mobility to populations that do not drive		
Transit Corridors	Allows increases in capacity by adding additional service instead of increasing the physical footprint of the facility		
Transit Corridors	Reduction in VMT compared to trips taken		
Transit Corridors	Helps diversify the modal mix in the region (reducing reliance on the single-occupancy motor vehicle)		
Transit Corridors		Diesel buses are noisy and emit noxious fumes	Convert bus fleets to electric or hybrid motors
Transit Corridors		Bus stops in the travel lanes reduce overall roadway capacity and create a negative image of buses	Get enabling legislation to require motorists yield to left-signaling buses; work with transit agencies to incorporate bus lane pull outs into roadway projects
		Transit trips are not time-competitive	Increase headways and service hours; identify non-traditional routes where the hub and spoke/pulse model does not work well
		Fixed route transit does not serve the entire region	Work with on-demand service providers and human service agencies to fill service gaps where fixed routes are not feasible financially or operationally

The maps that follow continue to illustrate that roadway projects are evenly spread throughout the region, and transit corridor are spread equitably with the caveat that they require more heavily urbanized milieu to be feasible to operate.

Figure 29.2.3 Title VI Compliance: CAMPO/DCHC New Location Roadway

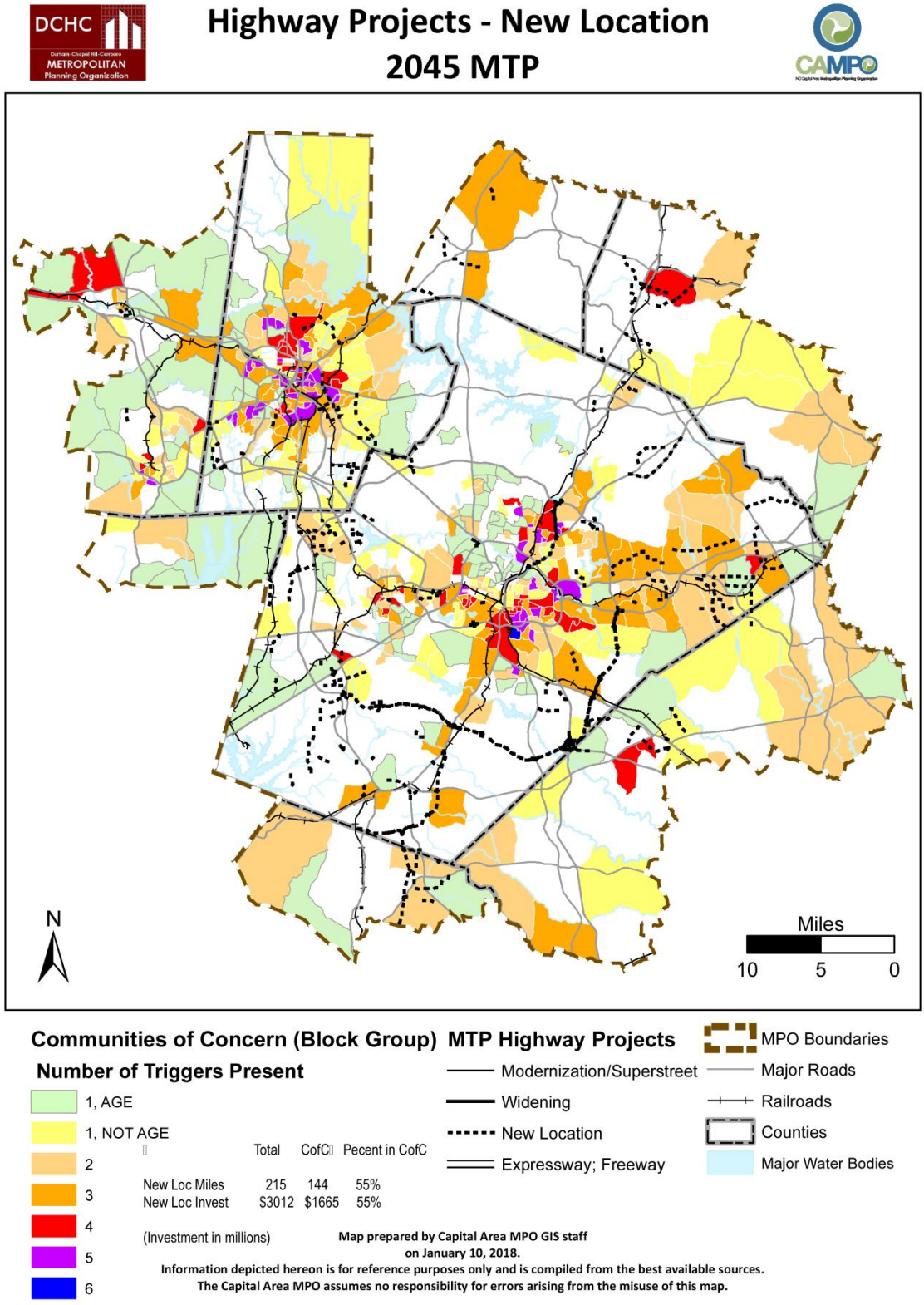


Figure 9.2.4 Title VI Compliance: Roadway Widenings

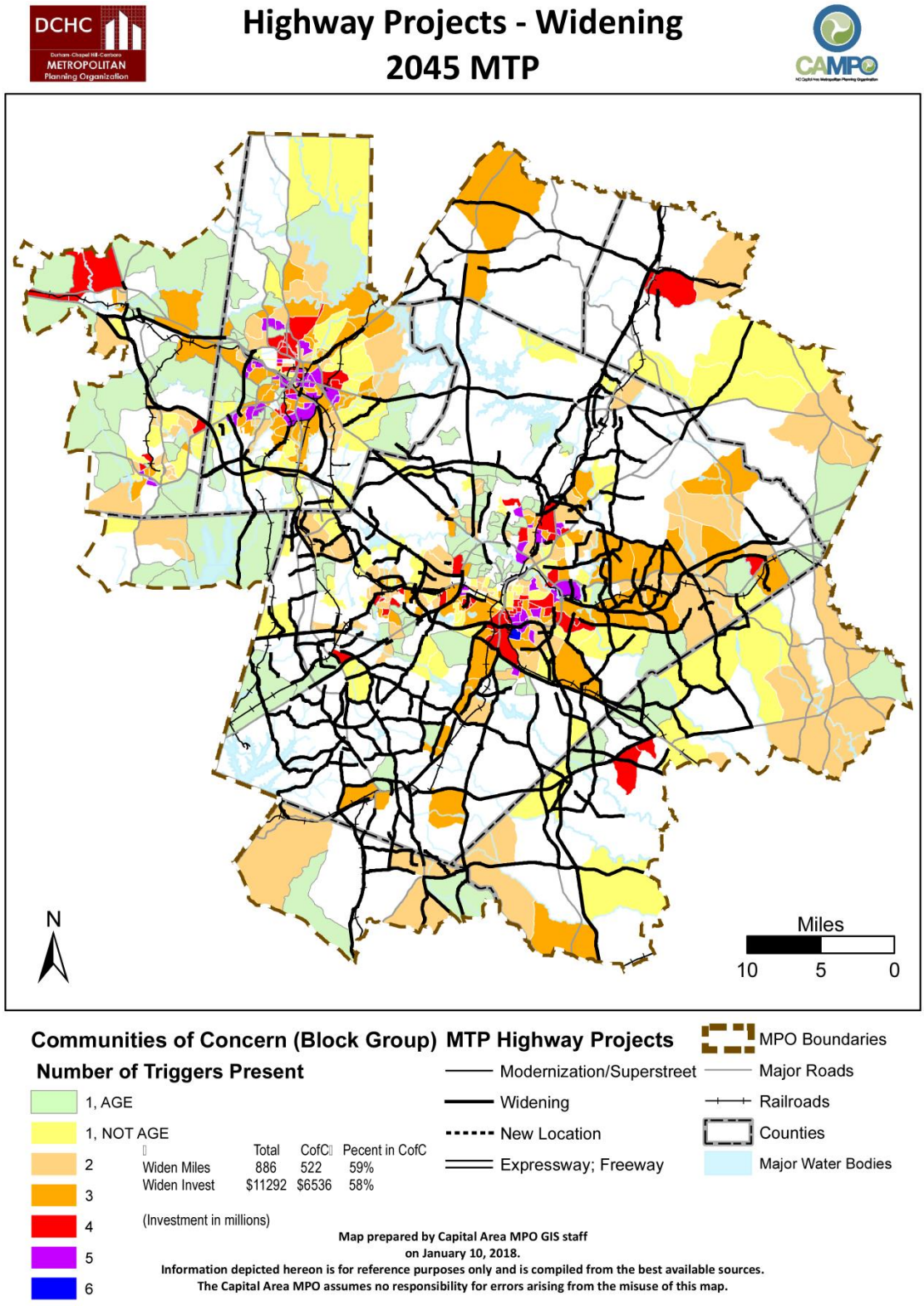


Figure 9.2.5 Title VI Compliance: CAMPO/DCHC All Other Roadway

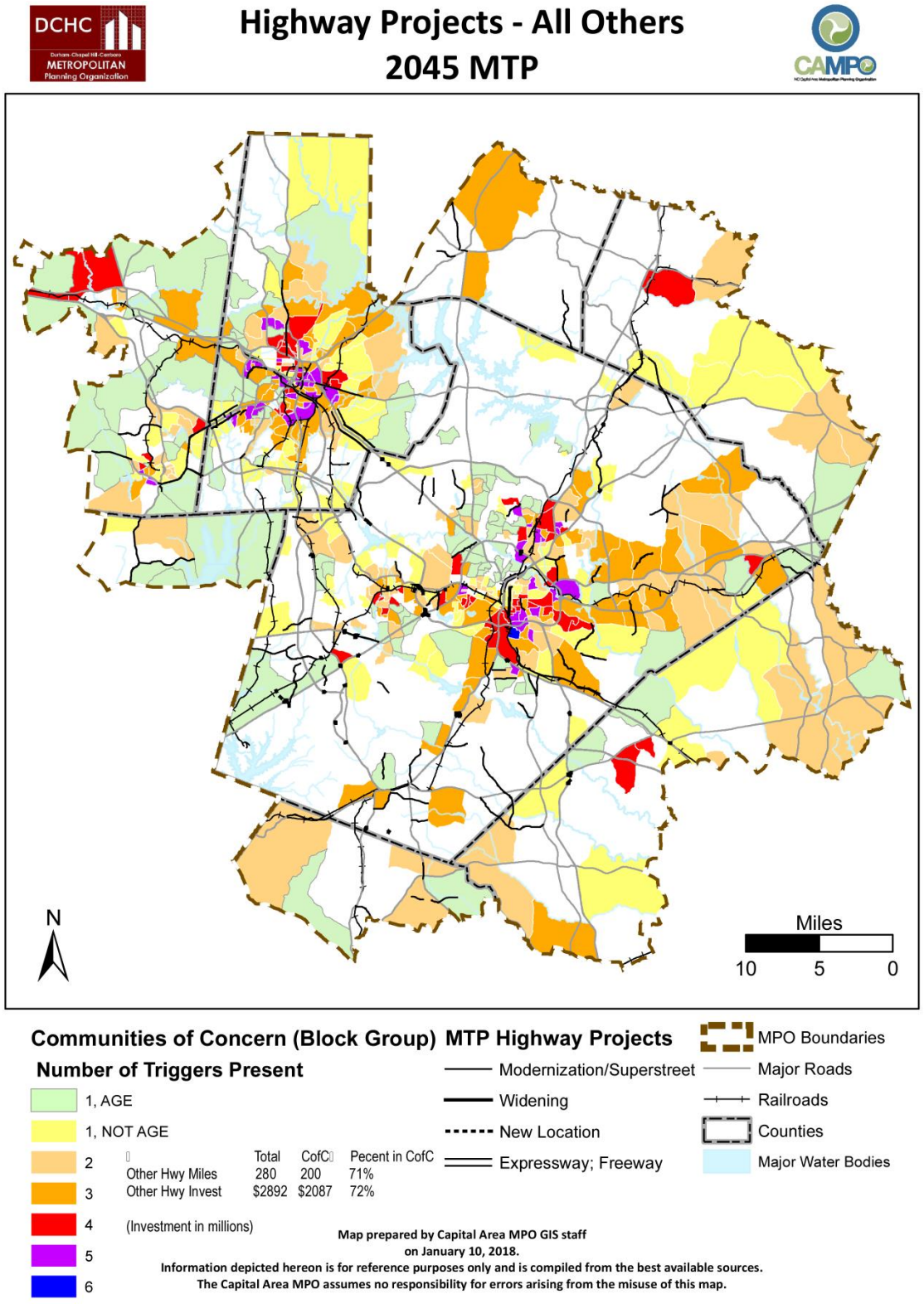
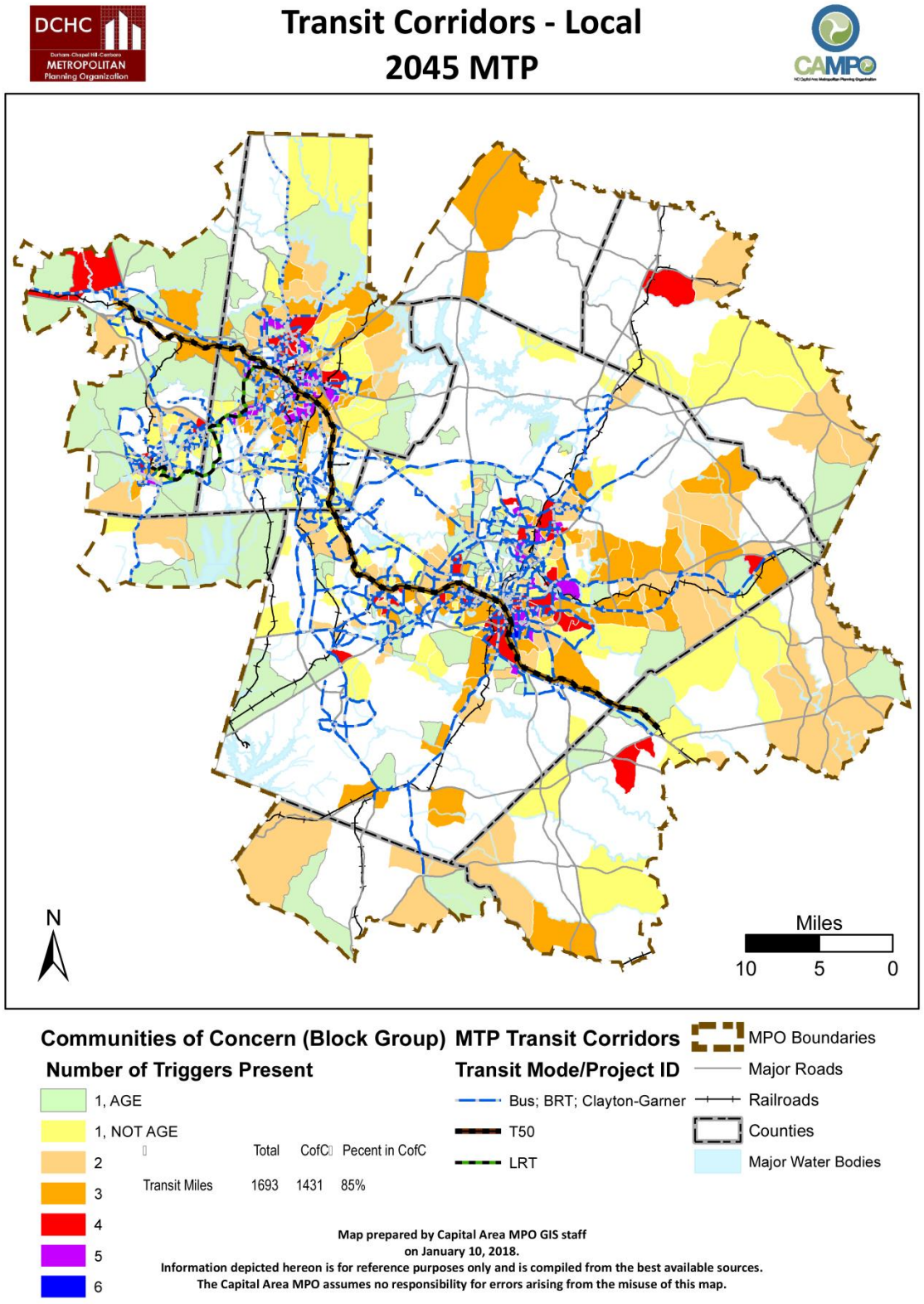


Figure 9.2.6 Title VI Compliance: CAMPO/DCHC Transit Investment Corridors



Financial Cost

Lastly, environmental justice also requires that the disadvantaged population not bear a disproportionate share of the financial cost of the plan. The 2045 MTP is financed by traditional revenue sources and new revenue sources. The 2045 MTP does not propose a change to the traditional funding sources so this was not analyzed for environmental justice impacts.

The new sources of revenue are:

1. Sales tax increase for public transit
2. Car registration fee increase
3. Toll roads and managed lanes

Typically, sales taxes are regressive, meaning that lower income households pay a higher percentage of their income in sales taxes than do higher income households (higher income households pay more in *actual* dollars in sales tax than lower income households, but these payments represent a smaller *proportion* of the total income of higher income households). Approved legislation in NC seeks to mitigate the "who pays" side of the equation by excluding many necessities from the sales tax, including food, medicine, utilities and shelter. By excluding these items, a typical household in the lowest 20% income group would pay about $3 per month for the transit tax, based on analysis by the North Carolina Budget & Tax Center. Households in the top 1% income bracket would average $57 per month and those rounding out the top 5% income bracket would average $17 per month. Also, one financial analysis showed that the impact of a one dollar increase in the price of a gallon of gasoline is about ten times worse for low-income households than the impact of a ½ cent sales tax.

Moreover, looking at who pays is only half of the equation. Analysis should also consider who benefits. Transit service is disproportionately used by people with lower incomes and households that do not have access to cars. Currently, tens of thousands of households in the Research Triangle Region report having no vehicle available. Our region's travel forecasts estimate that the majority of transit trips after we invest in rail service and greatly expanded bus service will be made by people from households without cars and low-income households with cars. So looking at the whole equation, a sales tax that is spent entirely on transit would provide a net benefit to households most dependent on transit service to reach jobs and educational opportunities, different from if a sales tax were spent on services that were used equally by lower income and higher income households.

Toll roads and managed lanes projects will require a detailed environmental review during project development. At that point, the project-level environmental justice impacts will be studied. The I-40 managed lanes project would require the payment of tolls to use the new lanes. Low-income populations will still have the option to use the facility by using the existing general purpose lanes free of charge. In addition, public transit vehicles will be able to use the facility free of charge. High-occupancy vehicles may also be able to use the new managed lanes free of charge. A decision has not yet been made on if there will be an exception for high-occupancy vehicles on some facilities.

9.3 Safety and Security

Metropolitan Planning Organizations are being encouraged to effectively address safety and security issues in accordance with policies outlined with the Moving Ahead for Progress in the 21st Century (MAP-21) and subsequent Fixing America's Surface Transportation (FAST) Act.

Federal requirements maintain the existing core program called the "Highway Safety Improvement Program" (HISP). This program is structured and funded to make significant progress in reducing fatalities on highways as well as other modes that use highway, railroads, and other conduits within the transportation network. The HSIP increases the funds for infrastructure safety and requires strategic highway safety planning focused on measurable results. Other programs target specific areas of concern such as work zones and older drivers. Pedestrians, including children walking to school, are also a focus area for the program.

Both the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO have been proactive in addressing safety and security as a component of our overall transportation processes by pursuing the following actions:

- Vision Zero, a new approach to traffic safety, maintains that the loss of even one life or serious injury on our roads is not an acceptable price to pay for mobility. Designers and users of the roads share responsibility for the safety of all road users under the Vision Zero approach. Vision Zero views human error on roadways as inevitable, and advocates for roadway and vehicle design that accounts for human mistakes .Vision Zero uses the "5 E Strategy" – education, encouragement, enforcement, engineering, and evaluation – to achieve zero fatalities and severe injuries on roadways. First implemented in Sweden in the 1990s, Vision Zero has achieved great success in Europe and continues to gain momentum internationally and throughout the US.

  The North Carolina Department of Transportation (NCDOT) adopted a Vision Zero program, NC Vision Zero, in 2016. NC Vision Zero serves as an umbrella organization for Vision Zero programs throughout the state. NC Vision Zero provides data, research, and other resources to support Vision Zero programs throughout North Carolina. NC Vision Zero has also assembled a statewide Vision Zero stakeholder group in order to facilitate communication between traffic safety stakeholders.

  On September 18, 2017, the Durham City Council adopted the Vision Zero Durham Resolution making Durham the first city in North Carolina, and the first among its peer cities nationally, to officially adopt a Vision Zero program. The Vision Zero Durham Resolution affirms the Durham's commitment to eliminating traffic deaths and serious injuries on Durham roadways, and provides a framework for City departments and community stakeholders to work together to achieve this goal. The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) passed a resolution in support of Vision Zero Durham on August 9, 2017. At the time of the 2045 MTP adoption, several other DCHC jurisdictions have begun to take action to adopt and implement Vision Zero programs.

- Video surveillance. The transit agencies in both MPOs (i.e. GoRaleigh, GoDurham, Chapel Hill Transit, GoCary, GoTriangle, and area human service providers) have or are in the process of providing on-board video surveillance cameras and transit station camera detection as a deterrent to crime; as well as providing Mobile Data Computers/Automatic Vehicle Locators on their vehicles. GoCary's paratransit vehicles have automated vehicle locator systems as well as video surveillance via DriveCam.

- Safe Routes to Schools (SRTS). The Capital Area MPO has created a regional Safe Routes to School program that is designed to coordinate SRTS activities throughout the MPO as well as provide policy leadership and technical assistance to local agencies and schools. Agencies within the Capital Area MPO are continuing to develop and implement SRTS activities that will benefit elementary schools and their adjacent neighborhoods throughout the community. Many local communities also have Safe Routes to Schools initiatives.

- Safety Metrics. Both MPOs include "Accident/Safety" metrics when determining the technical scoring and prioritization of roadway projects for their Transportation Improvement Programs.

- "Four Es" for Biking and Walking. Both MPOs have adopted bicycle and pedestrian plans that include four significant pillars to strengthen the role of bicycle and pedestrian facilities in overall transportation planning. The "Four-Es" (i.e. education, engineering, enforcement, and encouragement) bring attention to the importance of safety through various public service announcements in the local media focused attention to these key areas of transportation network development. Furthermore, both MPOs continue to remain active in promoting bicycle and pedestrian activities through events such as Bike to Work Week and the SmartCommute Challenge.

These programs impact the region's overall transportation culture by promoting bicycle and pedestrian traffic and travel as a valuable mode of movement through the region.

- Watch 4 Me NC Campaign. Both MPOs have incorporated within those adopted bicycle and pedestrian plans expansion of bicycle accommodations and walkway infrastructure through both on-road and off-road facilities. The presence of walkway infrastructure will have a significant impact in the reduction of pedestrian crashes (particularly an 88 percent reduction in "walking along road" pedestrian crashes). The concern about pedestrian safety in the state of North Carolina (currently recognized by FHWA as a "Pedestrian Emphasis" state) has encouraged NCDOT to host pedestrian safety classes. These classes have been taken by staff from both MPOs. Both MPOs, in cooperation with the North Carolina Highway Safety Research Center (HSRC) and NCDOT are participating in the initial "Watch 4 Me, NC" campaign. This campaign is intended to improve pedestrian safety through educational messages directed at pedestrians and drivers as well as encouraging police enforcement of current pedestrian laws. The MPOs, along with NCDOT and HSRC, continue to build off of the initial campaign in Raleigh, Durham, Chapel Hill, and Carrboro. Both MPOs continue work to extended the campaign to the region's other communities in future years. A bicycle safety campaign will also be conducted in future years as well.

- Incident Management. Both MPOs have funded an Incident Management Plan, which includes strategies for improving:
    - Responder safety
    - Safe, quick clearance activities
    - Prompt, reliable, interoperable communications

  The program directly addresses eight of the twelve strategies aimed at improving responder safety and safe, quick clearance of incidents; particularly along I-40, and other Interstate/freeway candidate facilities in the region. Both MPOs have been active with Incident Management Planning. Working on a project to improve the Traffic Incident Management Program in the Triangle, the two MPO pursued goals that involved reducing incident clearance time, increasing responder safety, reducing secondary incidents, and education of the public. The aforementioned pursuit was important based on the fact that for every minute traffic is disrupted, the chances for secondary crashes increase exponentially. The accomplishments included the following:

  Incident Management Summit – August 15, 2013
  A summit was held in August 2013 involving 60 people from various service agencies where presentations highlighted the need for coordinated traffic incident management were made and a demonstration exercise was performed. Positive feedback was received from online survey completed by the attendees. Mr. Whitley indicated 70% of all drivers do not know the state has fender bender and move over laws; therefore an effort must be made to make the public aware of those laws.

  Establishment of the Incident Management Subcommittee
  An Incident Management Subcommittee was created to develop a MOU for CAMPO and to develop a public education campaign for motorists. The MOU has been endorsed by the emergency response agencies throughout the region. It is a non-binding statement of principles but all agree that the MOU is important. Roles at incident scenes have been agreed upon by various responder agencies. This was taken to local police and fire associations with agreement from both groups.

  Media Buys using Radio/TV, Online, Billboards
  NCDOT worked in cooperation with the MPOs to purchase billboards to advertise a "Move Over and Fender Bender Laws Ad Campaign". NCDOT staff also worked to host a news conference that included the Secretary of NCDOT; as well as the leaders of the Incident management Subcommittee

to address the Move Over and Fender Bender Public Service Announcements (PSAs). Furthermore, NCDOT's Dynamic Messaging Signs (DMS) have been used to display the Move Over and Fender Bender PSAs; along with radio ads for a brief period of time. Finally, the NCDOT Communications staff has used social media to broadcast information concerning the laws.

Traffic Incident Management Memorandum of Understanding
The final draft of the MOU was presented and endorsed by both the Incident Management Subcommittee Meeting and the Congestion Management Process (CMP) Stakeholders Group meeting. The MOU was circulated throughout the region for review and adoption by local government boards.

- Safety Audits. Both MPOs receive Traffic Engineering Accident Analysis (TEAAS) data from NCDOT's Transportation Mobility & Safety Division. The aforementioned division uses the data for Road Safety Audits for state maintained roads. Both MPOs will continue to work with NCDOT's Transportation Mobility & Safety Division to utilize data from future road safety audits to prioritize and fund future road projects.

- Safety Countermeasures. Additional safety countermeasures that are utilized by both state and local agencies within both MPOs include:
    - buffers or planting strips,
    - marked crosswalks,
    - "road diets" (narrowing or eliminating travel lanes on roadways)
    - traffic calming/traffic control devices.

  Both MPOs will support safety countermeasures on roads, and at signalized and unsignalized intersections where needed to ensure safety for the travelling public.

- ITS safety. Both MPOs were a part of the Triangle Regional ITS Strategic Deployment Plan Update that was finalized in May 2010. One of the goals of the ITS Strategic Deployment Plan is to "*Advance safe and efficient movement of people and goods throughout the region".* The three objectives associated with the goal include:
    - *Clear 90% of incidents in 60 minutes or less on the principle arterial network,*
    - *Reduce the number of crashes per 100 million vehicle miles by 10% over a three-year floating average on the principle arterial network, and*
    - *Decrease secondary incidents by 10% on the principle arterial network*

9.4 Critical Environmental Resources

The Capital Area MPO and DCHC MPO evaluated the 2045 MTP's impact on critical environmental factors. Developing a transportation system that provides mobility and access while protecting health, the environment, cultural resources, and social systems is important to both MPOs. Compliance with local, state, and federal laws and regulations is critical to the development of all transportation projects. The MPOs recognize that the MTP is one of the first steps in developing viable transportation projects that meet these laws and regulations. In addition, the MPOs recognize the tremendous impact that transportation projects have on land development patterns. The transportation network and land use regulations must be complimentary and work together to protect critical environmental resources.

This environmental evaluation at the long-range planning phase is the beginning of more extensive review. The NCDOT uses the Merger process to more effectively implement Section 404 of the Clean Water Act during the NEPA/SEPA decision-making phase of transportation projects. The MERGER process is supported by USACE, NCDENR, FHWA, stakeholder agencies and local units of government to more effectively mitigate environmental impacts such as those from storm water runoff.

The MPOs' environmental analysis was a voluntary effort coordinated with representatives from environmental and cultural resource agencies. At this stage in project development, it is impossible to conclusively and comprehensively analyze the impact each project may have on the environment. This analysis does not substitute for the more thorough project-level analysis that is required as part of the National Environmental Protection Act. The analysis below was intended to identify and flag early in the process projects that might have significant impacts on the environment and that might require costly mitigation measures.

For this analysis, the MPOs looked at all of the projects in the Comprehensive Transportation Plan project lists to ensure that a comprehensive record of all of the potential future projects was being evaluated. Many of the CTP projects are not in the final adopted 2045 MTP, and are considered to be beyond the 2045 time horizon of the plan. The MPOs created maps of the CTP projects overlaid on several environmental and cultural GIS files. The maps are grouped in the following themes with the following datasets:

- Biodiversity and Wildlife Habitat
    - NC Conservation Planning Tool – Biodiversity and Wildlife Habitat Assessment – this dataset classifies areas from 1 to 10 based on several metrics
    - Managed Areas
    - Conservation Tax Credit Properties
- Development
    - Hospitals
    - Schools (Public and Private) Colleges or Universities
    - Airports
    - Water and Sewer Service Boundaries
- Farmland
    - NC Conservation Planning Tool – Farmland Assessment – this dataset classifies areas from 1 to 10 based on several metrics
    - Voluntary Agricultural Districts
- Forest
    - NC Conservation Planning Tool – Forestry Lands Assessment – this dataset classifies areas from 1 to 10 based on several metrics
- Gamelands, Hunting Buffers, and Smoke
    - Gamelands
    - Gameland Hunting Buffers
    - Smoke Awareness Areas
- Hazards
    - Hazardous Waste Sites
    - Animal Operation Facilities
    - Active Permitted Landfills
    - Hazardous Substance Disposal Site
- Historic Sites
    - Local Landmarks
    - Local Historic Districts
    - National Register Historic Sites
    - National Register Historic Districts
- Jurisdictions
    - Jurisdictional Boundaries – This map is designed to identify the local jurisdiction that has planning and zoning authority in the vicinity of a project. Since each jurisdiction has different

zoning classifications and methodologies, a comprehensive zoning map could not be developed for the entire region.

- Parks and Recreation
  - Open Space and Conservation Lands
  - Boat Access Ramps
  - Trails
  - Greenways
  - Local and State Parks
- Water Resources
  - Impaired Streams
  - Outstanding Resource Management Zones
  - Ecosystem Enhancement Program
  - Target Local Watersheds
- Water Supply
  - Public Water Supply Sources
  - National Pollutant Discharge Elimination System (NPDES) Permitted Sites
  - Surface Water Intake
  - Water Supply Watersheds
  - Nutrient Sensitive Waters
- Wetlands and Floodplains
  - Floodplain Mapping Information Systems (FMIS)
  - Floodplains Wetlands

In addition, the DCHC MPO also sent GIS shape files to resource agencies during the public review process. The agencies contacted were:

- United States Army Corps of Engineers
- NC Department of Natural Resources
- NC Wildlife Resources Commission
- United States Environmental Protection Agency
- United States Fish and Wildlife Service
- NC Department of Cultural Resources
- NC Department of Commerce
- NC Department of Environment and Natural Resources

The maps are shown in Appendix 12. Larger versions of the maps are posted on the MPOs' websites.

9.5 The Fixing America's Surface Transportation (FAST) Act and the 2045 Metropolitan Transportation Plan

The FAST Act initiated some new planning rules in *23 CFR 450* that are relevant to the MPOs' long-range transportation plans. The new planning rules (paraphrased in italics) and a discussion of how the MPOs have responded are presented below.

1. *New Planning Factors –306 (b)(9)(10)*
   A. *Improve resiliency and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation*

The resiliency and reliability of the transportation system has improved under the 2045 MTP because the investment in highway maintenance has substantially increased. In the previous MTP, the 2040 MTP, highway maintenance expenditures were 30% of the total non-transit budget. That figure is approaching 50% for both MPOs in the 2045 MTP.

In terms of storm water impacts, the local planning departments and NCDOT and the many resource agencies have taken an aggressive approach in implementing the state and federal regulations to limit the impacts from private structures and surface transportation. NCDOT continues to use the Merger process, which is supported by USACE, NCDENR, FHWA, stakeholder agencies and local units of government, to effectively implement Section 404 of the Clean Water Act during the NEPA/SEPA decision-making phase of transportation projects.

B. *Enhance travel and tourism*

The Triangle is not considered a travel or tourism destination. Nonetheless, the location of major universities draws travel to the area for university related special events, and some roadways such as I-40 serve as principal travel corridors for those traveling to the mountains or beaches. The 2045 MTP has a substantial investment in the roadways and public transportation that provide access to the major universities because the land use and travel modeling processes identify those areas as employment and education centers. Those centers and the subsequent forecasted congestion attract needed roadway improvements and transit services. For example, light rail or commuter rail provides access to all of the four major universities in the Triangle. In addition, there are major roadway improvements planned for those campuses, as well. In terms of tourism travel that passes through the Triangle, those travel corridors such as I-40 and the future I-87 will receive major capacity improvements.

2. *The MPO shall set performance targets no later than 180 days after the State or Public Transportation Provider establishes performance targets – 306 (d)(3)*

The CAMPO and DCHC MPO have approved these performance targets within the 180-day timeframe as the NCDOT and/or local public transportation providers have established them. The MPOs approved performance measures and targets for transit assets and State of Good Repair (SGR) on June 14, 2017 (DCHC MPO) and June 21, 2017 (CAMPO).

By February 27, 2018, CAMPO and DCHC MPO must support the NCDOT's safety targets or develop MPO targets. The CAMPO and DCHC MPO decided to support the NCDOT's safety targets.

By May 20, 2018, The NCDOT will set targets for The Highway Infrastructure Condition Performance Measure and the System Performance/Freight/CMAQ Performance Measures. The CAMPO and DCHC MPO must decide to support the NCDOT's targets or set their own 180 days (November 16, 2018) after the state sets their target. The CAMPO and DCHC MPO resolutions supporting the NCDOT's targets or showing the MPO developed target will be amended into the MTP.

3. *The MPO and public transportation providers shall jointly agree upon and develop specific written provisions for developing and sharing information related to the following -- 314(h):*
    a. *Transportation performance data*
    b. *The selection of performance targets*
    c. *The reporting of performance targets*
    d. *The reporting of performance data to be used in tracking progress toward attainment of critical outcomes*
    e. *The collection of data for the State asset management plan for the NHS*

The MPOs and transit providers are working on agreements that will likely be part of an inter-local agreement. This agreement will need to be completed no later than May 27, 2018.

4. *Documented Participation Plan shall include – 316(a):*
    a. *Public ports* – There are not any ports in the MPO's planning area.

    b. *Private providers of intercity bus operators* – Local transit systems coordinate and share facilities with the private, intercity bus operations. For example, the Durham Central Transit Station, which provides access to local fixed-route and regional transit systems, also has access to Greyhound and Mega Bus services. The MPO Technical Committees (TC) have designated a member from these private providers but they do not attend the TC meetings. The MPOs will continue to coordinate with private providers by sending them participation information through public input processes.

    c. Employer based commuting programs – The Triangle J Council of Governments (TJCOG) coordinates the Triangle TDM program for the entire Triangle Region. Chapter 7 of this report summarizes the TDM program. The following TDM Web page has program details that demonstrate the breadth and effectiveness of the program: http://www.tjcog.org/triangle-transportation-demand-management-program.aspx

    d. Vanpool programs – These programs are an integral and successful part of the Triangle TDM program. See subpart "c" above.

    e. Transit benefit programs – These programs are an integral and successful part of the Triangle TDM program. See subpart "c" above.

    f. Parking cash-out programs – Local government, transit agency and downtown organization planners have promoted parking cash-out programs to large residential developments, employment centers and universities. For example, local planners discuss unbundling "free" parking spaces from apartment rental fees with developers and property management firms. However, the MPOs are not aware of any bona fide parking cash-out programs in the region.

    g. Shuttle or telework programs -- These programs are an integral and successful part of the Triangle TDM program. See subpart "c" above.

5. *The MPO shall consult with agencies and officials responsible for other planning activities within the MPA when developing the MTP and TIP MPO – 316(b)*
    a. *Tourism* – The MPOs do not have specific internal requirements to work directly with tourism focused agencies. This requirement will be added to the next update of the MPO's public participation plan.

    b. *Natural disaster risk reduction* – The MPOs do not have specific internal requirements to work directly agencies that are focused on the reduction of natural disaster risks. This requirement will be added to the next update of the MPO's public participation plan.

6. *MPO has option to conduct and include PEL process – 318(e)*
The MPOs have not conducted the PEL process.

7. *MPO shall have Congestion Management Process – 322*
    a. *An MPO serving a TMA may develop a congestion management plan*

The MPOs have approved Congestion Management Process plans and have implemented the plans through completion of System Status Reports and other reports such as a Mobility Report Card.

b. *Consider employer-based travel demand reduction strategies: intercity bus, employer-based programs, carpool, vanpool, transit benefits, parking cash-out, telework, job access projects.* The Triangle TDM program, which is summarized in chapter 7 of this report, makes use of these strategies. The following TDM Web page identifies the strategies and evaluates their effectiveness: http://www.tjcog.org/triangle-transportation-demand-management-program.aspx

8. *MPO shall include the consideration of intercity bus service – 324 (f)(2)*
   See the response to #4-c above.

9. *MPO shall have performance targets – 324(f)(3)(4)*
   a. *MTP shall include a description of the performance measures and targets used in assessing the performance of the transportation system*
   b. *A system performance report evaluating the condition and performance of the transportation system with respect to the performance targets including progress achieved by the MPO to reach performance targets*

   The response in item number 2, addresses the CAMPO and DCHC MPO timeline for addressing the federal performance measures. In addition, as detailed in chapter 4 of this report, the MPOs have established a set of both MTP performance measures/ targets and federal performance measures that are aligned with the MPOs goals and objectives.

   Related Performance Based Plans
   There are several other plans maintained by transportation agencies that feed into performance management or include aspects of performance management. It is important that the goals and objectives of those plans are incorporated into the MPOs overall performance based planning efforts. The following plans contain applicable performance management components.

   - NCDOT Strategic Highway Safety Plan (SHSP)
   - Transportation Asset Management Plan (*for the National Highway System*)
   - Congestion Management Process (CMP)
   - Transit Asset Management (TAM) Plan
   - Public Transportation Agency Safety Plan

10. *MPO may voluntarily elect to conduct scenario planning – 324(f)(4) (ii)*
    As detailed in the land use plans and policies and Alternatives Analysis sections of chapter 5 of this report, the MPOs have made extensive use of scenario planning. Different land use plans are matched with different sets of transportation investments (e.g., large highway investments, large fixed-guideway investments) to create modeled outputs.

11. TIP shall include to the maximum extent practicable – 326(d)
    a. *Description of the anticipated effect of the TIP toward achieving the performance targets identified in the MTP*
    b. *Link investment priorities in the TIP to achievement of performance targets in the plans*

    The MPOs will provide written text and analysis as the performance measures take effect and as the Transportation Improvement Programs (TIP) under the 2045 MTP are updated and implemented.