

2045 MTP – Draft Preferred Option

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www.bit.ly/DCHC-MTP

Land Use (Socioeconomic Data)

Background

The MPO forecasts socioeconomic data (SE Data), such as dwelling units, population and employment, to the year 2045 and uses that data as a key input into the travel demand model called the Triangle Regional Model, or TRM). The process starts with the 2045 guide totals, which are county- level population and employment projections for the year 2045, and proceeds to the Community Visualization (CommViz) model that distributes the dwelling units and employment to particular parcels based on land availability and suitability.

The following MPO Web page provides detailed information on the methodologies used for the guide totals and CommViz modeling process, as well as maps showing the projected population and employment distribution: <http://bit.ly/DCHC-MTP-LandUse>

Guide Totals

The MPO establishes the 2045 county-level population and employment to calculate the growth that the CommViz model process will distribute. The population is based on estimates and projections from the N.C. Office of State Budget and Management, and the employment projection is based on a private service from Woods-and-Poole Economics. The employment current employment estimate is based on employer data from InfoUSA that is verified and updated by local planners. The following table provides the guide totals:

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

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

Scenarios

The 2045 MTP uses the Connect 2045 Triangle area land use modeling process, which is based on a model called Community Visualization (or CommViz). The Connect 2045 team created two land use scenarios with the direct assistance of local land use planners throughout the Triangle area. In these scenarios, the CommViz model distributes the county-level guide totals of population and employment growth to a particular place.

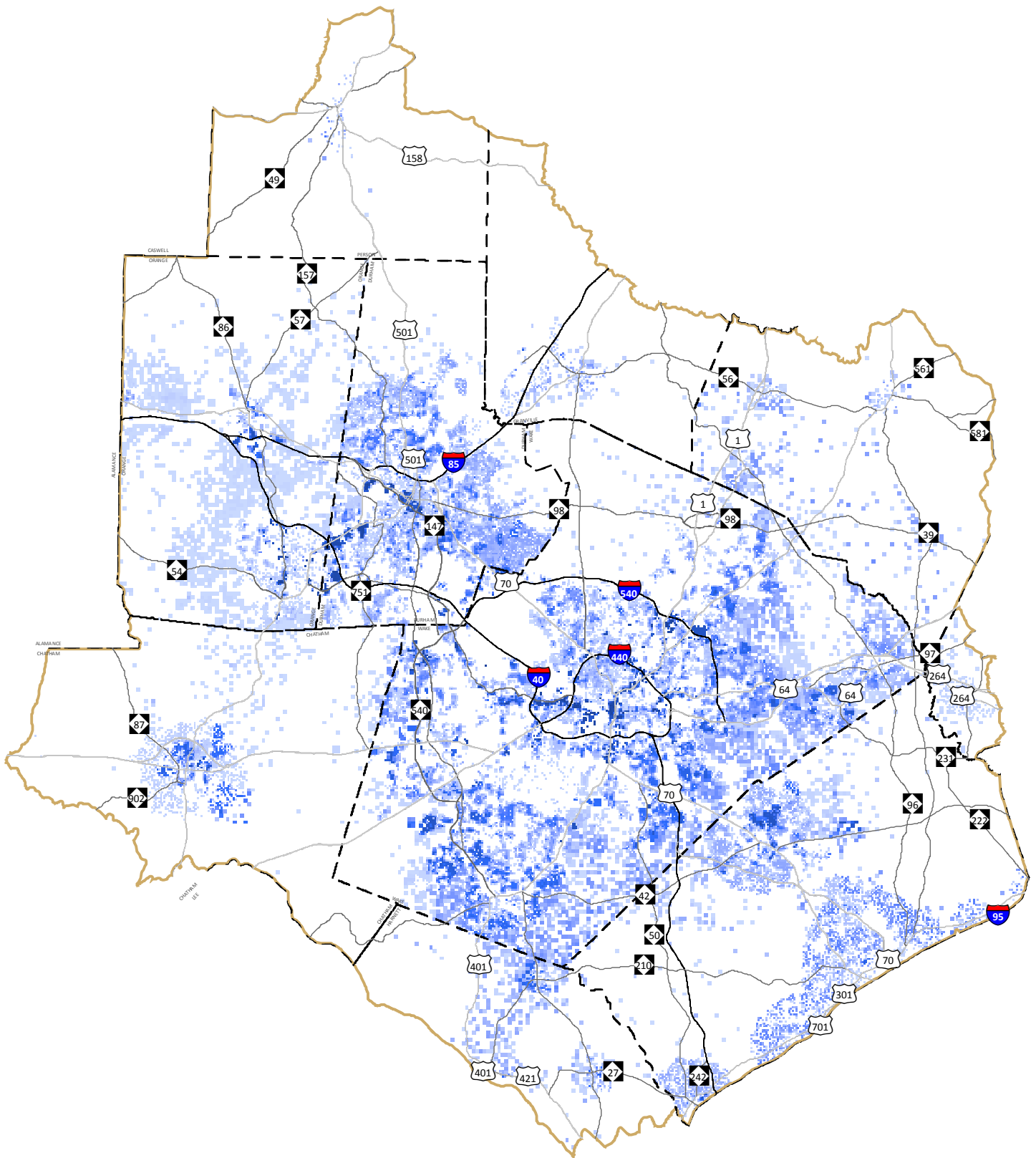
- Community Plan – This scenario is based on the local comprehensive plans and land use policies, and can be understood as the most likely scenario.
- AIM-High – This scenario uses the Community Plan scenarios as a base but increases the land use density and mix around the future light rail. It is based on draft data from an ongoing regional study on rail station development potential, and though it pushes the limits it is still market possible.

Preferred Option Uses AIM-High



The MPO staff proposes using the AIM-High scenario for the Preferred Option. AIM-High is within the market possibilities of rail station development and it proved to have desired, positive impacts on the performance measures such as reduced overall congestion and delay.


Maps

The maps on the following pages show the distribution of the growth of households and employment from 2013 through 2045 in the Triangle Region and the three counties in the MPO. The set of household maps are presented first, followed by the employment maps.

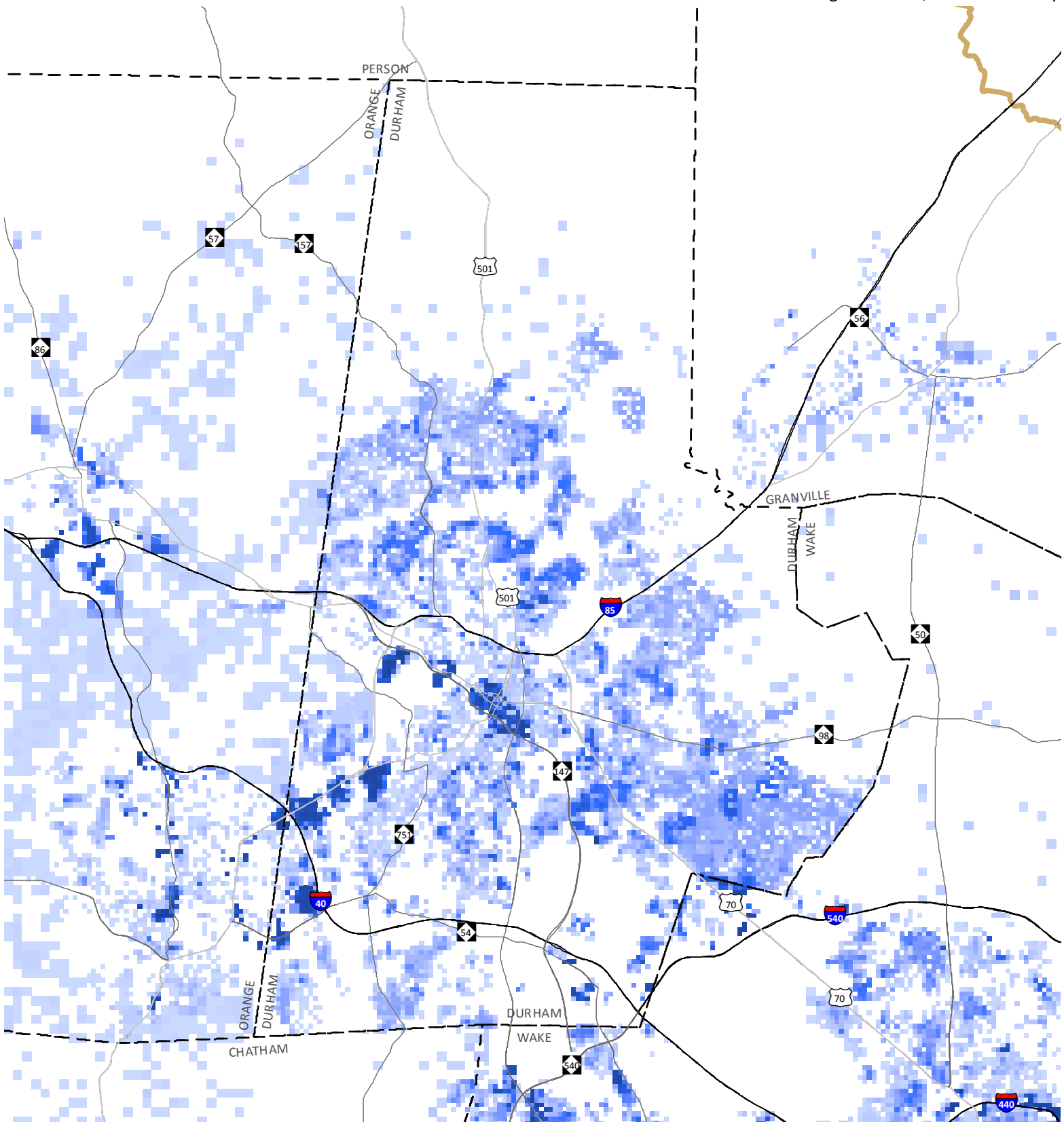


Regional Composite Map - New Household Distribution - 32-Year Forecast (2013-2045)

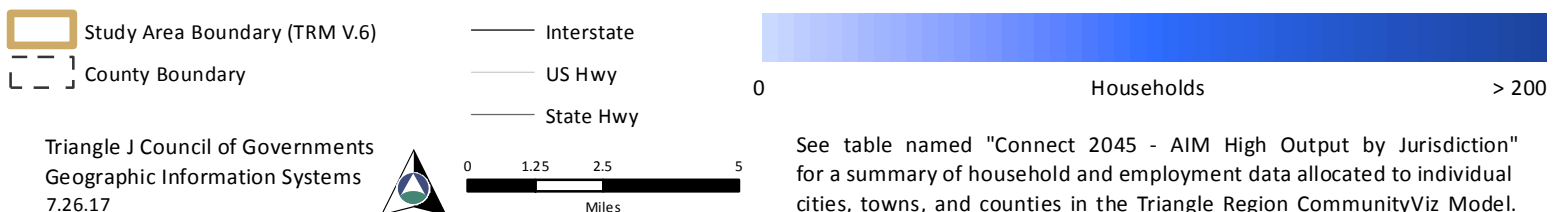
-  Study Area Boundary (TRM V.6)
-  County Boundary

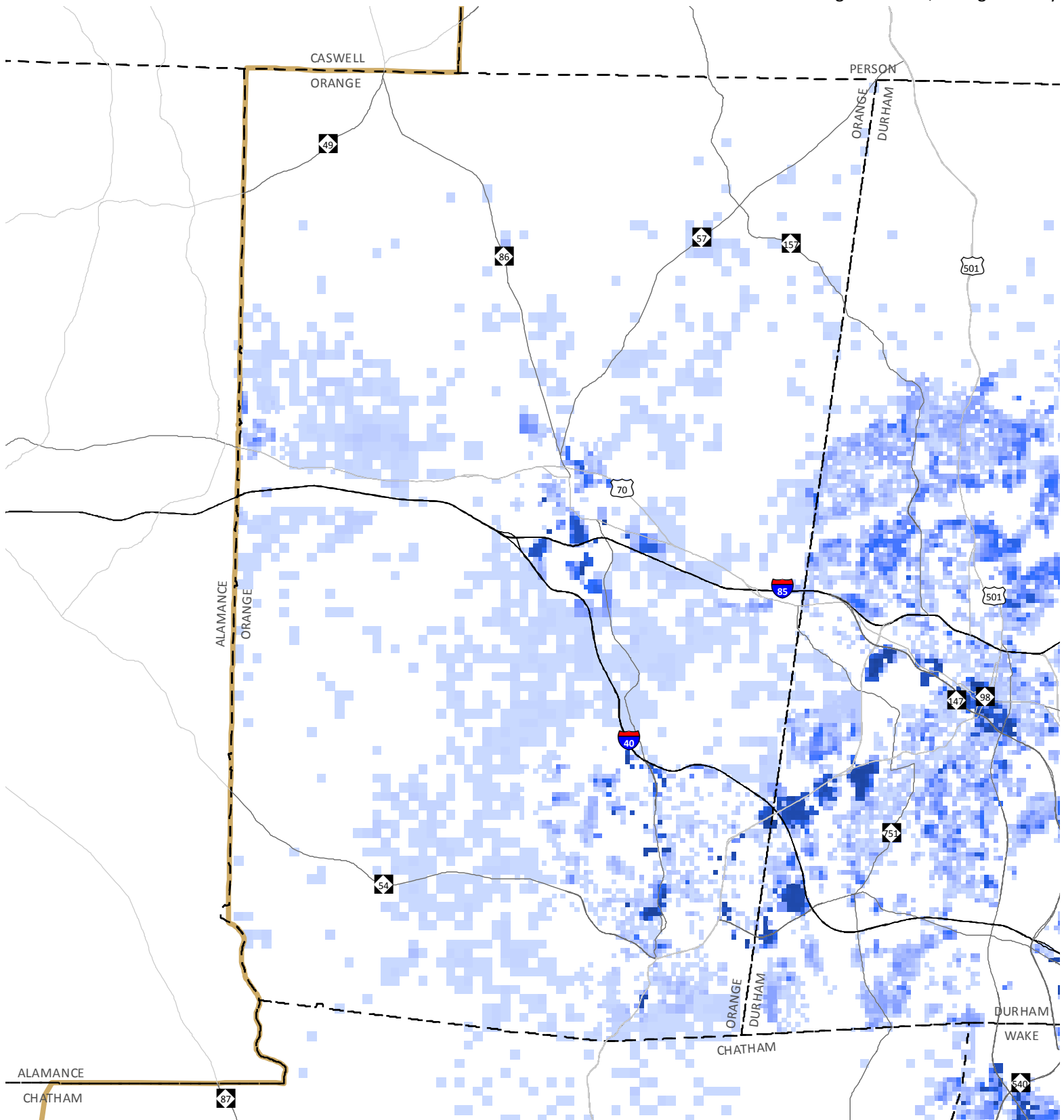
-  Interstate
-  US Hwy
-  State Hwy







Regional Composite Map - New Household Distribution - 32-Year Forecast (2013-2045)

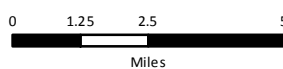




Regional Composite Map - New Household Distribution - 32-Year Forecast (2013-2045)

-  Study Area Boundary (TRM V.6)
-  County Boundary

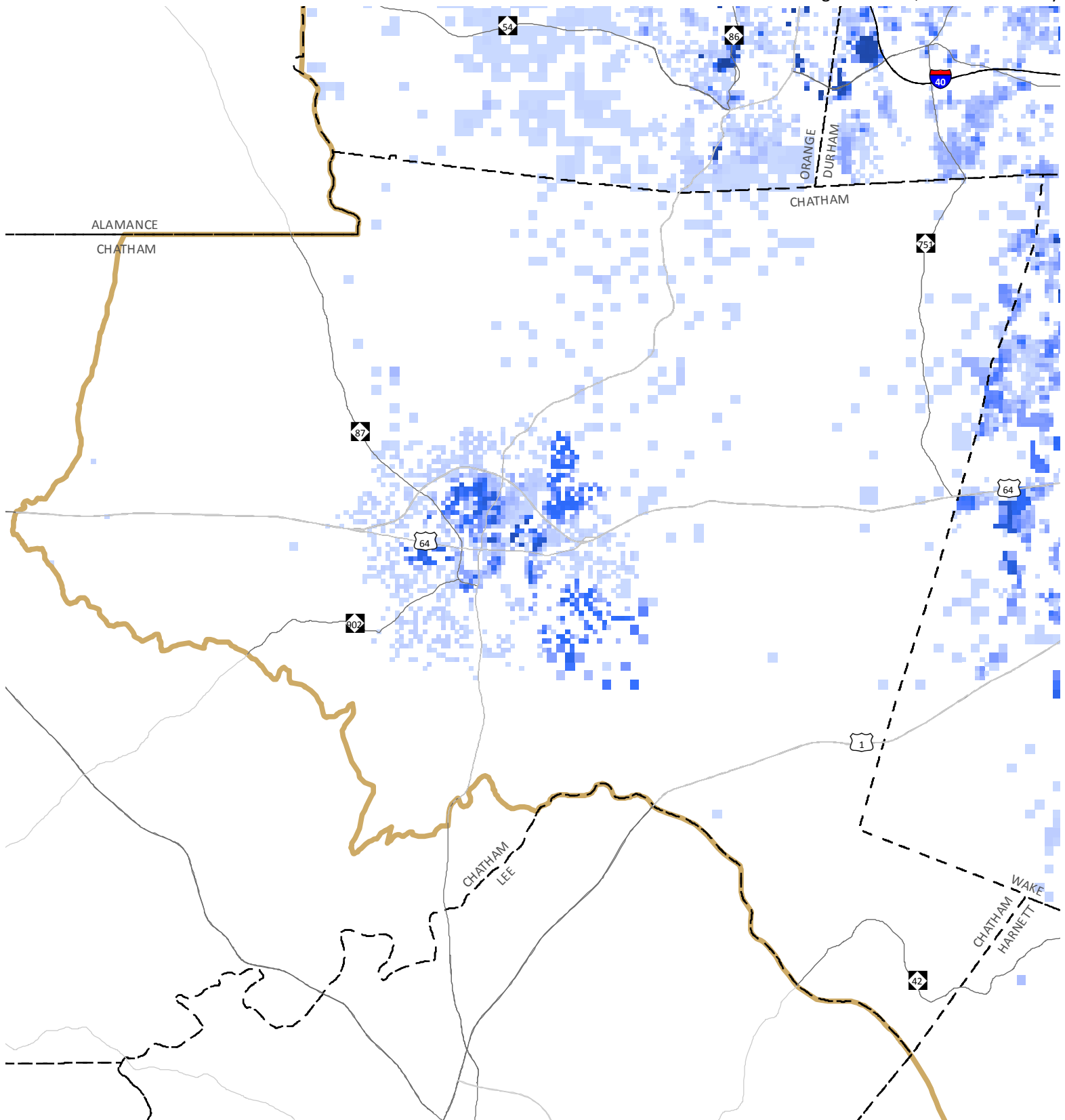
-  Interstate
-  US Hwy
-  State Hwy



Connect 2045 - Triangle Region Scenario Planning

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AIM High Scenario, Chatham County



Regional Composite Map - New Household Distribution - 32-Year Forecast (2013-2045)

Study Area Boundary (TRM V.6)
County Boundary

Interstate
US Hwy
State Hwy

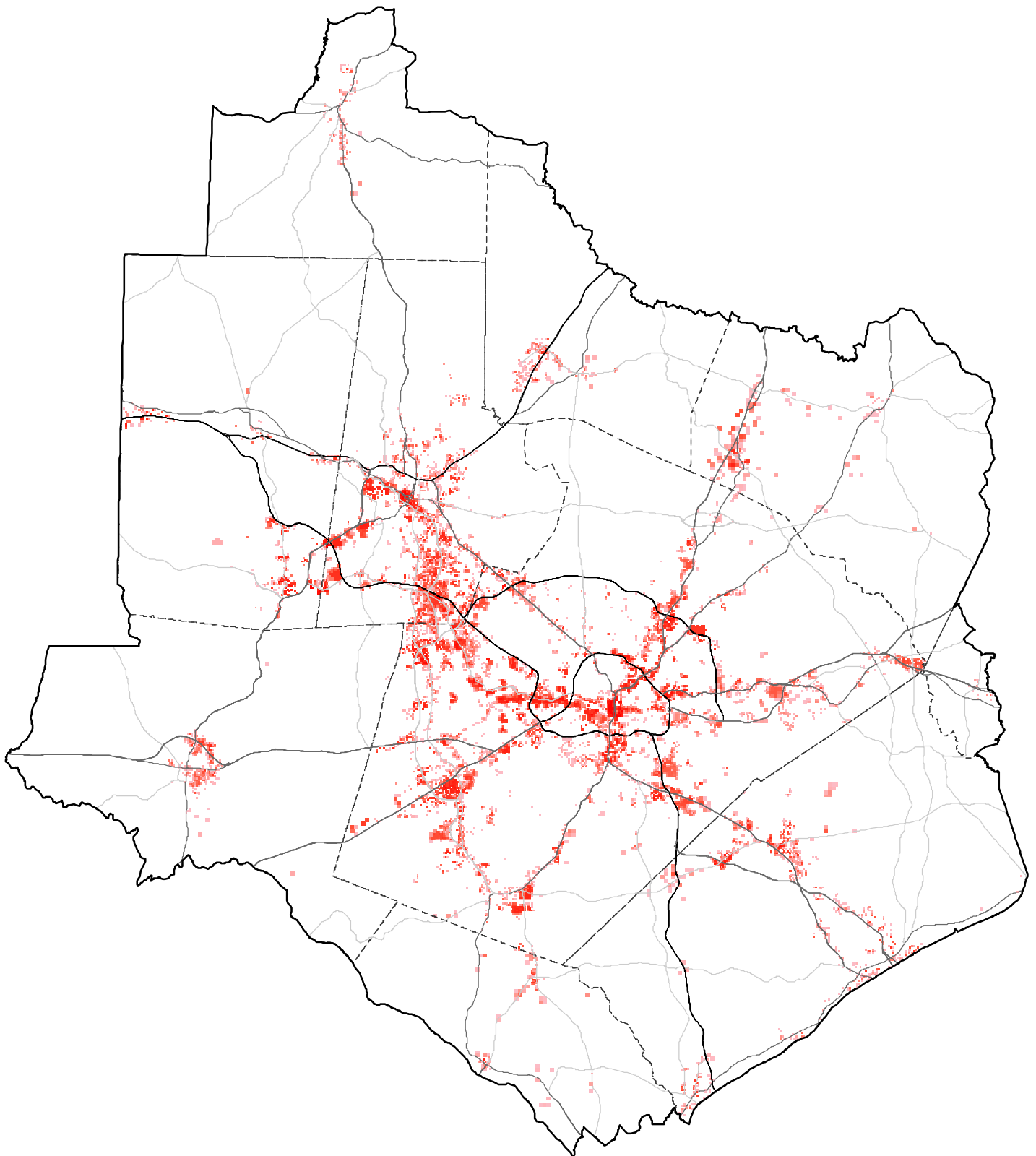
0 Households > 200

Triangle J Council of Governments
Geographic Information Systems
7.26.17







0 1.25 2.5 5
Miles

See table named "Connect 2045 - AIM High Output by Jurisdiction" for a summary of household and employment data allocated to individual cities, towns, and counties in the Triangle Region CommunityViz Model.



Regional Composite Map - New Employment Distribution - 32-Year Forecast (2013-2045)

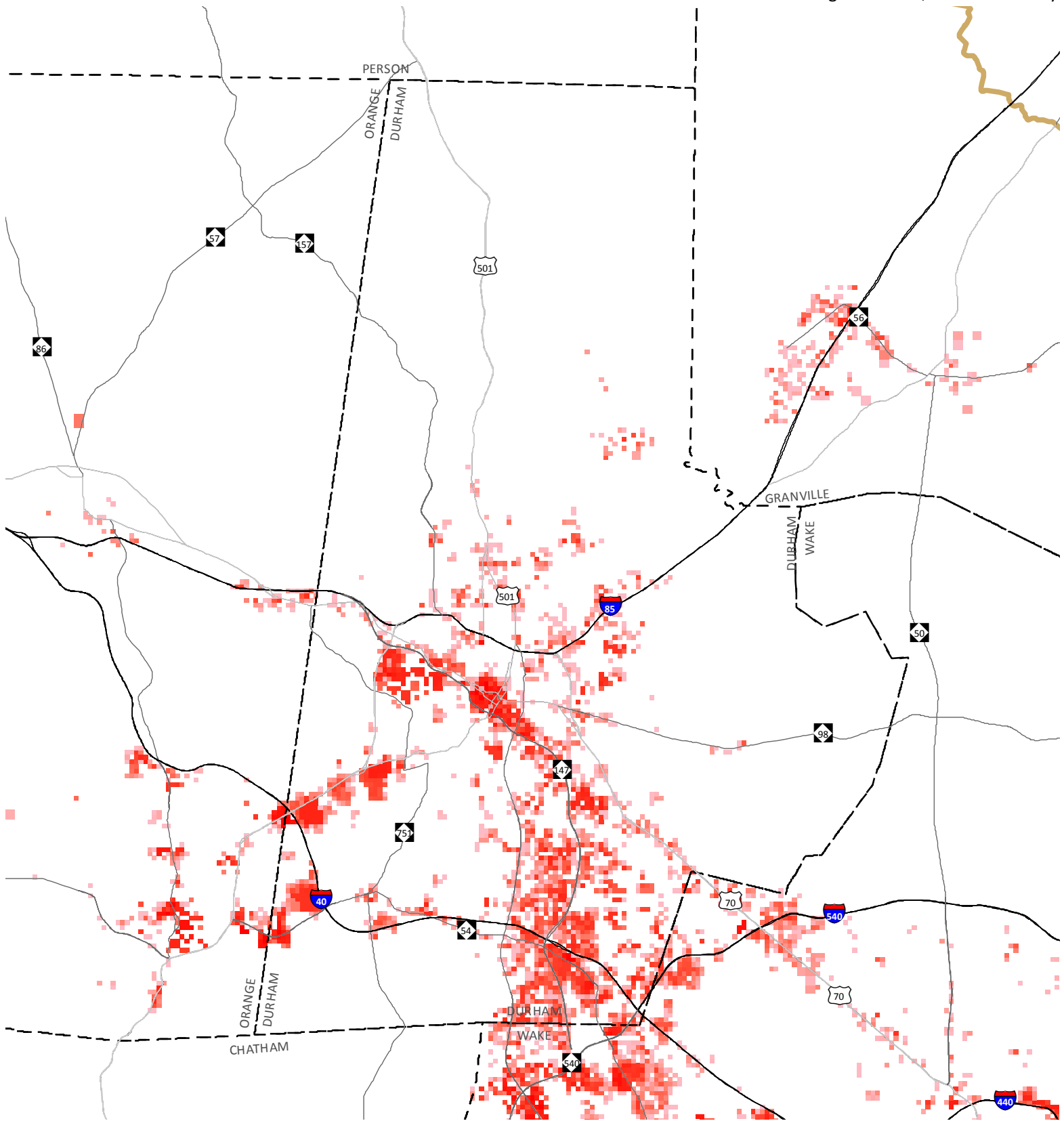
 County Boundaries
  Interstates/ Freeways
 US Highways
 NC Highways

0 Employees > 1000

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AIM High Scenario, Durham County



Regional Composite Map - New Employment Distribution - 32-Year Forecast (2013-2045)

Study Area Boundary (TRM V.6)

County Boundary

Interstate

US Hwy

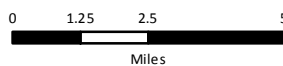
State Hwy

0

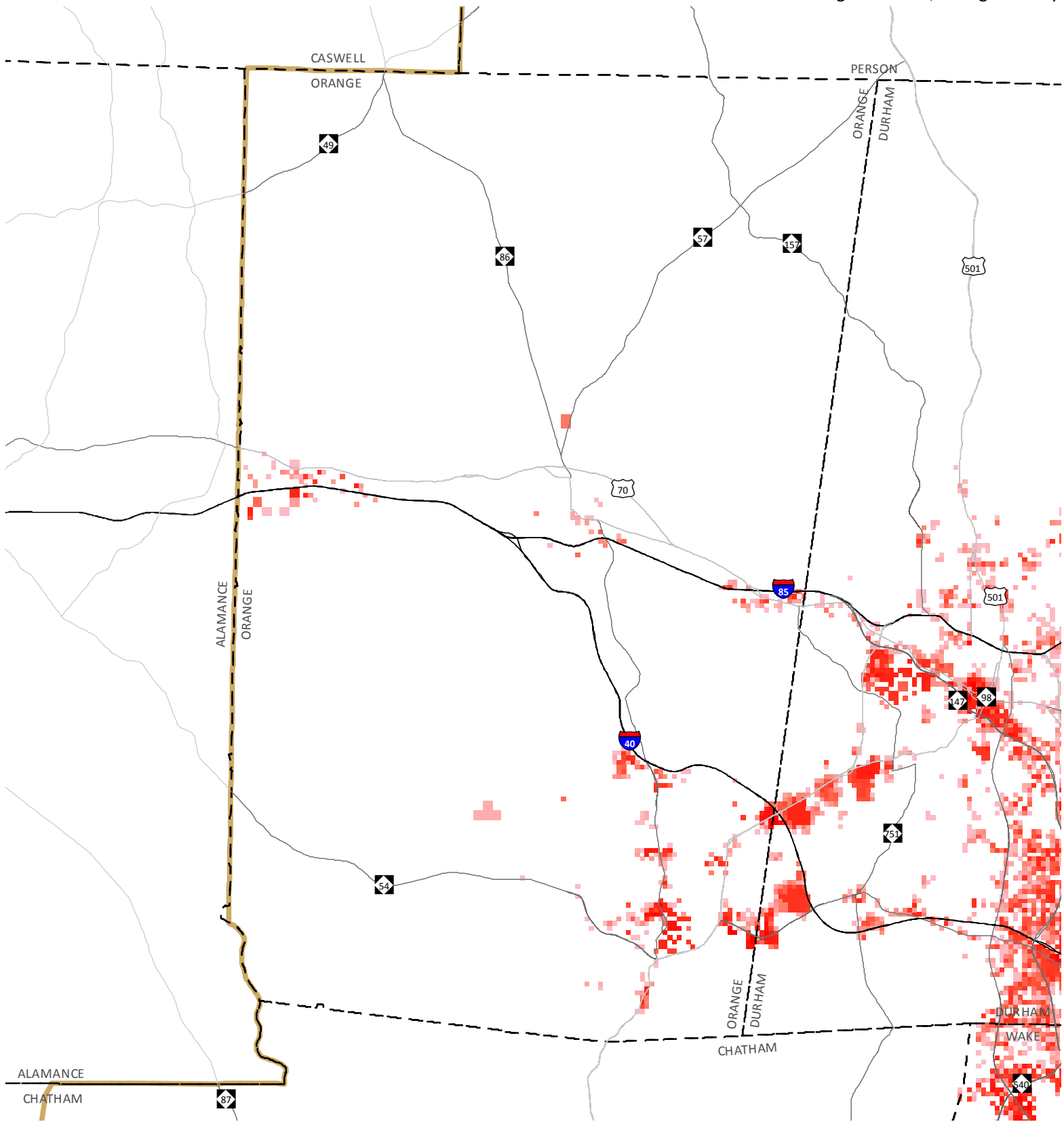
Employees

> 1,000

Triangle J Council of Governments
Geographic Information Systems
7.26.17



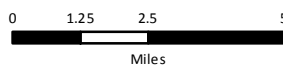
See table named "Connect 2045 - AIM High Output by Jurisdiction" for a summary of household and employment data allocated to individual cities, towns, and counties in the Triangle Region CommunityViz Model.



Regional Composite Map - New Employment Distribution - 32-Year Forecast (2013-2045)

- Study Area Boundary (TRM V.6)
- County Boundary

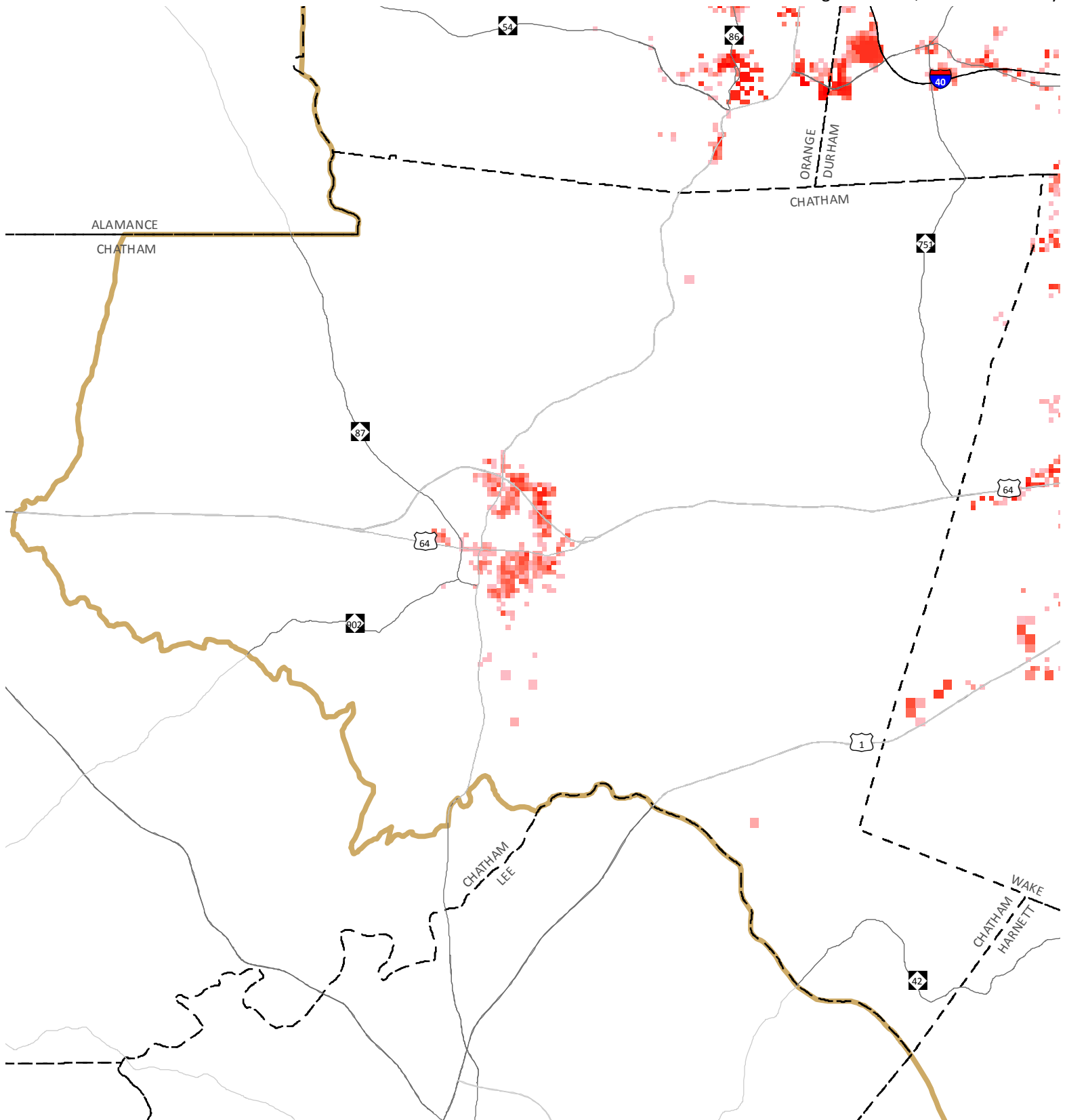
- Interstate
- US Hwy
- State Hwy



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AIM High Scenario, Chatham County



Regional Composite Map - New Employment Distribution - 32-Year Forecast (2013-2045)

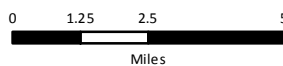
Study Area Boundary (TRM V.6)
County Boundary

Interstate
US Hwy
State Hwy

0

Employees

> 1,000



Highways

Background

The highway and interchange projects to be included in the Preferred Option are shown in the maps and tables below. Projects were selected based on their ability to promote the MPO's draft Goals and Objectives and the expected availability of funding.

The MTP designates and funds the highway projects by the decade in which the project will be completed for operation, i.e., current to 2025, 2026 to 2035 and 2036 to 2045. This designation helps demonstrate that the MTP is accountable to the federal fiscal constraint requirement. The North Carolina Strategic Transportation Investments (STI) funding tiers, i.e., St = statewide, Reg = regional or Div = division, are identified to abide by the current state funding process.

For the most part, new and upgraded interchanges are assumed to be part of the highway projects that are listed and therefore are not commonly listed separately. However, the fiscal year 2018-2027 Transportation Improvement Program (TIP) has listed eight new or upgraded interchanges as separate projects from the highway project. The 2045 MTP highway map and table show these as separate projects, as well.

Highway Map

The highway map on the next page shows the proposed highway improvements for the 2045 MTP. An interactive online map is also available at the Preferred tab on the 2045 MTP Web page: www.bit.ly/DCHC-MTP

The DCHC MPO adopted a multimodal Comprehensive Transportation Plan (CTP) in May 2017, which contains a larger set of proposed projects because the CTP is not fiscally-constrained. See the interactive online map called Highways and Intersections at the following link to view the CTP highways that were considered for possible inclusion in the 2045 MTP: www.bit.ly/DCHCMPO-Adopted-CTP

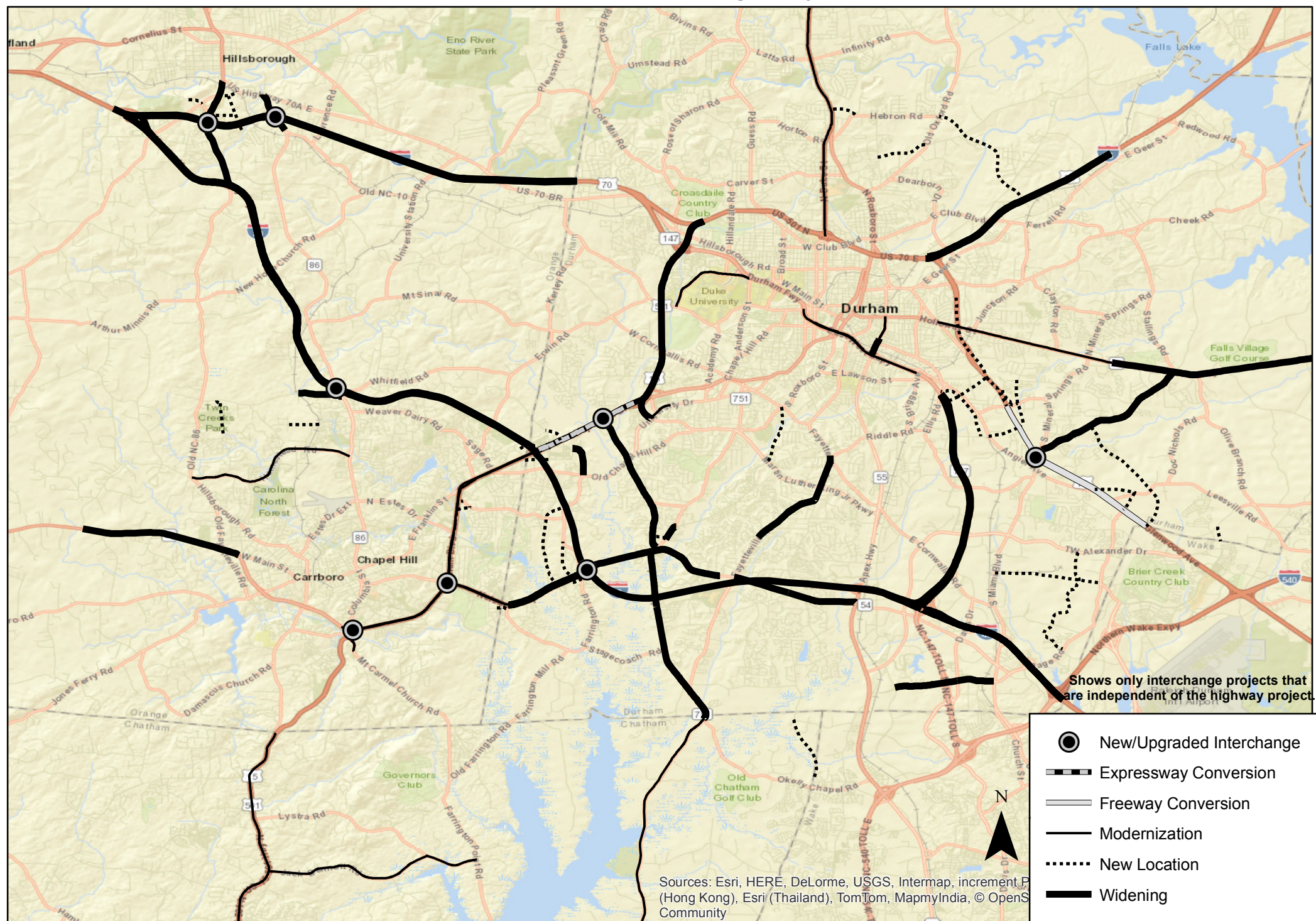
Highway Table

The highway table breaks the projects into the three funding decades, i.e., 2025, 2035 and 2045, and then lists them alphabetically.

2045 Metropolitan Transportation Plan (MTP)

Preferred Option -- Highways

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2045 Metropolitan Transportation Plan (MTP)

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Preferred Option -- Highway Project List

Highway Project	From	To	Existing Lanes	Proposed Lanes	Improvement Type	Length (miles)	Estimated Cost	STI	Funding Source
2025 MTP									
Brier Creek Pkwy Extension	T.W. Alexander Dr	Andrew's Chapel Rd	-	4	New Location	0.4	3,990,000	Div	Private
Carver St Ext*	Armfield St	Old Oxford Rd	-	4	New Location	1.0	8,185,000	Div	State/Fed
East End Connector (EEC)*	NC 147	US 70	-	4	New Location	3.6	140,700,000	St	State/Fed
Eubanks Rd	MLK Blvd (NC 86)	Millhouse Rd	2	4	Widening	0.8	7,487,000	Div	State/Fed
Fayetteville Rd	Barbee Rd	Cornwallis Rd	2	4	Widening	1.0	3,374,000	Div	State/Fed
Fayetteville Rd	Woodcroft Pkwy	Barbee Rd	2	4	Widening	1.3	4,661,000	Div	State/Fed
Fordham Blvd (US 15-501)	I-40	Franklin St	4	4	Modernization	1.6	2,052,000	St	State/Fed
Freeland Memorial Extension	S Churton St	New Collector Rd	-	2	New Location	0.5	3,203,000	Div	Private
I-40/NC 86	Interchange		-	-	Upgrade	N/A	16,500,000	St	State/Fed
I-40 (westbound auxiliary lane)	NC 147	NC 55	6	7	Widening	1.2	3,850,000	St	State/Fed
Legion Rd Ext	Legion Rd	Fordham Blvd	-	2	New Location	0.1	1,500,000	Div	Private
Lynn Rd/Pleasant Dr Connector	Lynn Rd	Pleasant Dr	-	2	New Location	0.6	3,651,000	Div	Private
NC 147 (Operational Improvements)	Briggs Ave	W Chapel Hill St	4	4	To Be Determined	1.7	58,400,000	St	State/Fed
NC 147 (possible Managed Lanes)	East End Conn	I-40	4	8	Widening	4.9	179,248,000	St	State/Fed
NC 54	Old Fayetteville Rd	MPO Boundary	2	3	Widening	2.9	14,457,000	Reg	State/Fed
NC 55 (Alston Ave)*	NC 147	Main St	2	4	Widening	0.4	13,934,000	Reg	State/Fed
NC 55 (Alston Ave)*	Main St	NC 98	2	2	Modernization	0.5	17,252,000	Reg	State/Fed
New Collector Rd	Orange Grove Rd Ext	Becketts Ridge Rd	-	2	New Location	0.8	7,232,000	Div	State/Fed/ Private
Orange Grove Connector	Orange Grove Rd	US 70	-	2	New Location	0.4	5,299,000	Div	State/Fed
Purefoy Rd Ext	Sandberg Ln	Weaver Dairy Rd	-	2	New Location	0.6	3,777,000	Div	Private
S Elliot Rd Ext	Fordham Blvd	Ephesus Church Rd	-	2	New Location	0.3	4,230,000	Div	State/Fed/ Private
US 70 (freeway conversion)	Pleasant Dr	S Miami Blvd	4	6	Freeway	1.6	111,020,000	St	State/Fed
Woodcroft Pkwy Ext	Garrett Rd	Hope Valley Rd	-	2	New Location	0.2	2,219,000	Div	State/Fed
US 15-501/Garrett Rd	Interchange		-	-	New Interchange	N/A	71,200,000	St	State/Fed
US 70/Miami Blvd	Interchange		-	-	New Interchange	N/A	46,621,000	St	State/Fed

STI roadway tier: St = statewide; Reg = regional; Div = division

2045 Metropolitan Transportation Plan (MTP)

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Preferred Option -- Highway Project List

Highway Project	From	To	Existing Lanes	Proposed Lanes	Improvement Type	Length (miles)	Estimated Cost	STI	Funding Source
2035 MTP									
Danziger Dr Extension	Mt Moriah Rd	E Lakewood Dr	-	2	New Location	0.4	5,127,000	Div	State/Fed
Erwin Rd	Cameron Blvd	W Main St	4	4	Modernization	1.8	12,025,000	Div	Private
Falconbridge Rd Connector	Falconbridge Rd	Farrington Rd	-	2	New Location	0.2	1,227,000	Div	State/Fed
Falconbridge Rd Extension	Farrington Rd	NC 54	-	4	New Location	0.9	16,685,000	Div	State/Fed/ Private
Farrington to I-40 eastbound slip ramp	Farrington Rd	I-40	-	1	New Location	0.1	1,600,000	Div	State/Fed
Fordham Blvd (US 15-501)	NC 54	Franklin Street	4	4	Modernization	2.1	45,498,000	St	State/Fed
Fordham Blvd (US 15-501)	NC 54	US 15-501	4	4	Modernization	2.2	49,832,000	St	State/Fed
Fordham Blvd/Raleigh Rd	Interchange		-	-	Upgrade	N/A	14,800,000	St	State/Fed
Fordham Blvd/S Columbia St	Interchange		-	-	Upgrade	N/A	35,000,000	St	State/Fed
Garrett Rd	NC 751	Old Durham Rd	2	4	Widening	2.1	16,064,000	Div	State/Fed
Homestead Rd	Old NC 86	Rogers Rd	2	2	Modernization	2.1	10,234,000	Div	State/Fed
Homestead Rd	Rogers Rd	NC 86	2	2	Modernization	1.3	6,855,000	Div	State/Fed
Hope Valley Rd (NC 751)	S Roxboro St	Woodcroft Parkway	2	4	Widening	0.3	2,716,000	Reg	State/Fed
Hopson Rd	Davis Dr	S Miami Blvd (NC 54)	2	4	Widening	0.7	5,200,000	Div	State/Fed
I-40	NC 86	I-85	4	6	Widening	7.8	58,784,000	St	State/Fed
I-40	US 15-501	NC 86	4	6	Widening	3.9	29,316,000	St	State/Fed
I-40 Managed Lanes	Wake County Line	NC 147	8	10	Widening	7.0	446,464,000	St	State/Fed
I-40/NC 54	Interchange		-	-	Upgrade	N/A	94,100,000	St	State/Fed
I-40/ NC 54 ramp	Farrington Rd.	I-40	-	1	New Location	0.2	1,600,000	St	State/Fed
I-85/NC 86	Interchange		-	-	Upgrade	N/A	16,488,000	St	State/Fed
I-85/S Churton St	Interchange		-	-	Upgrade	N/A	20,700,000	St	State/Fed
Jack Bennet Rd/Lystra Rd	US 15-501 South	Farrington Mill/Point Rd	2	2	Modernization	4.1	20,567,000	Div	State/Fed
Lake Hogan Farms Rd	Eubanks Rd	Legends Way	-	2	New Location	0.7	4,407,000	Div	State/Fed/ Private
Marriott Way	Friday Center Dr	Barbee Chapel Rd	-	2	New Location	0.2	682,000	Div	State/Fed
NC 54	Fordham Blvd (US 15-501)	Barbee Chapel Rd	6	6	Modernization	1.2	32,106,000	Reg	State/Fed
NC 54	I-40 Interchange	NC 751	2	4	Widening	1.2	32,000,000	Reg	State/Fed
NC 54	NC 751	Rollingwood Dr	2	4	Widening	1.5	21,600,000	Reg	State/Fed

STI roadway tier: St = statewide; Reg = regional; Div = division

2045 Metropolitan Transportation Plan (MTP)

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Preferred Option -- Highway Project List

Highway Project	From	To	Existing Lanes	Proposed Lanes	Improvement Type	Length (miles)	Estimated Cost	STI	Funding Source
NC 54	Fayetteville	Barbee	2	4	Widening	1.0	46,800,000	Reg	State/Fed
NC 54	Barbee	NC 55	2	4	Widening	1.3	46,400,000	Reg	State/Fed
NC 54 (widening; superstreet)	I-40	Barbee Chapel Rd	4	6	Widening	1.6	9,100,000	Reg	State/Fed
NC 55 (Alston Ave)	Main St	NC 98	2	4	Modernization	0.5	1,000	Reg	State/Fed
New Hope Commons Dr Extension	Eastowne Dr	New Hope Commons Dr	-	2	New Location	0.4	4,588,000	Div	State/Fed
Roxboro St	Cornwallis Rd	MLK Pkwy	-	4	New Location	1.2	12,063,000	Div	State/Fed
S Churton St	US 70 Business	I-40	2	4	Widening	2.4	31,825,000	Div	State/Fed
Southwest Durham Dr	NC 54	I-40	-	2	New Location	2.0	12,402,000	Div	State/Fed
University Dr	MLK Parkway	Shannon Rd	5	4	Modernization	0.5	768,000	Div	Private
US 70 (freeway conversion)	S Miami Blvd	Northern Durham Parkway	4	6	Freeway	2.5	173,469,000	St	State/Fed
2045 MTP									
Angier Av Ext	US 70	Leesville Rd	-	2	New Location	0.8	4,784,000	Div	State/Fed
Angier/Glover Connector	Ellis Rd	Glover Rd	-	2	New Location	1.4	8,625,000	Div	State/Fed
Crown Pkwy/Roche Dr	Page Rd	T.W. Alexander Dr	-	2	New Location	2.7	11,041,000	Div	State/Fed
Eno Mountain Rd realignment	Mayo St	Eno Mountain Rd	-	2	New Location	0.3	2,015,000	Div	State/Fed
Garrett Rd	Old Durham Rd	US 15-501	2	4	Widening	1.0	7,761,000	Div	State/Fed
Glover Rd	Angier	US 70	-	2	New Location	0.6	3,714,000	Div	State/Fed
									State/Fed/Private
Hebron Rd Extension	Hebron Rd	Roxboro Rd (501 N)	-	2	New Location	0.5	3,612,000	Div	State/Fed/Private
Holloway St (NC 98)	Miami Blvd	Nichols Farm Dr	4	4	Modernization	3.3	17,705,000	Reg	State/Fed
Hopson Rd	Louis Stephens Dr	Davis Dr	2	4	Widening	1.1	9,195,000	Div	State/Fed
I-40 Managed Lane	NC 54	US 15-501	6	8	Widening	2.9	85,621,000	St	State/Fed
I-40 Managed Lanes	NC 147	NC 54	6	10	Widening	6.4	250,290,000	St	State/Fed
I-85	US 70	I-40	4	6	Widening	7.1	197,378,000	St	State/Fed
I-85	US 70	Red Mill Rd	4	6	Widening	8.2	215,940,000	St	State/Fed
I-85	Sparger Rd	US 70	4	6	Widening	3.0	39,118,000	St	State/Fed
Leesville Rd Ext	US 70/Page Rd Ext	Leesville Rd	-	2	New Location	0.4	2,644,000	Div	State/Fed
Lynn Rd Extension	US 70	Existing Lynn Rd	-	2	New Location	1.1	6,862,000	Div	State/Fed
Mt Carmel Ch Rd	US 15-501	Bennett Rd	2	2	Modernization	0.4	1,997,000	Div	State/Fed
N Duke St (501 N)	I-85	N Roxboro split	5	4	Modernization	2.5	13,279,000	Reg	State/Fed

STI roadway tier: St = statewide; Reg = regional; Div = division

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Preferred Option -- Highway Project List

Highway Project	From	To	Existing Lanes	Proposed Lanes	Improvement Type	Length (miles)	Estimated Cost	STI	Funding Source
NC 751	Renaissance Pkwy	O'Kelly Chapel Rd	2	4	Widening	2.7	21,697,000	Reg	State/Fed/Private
NC 751	Martha's Chapel Rd	O'Kelly Ch. Rd	2	3	Modernization	5.4	9,648,000	Reg	State/Fed
NC 751	NC 54	Renaissance Pkwy	2	4	Widening	1.2	5,290,000	Reg	State/Fed
NC 86	Old NC 10	US 70 Business	2	4	Widening	0.9	7,259,000	Reg	State/Fed/Private
Northern Durham Pkwy	US 70 E	Sherron Rd	-	4	New Location	2.7	23,500,000	Div	State/Fed
Northern Durham Pkwy	I 85 North	Old Oxford Hwy	-	4	New Location	2.7	23,291,000	Div	State/Fed
Patriot Dr Extension	S Miami Blvd	Page Rd	-	2	New Location	1.9	13,086,000	Div	State/Fed
Roxboro Rd (501 N)	Duke St	Goodwin Rd	4	4	Modernization	2.7	14,574,000	Reg	State/Fed
Sherron Rd	S Mineral Springs Rd	Stallings Rd	2	4	Widening	3.1	25,003,000	Div	State/Fed
Southwest Durham Dr	US 15-501 Business	Mt Moriah Rd	-	4	New Location	0.4	3,667,000	Div	State/Fed/Private
SW Durham Dr	Sawyer Dr	Old Chapel Hill Rd	2	4	Widening	0.7	5,432,000	Div	State/Fed
US 15-501	Smith Level Rd	MPO Boundary	4	4	Modernization	4.9	25,673,000	St	State/Fed
US 15-501 (expressway conversion)	US 15-501 Bypass	I-40	6	6	Expressway	2.2	195,300,000	St	State/Fed
US 15-501 Bypass	MLK Parkway	I-85	4	6	Widening	4.8	80,734,000	St	State/Fed
Wake Forest Hwy (NC 98)	Nichols Farm Dr	Wake County Line	2	4	Widening	6.0	48,474,000	Reg	State/Fed
Yates Store Rd Extension	Yates Store Rd	Wake Rd	-	2	New Location	1.4	11,519,000	Div	State/Fed/Private
(1) East End Connector costs are \$35,175,000, and Alston Ave and Carver St costs are \$0 in the financial plan because the funding is before 2018.									

STI roadway tier: St = statewide; Reg = regional; Div = division

Public Transportation

Summary

As a basis, the 2045 MTP adopts the transit services as approved in the county plans:

- Durham County Transit Plan, originally approved in 2011 and updated April 28, 2017. The detailed plan is available at <http://ourtransitfuture.com/plans/durham/>
- Orange County Transit Plan, originally approved in 2012 and updated April 28, 2017. The detailed plan is available at <http://ourtransitfuture.com/plans/orange/>

The plans include major projects such as Durham-Orange Light Rail Transit (D-O LRT) and Wake-Durham Commuter Rail (CRT), but do not include specific programmed bus facility or service projects beyond 2023. The bus services operating in the DCHC MPO in 2045 reflect the MPO's best predictions of transit services operating at that time.

The 2045 MTP makes two notable transit investments that exceed the county transit plans:

- The Wake-Durham Commuter Rail Transit (CRT) is extended from West Durham to Hillsborough in the 2045 timeframe; and,
- The Durham-Orange Light Rail Transit (LRT) is extended from Chapel Hill to downtown Carrboro.

Durham County Services

The program of projects and services in the Durham County Transit Plan include the following:

■ Bus Services

Already Implemented Additional Bus Service (including new routes, increases in frequency, etc.)

- GoTriangle, 7,640 annual service hours
- GoDurham, 24,350 annual service hours

Planned Additional Bus Service

- GoTriangle, 6,260 annual service hours
- Durham County Access, 7,896 annual demand responsive trips

The Durham County Transit Plan also supports the increased cost of existing GoDurham service – e.g., the increased cost of providing service that GoDurham provided before the transit plan was implemented. About 9,000 existing annual service hours are assisted with Durham County Transit Plan funds.

An anticipated 15,000 – 27,500 additional bus service hours may be available following implementation of D-O LRT. These “rail dividend hours” reflect bus service currently

operating in the D-O LRT corridor that could be redirected to meet other Durham County transit priorities.

■ **Bus Capital Projects**

The purchase of new vehicles (and subsequent replacement) to support the service funded by the Durham County Transit Plan.

Bus facility improvements to facilitate transit access and improve the customer experience, including new park-and-ride lots, stop improvements and other capital investments along transit emphasis corridors, new transit centers, and stop improvements.

- **Durham-Orange Light Rail Transit (D-O LRT)** – 2028 estimated completion date
Light rail transit service between UNC Hospitals in Chapel Hill and North Carolina Central University (NCCU) in Durham, providing 50,000 hours of transit service. Project includes bicycle, pedestrian and bus infrastructure improvements along the alignment.

- **Wake-Durham Commuter Rail (CRT)** – 2035 estimated completion date
Commuter rail service linking Durham, RTP, Cary, Raleigh and Garner. The service will be funded in coordination with Wake County.

- **Wake-Durham Commuter Rail Extension (CRT)** – 2045 estimated completion date
Commuter rail service will be extended from West Durham to Hillsborough, with a station at NC 10/US 70 area and S Churton St/US 70 Business. This extension is not in the Durham County Transit Plan. It will be financed in the last decade of the 2045 MTP by assuming that legislative restrictions that currently restrict funding that can be used for transit will be repealed.

Orange County Services

The program of projects and services in the Orange County Transit Plan include the following:

■ **Bus Services**

Already Implemented Additional Bus Service (including new routes, increases in frequency, etc.)

- Orange Public Transit, 4,500 annual service hours
- GoTriangle, 6,708 annual service hours
- Chapel Hill Transit, 6,427 annual service hours

Planned Additional Bus Service

- Orange Public Transit, 2,387 annual service hours
- GoTriangle, 1,492 annual service hours
- Chapel Hill Transit, 6,392 annual service hours

The Orange County Transit Plan also supports the increased cost of existing Orange Public Transit and Chapel Hill Transit services – e.g., the increased cost of providing Orange Public Transit and Chapel Hill Transit service that was provided before the transit plan was implemented. About 9,000 existing annual service hours are assisted with Orange County Transit Plan funds.

An anticipated 30,000 – 45,000 additional bus service hours may be available following implementation of D-O LRT. These “rail dividend hours” reflect bus service currently operating in the D-O LRT corridor that could be redirected to meet other Orange County transit priorities.

■ **Bus Capital Projects**

The purchase of new vehicles (and subsequent replacement) to support the service funded by the Orange County Transit Plan.

Bus facility improvements to facilitate transit access and improve the customer experience, including new park-and-ride lots, improved transit amenities, and access improvements (e.g. new sidewalks) to bus stops.

■ **Hillsborough Train Station** – 2020 completion date

The station will be served by two Amtrak passenger routes.

■ **North-South Bus Rapid Transit (N-S BRT)** – 2023 estimated completion date

Bus rapid transit service using a mix of dedicated and mixed-traffic lanes between the Eubanks Road and Southern Village park-and-ride facilities, with direct service to UNC Hospitals.

■ **Durham-Orange Light Rail Transit (D-O LRT)** – 2028 estimated completion date

Light rail transit service between UNC Hospitals in Chapel Hill and North Carolina Central University (NCCU) in Durham, providing 50,000 hours of transit service. Project includes bicycle, pedestrian and bus infrastructure improvements along the alignment.

■ **Durham-Orange Light Rail Transit Extension (D-O LRT)** – 2045 est. completion date

Light rail transit will be extended from the UNC Hospitals station to a station near Main Street in Carrboro. The route, along S Columbia St and W Cameron Ave, is a conceptual placeholder until further study can be completed. This extension is not in the Orange County Transit Plan. It will be financed in the last decade of the 2045 MTP by assuming that legislative restrictions that currently restrict funding that can be used for transit will be repealed.

■ **Wake-Durham Commuter Rail Extension (CRT)** – 2045 estimated completion date

Commuter rail service will be extended from West Durham to Hillsborough, with a station at NC 10/US 70 area and S Churton St/US 70 Business. This extension is not in

the Orange County Transit Plan. It will be financed in the last decade of the 2045 MTP by assuming that legislative restrictions that currently restrict funding that can be used for transit will be repealed.

Chatham County Services

The express bus services from Pittsboro to UNC and the UNC Hospitals will be improved in frequency and service hours. Bus stops and stations will be increased and improved.

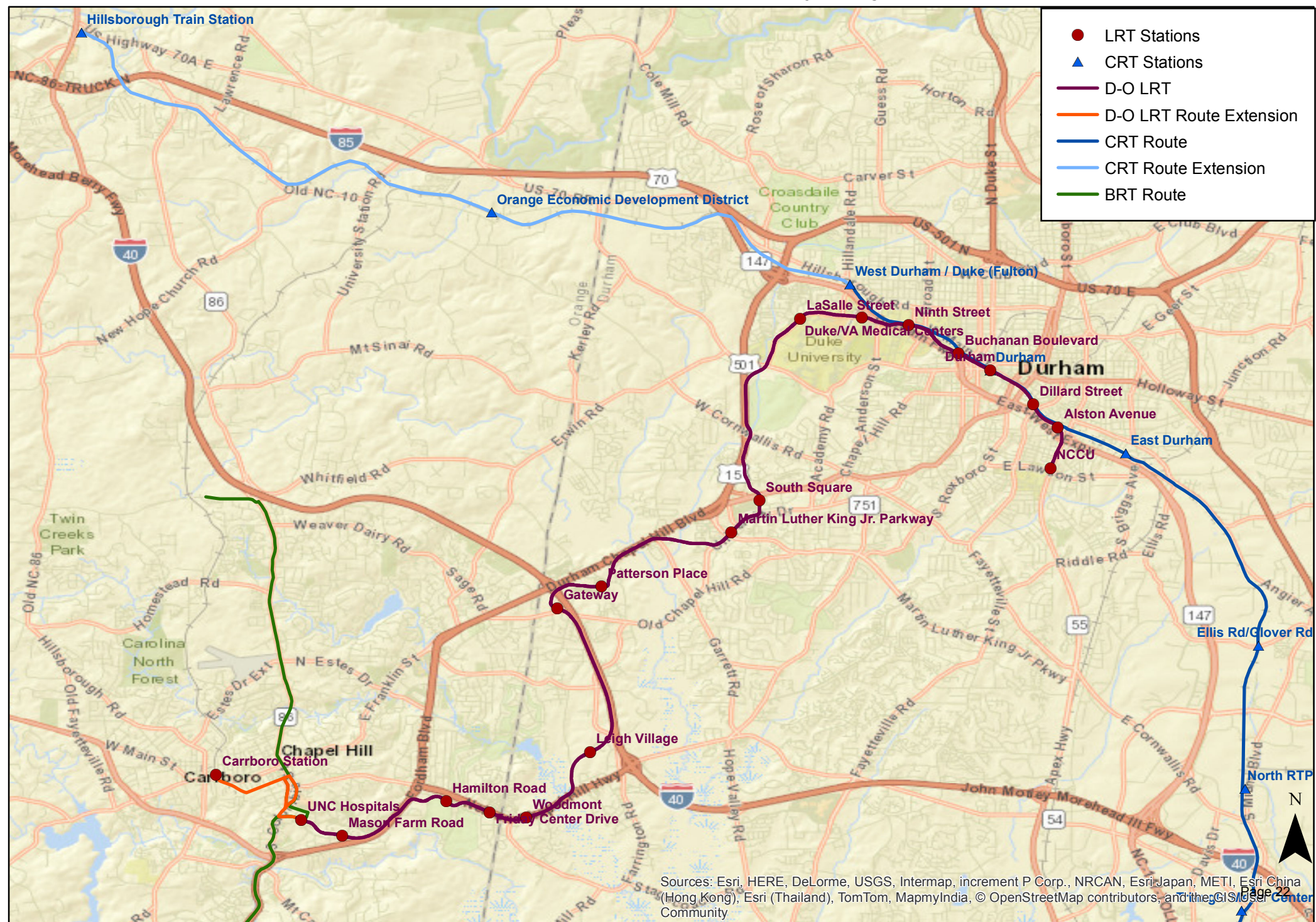
Fixed Guideway Maps

The following three pages are MPO-level, Durham close-up and Chapel Hill/Carrboro close-up maps of the fixed-guideway services in the Preferred Option. Fixed guideway includes light rail transit, commuter rail transit and bus rapid transit.

An interactive, online map is also available at the Fixed-Guideway map tile at the top of the following MTP Web page: www.bit.ly/DCHC-MTP-Preferred

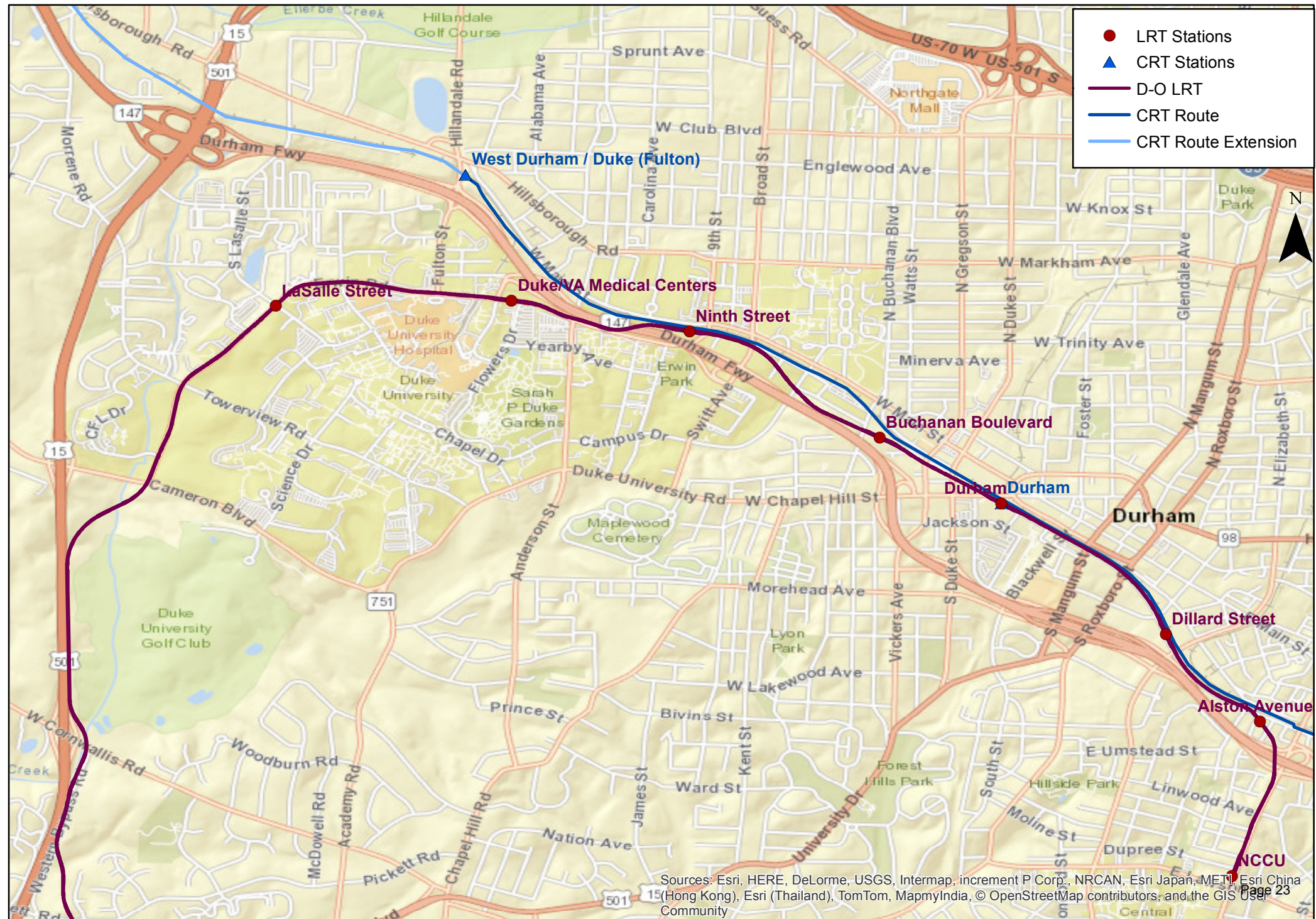
2045 Metropolitan Transportation Plan (MTP)

Preferred Option -- Fixed Guideway Projects



2045 Metropolitan Transportation Plan (MTP)

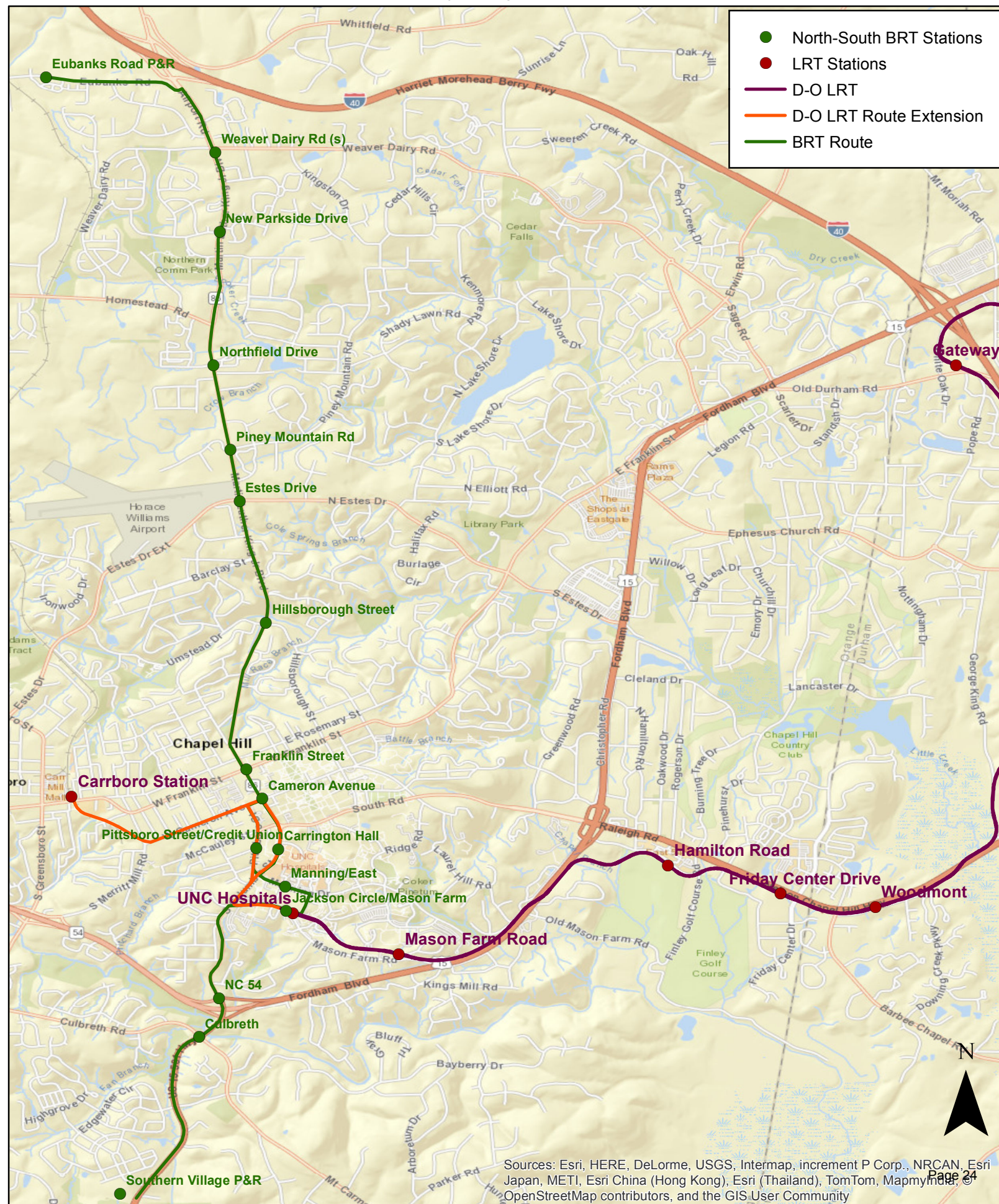
Preferred Option -- Fixed Guideway Projects -- Durham Close up



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Preferred Option -- Fixed Guideway Projects -- Chapel Hill/Carrboro Close-up



Bicycle, Pedestrian and Multiuse Paths

Summary

The 2045 MTP does not specifically list the bicycle and pedestrian projects. The local jurisdictions and counties have identified, and in many cases prioritized these projects and have coordinated their interaction in the jurisdiction boundary areas through the DCHC MPO. As a result, the 2045 MTP defers to those local governments. The financial plan provides \$225 million to implement these projects; that is \$75 million for each decade in the 2045 MTP.

Local Plans

Bicycle

The DCHC MPO adopted a Comprehensive Transportation Plan (CTP) in May 2017 in cooperation with the North Carolina Department of Transportation (NCDOT). The CTP lists all the local bicycle projects from the jurisdiction and county plans in the MPO area.

- CTP Web site: <http://bit.ly/DCHCMPO-Adopted-CTP>

The local plans provide details on the planned facilities at the following links:

- Carrboro Comprehensive Bicycle Transportation Plan (2009) -- <http://bit.ly/1PeRnsl>
- Chapel Hill Bike Plan (2014) -- <http://bit.ly/1uGbDZ5>
- Chatham County Bicycle Plan (2011) -- <http://bit.ly/1TSdlUv>
- Durham City and County Comprehensive Bicycle Plan (2006) -- <http://bit.ly/1UCSIDz>
- Hillsborough Community Connectivity Plan (2009) -- <http://bit.ly/1Uan3VO>

Pedestrian

Local pedestrian plans include:

- Chapel Hill Bicycle and Pedestrian Action Plan (2004) -- <http://bit.ly/28gbvqi>
- Durham Walks! Pedestrian Plan (2006) -- <http://bit.ly/1Y66mfG>
- Durham Bike+Walk Implementation Plan (2017) -- <http://bit.ly/2p2yHJS>
- Hillsborough Community Connectivity Plan (2009) -- <http://bit.ly/1Uan3VO>

MPO Policy

The MPO bicycle and pedestrian policy basically expects any roadway or other transportation project, whether it is a new or improved facility, to include appropriate pedestrian and bicycle accommodations. That policy provides extensive integration of bicycle and pedestrian needs into the design and construction of new and improved highway and other transportation projects. In addition, the “NCDOT Complete Streets Planning and Design Guidelines” and other

related guidelines provide planning and design guidance for use when building new projects or making changes to existing infrastructure.

Financial Plan

Background and Assumptions

The MPO created and reviewed three financial projections in the Alternatives Analysis: Constrained; Moderate; and, Optimistic (formerly known as Aspirational). The Preferred Option uses the Optimistic financial projection, and breaks out the Costs and Revenues by the funding decades, i.e., 2025, 2035 and 2045.

It is important to note that the financial plan abides by the North Carolina STI (Strategic Transportation Investment) legislation and policy in the first two decades, i.e., 2025 and 2035. In the third decade, 2045, the financial plan assumes that statewide and national policy would relax restrictions on the use of funding for transit projects, and permit the use of some traditional highway funding to be used to extend the Commuter Rail Transit (CRT) and Light Rail Transit (LRT) lines.

The text below provides notes for the financial table that follows the text. There are two graphs after the financial table that depict major financial themes.

Cost Table

Roadways and Alternative Transportation

The roadway costs are broken out by the three North Carolina STI (Strategic Transportation Investment) funding tiers to abide by the current state policy. The highway costs mostly use TIP estimates, recent feasibility studies, or the 2016 NCDOT highway cost workbook to calculate the individual project cost.

Maintenance costs are based on the STI and NCDOT statewide plan.

The estimated alternative transportation costs are shown for Bicycle and Pedestrian, Transportation Demand Management (TDM), Intelligent Transportation Systems (ITS), and Transportation System Management (TSM). These programs do not have individual projects listed in the 2045 MTP and thus the program cost is a single estimate rather than the sum of the listed projects. The assumed STI tier is also shown in parenthesis in the program title.

Transit

The transit costs and revenues are based on the Durham County Transit Plan and Orange County Transit Plan that were recently updated in 2017. The costs are broken out by existing and new/expanded services because of the policy of those plans and the funding restrictions of the revenue sources.

Additional Transit

These are costs that are not included in the county plan transit costs. The transit funding match is a regional cost for the state capital match for the Durham-Orange Light Rail Transit project.

The extension of the CRT and LRT are regional funds that the MPO assumes will be available for transit capital and other expenses in the last decade of the 2045 MTP. Currently, the STI regional funds are capped at 10% of the total project cost for transit projects, which would not allow the STI funding to be used for these extensions. However, the MPO assumes that this restriction would be repealed as urban areas like those in the MPO become increasingly reliant on public transportation to provide sustainable transportation.

Revenue TableSTI/Local/Private

The STI revenues are based on the Optimistic financial scenario and abide by the STI requirements and methodology throughout the entire 2045 MTP, or the year 2045.

Maintenance revenues match the costs. Local funding are estimates based on the current 2040 MTP and a modest growth rate. CMAQ funding is based on the STI. Private funding is mostly summed from the 2045 MTP highway projects that are expected to be constructed by private concerns.

Transit

The transit costs and revenues are based on the Durham County Transit Plan and Orange County Transit Plan that were recently updated in 2017.

Balance Table

This table is a tool to help guide changes in the project lists and financial plan during the public input period of the Preferred Option. It shows the balance (i.e., revenue minus cost) by STI tier and decade. The values in parenthesis are negative, meaning that the costs are greater than the revenues.

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Draft Preferred Option -- Financial Plan

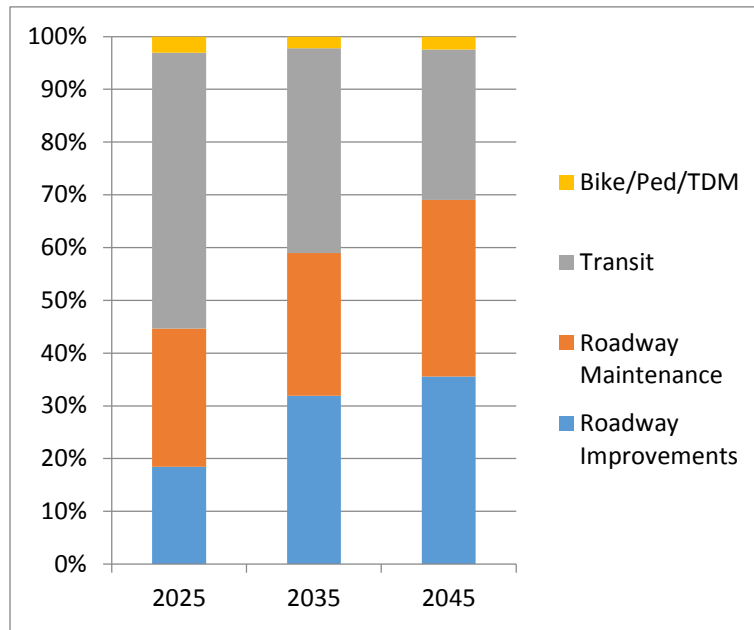
COSTS	Uses Optimistic Financial Projection			
	(in millions \$)			
Roadways & Alternative Transportation	2025	2035	2045	Total
Roadways (statewide)	480	1,048	1,090	2,618
Roadways (regional)	24	192	138	354
Roadways (division)	53	167	209	429
Maintenance (all)	874	1,242	1,409	3,525
Bicycle & Pedestrian (division)	90	90	90	270
Transportation Demand Management (division)	13	13	13	38
Intelligent Transportation Systems (statewide)	20	20	20	60
Transportation System Management (all)	40	40	40	120
Total Roadway and Alternate	1,592	2,812	3,009	7,414
Transit				
Continued Transit Funding to Support <u>Existing</u> Services	386	482	482	1,350
Funding for <u>New/Expanded</u> Transit Services	1,261	1,207	471	2,939
Additional Transit				
Transit funding match, etc. (regional)	95	96	-	191
Extend CRT from West Durham to Hillsborough (regional)	-	-	173	173
Extend LRT from Chapel Hill to Carrboro (regional)			75	75
Total Transit	1,742	1,785	1,201	4,728
Total Costs	3,334	4,597	4,210	12,141
REVENUES				
STI/Local/Private	2025	2035	2045	Total
STI (statewide)	542	898	981	2,421
STI (regional)	132	373	423	928
STI (division)	122	228	256	606
Maintenance (all)	874	1,242	1,409	3,525
Toll Revenue (statewide)	0.1	196	-	196
Local Funding (bicycle/pedestrian) (division)	35	20	20	75
Local Funding (roadway) (division)	25	25	25	75
Private Funds (division)	27	30	24	81
CMAQ Funding (division)	17	18	15	49
Total STI/Local/Private	1,773	3,029	3,153	7,956

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Transit				
Continued Transit Funding to Support Existing Services	386	482	482	1,350
Funding for New/Expanded Transit Services	1,261	1,207	471	2,939
Total Transit	1,647	1,689	953	4,289
Total Revenues	3,420	4,719	4,106	12,244
	(parenthesis are negative values)			
BALANCE	2025	2035	2045	Total
Statewide	32	15	(139)	(92)
Regional	(7)	65	17	75
Division	61	41	18	120
Total Balance	86	121	(104)	103

Graphics

The bar chart below shows the percent of the total investment by mode for each of the three decades. Transit investments are relatively larger in the first two decades because of the large capital investments in light rail and commuter rail.



The pie graph below shows the percent of total investment, i.e., 2025, 2035 and 2045, by mode. Roadway improvements and roadway maintenance are the same. The transit, bicycle, pedestrian and TDM investment is less than one-half of the total, 42%. It is difficult to get these investments higher and continue to mostly abide to the STI funding restrictions.

