

Federal Transit Administration Formula Program

5307/5340 FTA Funding Allocations for NC Transit Systems Within Urbanized Areas

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James Ritchey, Whitman Requardt & Associates

Kai Monast, Institute for Transportation Research and Education



Public Transportation Division

1 S. Wilmington Street
Raleigh, NC 27601



ITRE

Institute for Transportation Research and Education
at North Carolina State University



Whitman, Requardt & Associates
Engineers · Architects · Environmental Planners

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- **AECOM**
Funding Study Project Manager
Scott Baker
scott.baker@aecom.com
- **Whitman, Requardt & Associates, LLP**
Team Member and Lead on Urbanized Area Growth and Funding Analysis
James Ritchey
jritchey@wrallp.com
- **NCSU Institute for Transportation Research and Education**
Team Member and Lead on Funding Allocation Formula
Kai Monast
kcmonast@ncsu.edu

NCDOT Public Transportation Division contact:

Debbie Collins
Director
dgcollins1@ncdot.gov
919 707 4684

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Section 5307/5340 FTA Funding Allocations within Urbanized Areas for Transit Systems

Overview

The Federal Transit Administration (FTA) allocates funds to each Urbanized Area (UZA) in the United States with a population greater than 50,000 people with the expectation that these funds will be shared equitably among public transportation operators within the UZA. This program, referred to as the Urbanized Area Formula Program (Section 5307), is the primary source of financial support for capital, preventative maintenance and other eligible public transportation expenses for most communities¹. Funding levels are determined using the FTA-defined Urbanized Area Formula. In addition, the FTA also allocates funds to UZAs using a formula that accounts for growing states and high densities states, referred to as Section 5340 funds.

The purpose of this research is to review Section 5307/5340 sub-allocation approaches within UZAs that are serviced by more than one public transportation operator that is eligible to receive FTA Urban Area Formula Program funding. This study is intended to increase awareness of how individual transit systems earn money for their UZAs and be used as a resource for evaluating the fairness and equity of funding distribution formulas.

This research begins with background data and the local context then discusses the funding formula methodology utilized for determining the proportional Section 5307/5340 funding generated by each transit system, the funding estimates for each UZA, limitations and assumptions for this analysis, and concluding remarks and recommendations.

Background

Intra-UZA Sub-Allocation

Section 5307/5340 funds are allocated to FTA-defined Urbanized Area (UZA) designated recipients. If more than one eligible operator exists within the UZA, the designated recipient is expected to fairly and equitably distribute the funds between each operator. The number of UZAs in the United States has grown substantially over the past decade – the 2010 Census brought a 43% increase in the number of UZAs in the U.S. from 2000¹. In addition, the number of transit operators within UZAs has also increased. As a result, the number of public transportation operators that share FTA allocations has increased the complexity of sub-allocation equity.

Designated Recipients

It is the role of UZA designated recipients to receive FTA formula-based allocations and equitably sub-allocate funds to operators within each UZA. Designated recipients of Section 5307/5340 funds may

¹ Transit Cooperative Research Program Synthesis 113. “Sub-allocating FTA Section 5307 Funding Among Multiple Recipients in Metropolitan Areas”. Washington, DC. 2014.
http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_113.pdf

include local governments, local transit authorities, transit service providers and Metropolitan Planning Organizations (MPOs). In UZAs in which the MPO is not the designated recipient, the MPO must still concur with the intra-UZA funding sub-allocation. The state of North Carolina receives and distributes Section 5307/5340 funds for UZAs with a population less than 200,000 people.

The responsibility of sub-allocation to multiple recipients for large UZAs (population greater than 200,000) is shared by both the designated recipient and the MPO (in instances when the MPO is not the designated recipient). Designated recipients of large UZAs with multiple recipients may replicate the FTA funding formula for sub-allocation or develop a local process for sub-allocating Section 5307 funds that “best serve the needs of the region”¹. Yet, the FTA does not provide specific information regarding each transit system’s equitable funding share that is attributable to population and operating data within the Urbanized Area.

Local Context: The North Carolina Section 5307/5340 Funding Allocation Landscape

While the equitable allocation of funds across transit systems is a federal and state-level policy goal, three policy and demographic factors have complicated the equitable allocation of Section 5307/5340 funds in North Carolina.

1. First, the definition of Urbanized Areas and corresponding geographic boundaries has evolved over recent years. Corresponding to these definitional changes, the actual physical land area of Urbanized Areas in North Carolina has grown over the past few decades. This change in the UZA boundaries shifts the eligibility of some North Carolina communities from a rural service area (Section 5311) to an Urbanized Area (Section 5307). Not only are some transit systems that have traditionally been considered rural now eligible for urban funding, but these transit systems have also experienced reductions in their rural Section 5311 funding, which leaves a funding gap.
2. Second, population growth rates in the urban areas of North Carolina have increased substantially in the past two decades. UZAs are not only growing in size, but there are also more of them (most recently, New Bern in 2010). In total, the urbanized population in NC has grown from 2.4 million in 1990 to 5.2 million in 2010, while North Carolina’s non-urbanized population has held steady at approximately 4 million persons between 1990 and 2010. *Appendix A (North Carolina’s Urbanized Area Growth Trends from 1990 to 2010)* provides detailed information pertaining to the state’s UZA growth patterns and definitional boundaries.
3. Third, changes in the FTA Section 5307/5340 funding apportionments occur on an annual basis according to Federal policy. The year to year funding formula relies on federal funding levels and operations data from two years prior. Fluctuations are primarily attributable to changes in funding levels and three transit operations data categories: revenue miles; passenger miles; and operating costs. As a result, the allocations of Section 5307/5340 funds vary by fiscal year.

Section 5307/5340 Funding Formula: Allocation Methodology

The FTA Section 5307 Urbanized Area funding formula uses data for population size, population density, low income population, reported revenue miles, passenger miles, and operating cost. The FTA formula multiplies values for each of these variables by specific funding factors. US Census data is the most precise geographic unit available for this purpose and is congruent with Urbanized Area, county and municipal boundaries. To accurately match data used by FTA to determine UZA funding, population and land area data were collected at the census block level and low income population data were collected at the Urbanized Area level. The following table (Table 1) describes each data element and includes links to the digital source location.

Table 1 Section 5307 Funding Formula Data Elements

Dataset	Description	Link
Total Population	2010 Census Data for UZA Population	http://www.fta.dot.gov/grants/12853_16352.html
Land Area	2010 Census Data for UZA Land Area	http://www.fta.dot.gov/grants/12853_16352.html
Population Density	2010 Census Data for UZA Population Density	http://www.fta.dot.gov/grants/12853_16352.html
Revenue Miles	Annual Federal Funding Allocation Statistics form (FFA-10)	http://www.ntdprogram.gov/ntdprogram/database/2013_database/2013%20FFA10.xls
Low Income Population	ACS Table B.17024: <i>Age by Ratio of Income to Poverty in the Last Twelve Months.</i> (2008-2012 5 years estimates) * Defines low income persons as those with incomes of up to 150% of poverty.	http://www.fta.dot.gov/grants/12853_16358.html
FY 2015 FTA 5307 Formula Rates	FISCAL YEAR 2015 FORMULA PROGRAMS APPORTIONMENT DATA UNIT VALUES * Used to calculate 5307 amounts by transit system	http://www.fta.dot.gov/documents/FY_15_Full_Year_Unit_Values_Table_5_Final.xlsx
FY 2015 FTA 5307 Apportionment	FY 2015 SECTION 5307 AND SECTION 5340 URBANIZED AREA APPORTIONMENTS	http://www.fta.dot.gov/documents/FY_15_Full_Year_Apportionment_Table_3.xlsx
City boundary	2010 census place	ftp://ftp2.census.gov/geo/tiger/TIGER2010/PLACE/2010/
County boundary	2010 census county	ftp://ftp2.census.gov/geo/tiger/TIGER2010/COUNTY/2010/
Urbanized Area boundary	2010 census Urbanized area	ftp://ftp2.census.gov/geo/tiger/TIGER2010/UA/2010/
Block boundary	2010 census block	https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2010&layergroup=Blocks

Methodology for UZA Population and Land Area Data

Total Population and Land Area Estimates

The Urbanized Area (UZA) population and land area were directly calculated by aggregating census blocks within city or county boundaries that intersect the UZA, shown as the map below (Figure 1). Of critical importance, the aggregate population size and land area of every UZA in the analysis matches the published FTA funding formula values for UZA population size and land area.

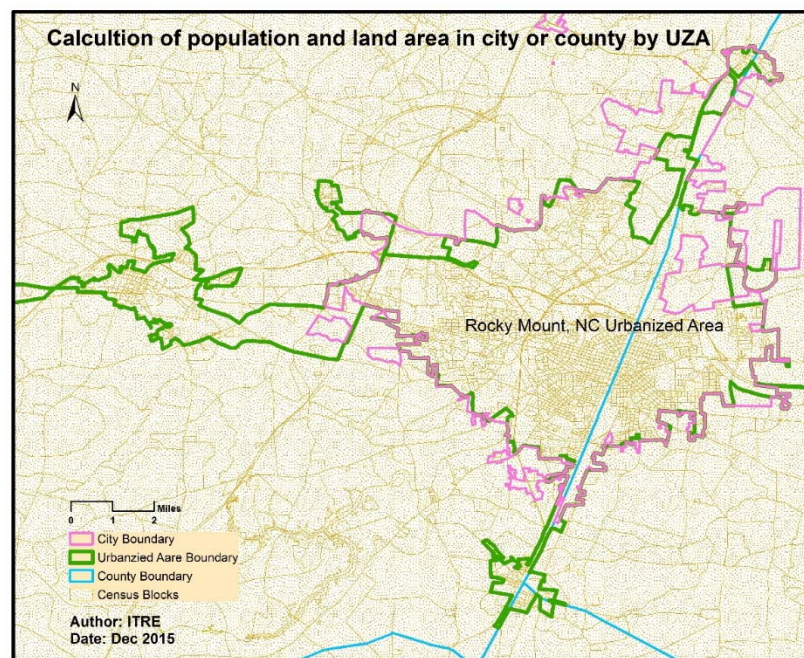


Figure 1 Method used to aggregate total population and land area

Low Income Population Estimates

The low income population was estimated in three steps. First, low income population was obtained from the 2008-2012 American Community Survey (ACS) at the UZA level, which exactly matches FTA's figures. Next, the data were disaggregated to each census block by the proportion of population to the total UZA population. In this calculation, we assumed that the proportion of the low income population was evenly distributed across all census blocks in the UZA. This assumption was necessary because low income population data were not available at the block level and there were no other readily available datasets that matched FTA data at the UZA level. Third, block level low income populations were summed across each city and county within the UZA. See the *Limitations and Assumptions* section for further discussion.

Population Density

Population density is the number of people per square mile. The formula for calculating density is:

$$\text{Population Density} = \text{Population} / \text{Land Area (square mile)}$$

Revenue Miles

FTA apportionment tables that show miles should be used when available². In this case, the revenue miles were obtained from the 2013 FFA-10 table found on the National Transit Database (NTD) website³. Urbanized Area revenue miles were calculated using the following categorical system definitions:

1. **Urban System:** Transit system revenue miles include fixed route service, demand response service, and miles associated with other non-fixed guideway transit service (e.g. vanpool) within Urbanized Areas. If the transit system intersected more than one Urbanized Area, the revenue miles attributable to each UZA were collected from revenue mile information reported on FFA-10 forms.
2. **Community Transportation System:** Revenue miles were obtained from the 2013 FFA-10 data for Community Transportation (CT) systems that reported to the Urban NTD in FY2013.

Funding Formula

After compiling the 2010 Census data and revenue mile data from FY2013, values for total population, population density, low income population and revenue miles were multiplied by FTA's FY2015 Section 5307 formula rates shown in *Table 2* to calculate the Section 5307 funding allocation amounts by UZA. The rates used in the calculation are based on total UZA population. Note: the revenue miles allocation amount only applies to Urbanized Areas with populations greater than 200,000 persons.

Table 2 Fiscal Year 2015 FTA Funding Formula Program Apportionment Data Unit Values

Urbanized Area	Urbanized Population	Population Density	Low Income Population	Revenue Vehicle Miles
>1,000,000 Persons	3.0994800	0.0008261	2.2743763	0.4193926
>200,000 Persons	2.6815465	0.0012257	2.2743763	0.5348053
<200,000 Persons	6.2864167	0.0032012	4.0439619	--

Funding Formula Apportionments

The FTA formula for determining UZA apportionments are based on values for the entire urbanized area. Revenue miles are reported by jurisdiction and can therefore be easily calculated. To disaggregate the other data to the jurisdiction level it is necessary to use proportions based on the variables in the formula to ensure that the jurisdiction totals sum to the UZA totals.

Weighted Population Density Allocation

Disaggregating population density to the jurisdiction level requires multiple steps. First, the allocation is calculated for the entire UZA. Next, population density is calculated for each jurisdiction. Then, the

² http://www.fta.dot.gov/12853_13935.html

³ http://www.ntdprogram.gov/ntdprogram/database/2013_database/2013%20FFA10.xls

proportion of the jurisdiction's population to the UZA population is calculated and multiplied by the jurisdiction's population density to establish the jurisdiction density share. The jurisdiction population density allocation is then calculated by dividing the jurisdiction density share by the sum of all of the jurisdiction density shares within the UZA. Then, this value gets multiplied by the amount in Step 1.

Jurisdiction Density Share=

$$\text{Jurisdiction Pop. Density} * (\text{Jurisdiction Pop.} / \text{UZA Pop.})$$

Weighted Population Density Allocation=

$$(\text{Jurisdiction Density Share} / \sum (\text{Jurisdiction Density Share})) * \text{UZA Population Density Allocation}$$

Performance Tier Funding Levels

After determining the performance tier funding level for the entire UZA, performance tier funding was disaggregated to jurisdictions that reported passenger miles. Each jurisdiction's funding was calculated in multiple steps. First, the jurisdiction passenger miles share was calculated by multiplying the cost per passenger mile by passenger miles. Then, the jurisdiction passenger miles share was divided by the sum of jurisdiction passenger miles share in the UZA. This value was then multiplied by the performance tier allocation to the UZA.

Jurisdiction Passenger Mile Share =

$$\text{Passenger Miles} * \text{Passenger Miles} / \text{Operating Cost}$$

Performance Tier Allocation =

$$(\text{Jurisdiction Pass Mile Share} / \sum (\text{Jurisdiction Pass Mile Share})) * \text{UZA Bus Tier Allocation}$$

Section 5307 amount -- UZA Total Population less than 200,000

For the UZAs with population less than 200,000 (small urbanized areas), the Section 5307 funding amount by transit system is the sum of population allocation, weighted population density allocation and low income population allocation. This funding category is called the Governor's Apportionment and is managed by the NCDOT Public Transportation Division.

FTA §5307 UZA Allocation Less than 200,000 =

$$\text{UZA Population} + \text{Population Density Share} + \text{UZA Low Income Population}$$

Section 5307 amount -- UZA Total Population greater than or equal to 200,000

For the UZAs with population greater than or equal to 200,000 (large urbanized areas), the Section 5307 funding amount by transit system is the sum of population allocation, weighted population allocation, low income population allocation, and revenue mile allocation. The Section 5307 funding amount also includes the performance tier fund for transit systems that report passenger miles.

FTA §5307 UZA Allocation Greater Than or Equal to 200,000 =

$$\text{UZA Population} + \text{UZA Population Density} + \text{UZA Low Income Population} + \text{UZA Revenue Miles} + \text{Performance Tier}$$

Section 5340 and Total FTA Allocation Amount

Although it would be preferable to use population growth estimates by suballocation area to calculate Section 5340 funds, it is difficult to obtain reliable estimates for all portions of the suballocation areas that intersect the UZA. For this reason, the proportion of Section 5307 funding amount (without the performance tier funds) was then used to distribute the FTA published UZA Section 5340 funding amount. The total allocation amount by transit system was calculated by adding the Section 5307 and Section 5340 estimates.

Section 5307/5340 Sub-Allocation using the FTA Formula Methodology

Decisions regarding the sub-allocation of Section 5307/5340 funds to public transportation operators within a UZA ultimately resides with the UZA designated recipient and the MPO. The lack of explicit guidance regarding sub-allocation methods leaves UZAs with a choice – recreate the FTA Urbanized Area Program Formula used to determine Section 5307 UZA funding levels or develop a local sub-allocation process that reflects the needs of the UZA. This study is intended to increase awareness of how individual transit systems earn money for their UZAs and be used as a resource for evaluating the fairness and equity of funding distribution formula. The tables shown below are not intended to be used verbatim but as a guide. The formulas in this document are one way that the federal funds can be shared fairly and equitably.

5307/5340 FTA Funding Generated by Transit System

Table 3 FY 2015 Allocation - North Carolina UZA with Population greater than 1,000,000

UZA	Jurisdiction	Urban Transit	Allocation Data						Section 5307/5340 Funding Allocation								
			Population	Population Density	Low Income Population	Revenue Miles	Passenger Miles	Operating Cost	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	Revenue Miles Allocation	Bus Tier Allocation	Fixed Guideway Tier	5307 Without Performance	5340	FY2015 Allocation
FY Section 5307 Rates			3.09948	0.0008260682	2.2743763	0.4193926	0.0096635181										
Charlotte, NC--SC			1,249,442	1,685.04	269,369	18,482,965	121,787,099	\$93,068,192	\$3,872,620	\$1,739,168	\$612,646	\$7,751,619	\$1,540,056	\$1,586,154	\$13,976,054	\$1,102,943	\$18,205,207
	City of Charlotte	Charlotte Area Transit	731,389	2,458.33	157,681	15,270,786	121,078,869	\$91,083,349	\$2,266,926	\$1,294,637	\$358,626	\$6,404,455	\$1,537,642	\$1,586,154	\$10,324,644	\$814,786	\$14,263,226
	Concord/Kannapolis	Concord/Kannapolis	9,965	2,497.17	2,148				\$30,886	\$17,918	\$4,886				\$53,690	\$4,237	\$57,927
	Cabarrus		3,552	1,043.06	766				\$11,009	\$2,668	\$1,742				\$15,419	\$1,217	\$16,636
	Catawba		224	536.50	48				\$694	\$87	\$110				\$891	\$70	\$961
	Gaston		847	888.21	183				\$2,625	\$542	\$415				\$3,582	\$283	\$3,865
	Iredell		98,991	1,023.67	21,342	509,947			\$306,821	\$72,965	\$48,539	\$213,868			\$642,193	\$50,680	\$692,872
	Lancaster, SC		14,382	1,045.59	3,101				\$44,577	\$10,828	\$7,052				\$62,457	\$4,929	\$67,385
	Lincoln		10,714	946.19	2,310				\$33,208	\$7,299	\$5,253				\$45,761	\$3,611	\$49,372
	Mecklenburg		178,441	1,162.83	38,470	2,167,459	708,230	\$1,984,843	\$553,074	\$149,407	\$87,496	\$909,016	\$2,414		\$1,698,993	\$134,079	\$1,835,486
	Union		146,361	1,201.35	31,554	534,773			\$453,643	\$126,606	\$71,766	\$224,280			\$876,295	\$69,154	\$945,449
	York, SC		54,576	1,430.44	11,766				\$169,157	\$56,212	\$26,761				\$252,130	\$19,897	\$272,027

Table 4 FY 2015 Allocation - North Carolina UZA with Population between 200,000 and 1,000,000

UZA	Jurisdiction	Urban Transit	Allocation Data						Section 5307/5340 Funding Allocation							
			Population	Population Density	Low Income Population	Revenue Miles	Passenger Miles	Operating Cost	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	Revenue Miles Allocation	Bus Tier Allocation	5307 Without Performance	5340	FY2015 Allocation
FY Section 5307 Rates			2.681547	0.001226	2.274376	0.534805	0.0096635181									
Asheville, NC			280,648	1059.50	76,355	1,886,920	5,724,973	\$7,211,328	\$752,571	\$364,448	\$173,660	\$1,009,135	\$43,920	\$2,299,814	\$247,656	\$2,591,390
	City of Asheville	Asheville Transit	83,175	1892.54	22,629	888,930	4,700,375	\$5,347,924	\$223,038	\$166,948	\$51,467	\$475,404	\$38,650	\$916,857	\$98,732	\$1,054,239
	City of Hendersonville	Henderson County Transit	13,137	1892.90	3,574				\$35,227	\$26,373	\$8,129	\$0	\$0	\$69,730	\$7,509	\$77,239
	Buncombe		97,757	890.56	26,596	634,346	1,024,598	\$1,863,404	\$262,140	\$92,333	\$60,490	\$339,252	\$5,271	\$754,215	\$81,218	\$840,703
	Haywood		26,306	1083.62	7,157	159,073			\$70,541	\$30,233	\$16,278	\$85,073	\$0	\$202,124	\$21,766	\$223,890
	Henderson		58,090	744.56	15,804	204,571			\$155,771	\$45,872	\$35,945	\$109,406	\$0	\$346,994	\$37,366	\$384,360
	Madison		1,948	1212.81	530				\$5,224	\$2,506	\$1,205		\$0	\$8,935	\$962	\$9,897
	McDowell		-	0.00	-				\$0	\$0	\$0		\$0	\$0	\$0	\$0
	Transylvania		235	739.51	64				\$630	\$184	\$145		\$0	\$960	\$103	\$1,063
Concord, NC			214,881	1192.40	59,631	1,904,769			\$576,213	\$314,046	\$135,623	\$1,018,681		\$2,044,563	\$189,620	\$2,234,183
	City of Concord and Kannapolis (Cabarrus)	Concord/Kannapolis Transit	100,234	1467.38	27,816	537,174			\$268,782	\$164,860	\$63,263	\$287,284		\$784,189	\$72,728	\$856,917
	City of Kannapolis (Rowan)	Concord/Kannapolis Transit	9,368	2056.53	2,600	50,205			\$25,121	\$21,594	\$5,913	\$26,850		\$79,478	\$7,371	\$86,849
	City of Salisbury	Salisbury Transit	38,236	1542.97	10,611	114,745			\$102,532	\$66,128	\$24,133	\$61,366		\$254,159	\$23,572	\$277,731
	Cabarrus		29,800	894.81	8,270	605,963			\$79,910	\$29,888	\$18,808	\$324,072		\$452,679	\$41,983	\$494,662
	Davidson		160	1046.38	44				\$429	\$188	\$101	\$0		\$718	\$67	\$784
	Rowan		37,083	755.14	10,291	596,682			\$99,440	\$31,388	\$23,405	\$319,109		\$473,341	\$43,899	\$517,240
Durham, NC			347,602	1912.60	93,330	8,007,197	55,906,574	\$47,274,052	\$932,111	\$814,854	\$212,268	\$4,282,292	\$638,908	\$6,241,524	\$306,739	\$7,187,170
	Town of Chapel Hill (Durham)	Chapel Hill Transit	2,836	1753.95	761	77,736	567,695	\$635,394	\$7,605	\$5,143	\$1,732	\$41,574	\$4,557	\$56,053	\$2,755	\$63,365
	Town of Chapel Hill (Orange)	Chapel Hill Transit	73,716	3051.26	19,793	2,020,590	14,756,077	\$16,515,768	\$197,673	\$232,539	\$45,016	\$1,080,622	\$118,461	\$1,555,850	\$76,462	\$1,750,773
	City of Durham (Durham)	Durham Transit	227,356	2300.18	61,044	3,980,475	24,731,251	\$21,413,956	\$609,666	\$540,656	\$138,838	\$2,128,779	\$256,643	\$3,417,939	\$167,974	\$3,842,556
	Orange	Durham Transit	30	2163.34	8				\$80	\$67	\$18			\$166	\$8	\$174
	Wake	Durham Transit	-		-									\$0	\$0	\$0
	Chatham		5,184	1264.66	1,392				\$13,901	\$6,778	\$3,166			\$23,845	\$1,172	\$25,017
	Durham		21,141	634.26	5,676				\$56,691	\$13,863	\$12,910			\$83,463	\$4,102	\$87,565

UZA	Jurisdiction	Urban Transit	Allocation Data						Section 5307/5340 Funding Allocation							
			Population	Population Density	Low Income Population	Revenue Miles	Passenger Miles	Operating Cost	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	Revenue Miles Allocation	Bus Tier Allocation	5307 Without Performance	5340	FY2015 Allocation
	Orange		17,339	881.89	4,655	125,832			\$46,495	\$15,809	\$10,588	\$67,296		\$140,188	\$6,890	\$147,077
	GoTriangle					1,802,564	15,851,551	\$8,708,934				\$964,021	\$259,246	\$964,021	\$47,377	\$1,270,644
	PART													\$0	\$0	\$0
Fayetteville, NC			310,282	1566.80	86,171	1,594,901	8,464,060	\$6,587,486	\$832,036	\$595,859	\$195,985	\$852,962	\$105,093	\$2,476,841	\$273,806	\$2,855,740
	City of Fayetteville	Fayetteville Transit	200,282	1883.44	55,622	1,274,842	8,464,060	\$6,587,486	\$537,065	\$440,103	\$126,505	\$681,792	\$105,093	\$1,785,466	\$197,377	\$2,087,936
	Cumberland		76,447	1294.17	21,231				\$204,996	\$115,428	\$48,287			\$368,710	\$40,760	\$409,470
	Harnett		6,356	958.33	1,765				\$17,044	\$7,107	\$4,015	\$0		\$28,165	\$3,114	\$31,279
	Hoke		26,692	1050.25	7,413	320,059			\$71,576	\$32,706	\$16,860	\$171,169		\$292,311	\$32,314	\$324,625
	Robeson		505	874.93	140				\$1,354	\$515	\$319			\$2,189	\$242	\$2,431
Greensboro, NC			311,810	1683.50	82,640	4,465,195	24,524,528	\$23,977,192	\$836,133	\$643,393	\$187,954	\$2,388,010	\$242,403	\$4,055,491	\$275,155	\$4,573,049
	City of Greensboro	Greensboro Transit	269,131	2401.08	71,329	3,697,558	21,628,237	\$22,690,766	\$721,687	\$619,494	\$162,228	\$1,977,474	\$184,154	\$3,480,884	\$236,169	\$3,901,207
	City of High Point	High Point Transit	194	385.74	51				\$520	\$72	\$117	\$0		\$709	\$48	\$757
	Guilford		42,485	585.01	11,260	456,936			\$113,926	\$23,827	\$25,609	\$244,372		\$407,734	\$27,664	\$435,397
	PART					310,701	2,896,291	\$1,286,426				\$166,165	\$58,249	\$166,165	\$11,274	\$235,687
Hickory, NC			212,195	811.10	62,415	1,012,526	1,949,355	\$3,285,175	\$569,011	\$210,952	\$141,955	\$541,504	\$11,178	\$1,463,422	\$187,250	\$1,661,849
	City of Hickory (Burke)	Western Piedmont Regional Transit	66	71.00	19	1,099	2,116	\$3,565	\$177	\$5	\$44	\$588	\$12	\$814	\$104	\$931
	City of Hickory (Caldwell)	Western Piedmont Regional Transit	18	186.01	5	300	576	\$972	\$48	\$4	\$12	\$160	\$3	\$225	\$29	\$257
	City of Hickory, Conover, Newton	Western Piedmont Regional Transit	60,744	1198.26	17,867	1,011,127	1,946,663	\$3,280,638	\$162,888	\$83,784	\$40,637	\$540,756	\$11,162	\$828,065	\$105,954	\$945,181
	Alexander		4,738	620.57	1,394				\$12,705	\$3,384	\$3,170			\$19,259	\$2,464	\$21,724
	Burke		52,070	752.88	15,316				\$139,628	\$45,125	\$34,834			\$219,587	\$28,097	\$247,684
	Caldwell		54,426	801.37	16,009				\$145,946	\$50,205	\$36,410			\$232,561	\$29,757	\$262,318
	Catawba		40,133	615.71	11,805				\$107,619	\$28,444	\$26,848			\$162,910	\$20,845	\$183,755

UZA	Jurisdiction	Urban Transit	Allocation Data						Section 5307/5340 Funding Allocation							
			Population	Population Density	Low Income Population	Revenue Miles	Passenger Miles	Operating Cost	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	Revenue Miles Allocation	Bus Tier Allocation	5307 Without Performance	5340	FY2015 Allocation
Myrtle Beach--Socastee, SC--NC			215,304	1130.92	56,479	-			\$577,348	\$298,440	\$128,455			\$1,004,242	\$191,073	\$1,677,807
	Brunswick		20,279	707.91	5,320				\$54,379	\$17,167	\$12,099			\$83,645	\$15,915	\$99,560
	Georgetown, SC		7,539	1140.29	1,978				\$20,216	\$10,280	\$4,498			\$34,994	\$6,658	\$41,653
	Horry, SC		187,486	1208.68	49,182				\$502,752	\$270,993	\$111,858			\$885,603	\$168,500	\$1,054,103
160,768			884,891	1707.80		8,429,402	49,233,486	\$37,472,099	\$2,372,876	\$1,852,252	\$365,647	\$4,508,089	\$625,098	\$9,098,864	\$780,866	\$10,504,829
	Town of Cary (Chatham)	Cary Transit	1,326	2250.73	241	9,422			\$3,556	\$2,835	\$548	\$5,039		\$11,977	\$1,028	\$13,005
	Town of Cary (Wake)	Cary Transit	133,502	2673.79	24,255	948,586			\$357,992	\$339,055	\$55,165	\$507,309		\$1,259,520	\$108,092	\$1,367,612
	City of Raleigh (Durham)	Capital Area Transit	1,063	3908.43	193	12,748	87,418	\$73,464	\$2,850	\$3,946	\$439	\$6,818	\$980	\$14,054	\$1,206	\$16,240
	City of Raleigh (Wake)	Capital Area Transit	402,750	3044.88	73,172	4,829,835	33,121,017	\$27,833,876	\$1,079,993	\$1,164,824	\$166,421	\$2,583,021	\$371,228	\$4,994,260	\$428,608	\$5,794,096
	Chatham		3	159.31	1				\$8	\$0	\$1			\$10	\$1	\$11
	Durham		132	842.16	24				\$354	\$106	\$55			\$514	\$44	\$558
	Franklin		4,829	700.58	877				\$12,949	\$3,213	\$1,995			\$18,158	\$1,558	\$19,716
	Granville		963	737.00	175				\$2,582	\$674	\$398			\$3,654	\$314	\$3,968
	Harnett		5,938	1101.88	1,079				\$15,923	\$6,215	\$2,454			\$24,592	\$2,110	\$26,702
	Johnston		37,449	903.26	6,804				\$100,421	\$32,130	\$15,474			\$148,025	\$12,704	\$160,729
	Wake		296,936	1061.02	53,948				\$796,248	\$299,254	\$122,697			\$1,218,199	\$104,546	\$1,322,745
	GoTriangle					1,944,693	16,025,051	\$9,564,759				\$1,040,032	\$252,890	\$1,040,032	\$89,256	\$1,382,178
	NCSU-Wolfline					684,118						\$365,870		\$365,870	\$31,399	\$397,269
Wilmington, NC			219,957	1644.30	51,066	1,734,322	7,142,070	\$7,853,247	\$589,825	\$443,294	\$116,143	\$927,525	\$62,767	\$2,076,787	\$194,100	\$2,333,655
	City of Wilmington	Wilmington Transit	106,476	2160.12	24,720	1,734,322	7,142,070	\$7,853,247	\$285,520	\$262,425	\$56,222	\$927,525	\$62,767	\$1,531,692	\$143,155	\$1,737,614
	Brunswick		19,636	935.11	4,559				\$52,655	\$20,950	\$10,368			\$83,974	\$7,848	\$91,822
	New Hanover		91,702	1510.31	21,290				\$245,903	\$158,023	\$48,421			\$452,347	\$42,277	\$494,624
	Pender		2,143	775.46	498				\$5,747	\$1,896	\$1,132			\$8,774	\$820	\$9,594

UZA	Jurisdiction	Urban Transit	Allocation Data						Section 5307/5340 Funding Allocation							
			Population	Population Density	Low Income Population	Revenue Miles	Passenger Miles	Operating Cost	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	Revenue Miles Allocation	Bus Tier Allocation	5307 Without Performance	5340	FY2015 Allocation
Winston-Salem, NC			391,024	1212.20	106,315	3,009,279	15,673,083	\$15,064,454	\$1,048,549	\$580,966	\$241,800	\$1,609,378	\$157,576	\$3,480,694	\$345,057	\$3,983,327
	City of Winston-Salem	Winston-Salem Transit	229,432	1742.63	62,380	2,245,015	8,131,534	\$12,803,100	\$615,233	\$432,617	\$141,876	\$1,200,646	\$26,845	\$2,390,371	\$236,968	\$2,654,184
	Davidson		48,476	788.45	13,180				\$129,991	\$41,357	\$29,976			\$201,324	\$19,958	\$221,282
	Davie		7,062	815.60	1,920				\$18,937	\$6,232	\$4,367			\$29,536	\$2,928	\$32,464
	Forsyth		94,316	877.33	25,643				\$252,913	\$89,534	\$58,323			\$400,770	\$39,730	\$440,500
	Guilford		218	984.97	59				\$585	\$232	\$135			\$952	\$94	\$1,046
	Stokes		11,520	881.92	3,132				\$30,891	\$10,993	\$7,124			\$49,008	\$4,858	\$53,867
	PART					764,264	7,541,549	\$2,261,354				\$408,732	\$130,732	\$408,732	\$40,520	\$579,984

Table 5 FY 2015 Allocation - North Carolina UZA with Population less than 200,000

UZA	Jurisdiction	Urban Transit	Allocation Data			Section 5307/5340 Funding Allocation					
			Population	Population Density	Low Income Population	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	5307	5340	FY2015 Allocation
FY Section 5307 Rates			\$6.286417	\$0.003201	\$4.043962						
Burlington, NC			119,911	1,326.00	34,916	\$753,811	\$508,997	\$141,199	\$1,404,007	\$105,815	\$1,509,822
	City of Burlington (Alamance)		49,204	2,116.43	14,327	\$309,317	\$295,822	\$57,939	\$663,078	\$49,974	\$713,052
	City of Burlington (Guilford)		639	1,018.23	186	\$4,017	\$1,848	\$752	\$6,618	\$499	\$7,117
	Alamance		58,767	1,076.31	17,112	\$369,434	\$179,680	\$69,200	\$618,313	\$46,600	\$664,913
	Guilford		6,761	1,142.81	1,969	\$42,502	\$21,949	\$7,961	\$72,413	\$5,457	\$77,870
	Orange		4,540	751.98	1,322	\$28,540	\$9,698	\$5,346	\$43,585	\$3,285	\$46,869
	PART						\$0		\$0	\$0	\$0
Gastonia, NC--SC			169,495	1,222.55	51,105	\$1,065,516	\$663,340	\$206,667	\$1,935,523	\$149,427	\$2,085,121
	City of Gastonia	Gastonia Transit	71,296	1,712.97	21,497	\$448,196	\$365,324	\$86,932	\$900,452	\$69,517	\$969,969
	Cleveland		11,171	1,128.52	3,368	\$70,226	\$37,711	\$13,621	\$121,557	\$9,385	\$130,942
	Gaston		86,783	1,001.10	26,166	\$545,554	\$259,881	\$105,815	\$911,250	\$70,351	\$981,601
	Lincoln		83	515.26	25	\$522	\$128	\$101	\$751	\$58	\$809
	York, SC		162	611.10	49	\$1,018	\$296	\$198	\$1,512	\$117	\$1,629
Goldsboro, NC			61,054	1,153.80	20,924	\$383,811	\$225,506	\$84,616	\$693,932	\$53,877	\$747,809
	City of Goldsboro	Goldsboro-Wayne Transportation Authority	35,690	1,667.39	12,231	\$224,362	\$167,901	\$49,463	\$441,727	\$34,296	\$476,023
	Wayne		25,364	804.95	8,693	\$159,449	\$57,604	\$35,152	\$252,206	\$19,581	\$271,787
Greenville, NC			117,798	1,806.80	41,548	\$740,527	\$681,335	\$168,019	\$1,589,881	\$103,950	\$1,693,801
	City of Greenville	Greenville Area Transit	83,434	2,834.28	29,428	\$524,501	\$597,851	\$119,004	\$1,241,356	\$81,163	\$1,322,519
	Pitt		34,364	960.93	12,120	\$216,026	\$83,484	\$49,014	\$348,525	\$22,787	\$371,312

UZA	Jurisdiction	Urban Transit	Allocation Data			Section 5307/5340 Funding Allocation					
			Population	Population Density	Low Income Population	Urbanized Population Allocation	Weighted Population Density Allocation	Low Income Allocation	5307	5340	FY2015 Allocation
High Point, NC			166,485	1,473.40	48,559	\$1,046,594	\$785,251	\$196,371	\$2,028,216	\$146,914	\$2,175,130
	City of High Point (Guilford)	High Point Transit	98,802	2,046.05	28,818	\$621,111	\$566,127	\$116,538	\$1,303,775	\$94,439	\$1,398,214
	City of High Point (Davidson)	High Point Transit	5,249	2,799.20	1,531	\$32,997	\$41,147	\$6,191	\$80,336	\$5,819	\$86,155
	City of High Point (Forsyth)	High Point Transit	6	56.45	2	\$38	\$1	\$7	\$46	\$3	\$49
	City of High Point (Randolph)	High Point Transit	11	38.29	3	\$69	\$1	\$13	\$83	\$6	\$89
	Davidson		31,814	1,135.10	9,279	\$199,996	\$101,131	\$37,525	\$338,652	\$24,530	\$363,182
	Forsyth		1,154	935.69	337	\$7,255	\$3,024	\$1,361	\$11,640	\$843	\$12,483
	Guilford		8,176	769.11	2,385	\$51,398	\$17,610	\$9,644	\$78,651	\$5,697	\$84,349
	Randolph		21,273	943.53	6,205	\$133,731	\$56,210	\$25,092	\$215,033	\$15,576	\$230,609
Jacksonville, NC			105,419	1,477.80	22,370	\$662,708	\$498,709	\$90,463	\$1,251,880	\$93,026	\$1,344,906
	City of Jacksonville	Jacksonville Transit System	69,341	1,790.19	14,714	\$435,906	\$377,348	\$59,504	\$872,759	\$64,854	\$937,612
	Onslow		36,078	1,106.58	7,656	\$226,801	\$121,361	\$30,960	\$379,122	\$28,172	\$407,294
New Bern, NC			50,503	1,163.40	13,061	\$317,483	\$188,087	\$52,818	\$558,388	\$422,141	\$980,529
	City of New Bern	Craven Transit System	27,944	1,522.40	7,227	\$175,668	\$127,308	\$29,225	\$332,200	\$251,143	\$583,343
	Craven		22,559	900.33	5,834	\$141,815	\$60,779	\$23,593	\$226,188	\$170,998	\$397,186
Rocky Mount, NC			68,243	1,484.70	21,982	\$429,004	\$324,347	\$88,894	\$842,245	\$60,221	\$902,466
	City of Rocky Mount (Edgecombe)	Rocky Mount Transit System	16,976	1,646.70	5,468	\$106,718	\$85,723	\$22,113	\$214,555	\$15,341	\$229,895
	City of Rocky Mount (Nash)	Rocky Mount Transit System	39,267	1,592.14	12,648	\$246,849	\$191,716	\$51,150	\$489,715	\$35,015	\$524,730
	Edgecombe		373	191.32	120	\$2,345	\$219	\$486	\$3,050	\$218	\$3,268
	Nash		10,989	1,254.21	3,540	\$69,081	\$42,265	\$14,314	\$125,661	\$8,985	\$134,645
	Wilson		638	2,261.14	206	\$4,011	\$4,424	\$831	\$9,266	\$662	\$9,928

Limitations and Assumptions

NCSU ITRE does acknowledge limitations regarding the method introduced in this brief. Limitations and assumptions (outlined below) need to be addressed and improved upon in future research.

1. City limits as of the 2010 Census were used to define transit system operating areas. Some transit systems operate outside of the primary city. The researchers attempted to address these exceptions by, for instance, including Newton and Conover in the WPRTA urban coverage for the Hickory UZA. However, it is likely that several secondary cities were missed; as a result these populations and land areas were allocated to the CT system. In addition, GoTriangle, PART, and NCSU-Wolfline have service areas that overlap with fixed route and/or CT provider service areas. In this analysis, no land area, density, or population data are allocated to these overlay transit systems.
2. Urban fixed route and Community Transportation demand response revenue miles are not the same service or cost. It is a considerably greater cost to purchase and operate a large fixed route bus than a light transit vehicle (LTV) or van. However, the FTA formula allocates the same funding amount per mile to each service. Fair and equitable funding allocation formulas from the state and the MPOs can address the difference in costs through weighting or other means.
3. Low Income individuals were distributed to Census blocks proportional to the total population. It is likely that low income individuals are clustered in certain blocks within the primary city, but no information that matched FTA's calculations and the Census 2010 block boundaries was available.
4. The Fixed Guideway Tier formula needs to be incorporated into future versions.

Conclusions and Recommendations

The calculations presented in this research disaggregate FTA's Section 5307 and Section 5340 funding from the Urbanized Area (UZA) level to the transit system level. The estimates provide an initial baseline for assessing the fairness and equity of UZA funding allocations. The intent of this research is to identify the amount of Section 5307/5340 appropriations that are generated by each transit system for designated recipients and MPOs to use as a guide when determining funding allocation.

It is recommended that transit systems generating Section 5307/5340 apportionments for their Urbanized Areas receive their fair and equitable share of the funding from the state and the MPO using an **inclusive, transparent, and defensible** allocation method. It is also recommended that other considerations, particularly local capital and preventive maintenance needs, are included in the allocation methodology.

NCDOT Public Transportation Division has additional funding focus areas for consideration that apply to different funding groups as discussed below.

All Transit Systems

- National Transit Database (NTD) reporting (Section 5311 and Section 5307) must be completed by every transit system annually and accurately. Full reporting needs to start as soon as the new census designates and defines the urban area because FTA Section 5307 funding will not be appropriated to systems until the 2nd year after reporting as the revenue mile data are not available for the apportionment formula. FTA Section 5307/5340/5339 funding is determined in part by

vehicle revenue miles. Failure to report NTD data reduces the amount of federal formula funding available to an urbanized area.

Small Urbanized Areas (less than 200,000 population)

- The NCDOT Public Transportation Division will follow FTA regulations that provide for the State to decide the distribution and programming of the transit system funds in UZAs under 200,000 (Small UZAs / Governor's Apportionment). Funding decisions will occur in consultation with the eight small urban transit systems and MPOs. Planning for capital needs will be included in the discussions.

Large Urbanized Areas (over 200,000 population)

- With each census and / or change in federal funding programs, each UZA over 200,000 will develop a fair and equitable distribution formula. This formula will be shared with NCDOT for concurrence.
- Following FTA's announcement of federal funding, the Public Transportation Division (PTD) will develop and publish a funding distribution for each UZA consistent with the current FTA formula.
- As part of the State Transportation Improvement Program (STIP) amendment process, each large UZA will submit their allocation process as an MPO adopted Transit Program of Projects to NCDOT PTD for approval. PTD will compare it to the fair and equitable distribution formula. Upon approval, State Maintenance Assistance Program (SMAP) funds can be allocated to eligible recipients.
- The MPOs and transit systems must work with the NCDOT to implement a Transit Asset Management system that funds a proportion of the Community Transportation transit system's vehicle fleets with urban funding.
- NCDOT should assume oversight of ALL of the NC Community Transportation transit systems receiving FTA Section 5311 funds and eligible for Section 5307. Originally, the agreement with FTA was to offer this to transit systems in UZAs less than 200,000 (Governor's Apportionment); however, with FTA's concurrence, large UZA's can also use a split letter to transfer apportionment amounts for the eligible Section 5311 transit systems through NCDOT. For example, the split letter would simply say NCDOT/Hoke. This would keep the Section 5311 transit system with one set of oversight activities and keep the transit systems in large UZAs out of the oversight business. The use of this process could also simplify Section 5310, Section 5339 and the new Bus and Bus Facilities program by looking at the bigger picture in these last two bullets.

Appendix A:

A Review of North Carolina Urbanized Area (UZA) Growth Rates from 1990 to 2010 with Illustrated UZA Case Studies

North Carolina Population and Urbanized Area Change

The size, shape and distribution of North Carolina's population are a critical factor determining FTA allocations for transit. The FY2015 FTA Section 5307 funding formula is explicitly comprised of demographic factors including population size, population density, low income population, revenue vehicle miles, passenger miles, and operating cost. In respect to population factors, for the past few decades North Carolina has been transitioning from a predominantly rural state to a state comprised of small and medium sized urbanized areas. As shown in *Table 6*, in 1990 the non-urbanized population comprised 63 percent of the state's population. During the period from 1990 to 2010, the state's non-urbanized population remained constant at just over 4 million persons. Comparatively, the state's urbanized population grew by nearly 3 million from 1990 to 2010, from 2.4 million in 1990 to 5.2 million in 2010. North Carolina's 2010 urbanized area population comprised 56 percent of the total population, a rapid increase from the 1990 urbanized area population percentage of 37 percent.

Table 6 North Carolina Urbanized and Non-urbanized Population 1990 to 2010

Population Type	NC Population			Change 2000 to 2010	
	1990	2000	2010	Net	Percent
Urbanized Population	2,452,636	3,761,411	5,234,809	1,473,398	39.2%
Non-urbanized Population	4,176,001	4,287,899	4,118,674	(169,225)	-3.9%
Total Population	6,628,637	8,049,310	9,353,483	1,304,173	16.2%

Table 7 presents the change in urbanized area population between 1990 and 2010. It is interesting that during the period 1990 to 2010, every urbanized area in the state experienced population growth. During the 2000 to 2010 decade, the Concord urbanized area had the fastest population growth at 86.8 percent while the Raleigh urbanized area had the second highest growth rate at 63.4 percent. The Charlotte urbanized area had the largest growth in population, adding 445,706 persons during the decade.

Table 7 North Carolina Urbanized Area Population Growth

North Carolina Urbanized Areas	NC Population			Change 2000 to 2010	
	1990	2000	2010	Change	% Change
Asheville, NC	110,429	221,570	280,648	59,078	26.7%
Burlington, NC	74,053	94,248	119,911	25,663	27.2%
Charlotte, NC--SC	455,597	734,778	1,180,484	445,706	60.7%
Concord, NC	78,177	115,057	214,881	99,824	86.8%
Durham, NC	205,355	287,796	347,602	59,806	20.8%
Fayetteville, NC	241,763	276,368	310,282	33,914	12.3%
Gastonia, NC--SC	113,637	141,407	169,333	27,926	19.7%
Goldsboro, NC		57,915	61,054	3,139	5.4%
Greensboro, NC	194,508	267,884	311,810	43,926	16.4%
Greenville, NC	55,884	84,059	117,798	33,739	40.1%
Hickory, NC	69,914	187,808	212,195	24,387	13.0%
High Point, NC	108,686	132,884	166,485	33,601	25.3%
Jacksonville, NC	101,297	95,514	105,419	9,905	10.4%
Myrtle Beach--Socastee, SC--NC			20,279	20,279	
New Bern, NC			50,503	50,503	
Raleigh, NC	305,925	541,527	884,891	343,364	63.4%
Rocky Mount, NC	50,870	61,657	68,243	6,586	10.7%
Wilmington, NC	101,357	161,649	219,957	58,308	36.1%
Winston-Salem, NC	185,184	299,290	391,024	91,734	30.7%
Source: http://www2.census.gov/geo/docs/reference/ua/PctUrbanRural_State.xls					

Population density plays a central role in the allocation of Section 5307 funds. As shown in *Table 8*, the Durham / Chapel Hill urbanized area has the highest 2010 population density at 1,913 persons per square mile while the Hickory urbanized area and the North Carolina portion of the Myrtle Beach – Socastee urbanized area had population densities less than 1,000 persons per square mile.

Table 8 North Carolina Urbanized Area Population Density - 2010

Urbanized Area	Persons per Sq. Mi.	Urbanized Area	Persons per Sq. Mi.
Durham, NC	1913	Burlington, NC	1326
Greenville, NC	1807	Gastonia, NC--SC	1224
Charlotte, NC—SC	1712	Winston-Salem, NC	1212
Raleigh, NC	1708	Concord, NC	1192
Greensboro, NC	1684	New Bern, NC	1163
Wilmington, NC	1644	Goldsboro, NC	1154
Fayetteville, NC	1567	Asheville, NC	1060
Rocky Mount, NC	1485	Hickory, NC	811
Jacksonville, NC	1478	Myrtle Beach--Socastee, SC--NC	708
High Point, NC	1473		

Figure 2 displays three urbanized area funding categories for Section 5307 transit funding. The State's eight small urbanized areas between 50,000 and 199,999 are included in the Governor's Apportionment: Burlington; Gastonia; Goldsboro; Greenville; High Point; Jacksonville; New Bern; Rocky Mount. Nine urbanized areas are in the 200,000 to 999,999 population category: Asheville; Concord; Fayetteville; Greensboro; Hickory; Durham; Raleigh; Wilmington; Winston-Salem. Charlotte is the only urbanized area greater than 1,000,000 persons based upon the 2010 census.

Current 5307 Transit Funding Category--North Carolina

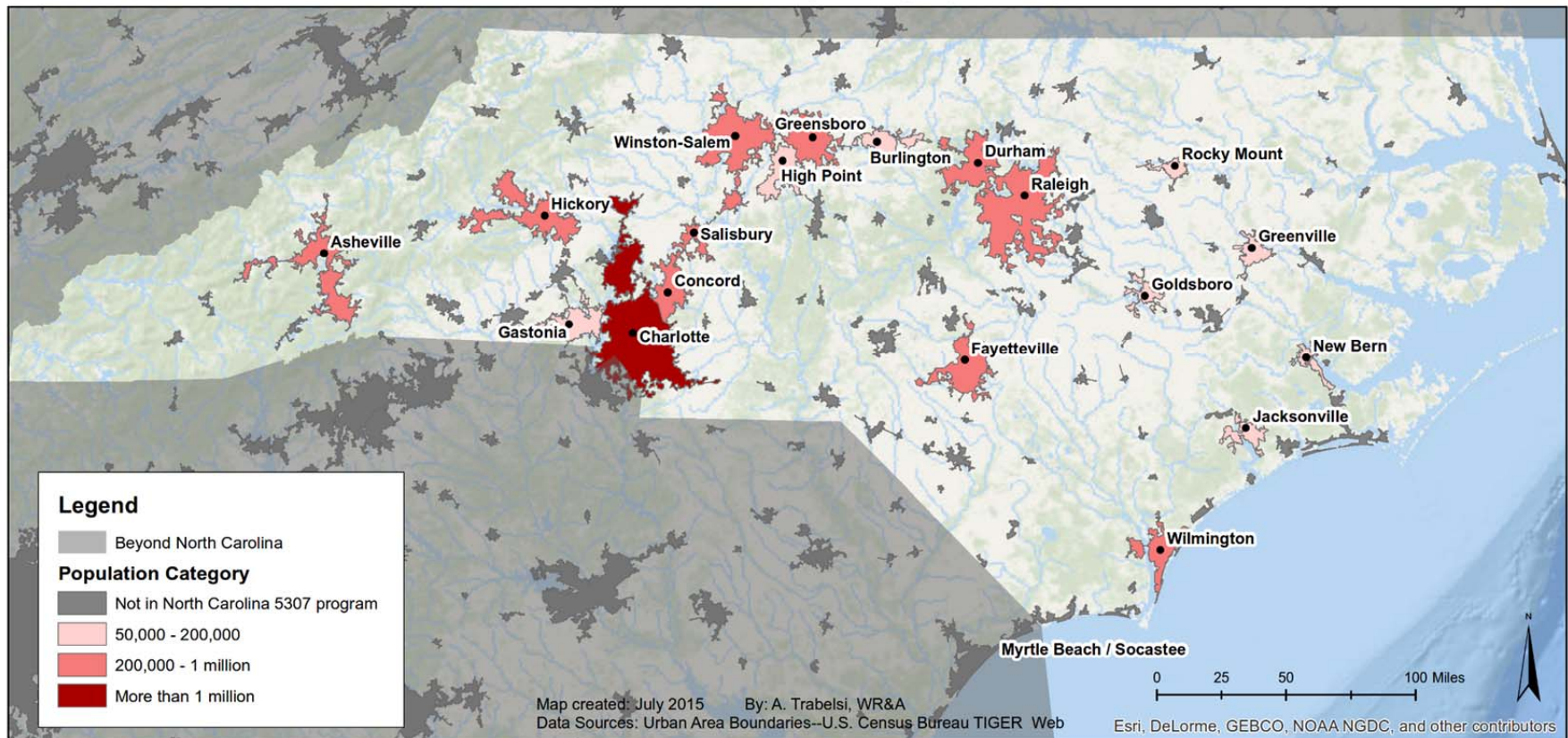


Figure 2 Current Section 5307 Transit Funding Categories

Figure 3 graphically presents the urbanized area growth rates. From these maps note the sprawling nature of the urbanized area boundaries with populations concentrated along highway corridors. In Asheville for example, the urbanized area comprises portions of five counties including Buncombe, Haywood, Henderson, Madison, and Transylvania.

Growth Rate of Urbanized Areas in 5307 Transit Funding Program (2000-2010)--North Carolina

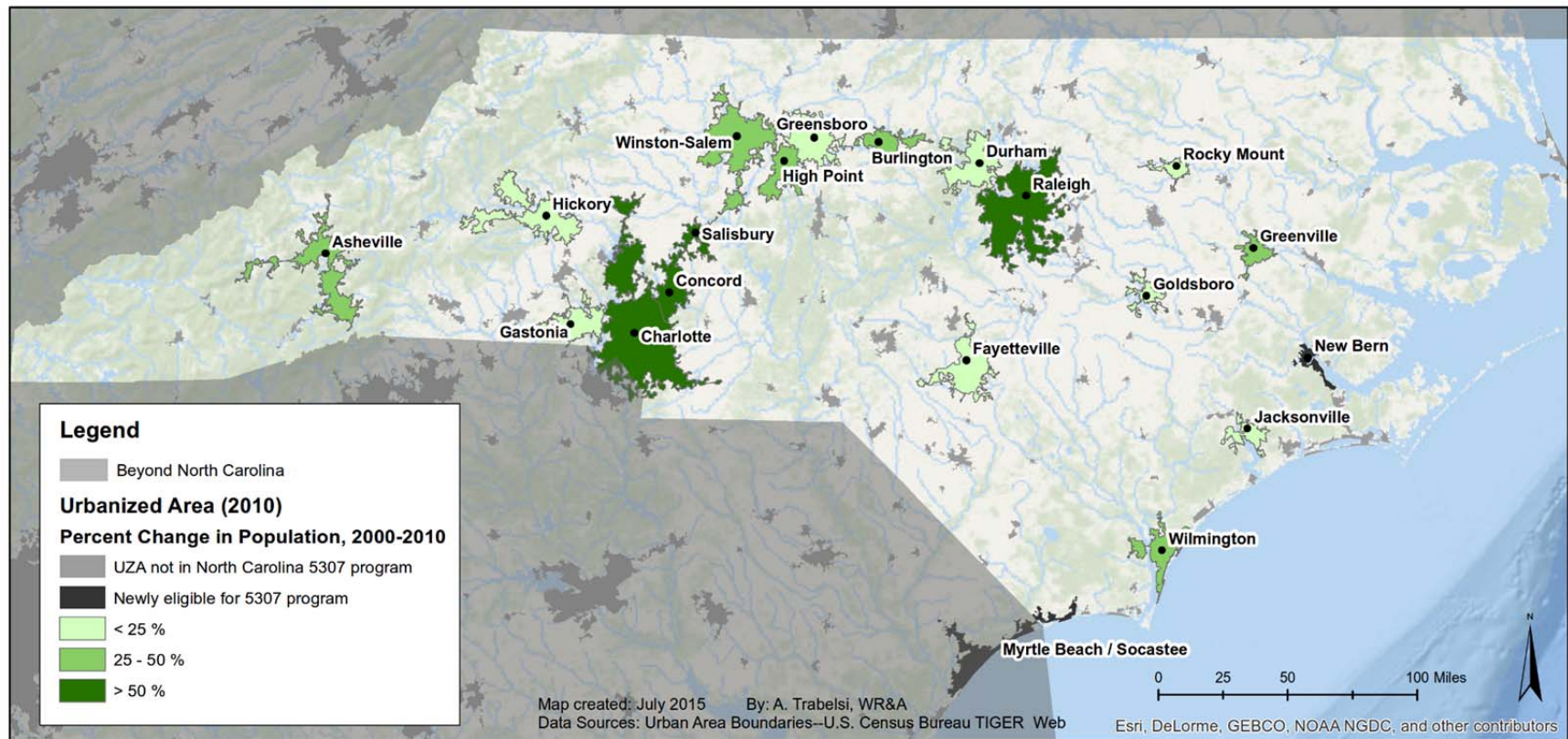


Figure 3 Urbanized Area Growth Rates 2000 - 2010

Case Studies

Below we outline seven case studies that evaluate how the change in an urbanized area population has affected the size and form of the urbanized area and the FTA funding available to each area. Case studies are offered for Hickory, Wilmington, New Bern, Kannapolis/Concord/Salisbury, Raleigh, Fayetteville, Asheville and each of the Governor's Apportionment urbanized areas.

In reviewing these cases it is important to understand that while there has been considerable North Carolina population increase in urban areas, a component of the urbanized area population change is also the result of the U.S. Census Bureau's redrawing of each urbanized area boundary. According to the U.S. Census website, "for the 2010 Census, an urban area will comprise a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. To qualify as an urban area, the territory identified according to criteria must encompass at least 2,500 people, at least 1,500 of which reside outside institutional group quarters."⁴ The U.S. Census Bureau's application of the urban area criteria has caused a substantial increase in the urbanized area population and resulted in urbanized areas extending well beyond the traditional city boundaries.

⁴ <https://www.census.gov/geo/reference/ua/uafaq.html>.

A. Hickory

Hickory Urbanized Area

As of 2010, the Hickory Urbanized Area includes portions of Alexander, Burke, Caldwell and Catawba counties and included the municipalities of Hickory, Conover, Newton, Morganton and Lenoir. Since the 1990 census, the urbanized area has spread westward along I-40 to Morganton and northwest along US 321 to Lenoir. As shown in *Table 9* the Hickory Urbanized Area population has increased from 69,914 persons in 1990 to 212,195 persons in 2010, or a 204 percent increase over the twenty-year time frame. During the period from 1990 to 2010 the population of the four counties that make up the Hickory Urbanized Area only grew by 73,087 persons, or 25 percent. The disparity in the amount and rate of change in the urbanized area population from the four county population is a result of the U.S. Census Bureau's process for defining urbanized areas.

Table 9 Hickory Urbanized Area Population Change 1990 to 2010

Area	1990	2000	2010	Change 1990 to 2010	% Change
Hickory UZA	69,914	187,808	212,195	142,281	203.51%
Alexander County	27,544	33,609	37,193	9,649	35.0%
Burke County	75,740	89,145	90,914	15,174	20.0%
Caldwell County	70,709	77,710	83,029	12,320	17.4%
Catawba County	118,412	141,677	154,356	35,944	30.4%
Four County Total	292,405	342,141	365,492	73,087	25.0%

Source:

http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demo_g/countygrowth_2020.html.

Figure 4 illustrates the change in the Hickory Urbanized Area boundary from 1990 to 2010. The extent of the current fixed route bus service provided by Western Piedmont Regional Public Transportation Authority is shown on the 2010 boundary map.

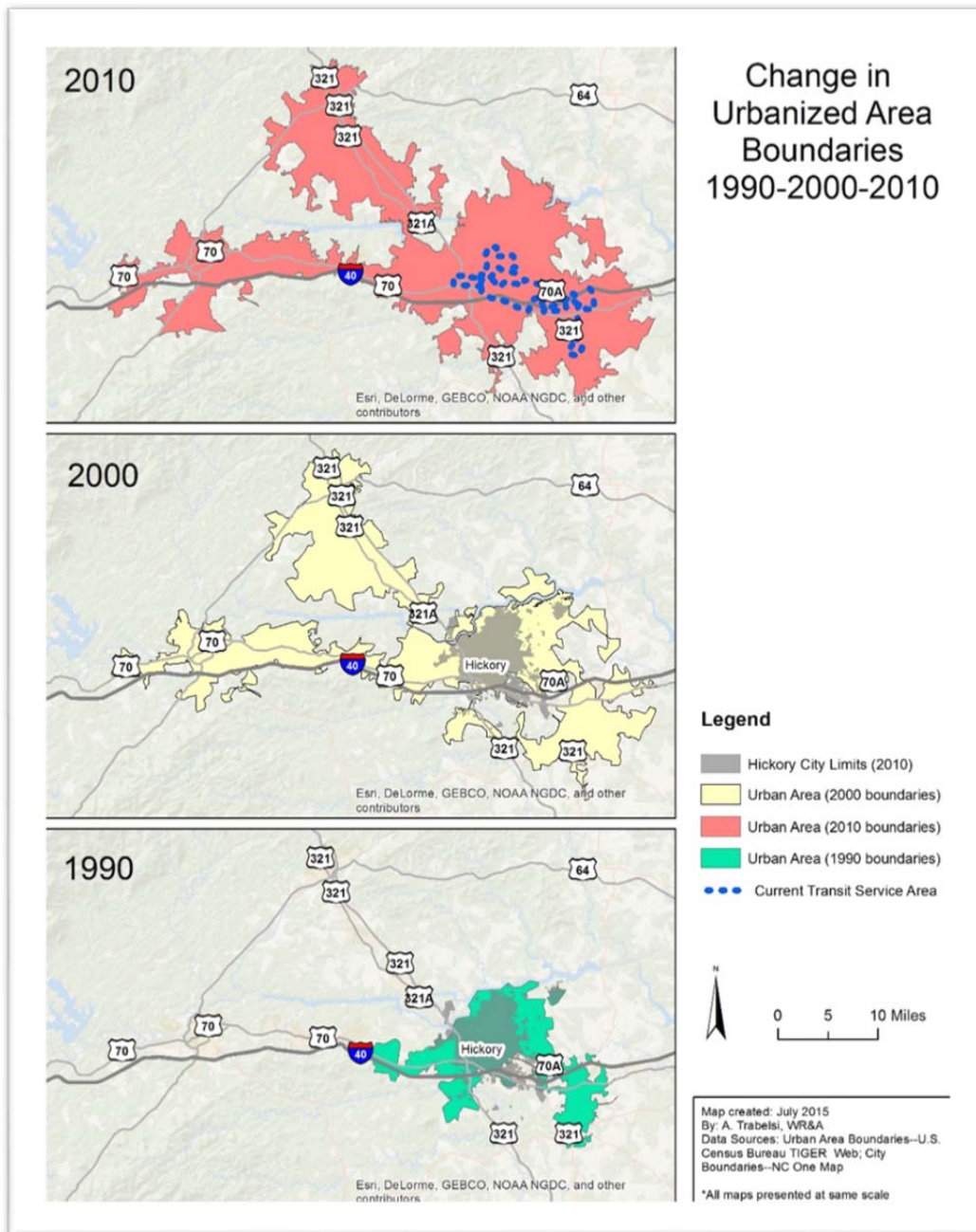


Figure 4 Hickory Urbanized Area Change is Urbanized Area Boundaries

Hickory Public Transportation Services

Western Piedmont Regional Public Transportation is a consolidated urban / rural system that provides fixed route bus service to the municipalities of Conover, Hickory, and Newton, flex route service in the Town of Taylorsville, and Dial-A-Ride service in the counties of Alexander, Burke, Caldwell, and Catawba. According to the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report, Western Piedmont Regional Public Transportation Authority operates nine fixed route buses and 30 dial-a-ride buses during peak periods. *Figure 5* presents the ridership history.

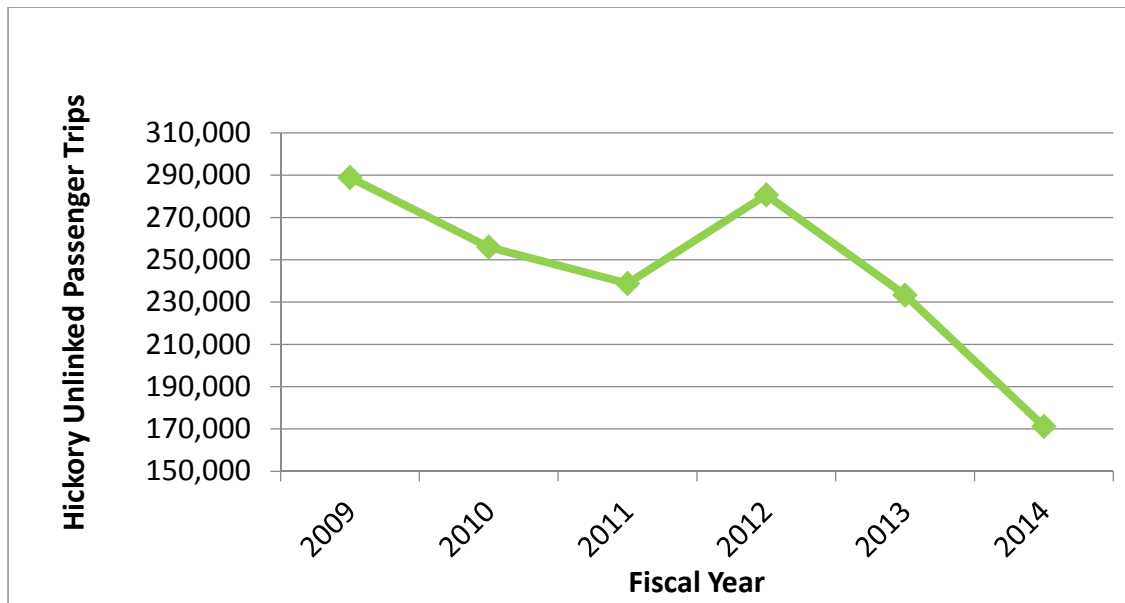


Figure 5 Hickory Urbanized Area Unlinked Passenger Trips

Table 10 presents the Fiscal Year (FY) 2014 financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report. Note that the federal share of the net cost of service is 78 percent. Eligible costs for the Section 5307 funds are up to 80 percent of maintenance expense and up to 50 percent of the residual net cost of service.

Table 10 Western Piedmont Regional Transit Authority Fiscal Year 2014 Financial Summary

	Fiscal Year 2014	Percent of Expenses	Percent of Net Cost of Service
Operating Expenses	\$3,119,208	100%	
Passenger Fares	\$118,068	3.8%	
Other Revenues	\$959,016	30.8%	
Net Cost of Service	\$2,042,124		100%
Federal	\$1,594,575		78.1%
State	\$161,883		7.9%
Local	\$288,222		14.1%

B. Wilmington

Wilmington Urbanized Area

As of 2010, the Wilmington Urbanized Area (UZA) includes portions of New Hanover, Brunswick and Pender counties. Since the 1990 census, the urbanized area has spread southward in Brunswick County and northward in Pender County. As shown in *Table 11* the Wilmington Urbanized Area population has increased from 101,357 persons in 1990 to 219,957 persons in 2010, which is a 117 percent increase over the twenty-year time frame. During the period from 1990 to 2010, the population of the three counties that make up the Wilmington Urbanized Area grew by 162,191, or 81 percent. Of note, the southern portion of Brunswick County is also now part of the Myrtle Beach—Socastee urbanized area.

Table 11 Wilmington Urbanized Area Population Change 1990 to 2010

Area	1990	2000	2010	Change 1990 to 2010	% Change
Wilmington UZA	101,357	161,649	219,957	118,600	117.01%
Brunswick County	50,985	73,141	107,431	56,446	110.71%
New Hanover County	120,284	160,327	202,683	82,399	68.50%
Pender County	28,855	41,082	52,201	23,346	80.91%
Three County Area	200,124	274,550	362,315	162,191	81.05%

Source:

[Http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countygrowth_2020.html](http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countygrowth_2020.html).

Figure 6 illustrates the change in the urbanized area boundaries from 1990 to 2010. The extent of the current fixed route bus service provided by Wilmington Transit (WAVE) is shown on the 2010 map.

Change in Urbanized Area Boundaries 1990-2000-2010 Wilmington

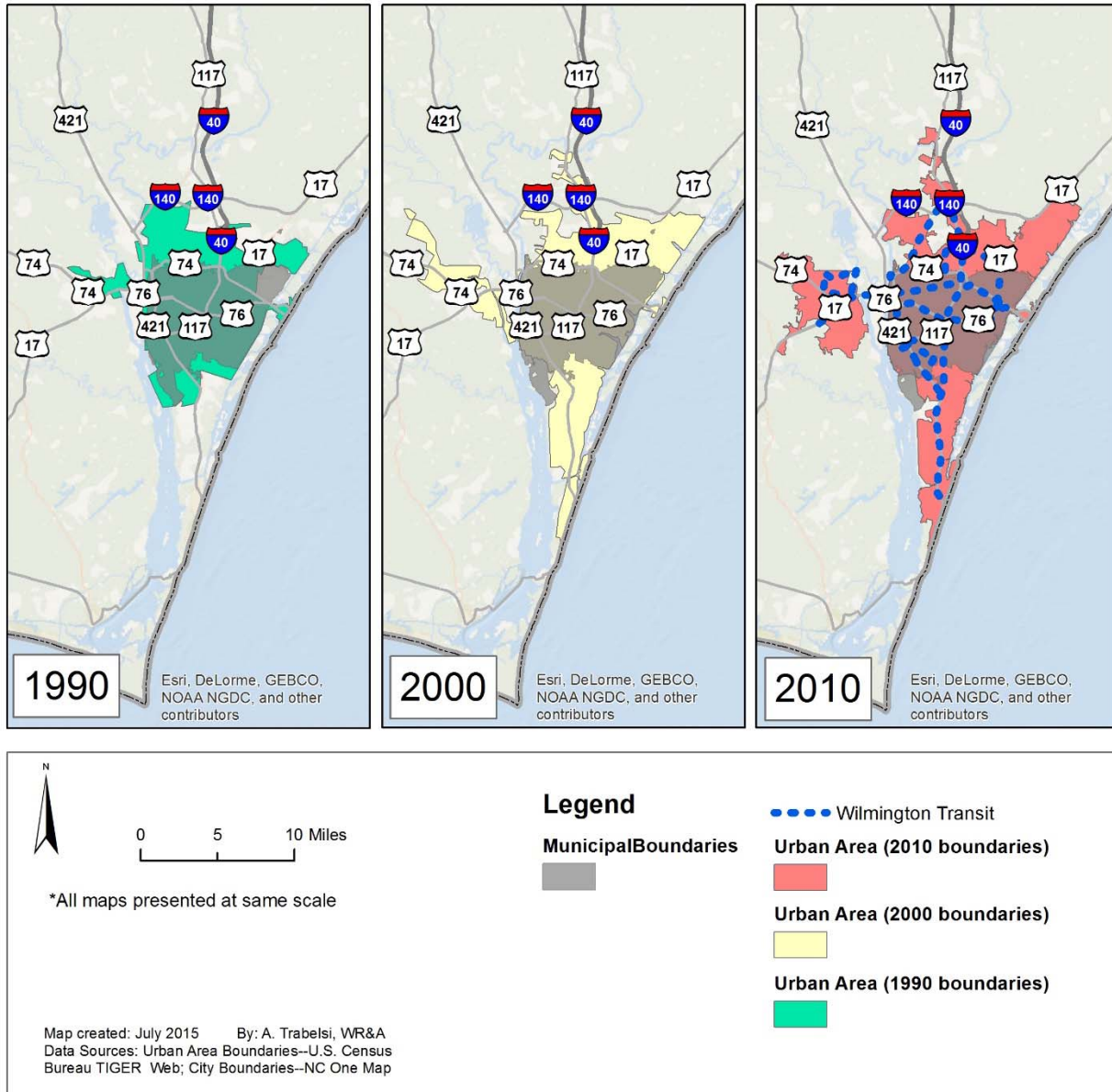


Figure 6 Wilmington Urbanized Area Change is Urbanized Area Boundaries

Wilmington Public Transportation Services

The Cape Fear Public Transportation Authority, operating as WAVE, is a consolidated urban / rural system that provides fixed route and coordinated human service transit service in the City of Wilmington and New Hanover and Brunswick Counties. According to the FY13 National Transit

Database, WAVE operates 27 fixed route buses, 19 dial-a-ride buses and 2 vanpools. *Figure 7* presents the ridership history.

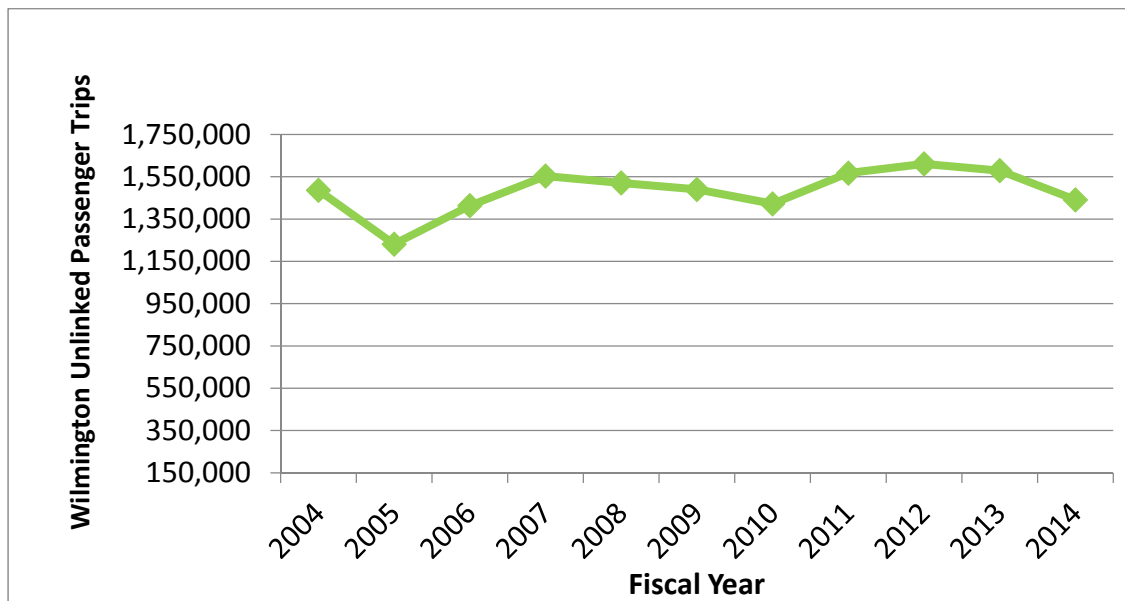


Figure 7 Wilmington Urbanized Area Unlinked Passenger Trips

Table 12 presents the FY14 financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report. Note that the federal share of the net cost of service is 52.6 percent, the local share is 30.9 percent and the state share is 15.5 percent.

Table 12 Cape Fear Valley Transit Authority Fiscal Year 2014 Financial Summary

	Fiscal Year 2014	Percent of Expenses	Percent of Net Cost of Service
Operating Expenses	\$7,197,998	100%	
Passenger Fares	\$1,841,303	25.6%	
Other Revenues	\$84,044	1.2%	
Net Cost of Service	\$5,272,651		100%
Federal	\$2,773,693		52.6%
State	\$819,657		15.5%
Local	\$1,630,317		30.9%

C. New Bern

New Bern Urbanized Area

New Bern is North Carolina's newest urbanized area with a 2010 population of 50,503. This new urbanized area is located within the boundaries of Craven County. Since the 1990 census, the New Bern urban cluster has spread eastward along US 70 towards Havelock and northward along US 17 on the north bank of the Neuse River. As shown in *Table 13*, the New Bern Urban Area has grown from 38,788 persons in 1990 to 50,503 persons in 2010, or a 30.2 percent increase over the ten-year time frame. Nearly all of the population growth in Craven County has occurred within the New Bern Urbanized Area.

Table 13 New Bern Urbanized Area Population Change 1990 to 2010

Area	2000	2010	Change 1990 to 2010	% Change
New Bern Urban Area	38,788	50,503	11,715	30.2%
Craven County	91,523	103,505	11,982	13.1%

Figure 8 illustrates the change in the Urban Area boundaries from 1990 to 2010. The extent of the current fixed route bus service provided by Craven County Transit is shown on the 2010 map.

Urbanized Area Boundaries 2010 New Bern

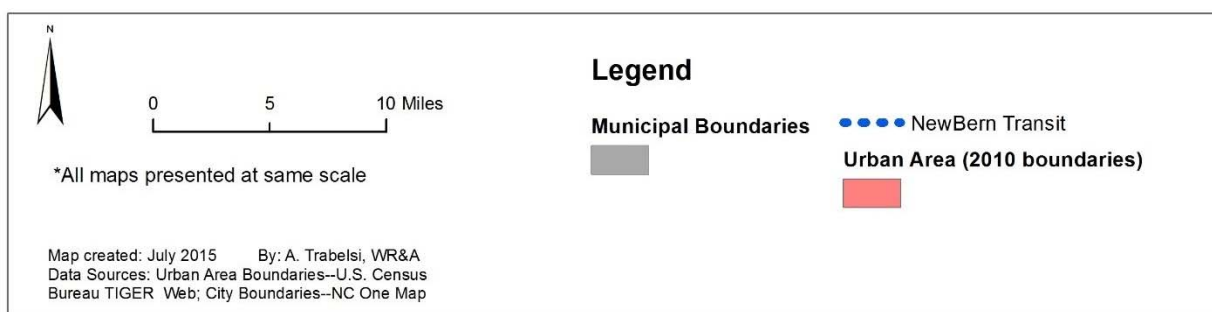
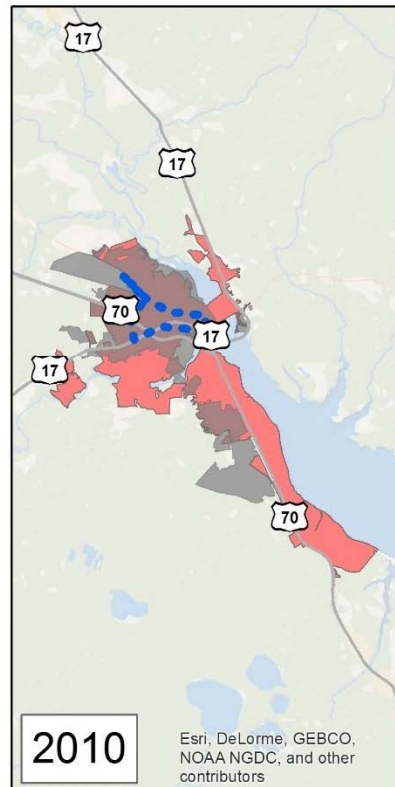


Figure 8 New Bern Urbanized Area Change is Urban Area Boundaries

CARTS Public Transportation Services

Craven Area Rural Transit System (CARTS) provides fixed route and coordinated human service transit service in Craven, Jones and Pamlico Counties. The system operates a fleet of 32 vehicles. Scheduled routes are currently based on the requirements of the human service agencies served by the system (i.e. Social Services (DSS), Monarch, Port Human Services, Senior Citizen's Centers, etc.). The service is

available to the general public on a space-available basis for fares ranging from \$1.00 to \$6.75 according to zoned distances. Demand response service is also available to the public on a limited basis, with emphasis on the elderly and/or handicapped. Out of county medical transportation is provided to Durham / Chapel Hill, Morehead City, Kinston, Greenville, Pollockville, and Vanceboro.

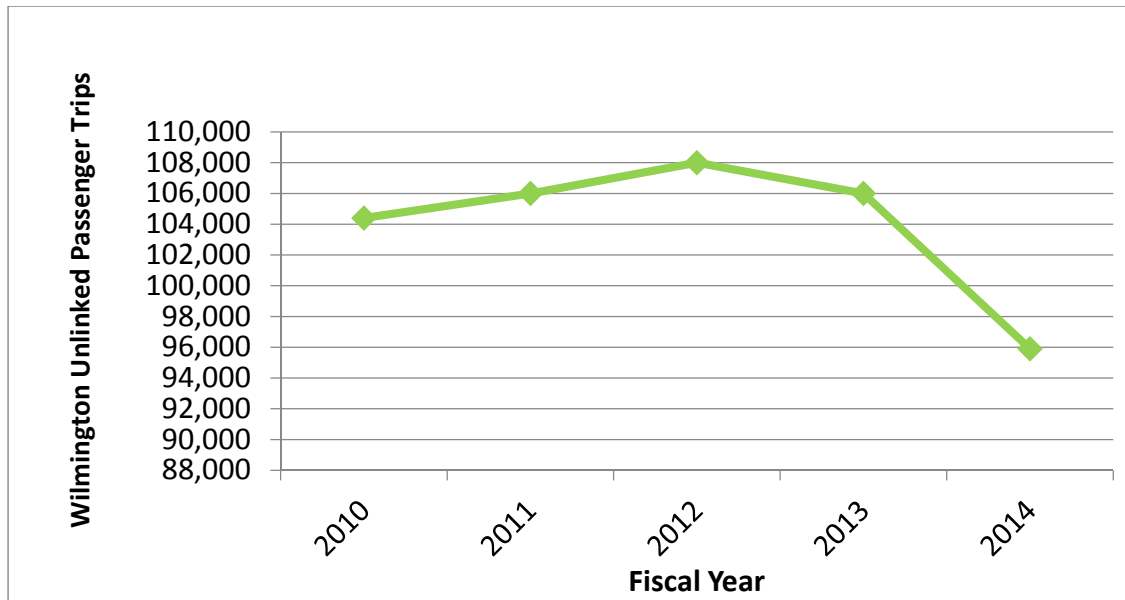


Figure 9 Craven Area Rural Transit System (CARTS) Unlinked Passenger Trips

CARTS completed NTD reports in FY12 and FY13 and reported 60,380 unlinked passenger trips in the Urbanized Area during FY12 and 59,235 unlinked passenger trips in the Urbanized Area during FY13.

Table 14 presents the FY14 financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report. Note that the federal share of the net cost of service is 27.6 percent, the local share is 28.8 percent and the state share is 40.4 percent.

Table 14 CARTS Fiscal Year 2014 Financial Summary

	Fiscal Year 2014	Percent of Expenses	Percent of Net Cost of Service
Operating Expenses	\$1,216,818	100%	
Passenger Fares	\$57,898	4.8%	
Other Revenues	\$0	0%	
Net Cost of Service	\$1,158,920		100%
Federal	\$319,764		27.6%
State	\$468,439		40.4%
Local	\$334,886		28.8%

D. Kannapolis / Concord / Salisbury

Kannapolis / Concord / Salisbury Urbanized Area

As shown in *Table 15*, the 2010 U. S. Census enlarged the Concord Urbanized Area by adding Salisbury and portions of Rowan and Davidson Counties. This enlarged Concord UZA now extends along I-85 to include Rowan County, Salisbury and a small portion (160 persons) of Davidson County. The 2010 U. S. Census increased the population of the Concord Urbanized Area by 87 percent and increased the land area by 98 percent.

Table 15 Kannapolis / Concord / Salisbury Urbanized Area Population Change 1990 to 2010

Area	1990	2000	2010	Change 2000 to 2010	% Change
Concord UZA	78,177	115,057	214,881	99,824	86.8%
Cabarrus County	98,935	131,030	178,182	47,152	36.0%
Rowan County	110,605	130,348	138,442	8,094	6.2%
Two County Area	209,540	261,378	316,624	55,246	21.1%
Municipal Areas					
Concord		56,392	79,066	22,674	40.2%
Kannapolis		36,959	42,625	5,666	15.3%
Salisbury		30,805	33,527	2,722	8.8%

Source:

http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countygrowth_2020.html.

Figure 10 illustrates the change in the Urban Area boundaries from 1990 to 2010. The extent of the current fixed route bus service provided by Concord-Kannapolis Transit, Rowan County and Salisbury Transit is shown on the 2010 map.

Change in Urbanized Area Boundaries 1990-2000-2010 Kannapolis / Concord

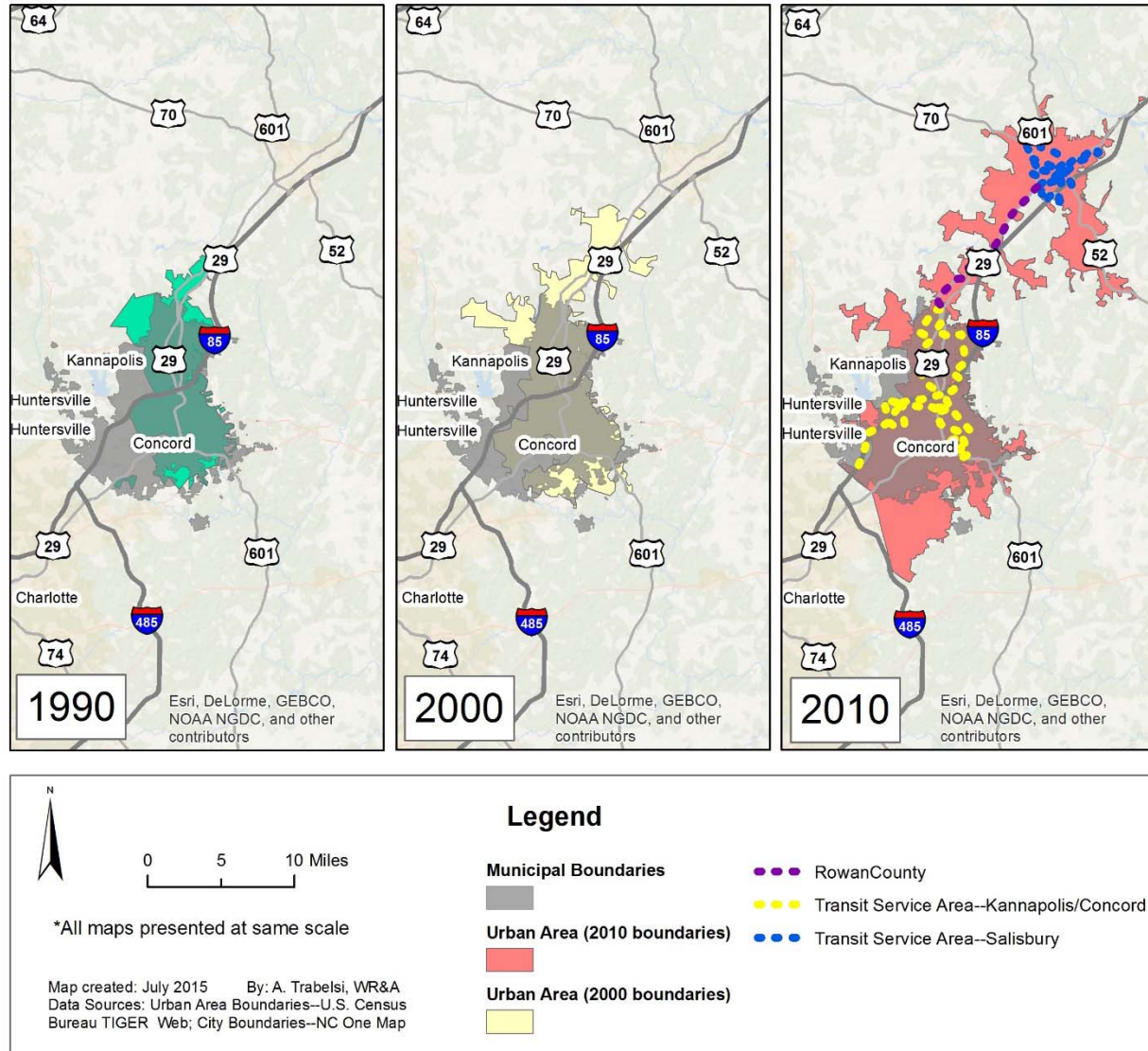


Figure 10 Kannapolis / Concord / Salisbury Urbanized Area Change is Urban Area Boundaries

Kannapolis / Concord / Salisbury Public Transportation Services

Four systems offer public transportation services in the Kannapolis / Concord / Salisbury Urbanized Area. Concord Kannapolis Area Transit operates the local fixed route bus service and ADA paratransit service that is branded as *C-K Rider*, which runs ten buses on seven routes that operate Monday through Saturday. With a fleet of 23 vehicles, Cabarrus County Transportation Services (CCTS) operates rural general public services. In Rowan County, the City of Salisbury operates Salisbury Transit with three fixed routes and complementary paratransit service. Rowan County operates the Rowan Transit System

with deviated fixed route and demand response service. The Rowan Express South connects Salisbury, China Grove and the City of Kannapolis.

Table 16 presents the FY14 financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report. (Note that Concord / Kannapolis Transit operating expenses include the purchase of approximately \$5 million in buses. The Concord / Kannapolis Area Transit service, although requested, did not provide corrected operating expenses).

Table 16 Cabarrus and Rowan County Transit Services – FY 2014 Operating Data

System	Concord / Kannapolis Transit	Cabarrus County	Salisbury Transit	Rowan County	Two County Total
Ridership	470,015	83,731	171,697	98,638	824,081
Hours	33,873	42,963	12,716	40,411	129,963
Riders per hour	13.9	1.9	13.5	2.4	6.3
Operating Expense	\$8,510,608 *	\$1,434,027	\$984,313	\$1,237,003	\$12,165,951
Cost per hour	\$251	\$33	\$77	\$31	\$94
Fares	\$289,093	\$42,741	\$105,705	\$52,842	\$490,381
Fares %	3.4%	3.0%	10.7%	4.3%	4.0%
Federal	\$5,733,131	\$392,850	\$252,729	\$558,950	\$6,937,660
Federal %	67.4%	27.4%	25.7%	45.2%	57.0%
State	\$488,124	\$502,352	\$212,684	\$478,830	\$1,681,990
State %	5.7%	35.0%	21.6%	38.7%	13.8%
Local	\$200,260	\$496,084	\$401,719	\$33,936	\$1,131,999
Local %	2.4%	34.6%	40.8%	2.7%	9.3%

* Approximately \$5 million USD should have been allocated to capital expenditures.

E. Raleigh / Wake County

Raleigh / Wake County Urbanized Area

The 2010 U. S. Census enlarged the Raleigh / Wake County Urbanized Area by adding portions of six adjoining counties including Chatham, Durham, Franklin, Granville, Harnett, and Johnston. *Table 17* presents the Urbanized Area and county population for the period 1990 to 2010. Of the Urbanized Area counties, Wake County has the largest population with 833,787 persons, or 94.1 percent of the total Raleigh / Wake Urbanized Area population. During the prior decade, Wake County also had the highest growth rate (43.5 percent) while the seven county region had a slightly lower growth rate of 35.3 percent. The Raleigh / Wake County Urbanized Area is adjacent to the Durham / Chapel Hill Urbanized Area so that many of the area's counties have portions of their population in different MPOs.

Table 17 Raleigh / Wake County Urbanized Area Population Change 1990 to 2010

Area	1990	2000	2010	Change 2000 to 2010	% Change
Raleigh / Wake County UZA	305,925	541,527	884,891	343,364	63.4%
Wake County	426,311	627,865	901,018	273,153	43.5%
Durham County	181,844	223,306	269,974	46,668	20.9%
Johnston County	81,306	121,900	168,878	46,978	38.5%
Harnett County	67,833	91,062	114,678	23,616	25.9%
Chatham County	38,979	49,334	63,494	14,160	28.7%
Franklin County	36,414	47,260	60,594	13,334	28.2%
Granville County	38,341	48,498	57,532	9,034	18.6%
Seven County Total	871,028	1,209,225	1,636,168	426,943	35.3%

Source:

http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countrygrowth_2020.html.

Figure 11 illustrates the change in the Urban Area boundaries from 1990 to 2010. The extent of the current fixed route bus service provided by Capital Area Transit and Triangle Transit are shown on the 2010 map.

Change in Urbanized Area Boundaries 1990-2000-2010 Raleigh / Wake County

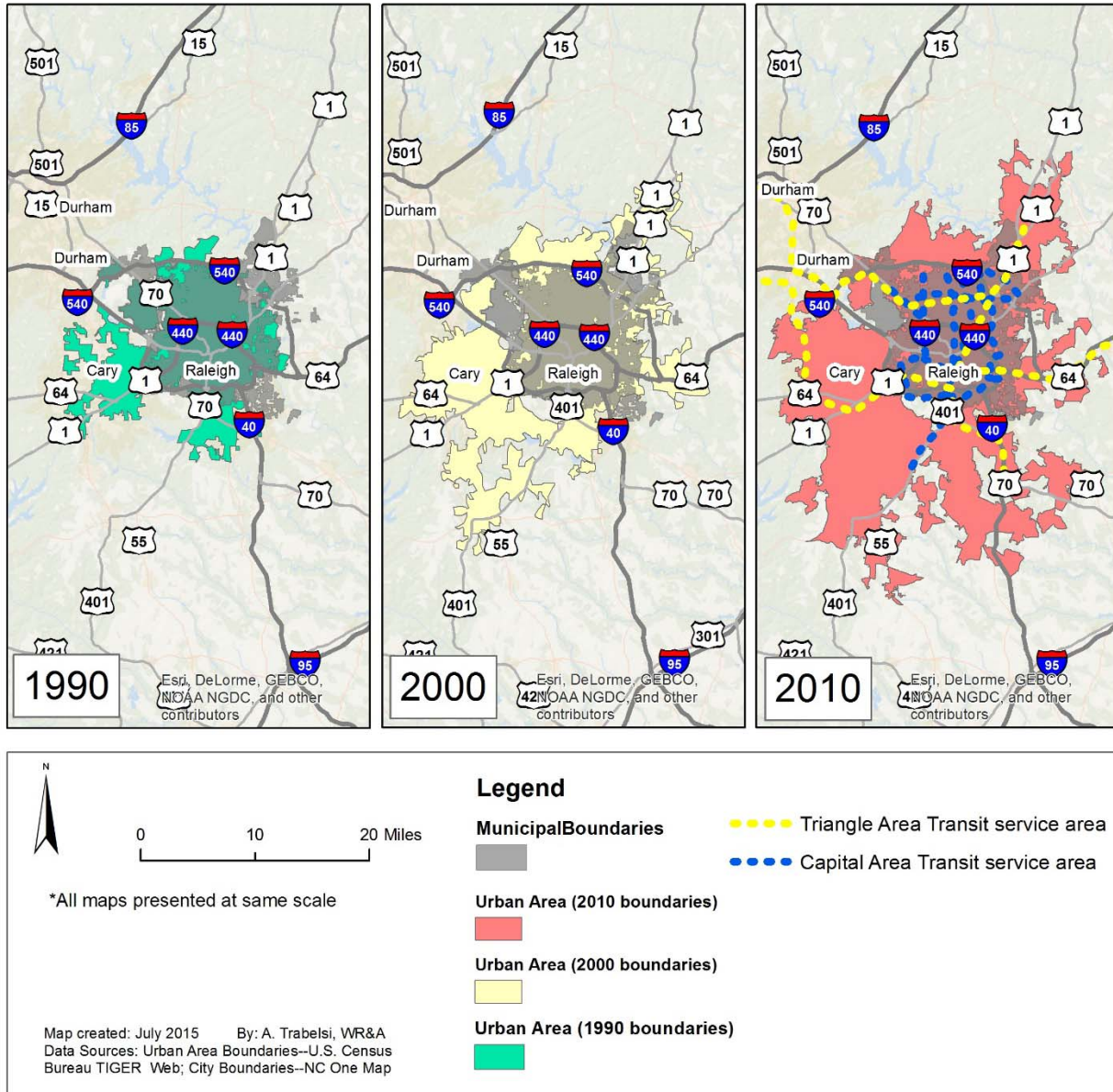


Figure 11 Raleigh / Wake County Urbanized Area Change is Urban Area Boundaries

Raleigh / Wake Urbanized Area Public Transportation Services

Five systems offer public transportation services in the Raleigh / Wake County Urbanized Area, including Capital Area Transit (GoRaleigh), Triangle Transit (GoTriangle), Cary Transit, Wake County Human Services Transportation and North Carolina State University's Wolfline. Human service transportation

services in Durham, Chatham, Johnston, Franklin and Harnett counties also provide public transportation in the region.

Table 18 presents the FY14 operating and financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report. Note that the Triangle Transit data includes services operated in Orange and Durham counties.

Table 18 Raleigh / Wake County – FY 2014 Operating Data

System	Capital Area Transit	Triangle Transit	Cary Transit	Wake County	NCSU Wolfline	Raleigh/Wake Total
Ridership	6,593,659	1,857,174	321,692	145,766	2,923,460	11,841,751
Hours	410,920	137,236	55,226	91,721	66,192	761,295
Riders per hour	16.0	13.5	5.8	1.6	44.2	15.6
Operating Expense	\$29,036,081	\$14,884,063	\$3,696,833	\$2,577,511	\$5,329,784	\$55,524,272
Cost per hour	\$70.66	\$108.46	\$66.94	\$28.10	\$80.52	\$72.93
Fares	\$5,412,072	\$2,899,090	\$829,448	\$74,380	\$5,329,784	\$14,544,774
Fares %	18.6%	19.5%	22.4%	2.9%	100.0%	26.2%
Federal	\$4,093,198	\$1,900,798	\$1,333,572	\$125,382	\$0	\$7,452,950
Federal %	14.1%	12.8%	36.1%	4.9%	0.0%	13.4%
State	\$2,602,147	\$2,115,869	\$193,616	\$998,090	\$0	\$5,909,722
State %	9.0%	14.2%	5.2%	38.7%	0.0%	10.6%
Local	\$16,928,664	\$5,260,827	\$1,446,994	\$123,433	\$0	\$23,759,918
Local %	58.3%	35.3%	39.1%	4.8%	0	42.8%
Local Contract	\$0	\$0	\$0	\$3,274,373	\$0	\$3,274,373
Local Contract %	0%	0%	0%	127%	0%	6%

F. Fayetteville

Fayetteville / Cumberland County Urbanized Area

Compared to other urbanized areas in North Carolina, the Fayetteville / Cumberland County Urbanized Area grew at a much smaller rate; the UZA only grew by 12.3 percent between 2000 to 2010 (see *Table 19*). During the decade, Harnett and Hoke counties grew at a much faster rate than Cumberland County.

Table 19 Fayetteville Urbanized Area Population Change 1990 to 2010

Area	1990	2000	2010	Change 2000 to 2010	% Change
Fayetteville / Cumberland County UZA	241,763	276,368	310,282	33,914	12.3%
Cumberland County	274,713	302,962	319,431	16,469	5.4%
Harnett County	67,833	91,062	114,678	23,616	25.9%
Hoke County	22,856	33,646	46,952	13,306	39.5%
Robeson County	105,170	123,241	134,168	10,927	8.9%
Four County Total	470,572	550,911	615,229	64,318	11.7%

Source:

[Http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countygrowth_2020.html](http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countygrowth_2020.html).

Figure 12 illustrates the change in the urban area boundaries from 1990 to 2010. The extent of the current fixed route bus service provided by Fayetteville Area System of Transit is shown on the 2010 map.

Change in Urbanized Area Boundaries 1990-2000-2010 Fayetteville

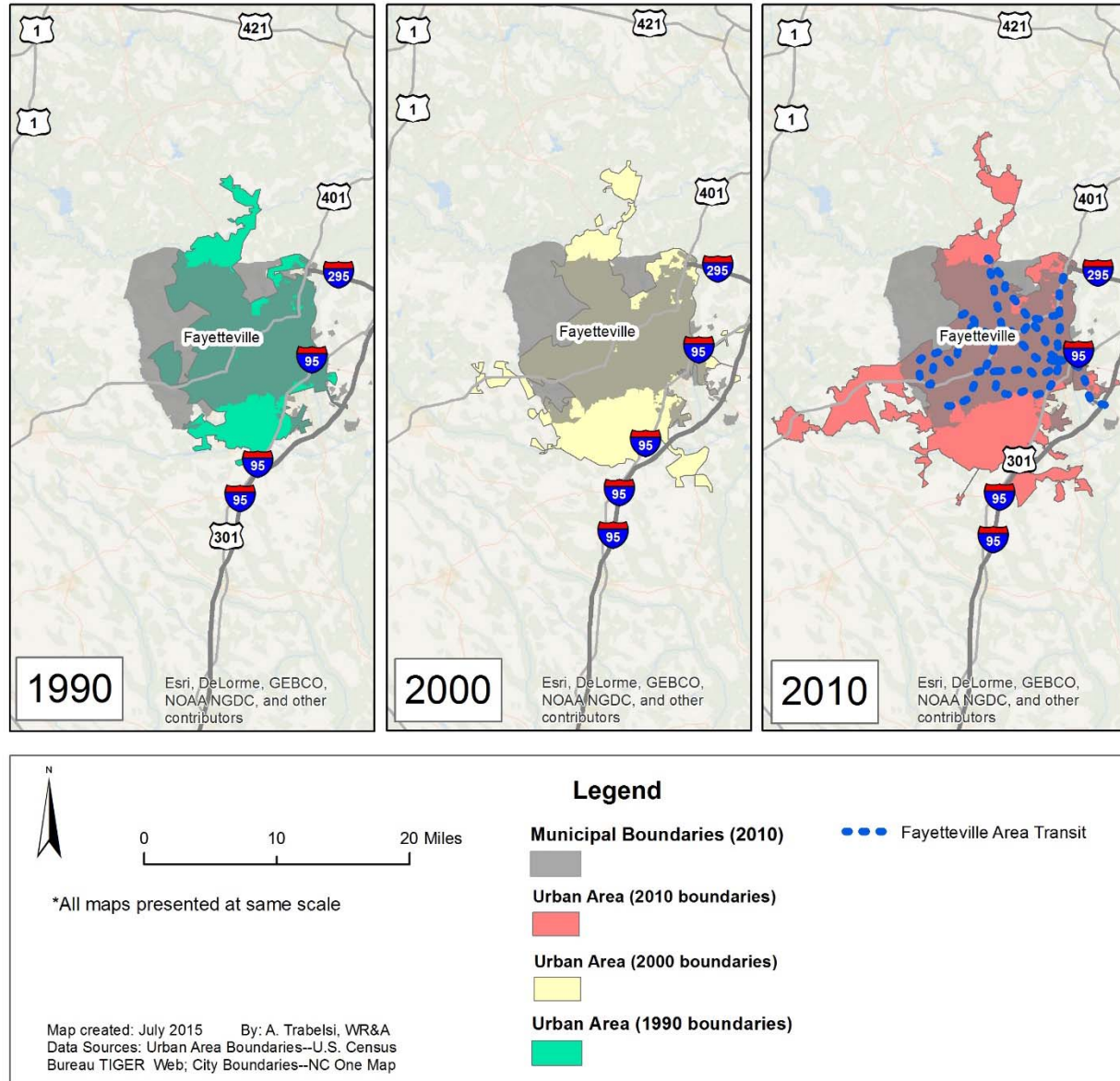


Figure 12 Fayetteville / Cumberland County Urbanized Area Change is Urban Area Boundaries

Fayetteville / Cumberland County Urbanized Area Public Transportation Services

Three systems offer public transportation services in the Fayetteville / Cumberland County Urbanized Area, including Fayetteville Area System of Transit (FAST), Cumberland County and Hoke County.

Table 20 presents the FY14 operating and financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report. Note that data was incomplete for Cumberland County.

Table 20 Fayetteville / Cumberland County – FY 2014 Operating Data

System	Fayetteville Area System of Transit	Cumberland County	Hoke County	Fayetteville / Cumberland County Total
Ridership	1,639,050	38,312	60,381	1,737,743
Hours	95,689	Not reported	21,948	117,637
Riders per hour	17.1	n/a	2.8	14.8
Operating Expense	\$7,209,015	\$927,581	\$1,039,415	9,176,011
Cost per hour	\$75.34	n/a	\$47.36	\$78.00
Fares	\$1,339,434	\$44,721	\$52,536	1,436,691
Fares %	18.6%	4.8%	5.1%	15.7%
Federal	\$1,855,777	\$153,863	\$195,144	2,204,784
Federal %	25.7%	16.6%	18.8%	24.0%
State	\$736,607	\$443,307	\$171,875	1,351,789
State %	10.2%	47.8%	16.5%	14.7%
Local	\$3,277,197	\$93,635	\$352,912	3,723,744
Local %	45.5%	10.1%	34.0%	40.6%
Local Contract		\$192,055	\$256,268	448,323
Local Contract %	0.0%	20.7%	24.7%	4.9%

G. Asheville

Asheville Urbanized Area

Compared to other Urbanized Areas in North Carolina, the Asheville Urbanized Area population grew at a slower rate than the Urbanized Area state average - adding 26.7 percent from 2000 to 2010 (see *Table 21*). Henderson and Madison counties grew at a faster rate than the five county total.

Table 21 Asheville Urbanized Area Population Change 1990 to 2010

Area	1990	2000	2010	Change 2000 to 2010	% Change
Asheville Urbanized Area	110,429	221,570	280,648	59,078	26.7%
Buncombe	174,357	206,299	238,307	32,008	15.5%
Henderson	69,747	89,204	106,742	17,538	19.7%
Haywood	46,948	54,034	59,036	5,002	9.3%
Madison	16,953	19,635	24,505	4,870	24.8%
Transylvania	25,520	29,334	33,090	3,756	12.8%
5 County Total	333,525	398,506	461,680	63,174	15.9%

Source:

http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countrygrowth_2020.html.

Figure 13 illustrates the change in the Urban Area boundaries from 1990 to 2010. The extent of the current fixed route bus service provided by Asheville System of Transit is shown on the 2010 map.

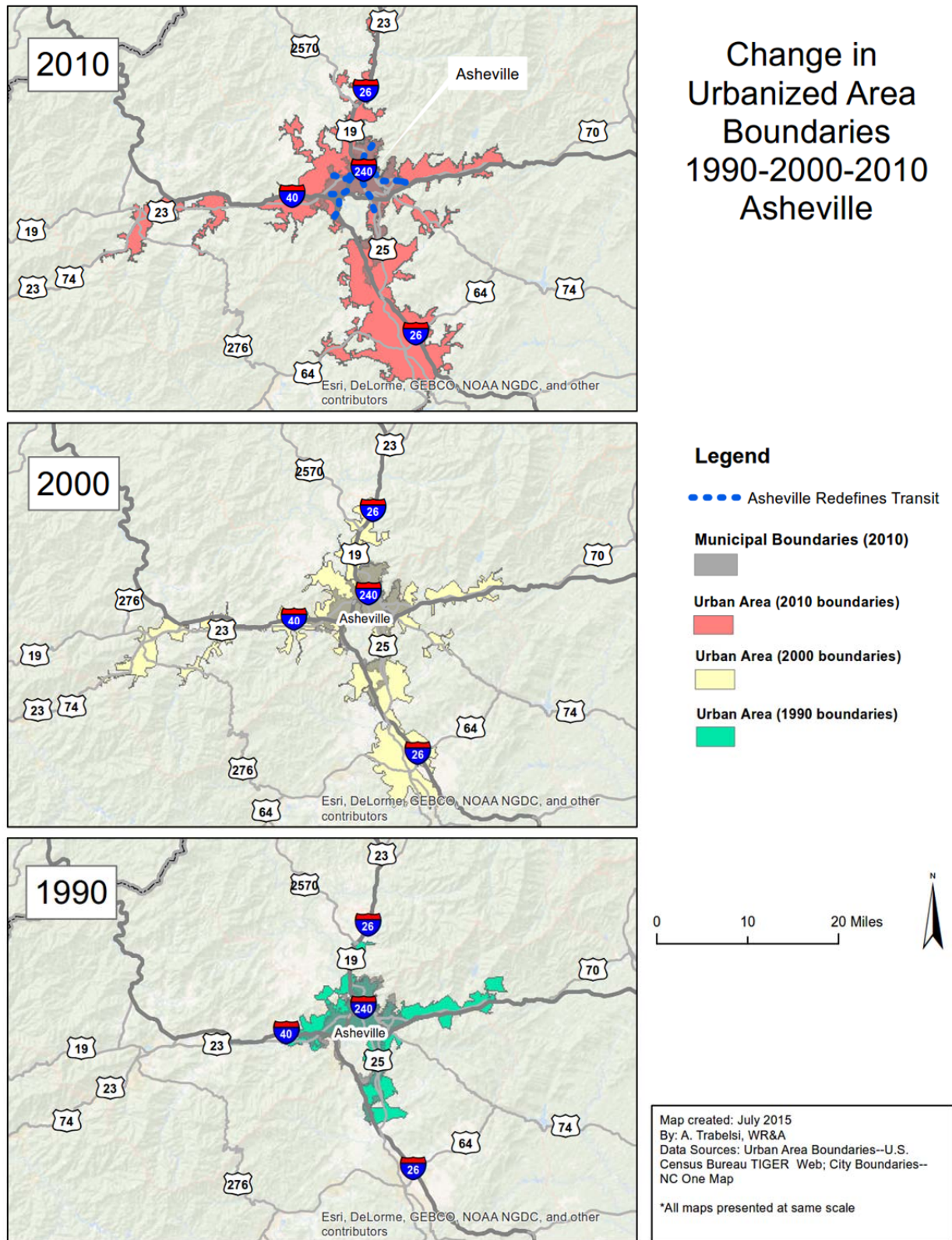


Figure 13 Asheville Urbanized Area Change is Urban Area Boundaries

Asheville Urbanized Area Public Transportation Services

Six transit services provide public transportation services within the Asheville Urbanized Area, including ART (Asheville Redefines Transit), Mountain Mobility (Buncombe County), Apple Country Public Transit (Henderson County), Haywood Public Transit, Madison County Public Transit Authority and Transylvania County Transportation System. Four of these systems (ART, Mountain Mobility, Apple County Public Transit and Haywood Public Transit) filed National Transit Database reports for FY 13.

Table 22 presents the FY14 operating and financial data as reported through the FY 2014 NCDOT PTD Urban Transportation Operating and Financial Statistics Report.

Table 22 Asheville – FY 2014 Operating Data

System	Asheville Redefines Transit (ART)	Mountain Mobility	Apple Country Public Transit	Haywood Public Transit	Madison County PTA	Transyl- vania County	Asheville Area Total
Ridership	1,469,862	162,100	108,286	37,414	25,038	22,687	1,825,387
Hours	73,043	79,691	10,915	19,754	10,920	7,755	202,078
Riders per hour	20.1	2.0	9.9	1.9	2.3	2.9	9.0
Operating Expense	\$5,851,597	\$3,468,879	\$599,114	\$832,612	\$266,712	\$447,859	\$11,466,773
Cost per hour	\$80.11	\$43.53	\$54.89	\$42.15	\$24.42	\$57.75	\$56.74
Fares	\$736,424	\$110,156	\$50,062	\$12,633	\$2,022	\$14,765	\$926,062
Fares %	12.6%	3.2%	8.4%	1.5%	0.8%	3.3%	8.1%
Federal	\$1,874,139	\$262,132	\$192,154	\$268,134	\$135,623	\$135,741	\$2,867,923
Federal %	32.0%	7.6%	32.1%	32.2%	50.8%	30.3%	25.0%
State	\$614,558	\$373,371	\$152,089	\$185,939	\$124,618	\$151,484	\$1,602,059
State %	10.5%	10.8%	25.4%	22.3%	46.7%	33.8%	14.0%
Local	\$1,849,492	\$1,173,415	\$204,809	\$86,837	\$12,607	\$145,869	\$3,473,029
Local %	31.6%	33.8%	34.2%	10.4%	4.7%	32.6%	30.3%
Local Contract	\$599,307	\$1,549,795	\$0	\$310,655	\$0	\$0	\$2,459,757
Local Contract %	10.2%	44.7%	0.0%	37.3%	0.0%	0.0%	21.5%