

Triangle Travel Trends Analysis

2016 – 2024 Household Travel Surveys
Region-Level Figures

June 2026



ITRE

Institute for Transportation
Research and Education

SYSTEMS
PLANNING &
ANALYSIS

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REGIONAL OVERVIEW

Recurring Triangle Household Travel Survey

Timeline and History

2016	2018	2021	2022	2024
Mar – Apr	Oct – Nov	Feb – Mar	Sep – Dec	Sep – Dec
• Recurring program structure launched. • Collection included an initial “large” dataset	• Second survey wave. • Oversampled low-income households, zero-car households, and larger households.	• Third survey wave. • Postponed from fall to spring due to the COVID pandemic. • Introduced data collection via smart phones. • Included targeted oversampling.	• Fourth survey wave. • Included smart phone data collection. • Included targeted oversampling.	• Fifth survey wave. • Included smart phone data collection. • Included targeted oversampling. • Included a separate university-specific targeted sample separate from the address-based sample. (not included in the travel trends analysis)

Recurring Triangle Household Travel Survey

Unweighted Households, People, and Trips (after processing and cleaning)

	2016	2018	2021	2022	2024
Households 	4,162	1,498	1,119	1,402	1,375
Persons 	9,026	3,028	2,094	2,706	2,612
Trips 	36,772	11,290	11,183	12,536	13,674

How to Read Included Charts and Figures



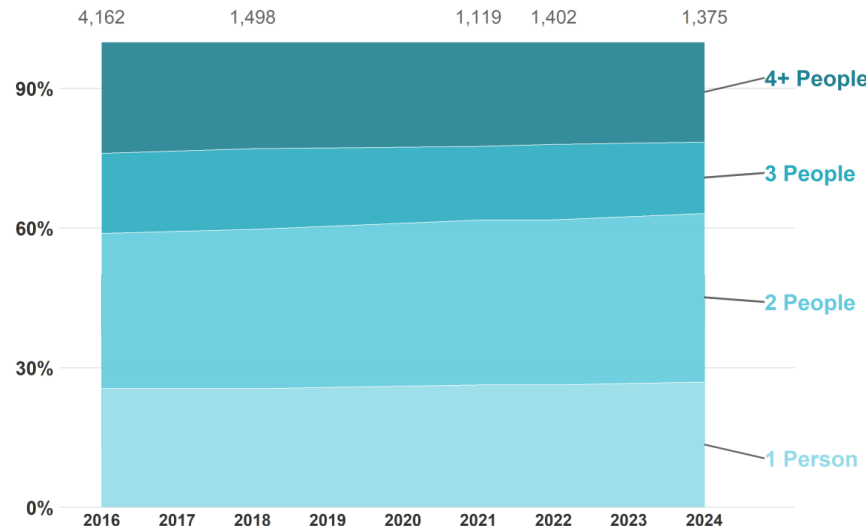
Every figure page has an icon that corresponds to the universe of the figure. If there are multiple universes (e.g., rates and averages), the icon corresponds to the universe in the numerator.

y-axis is given in title, universe, and/or labels

x-axis is always the data collection year

609	181	137	156	148	4+ People
571	182	118	167	155	3 People
1,799	636	467	576	528	2 People
1,183	499	397	503	544	1 Person

Sample size by category



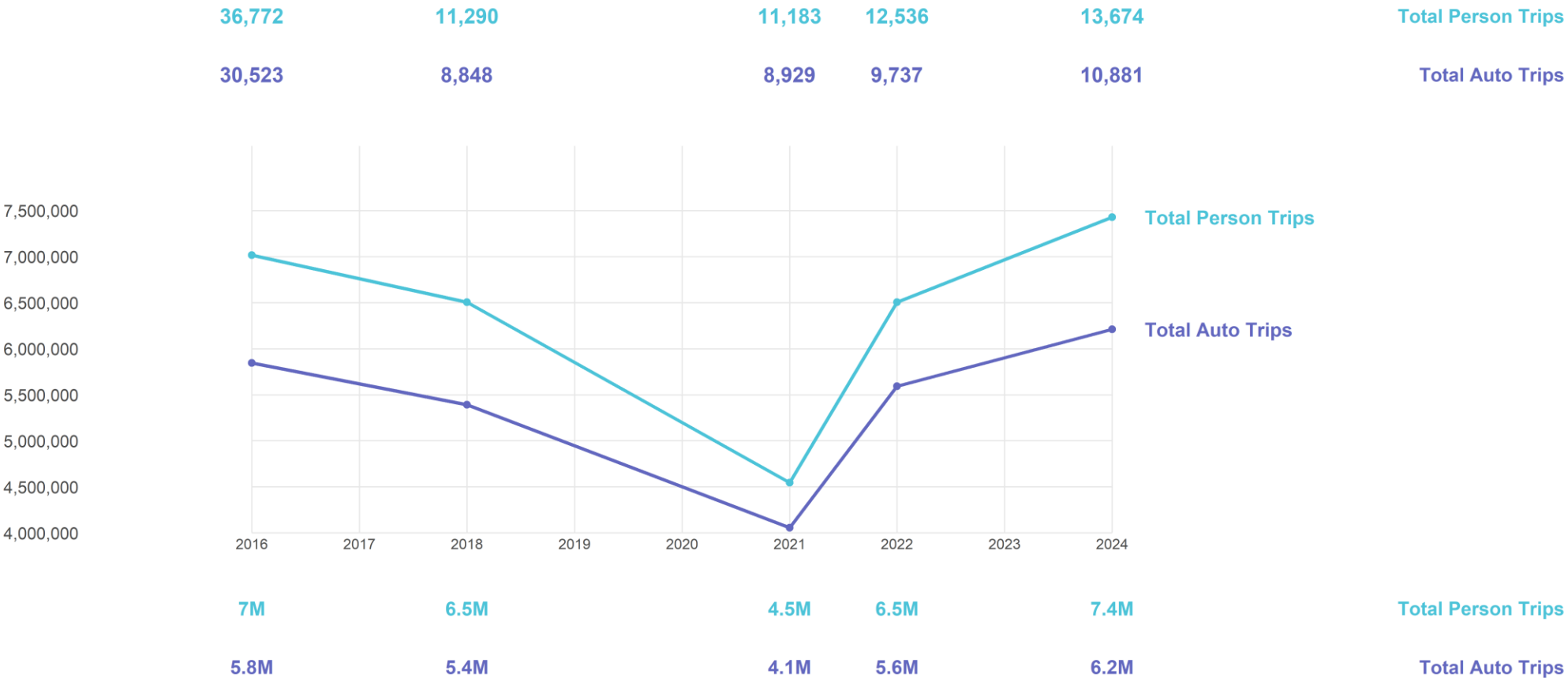
Total sample size

Category labels

24%	23%	22%	22%	21%	4+ People
17%	17%	16%	16%	15%	3 People
33%	34%	35%	35%	36%	2 People
26%	26%	26%	26%	27%	1 Person

Figure values in table form, calculated from weighted data

Change in Regional Total Trips



Universes: trips

Geography: full model region

Change in Regional Average Trip Length [mi]

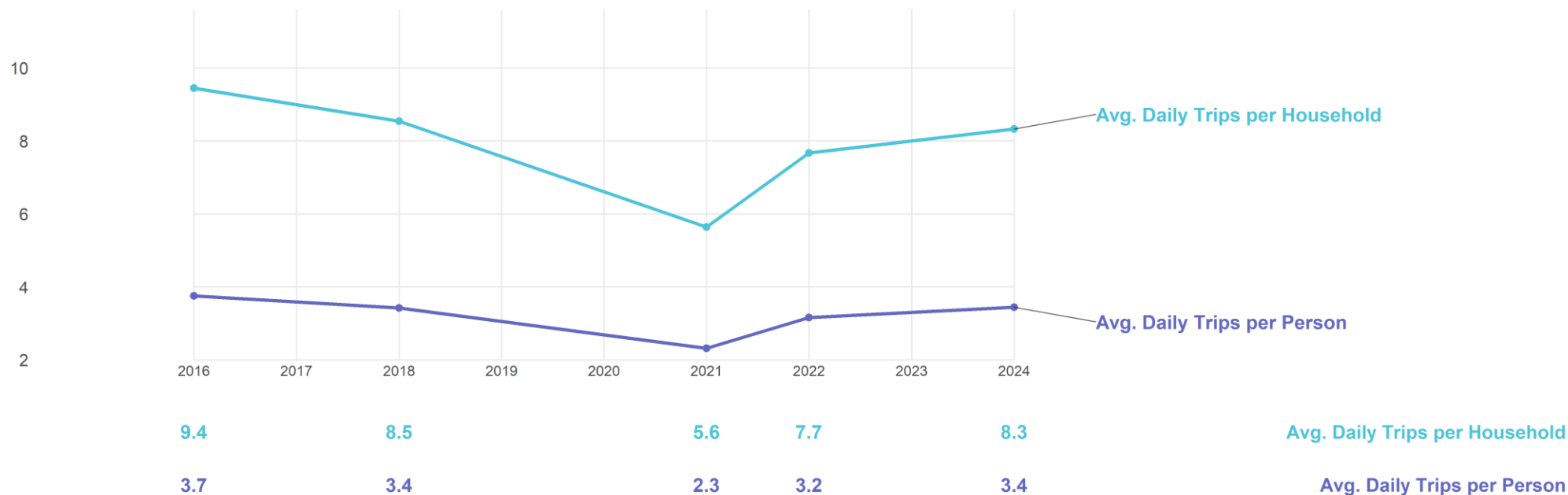


Universes: trip lengths

Geography: full model region

Change in Regional Daily Trip Rates

9,026	3,028	2,094	2,706	2,612	Persons
4,162	1,498	1,119	1,402	1,375	Households
36,772	11,290	11,183	12,536	13,674	Trips



Universes: trips, households, persons

Geography: full model region

A photograph of a multi-generational family group outdoors. On the left, a young man with a beard is seen in profile, looking towards the center. In the center, an older man with a white beard and a woman with dark hair are smiling and looking at each other. To the right, a young woman with long dark hair is also smiling. The background shows a wooden building and some greenery. The overall mood is warm and joyful.

DEMOGRAPHICS

Demographics of the Triangle Region

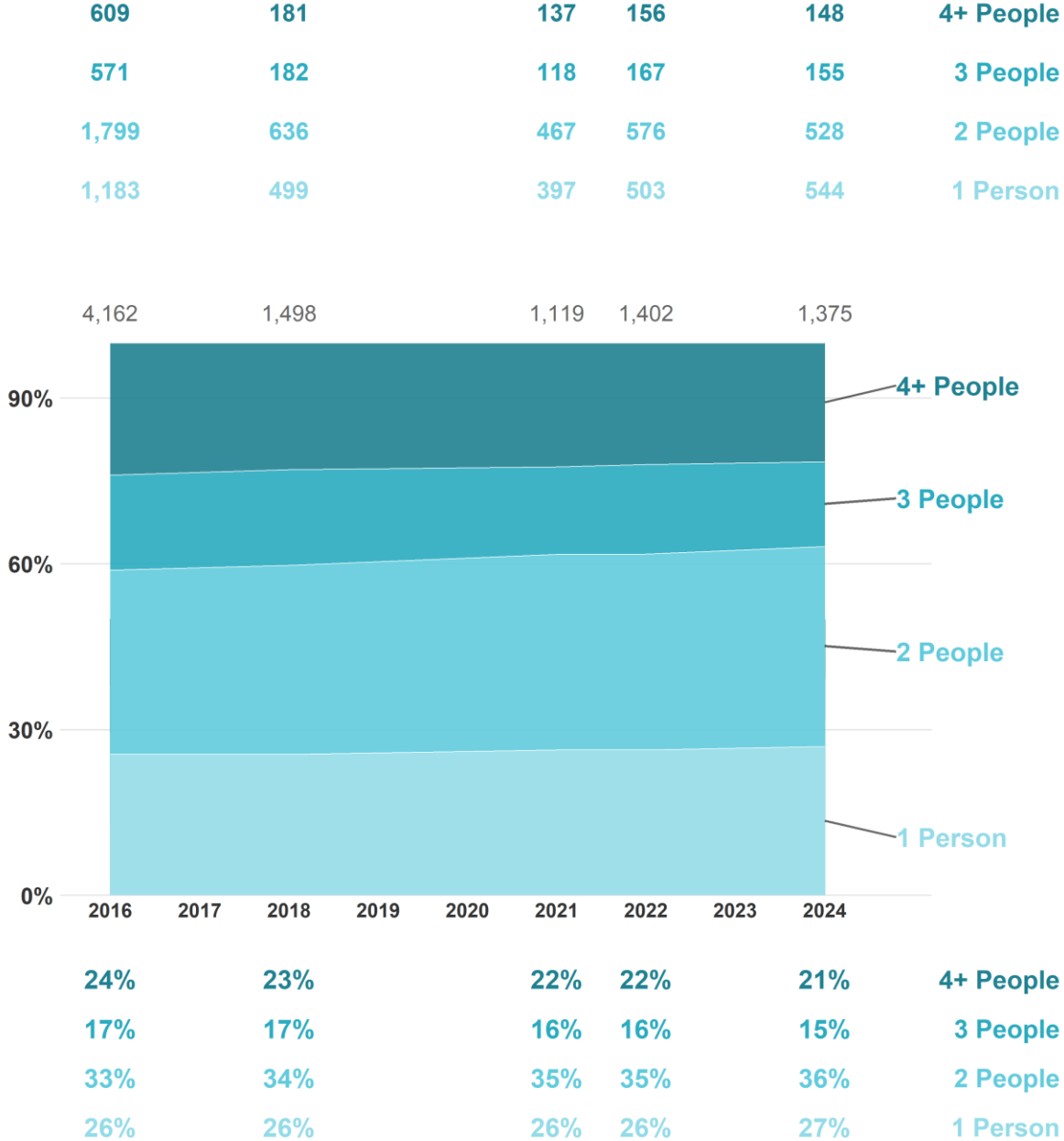
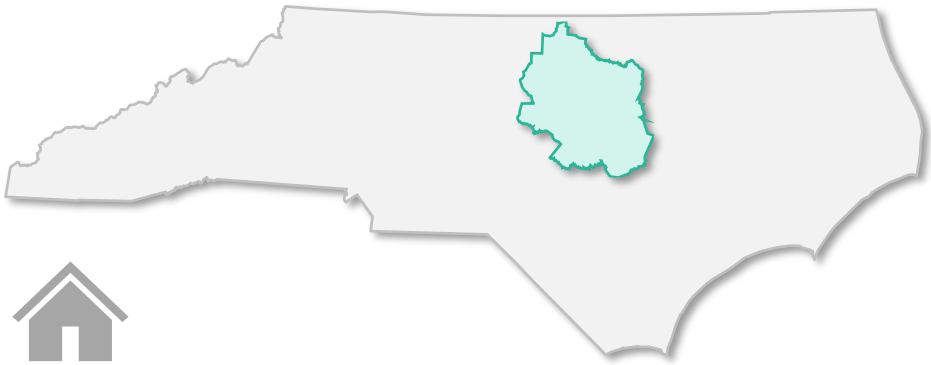
		SURVEY YEAR				
		2016	2018	2021	2022	2024
ATTRIBUTE	Persons per Household	2.52	2.50	2.44	2.43	2.42
	Workers per Household	1.33	1.35	1.29	1.34	1.34
	Drivers per Household	1.83	1.82	1.82	1.74	1.79
	Vehicles per Household	1.84	1.87	1.81	1.79	1.83
	Vehicles per Worker	1.38	1.39	1.41	1.34	1.37
	Vehicles per Driver	1.01	1.03	0.99	1.03	1.02



Household Characteristics

Percent of Households by Count of Persons

Universe: households
Categorized By: persons per household
Category Type: ordinal
Geography: full model region



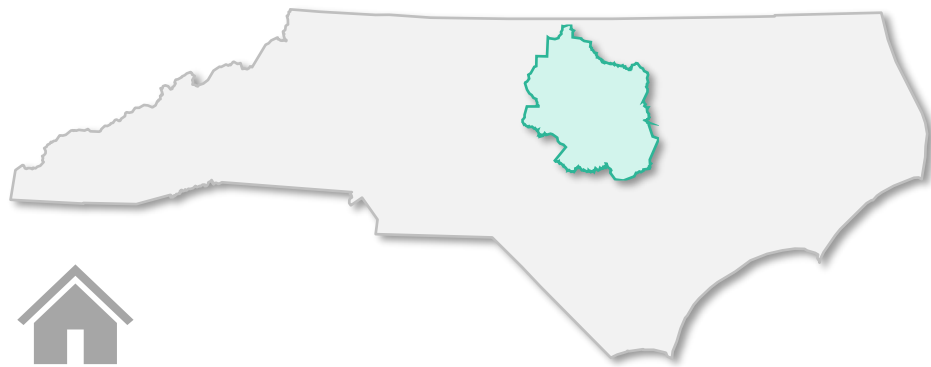
Percent of Households by Count of Workers

Universe: households

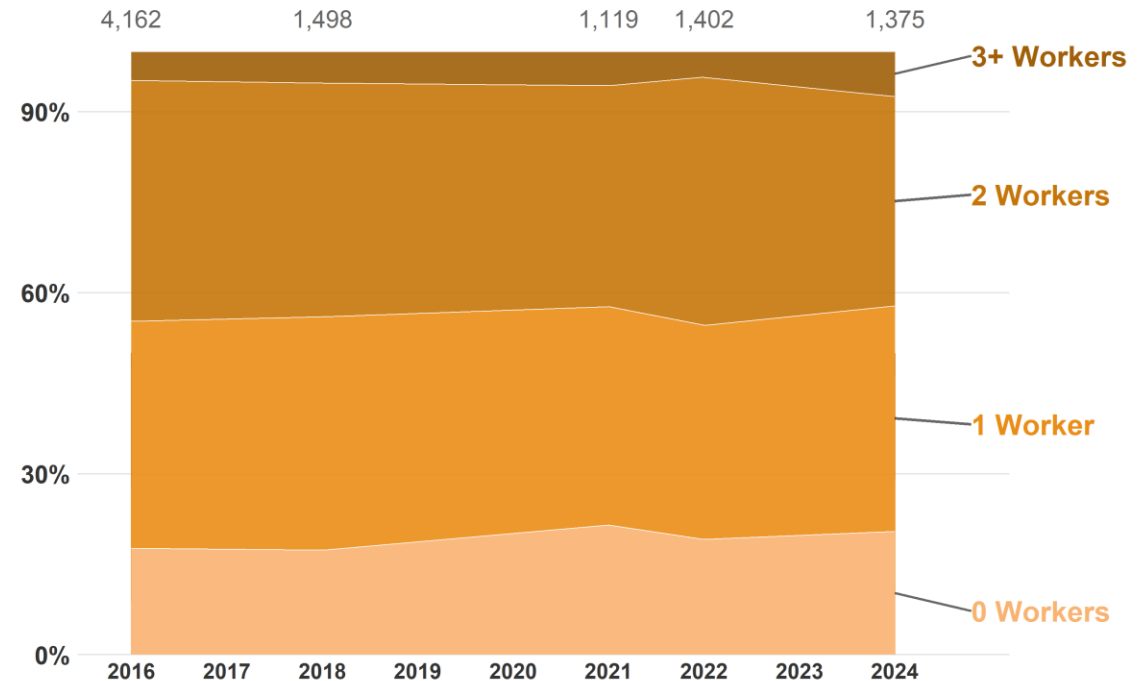
Categorized By: workers per household

Category Type: ordinal

Geography: full model region



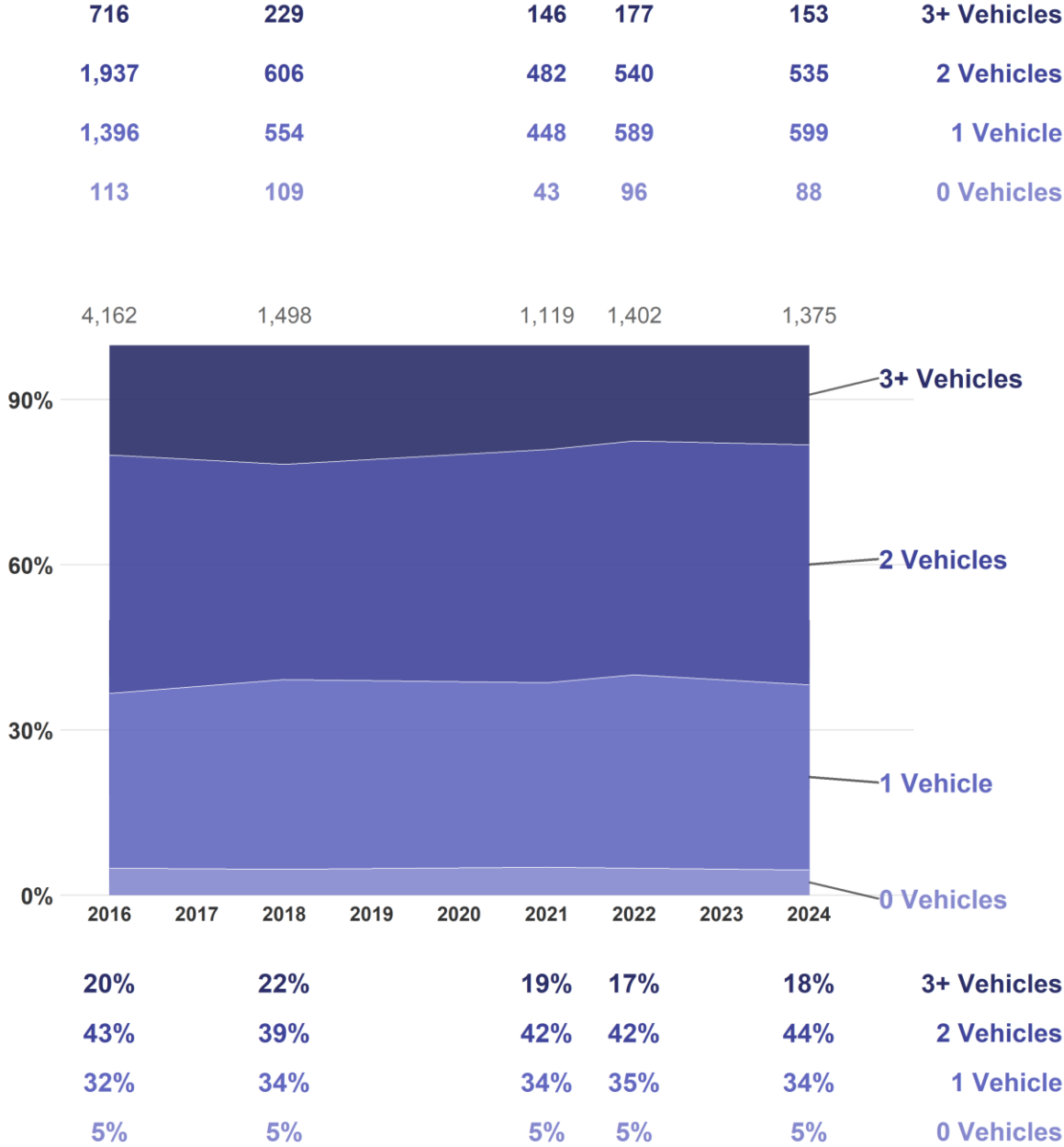
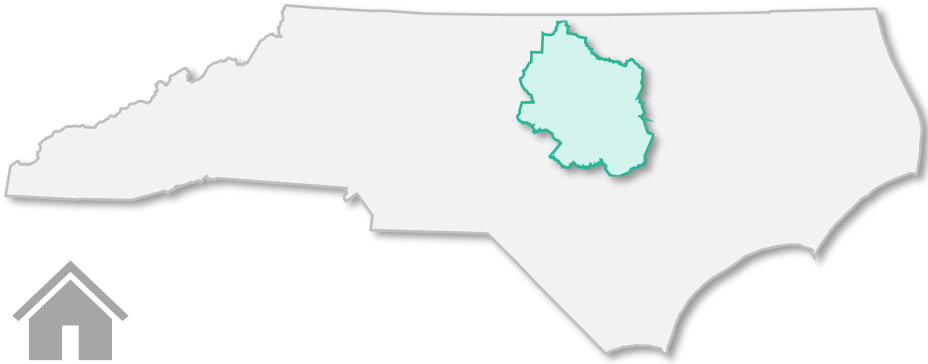
107	36	36	48	42	3+ Workers
1,389	456	355	461	387	2 Workers
1,575	587	489	565	593	1 Worker
1,091	419	239	328	353	0 Workers



5%	5%	6%	4%	7%	3+ Workers
40%	39%	37%	41%	35%	2 Workers
38%	39%	36%	35%	37%	1 Worker
18%	17%	22%	19%	21%	0 Workers

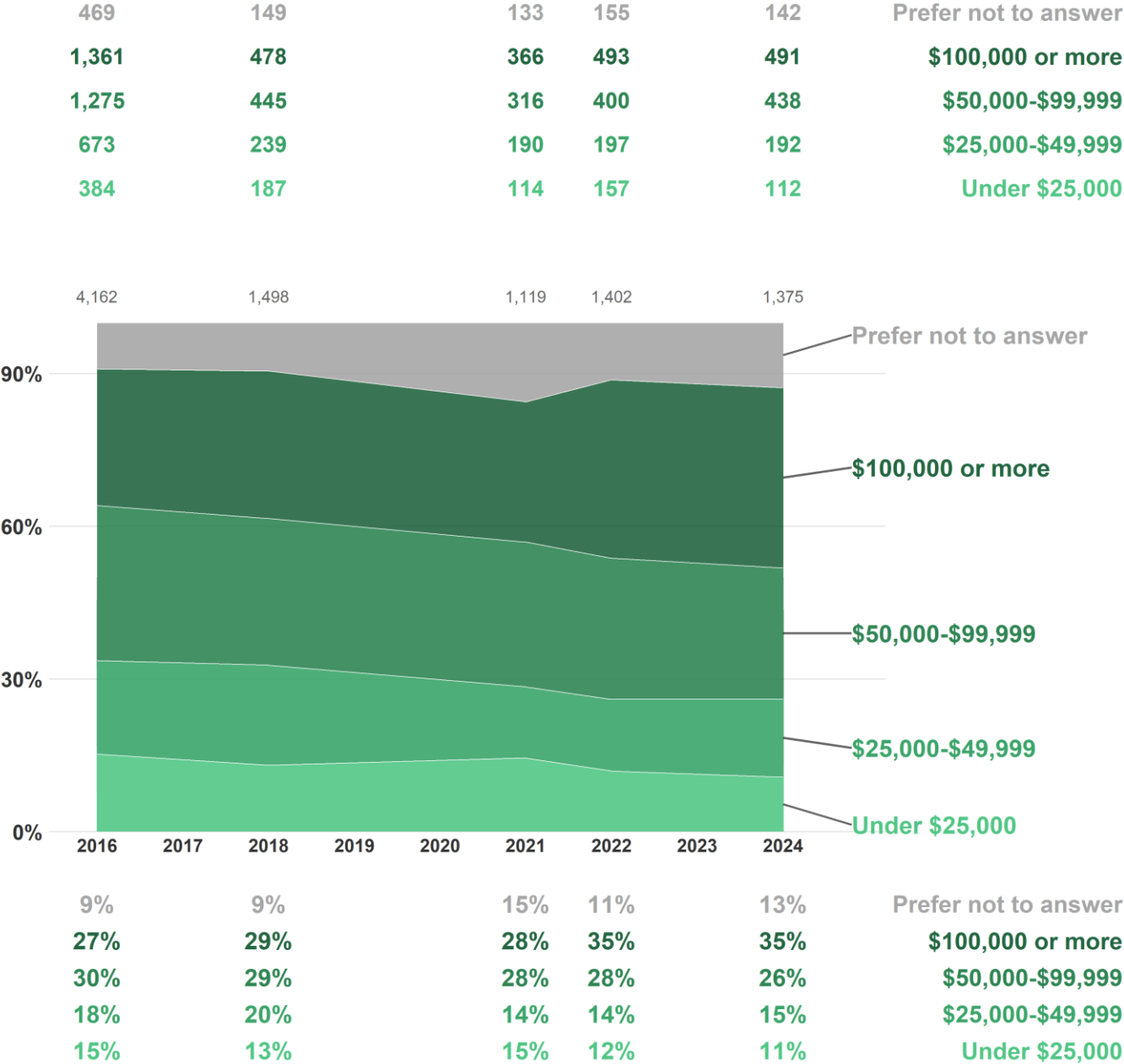
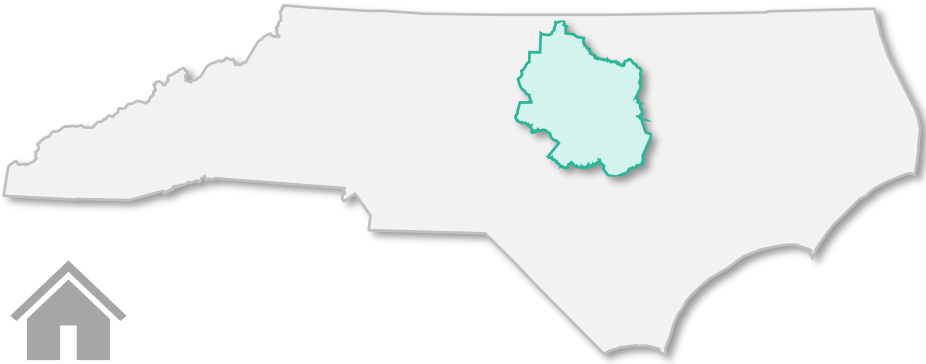
Percent of Households by Count of Vehicles

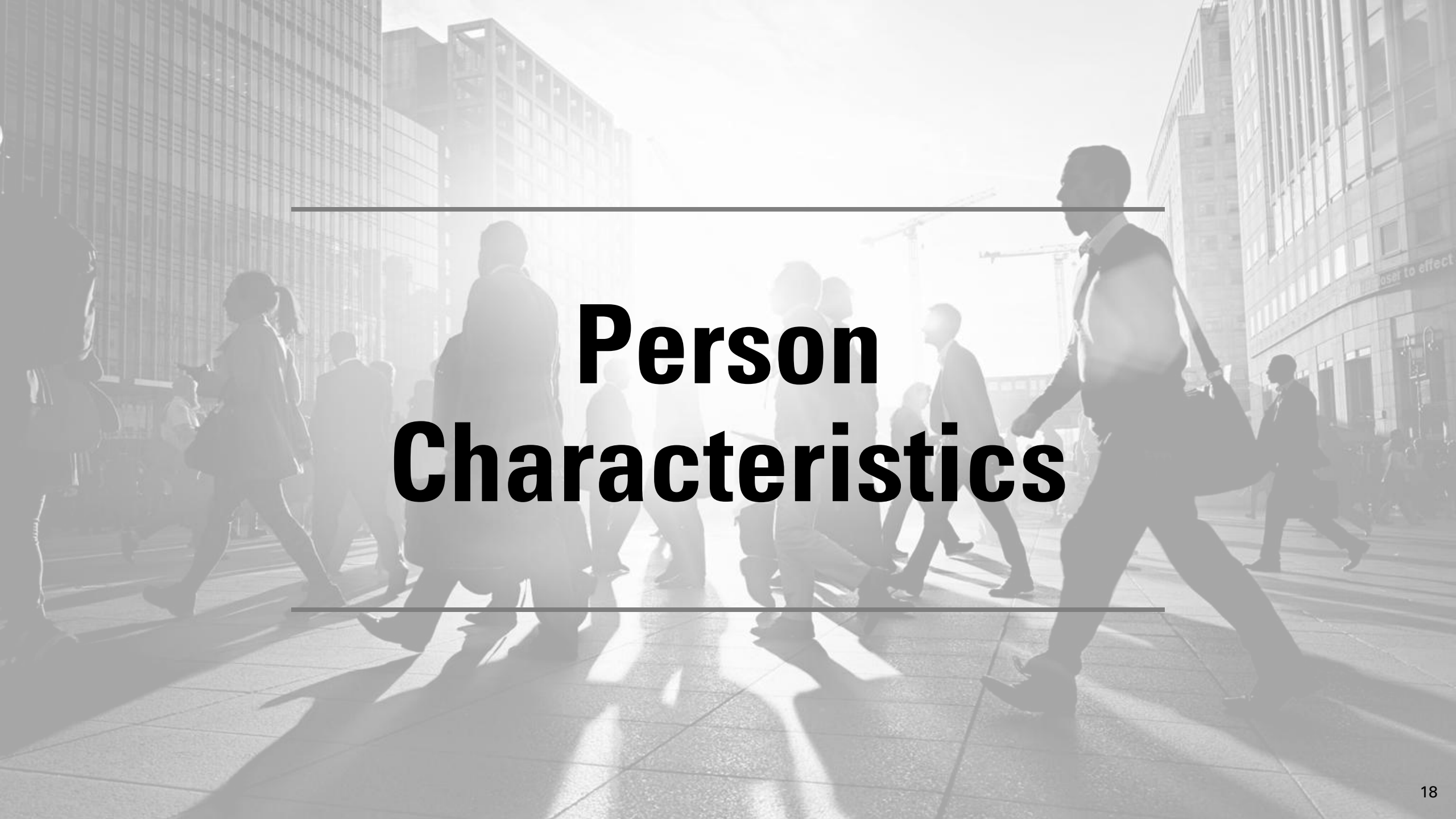
Universe: households
Categorized By: vehicles per household
Category Type: ordinal
Geography: full model region



Percent of Households by Household Income

Universe: households
Categorized By: household income bracket
Category Type: ordinal
Geography: full model region





Person Characteristics

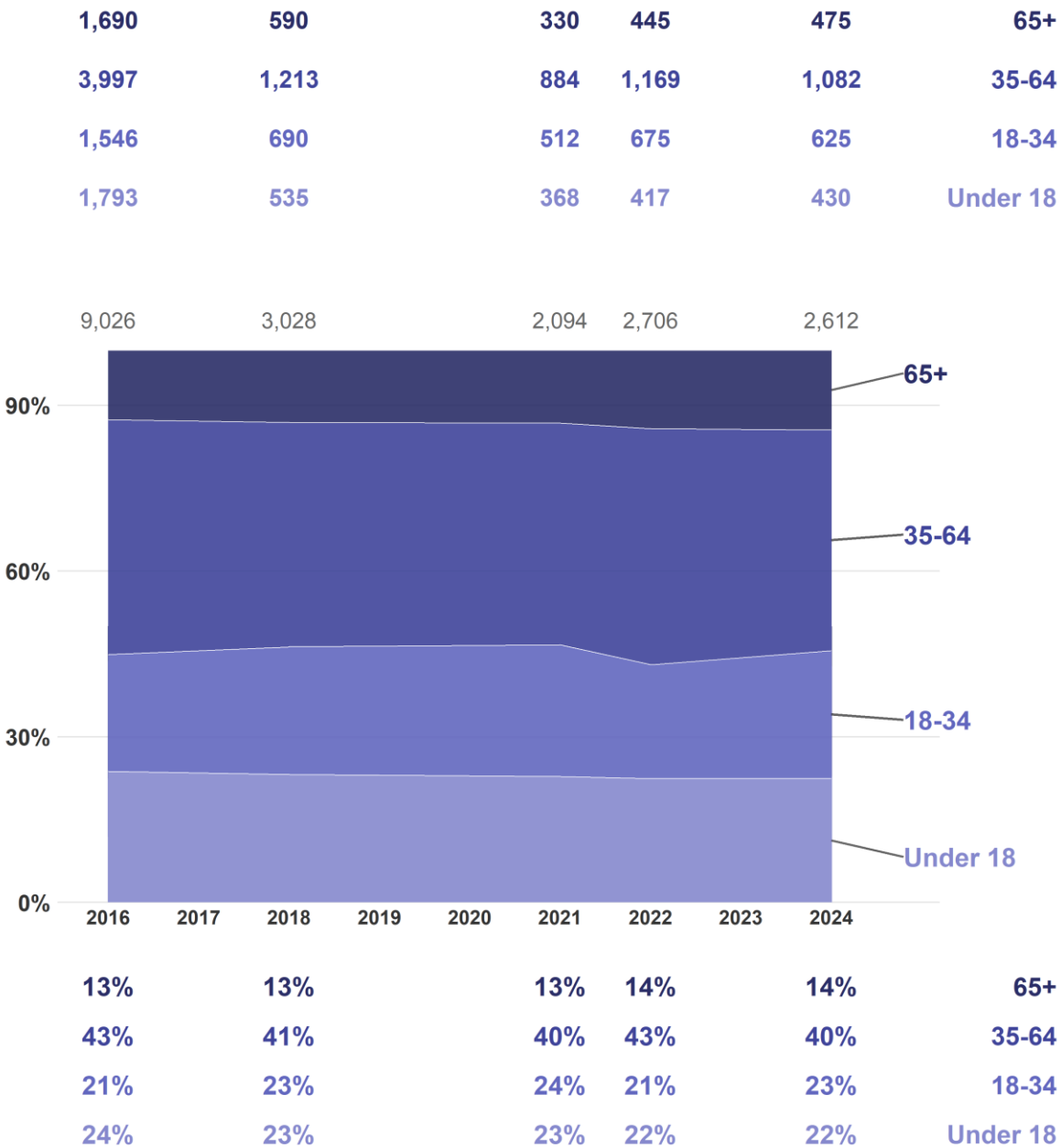
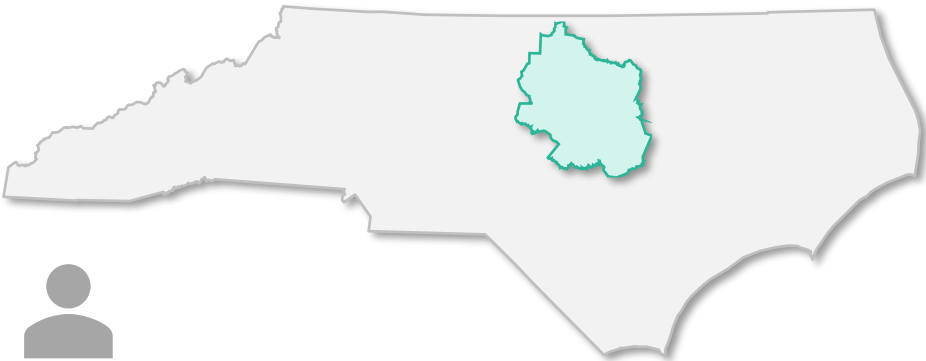
Percent of Persons by Age Bracket

Universe: persons

Categorized By: age bracket

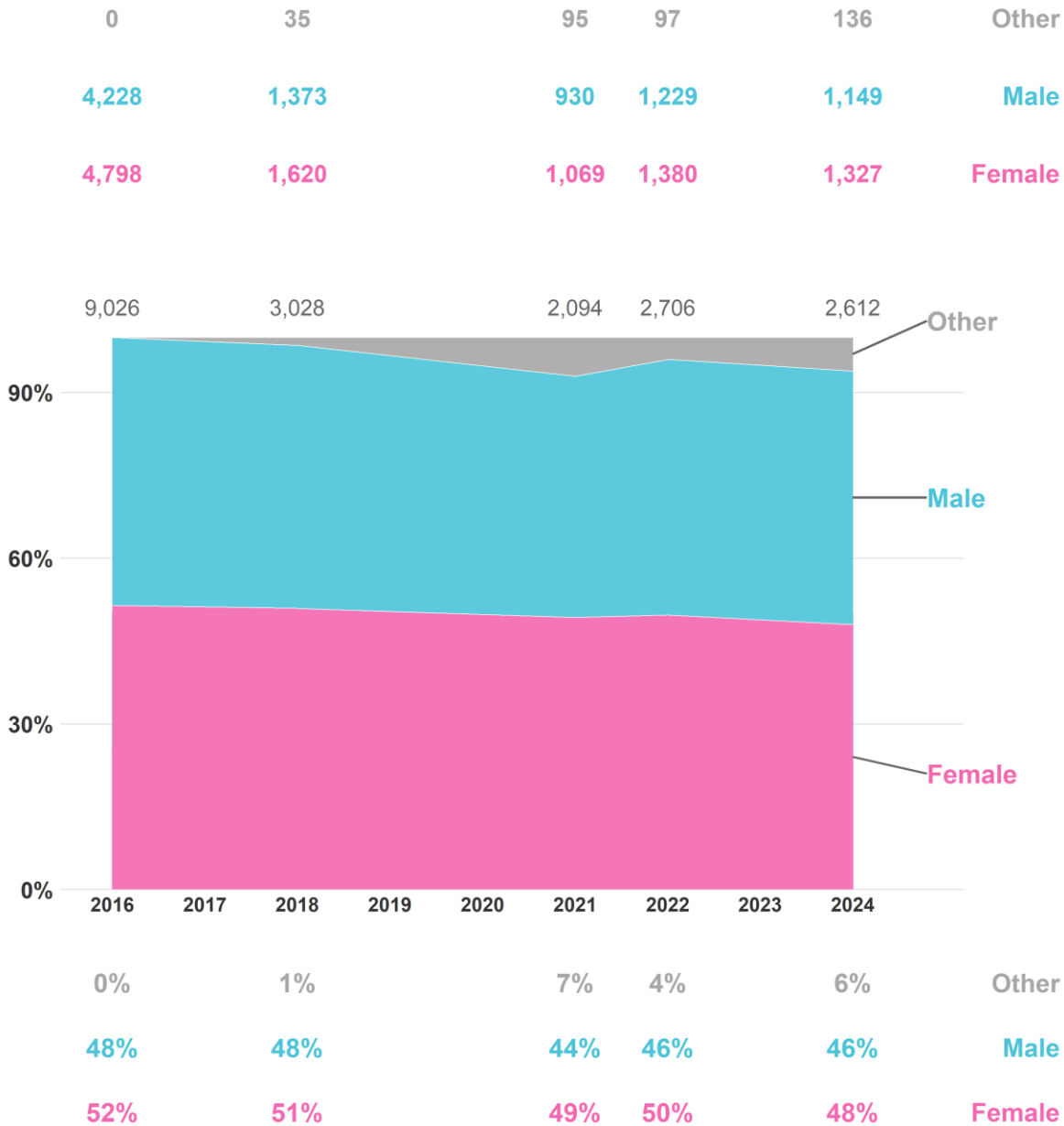
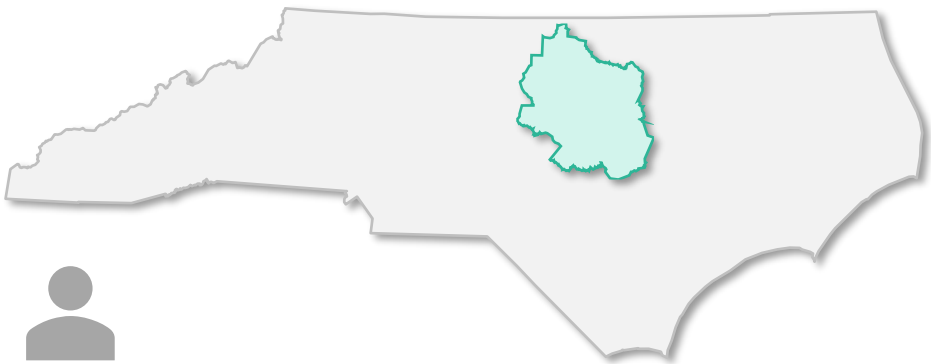
Category Type: ordinal

Geography: full model region



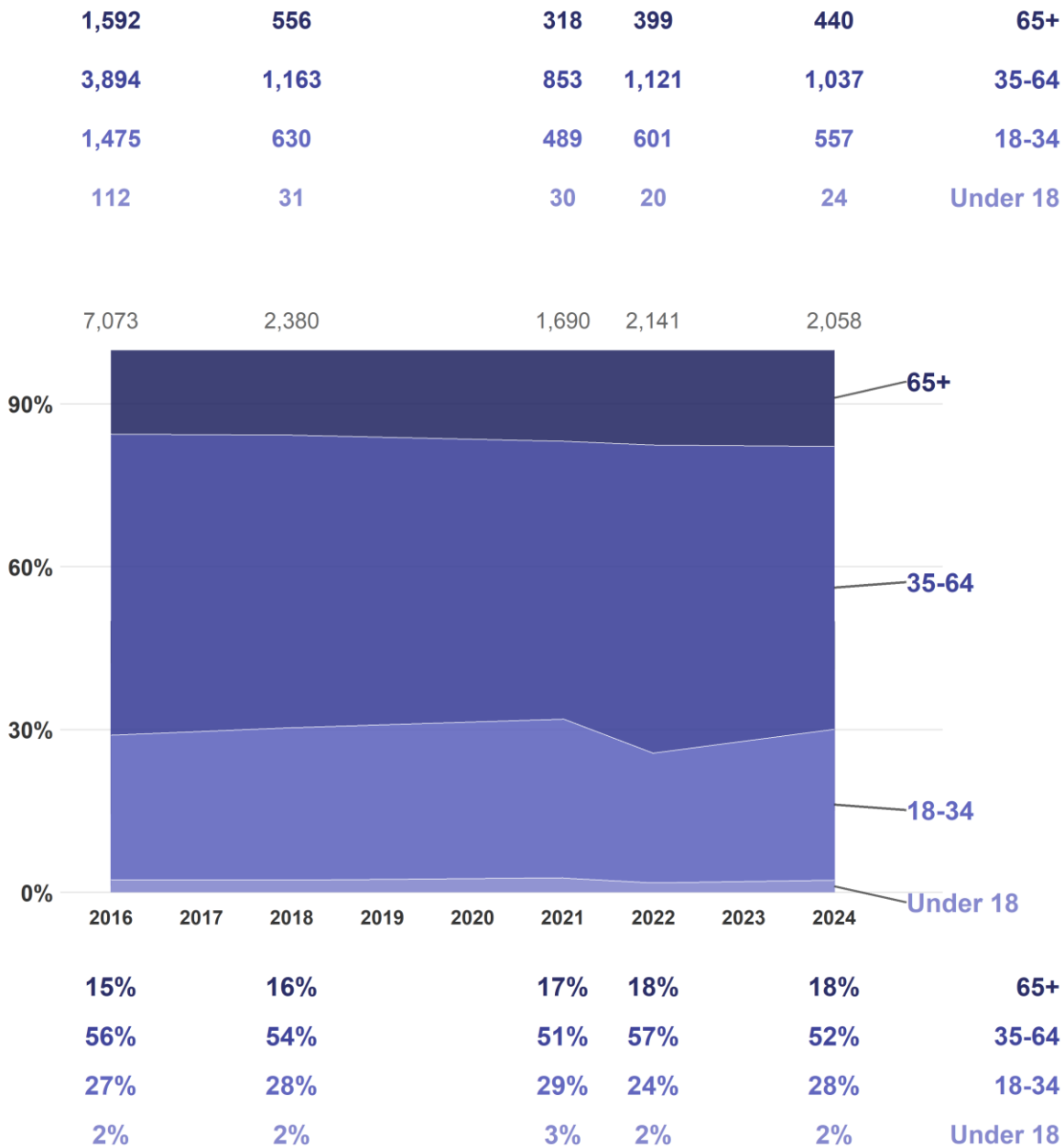
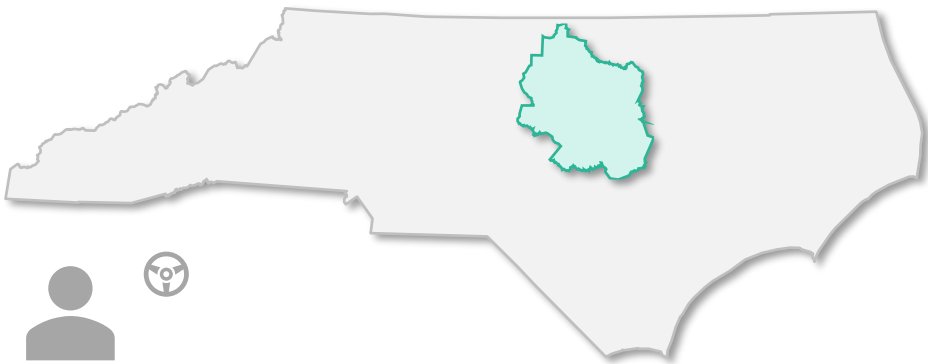
Percent of Persons by Gender

Universe: persons
Categorized By: gender
Category Type: nominal
Geography: full model region



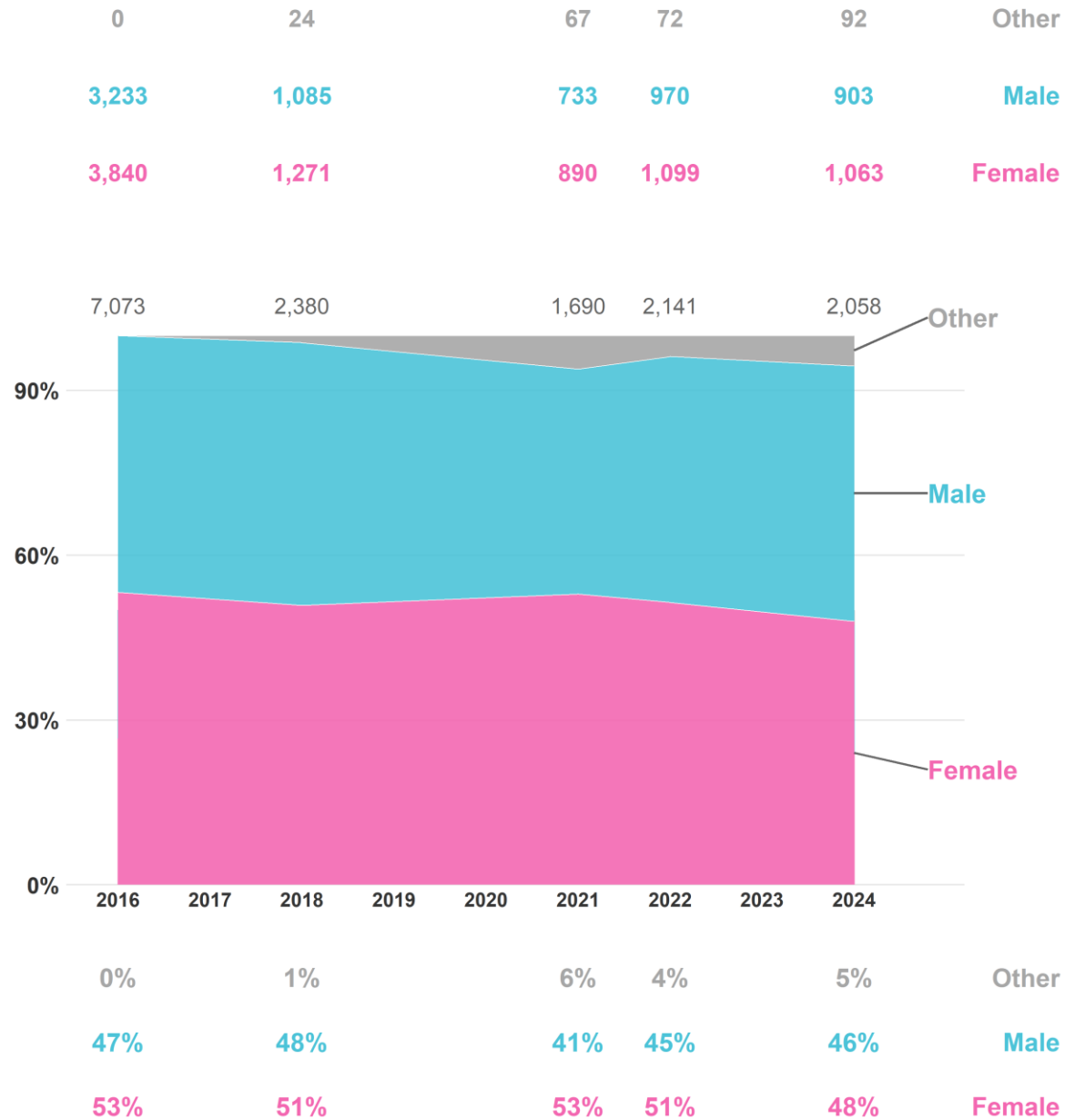
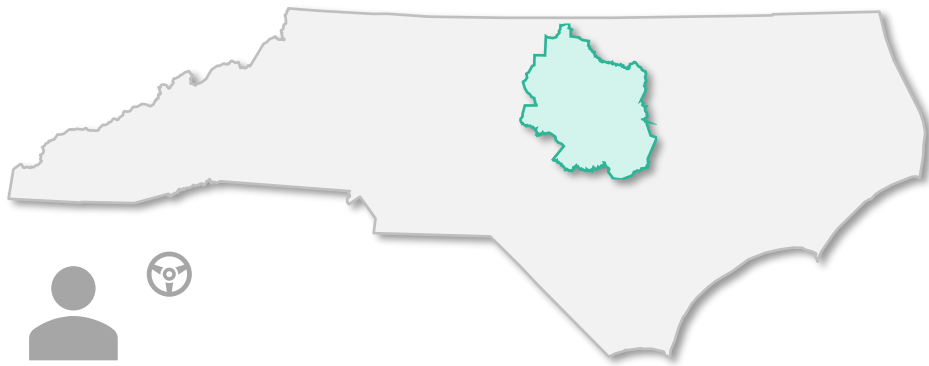
Percent of Drivers by Age Bracket

Universe: drivers ($\subset$ persons)
Categorized By: age bracket
Category Type: ordinal
Geography: full model region



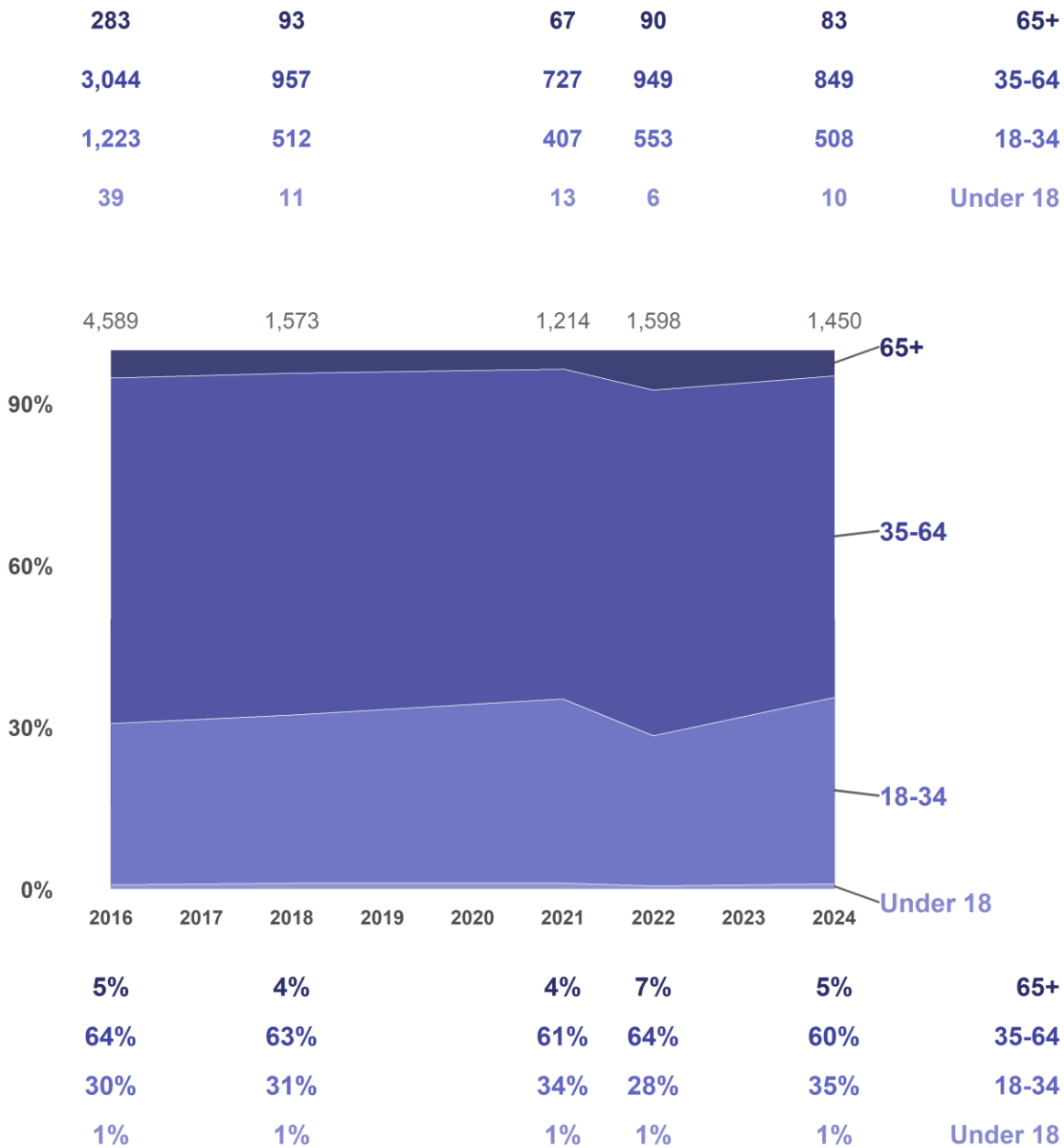
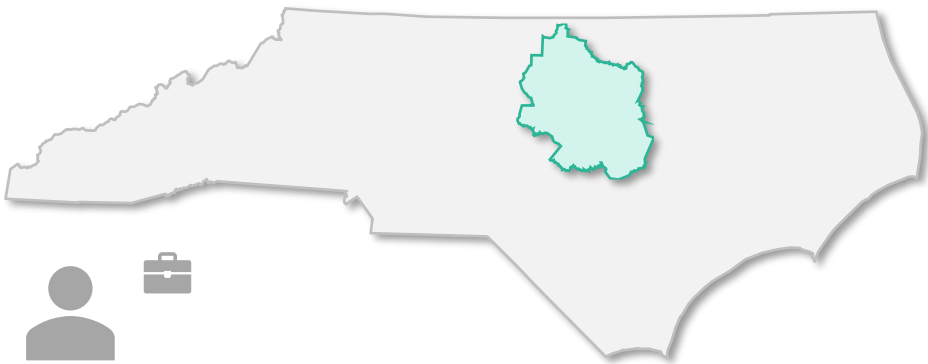
Percent of Drivers by Gender

Universe: drivers ($\subset$ persons)
Categorized By: gender
Category Type: nominal
Geography: full model region



Percent of Workers by Age Bracket

Universe: workers ($\subset$ persons)
Categorized By: age bracket
Category Type: ordinal
Geography: full model region



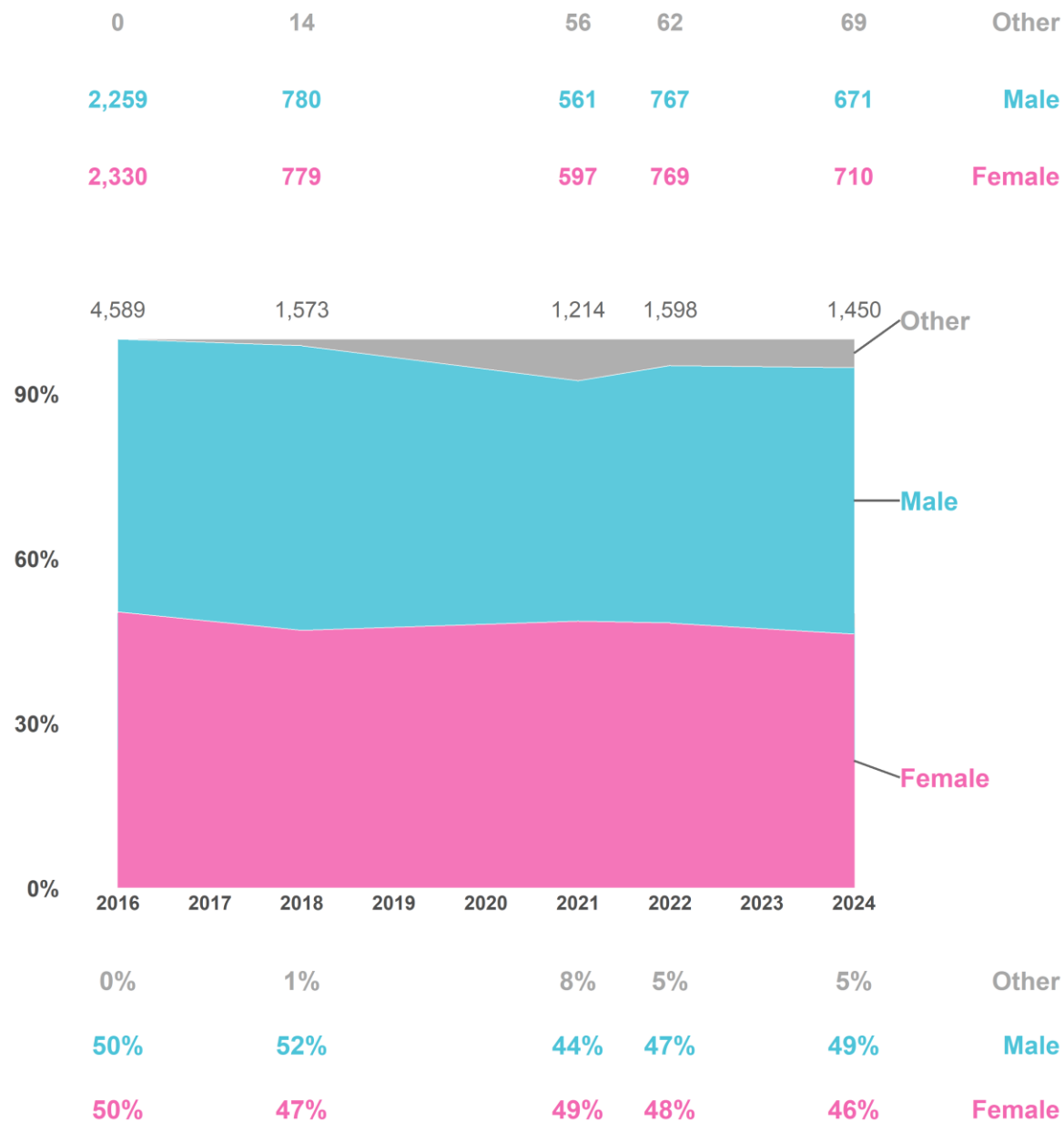
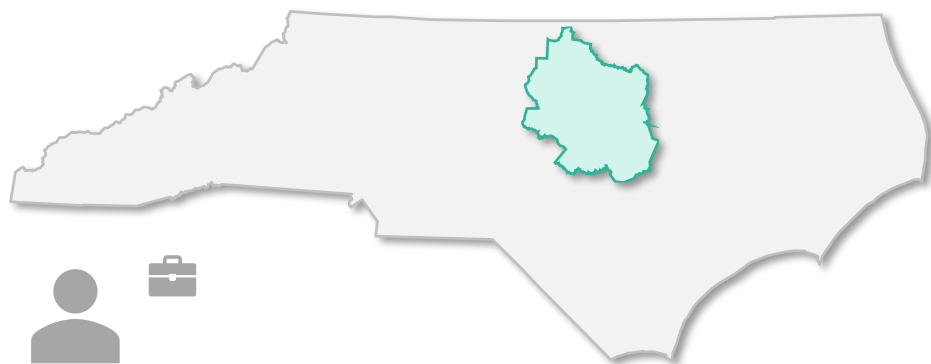
Percent of Workers by Gender

Universe: workers ($\subset$ persons)

Categorized By: gender

Category Type: nominal

Geography: full model region





TRIPS OVERVIEW

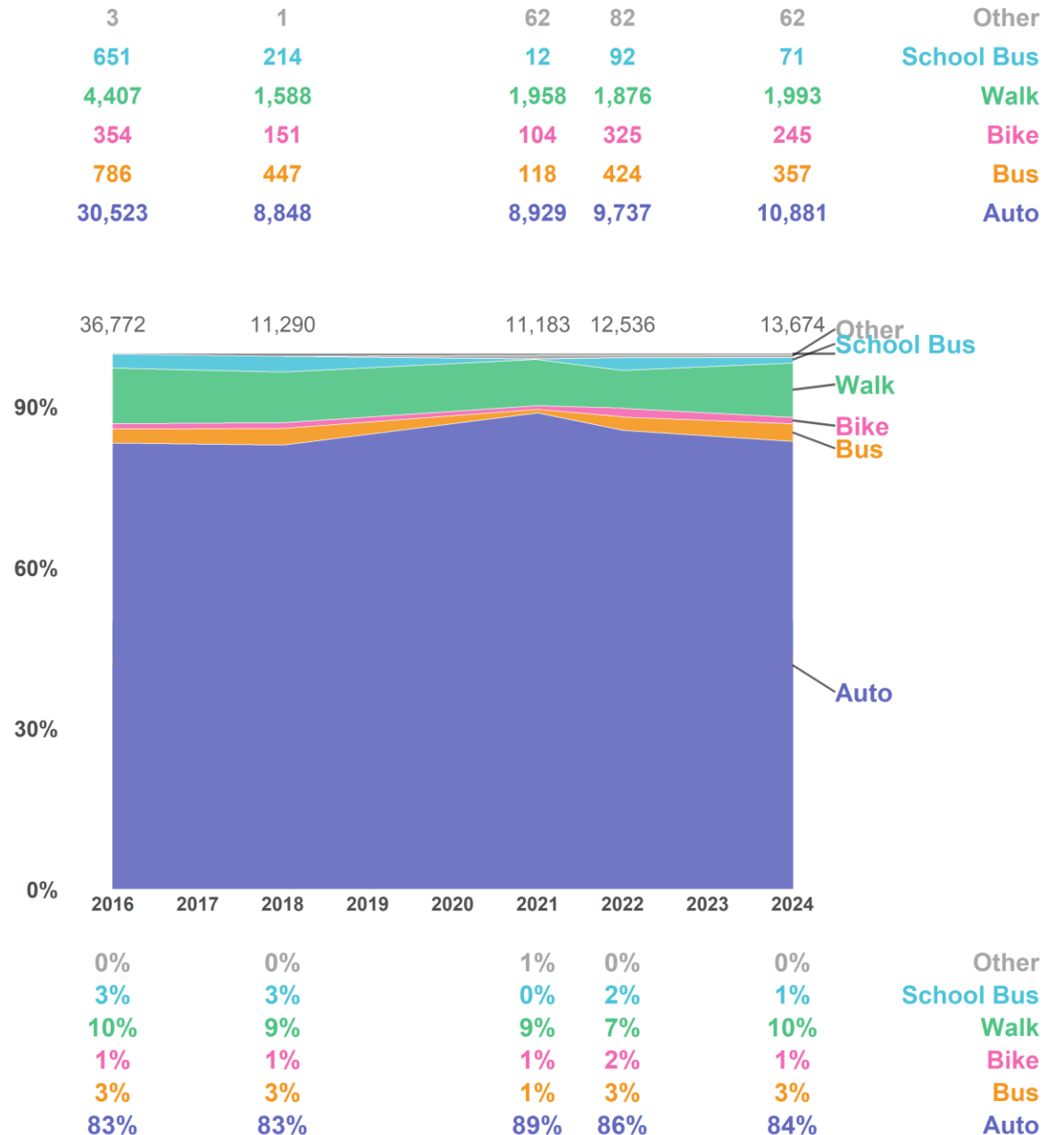
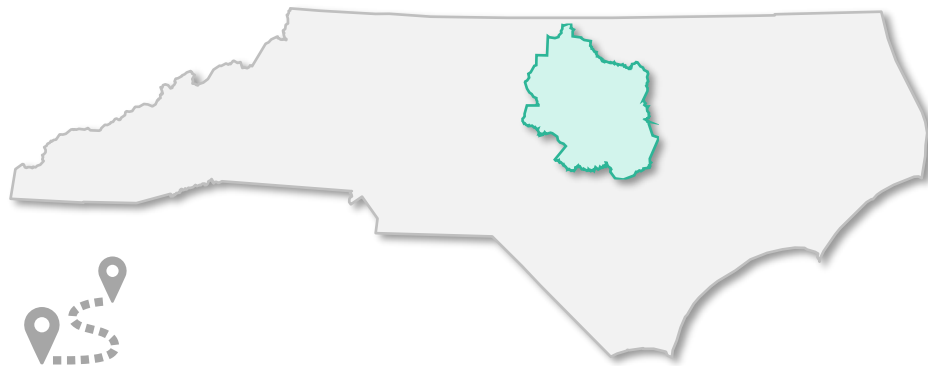
Percent of Trips by Travel Mode

Universe: trips

Categorized By: travel mode

Category Type: nominal

Geography: full model region



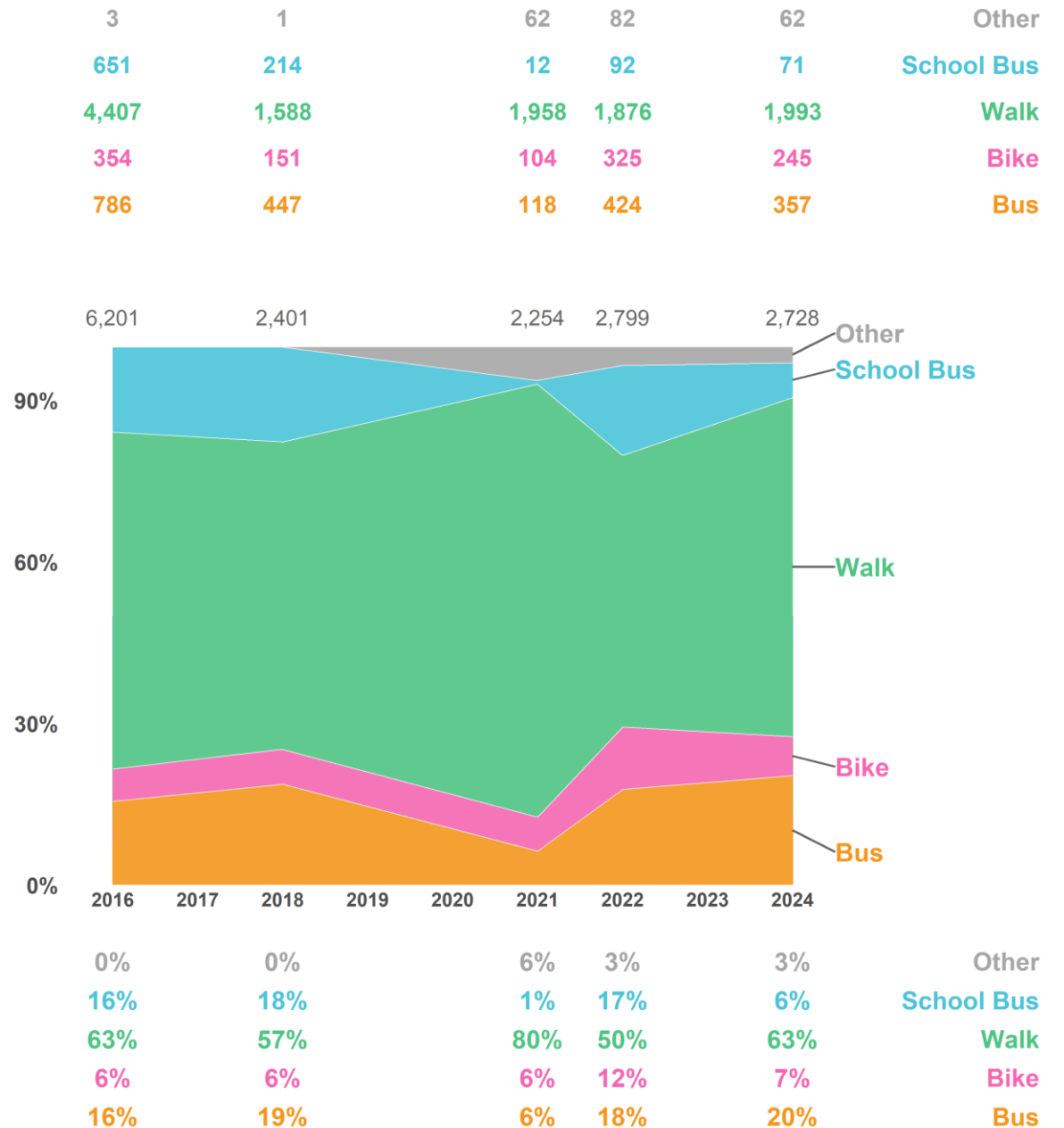
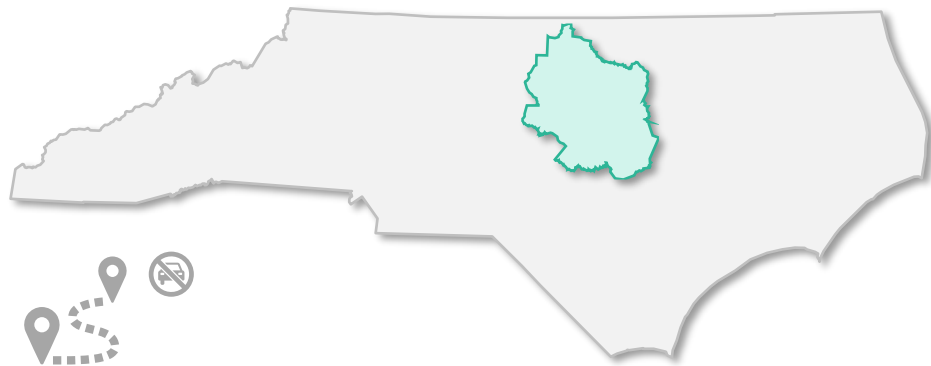
Percent of Non-Auto Trips by Travel Mode

Universe: non-auto trips ($\subset$ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



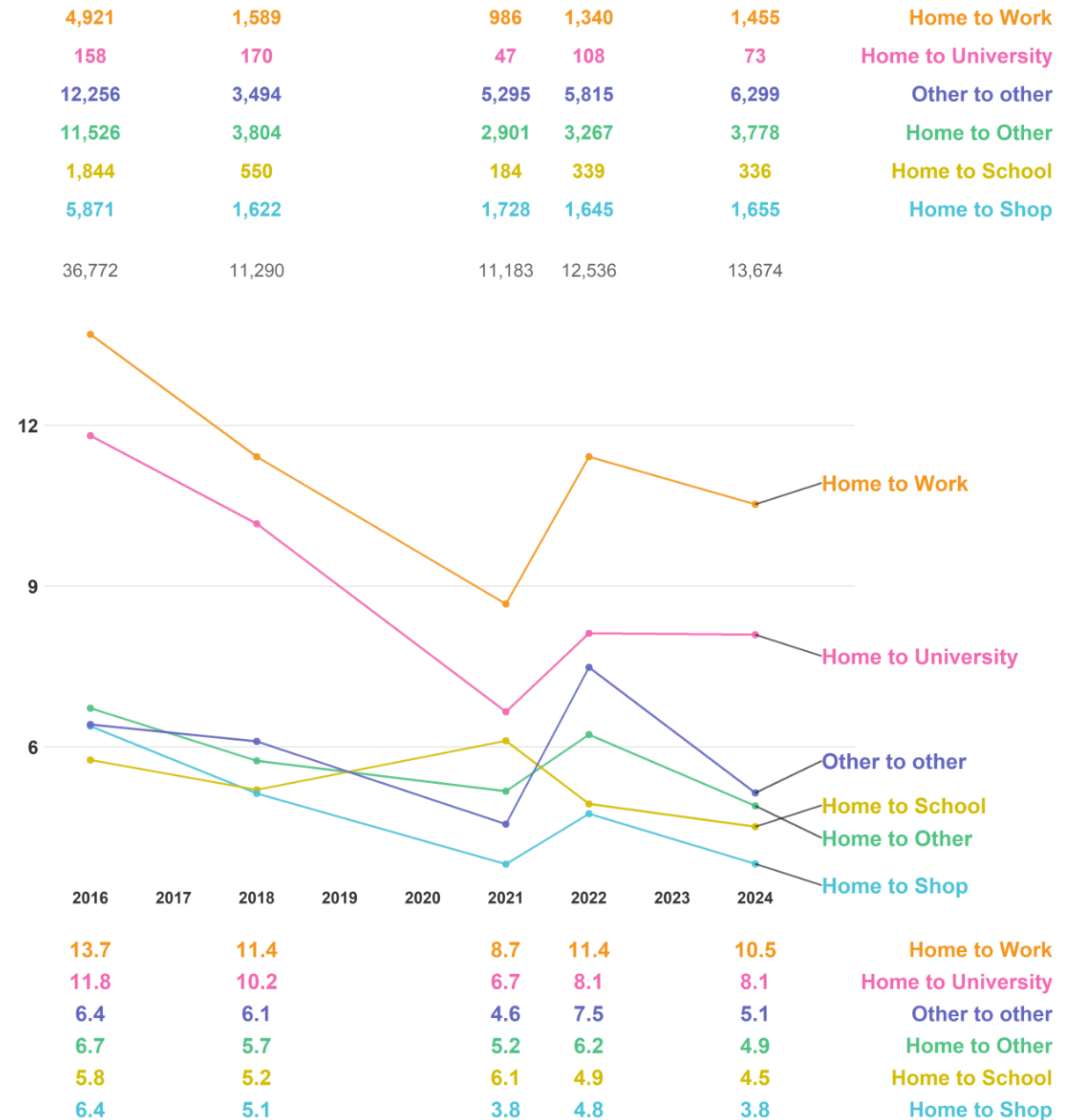
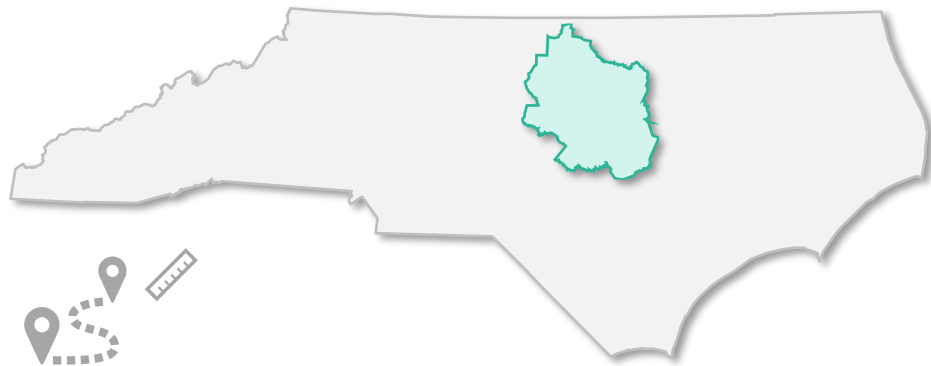
Average Trip Lengths [mi] by Trip Purpose

Universe: trip lengths

Categorized By: trip purpose

Category Type: nominal

Geography: full model region



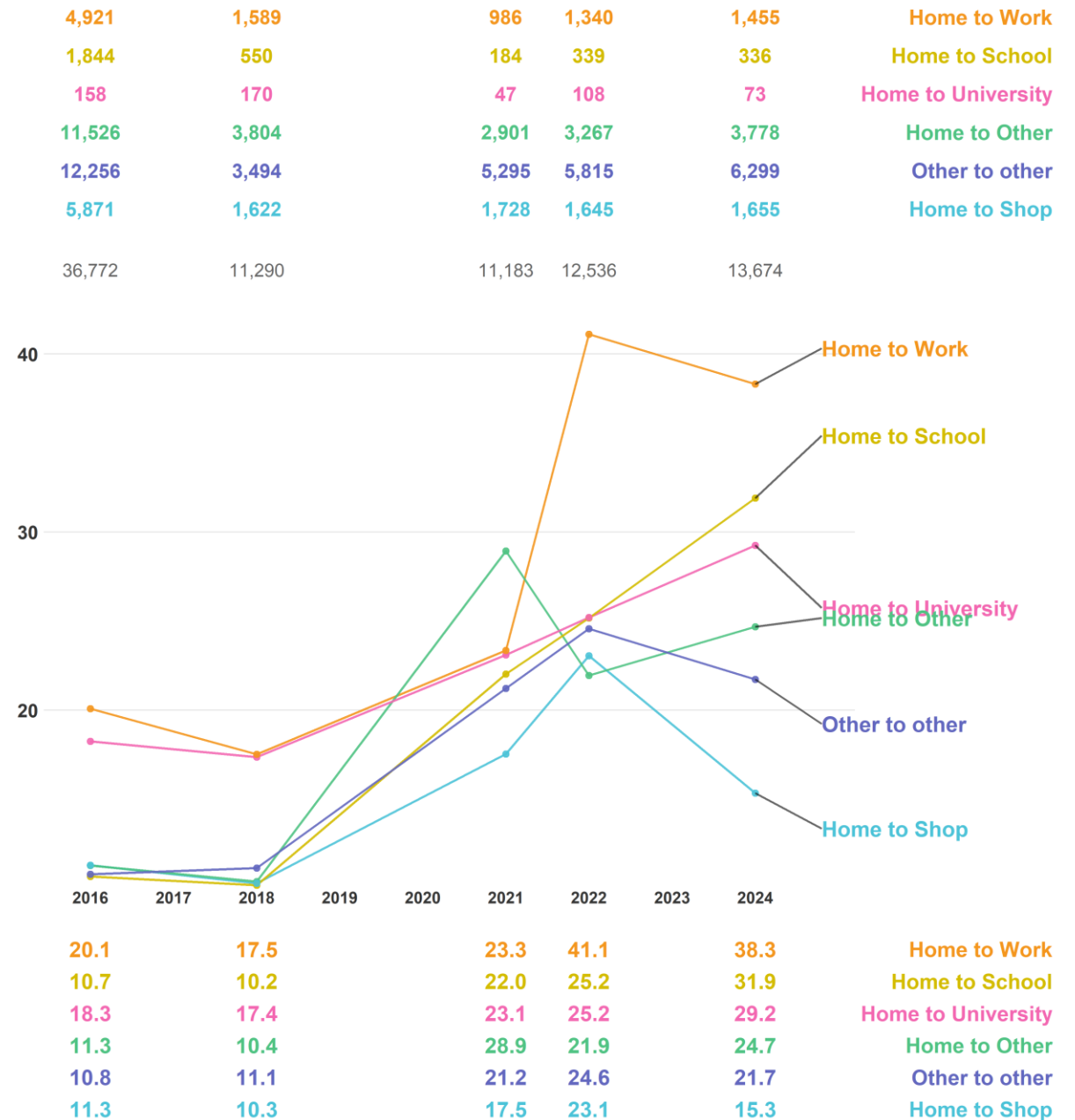
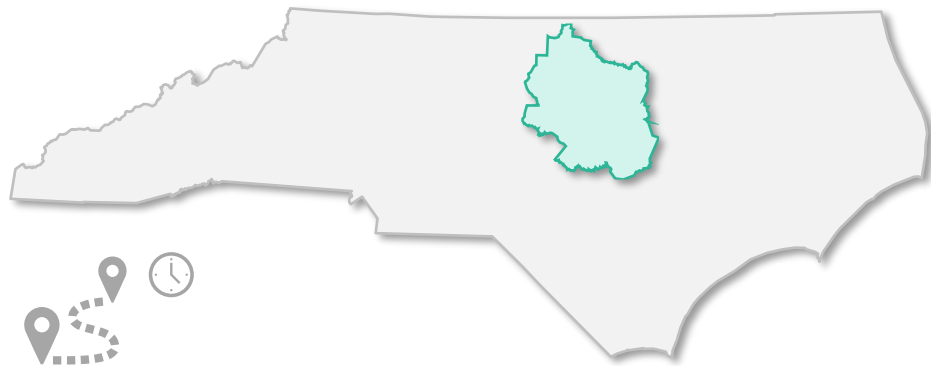
Average Trip Duration [min] by Trip Purpose

Universe: trip durations

Categorized By: trip purpose

Category Type: nominal

Geography: full model region



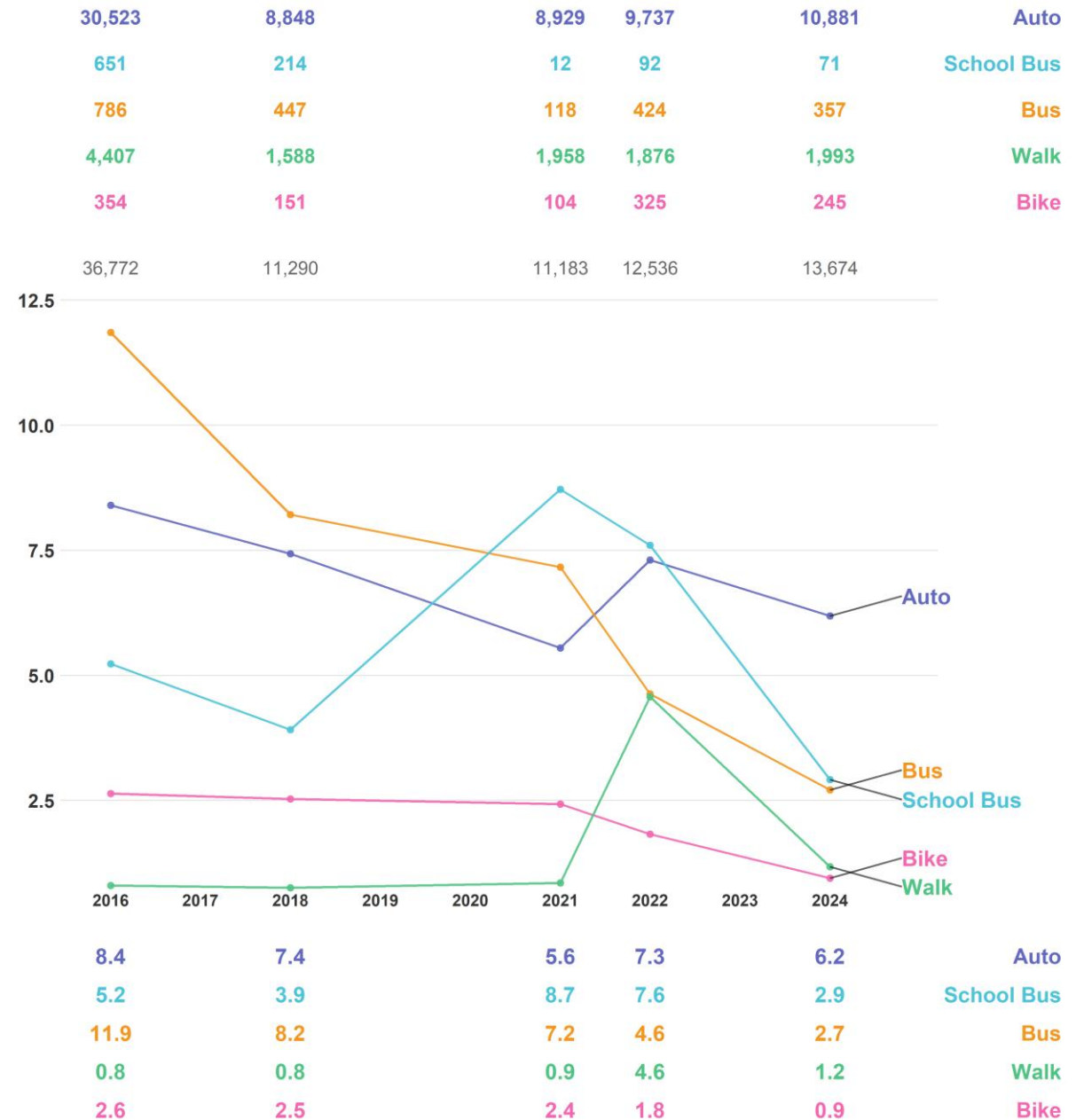
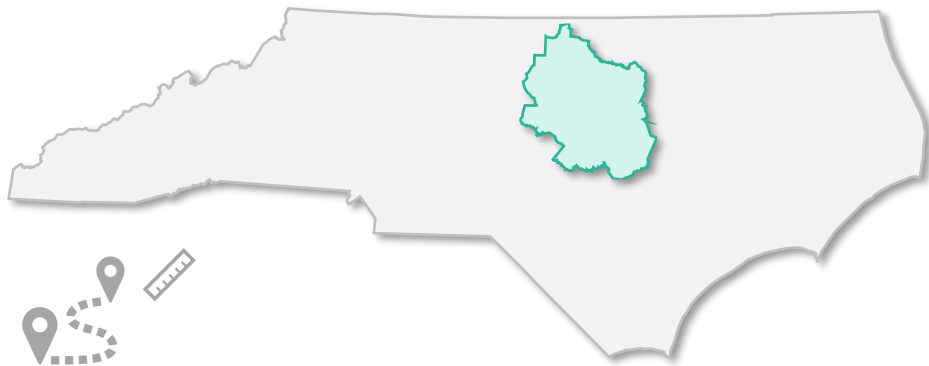
Average Trip Length [mi] by Travel Mode

Universe: trip lengths

Categorized By: travel mode

Category Type: nominal

Geography: full model region



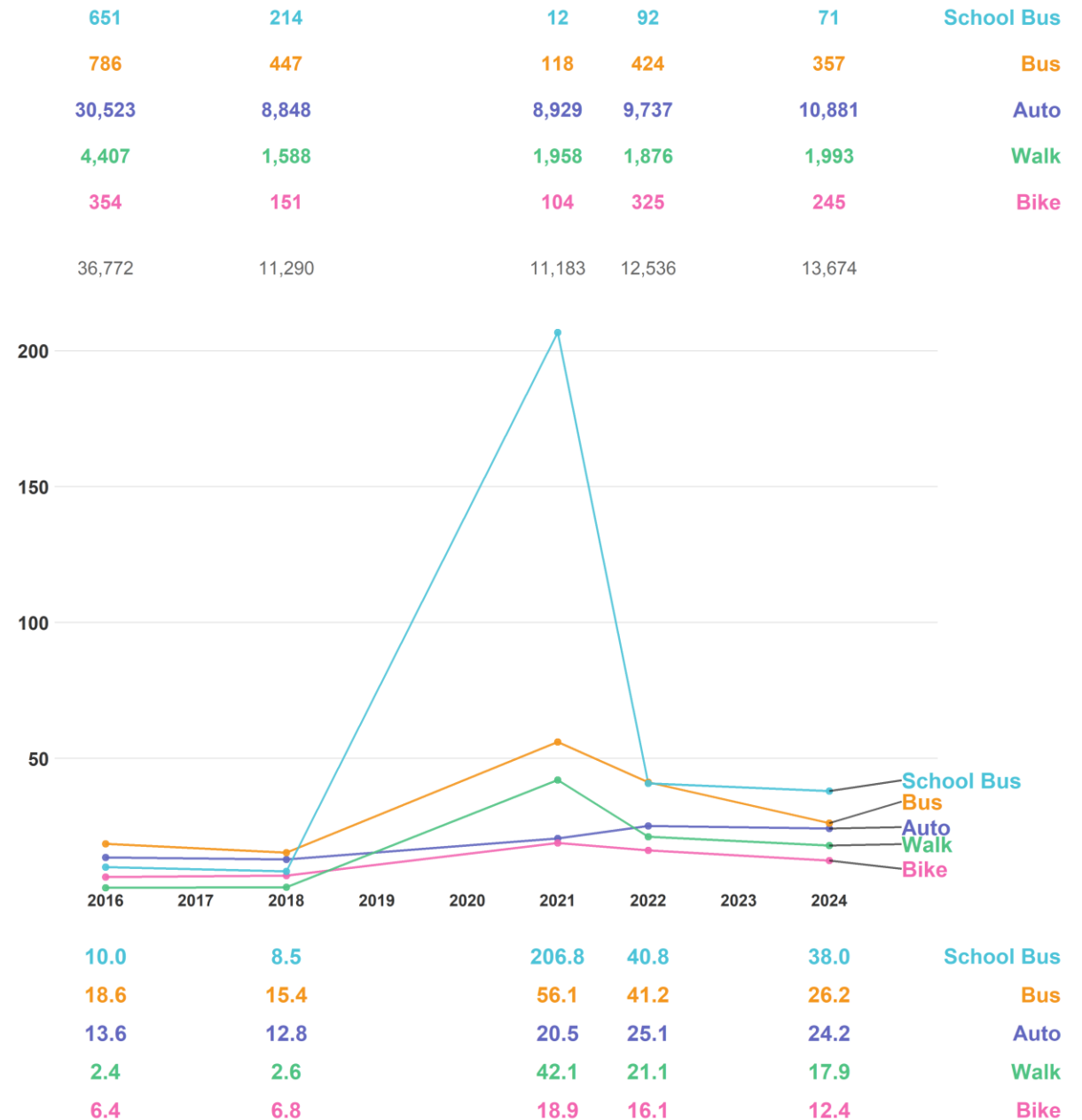
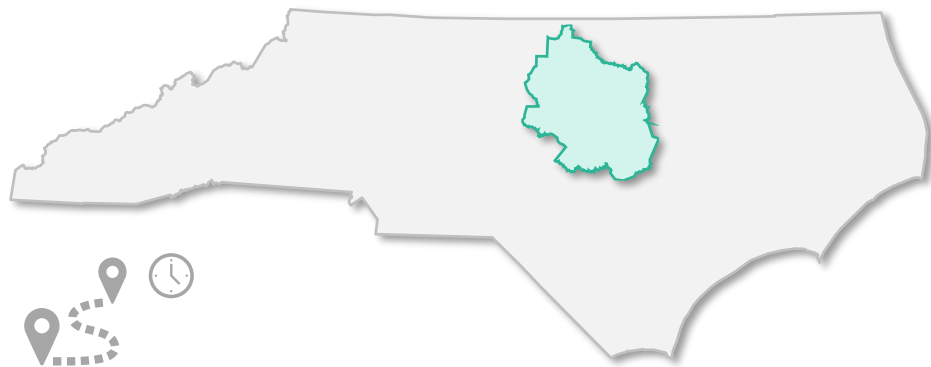
Average Trip Duration [min] by Travel Mode

Universe: trip durations

Categorized By: travel mode

Category Type: nominal

Geography: full model region



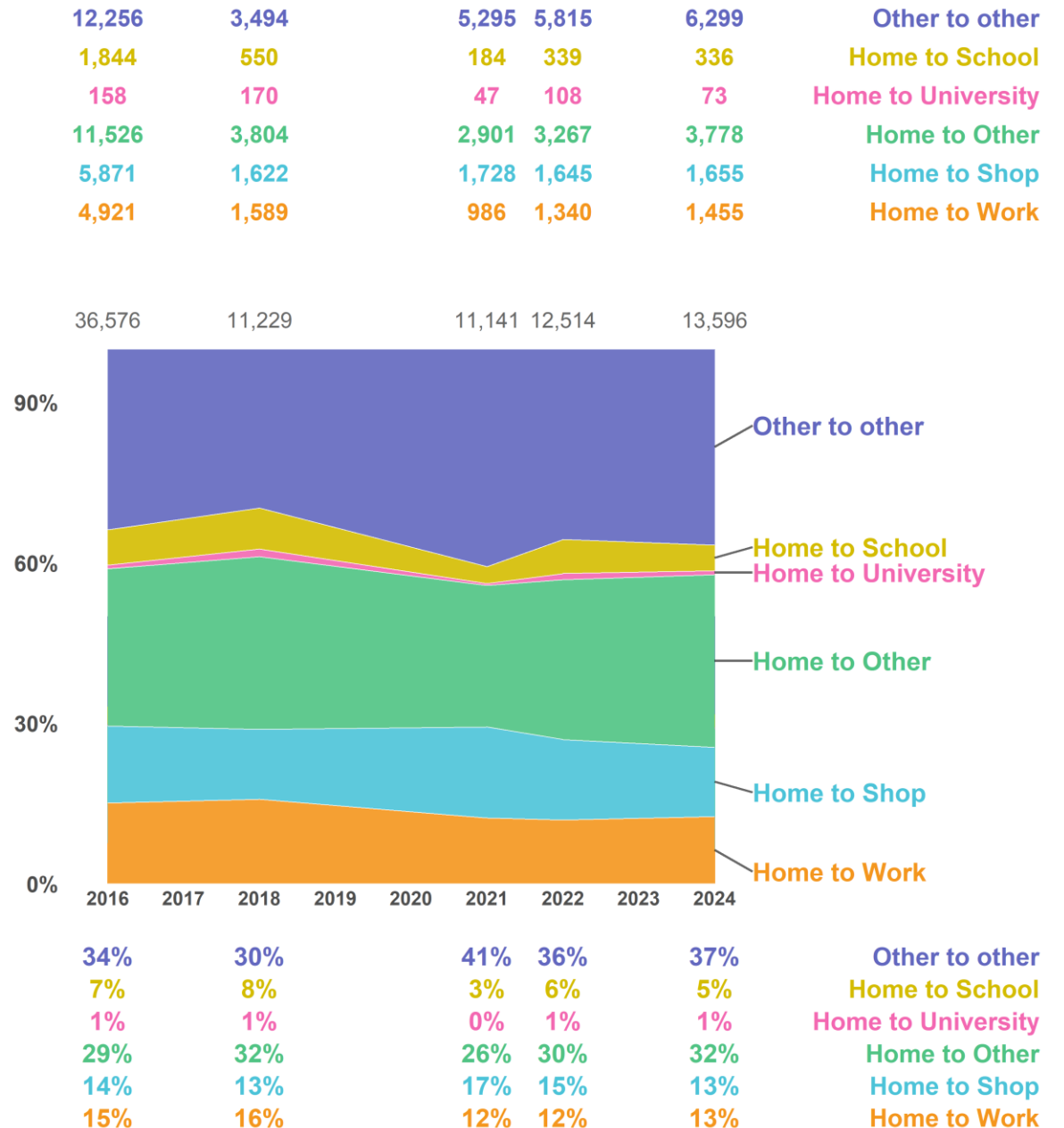
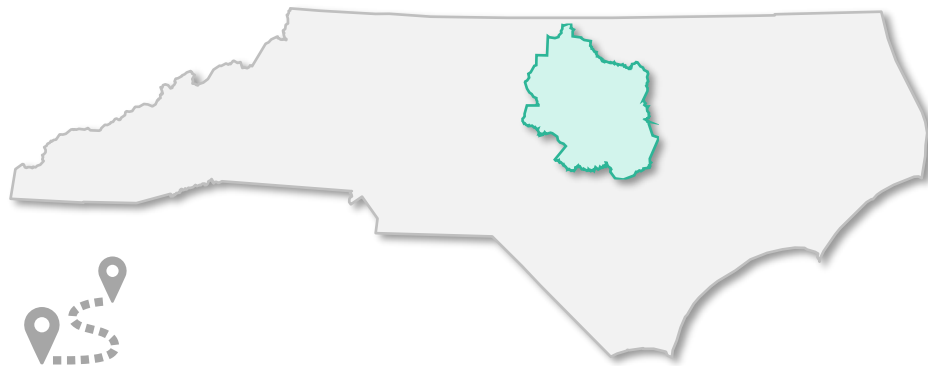
Percentage of Trips by Trip Purpose

Universe: trips

Categorized By: trip purpose

Category Type: nominal

Geography: full model region



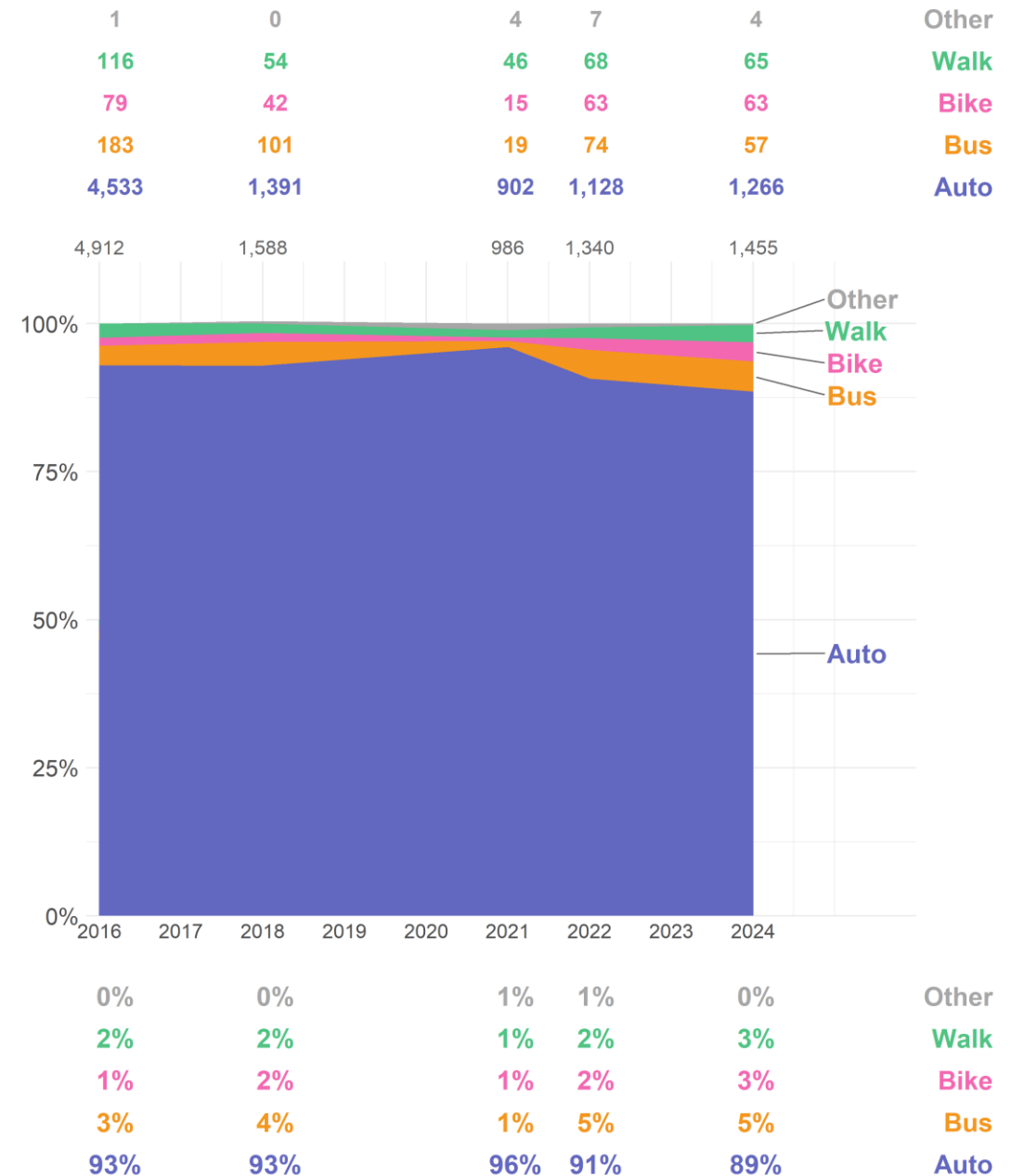
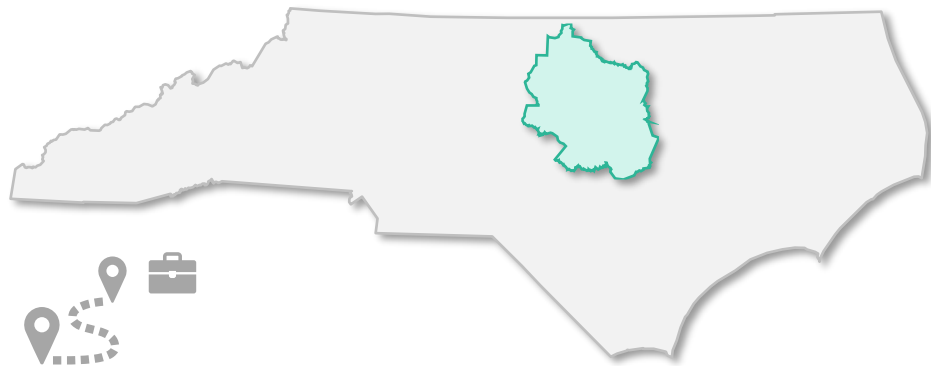
Percentage of Work Trips by Travel Mode

Universe: home → work trips
(⊂ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



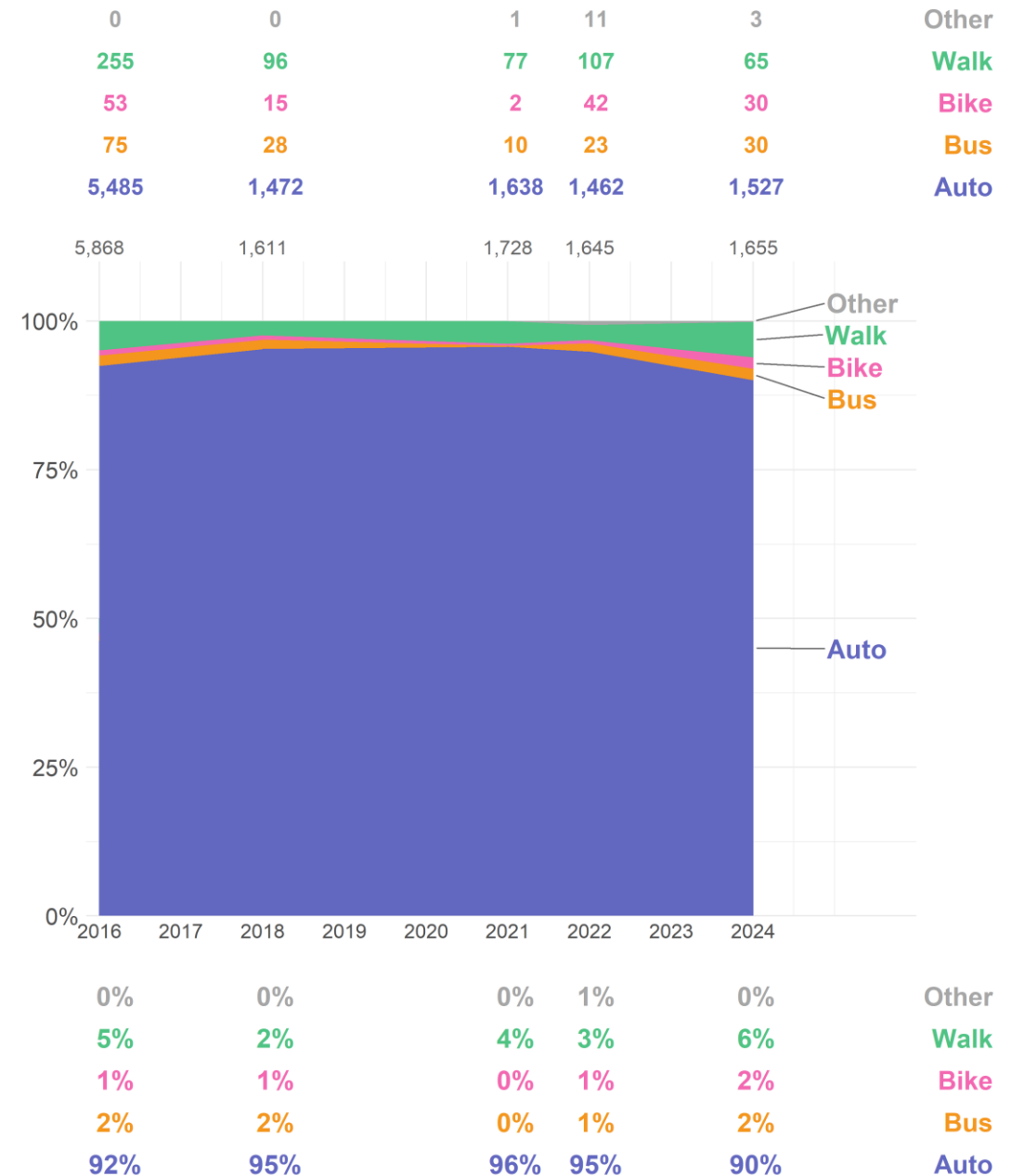
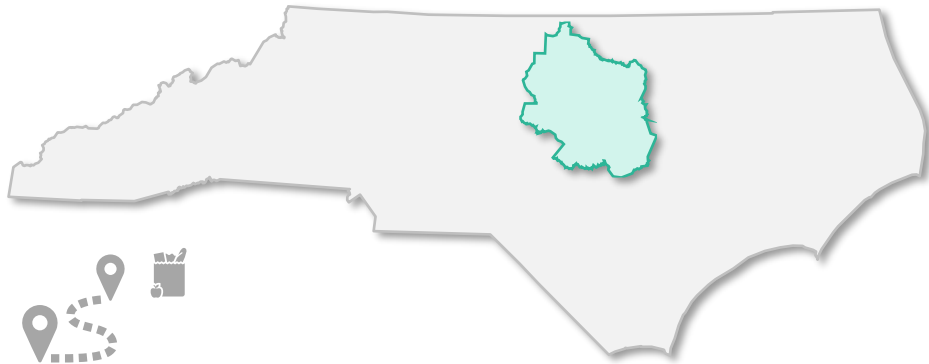
Percentage of Shopping Trips by Travel Mode

Universe: home → shopping trips ($\subset$ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



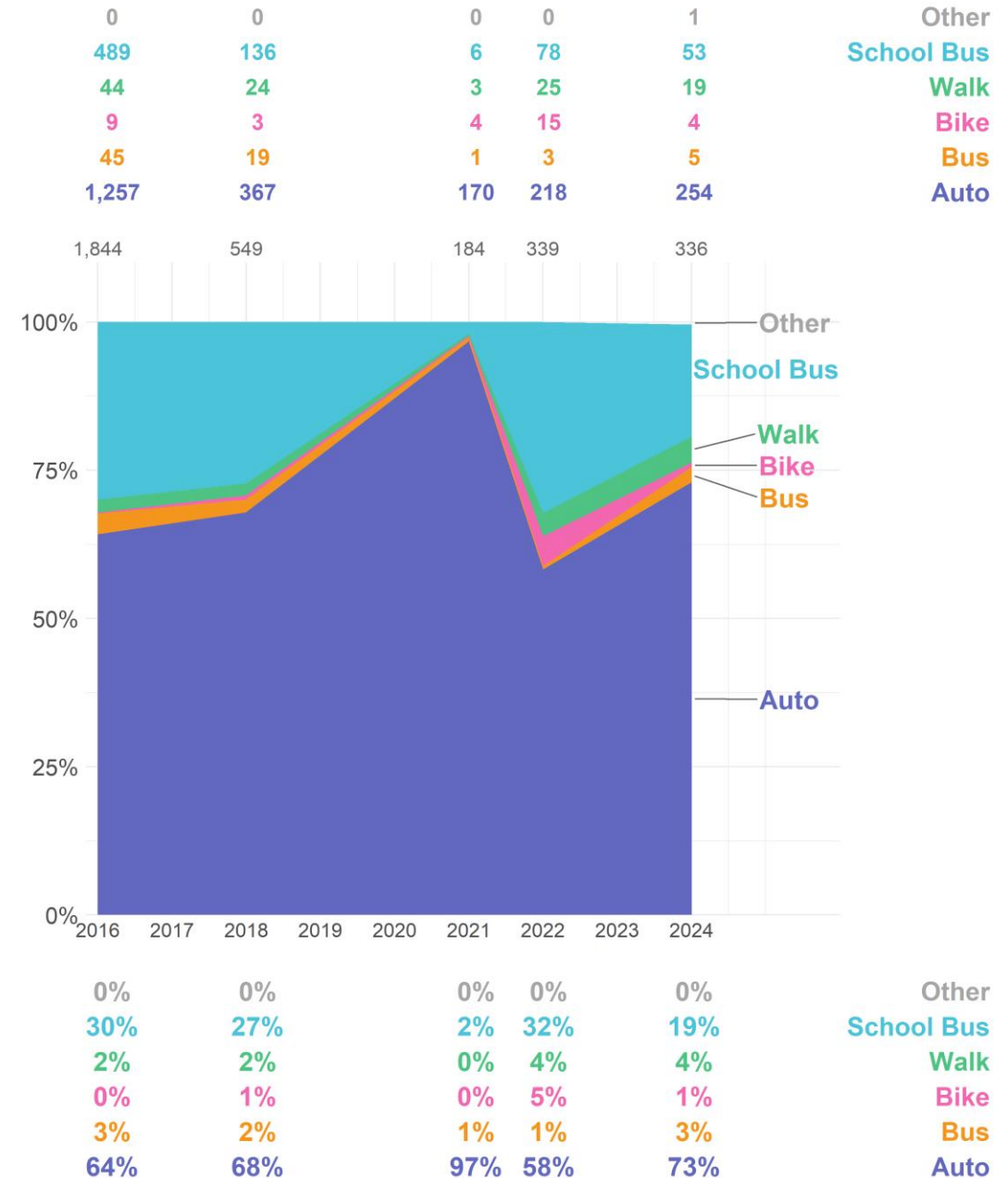
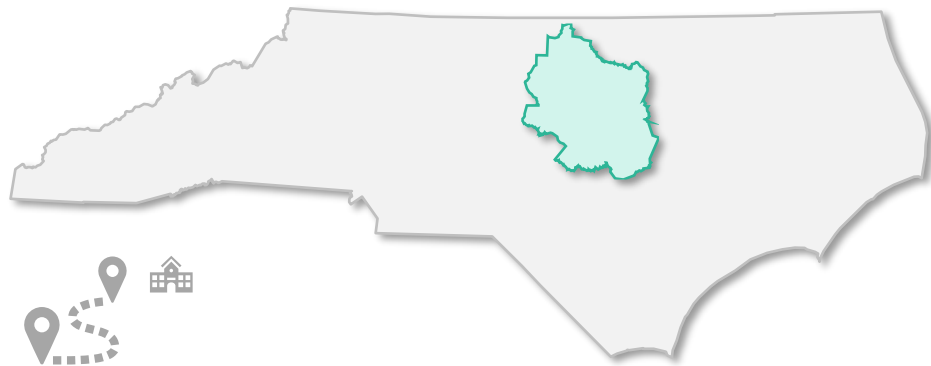
Percentage of School Trips by Travel Mode

Universe: home → school trips
(⊂ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



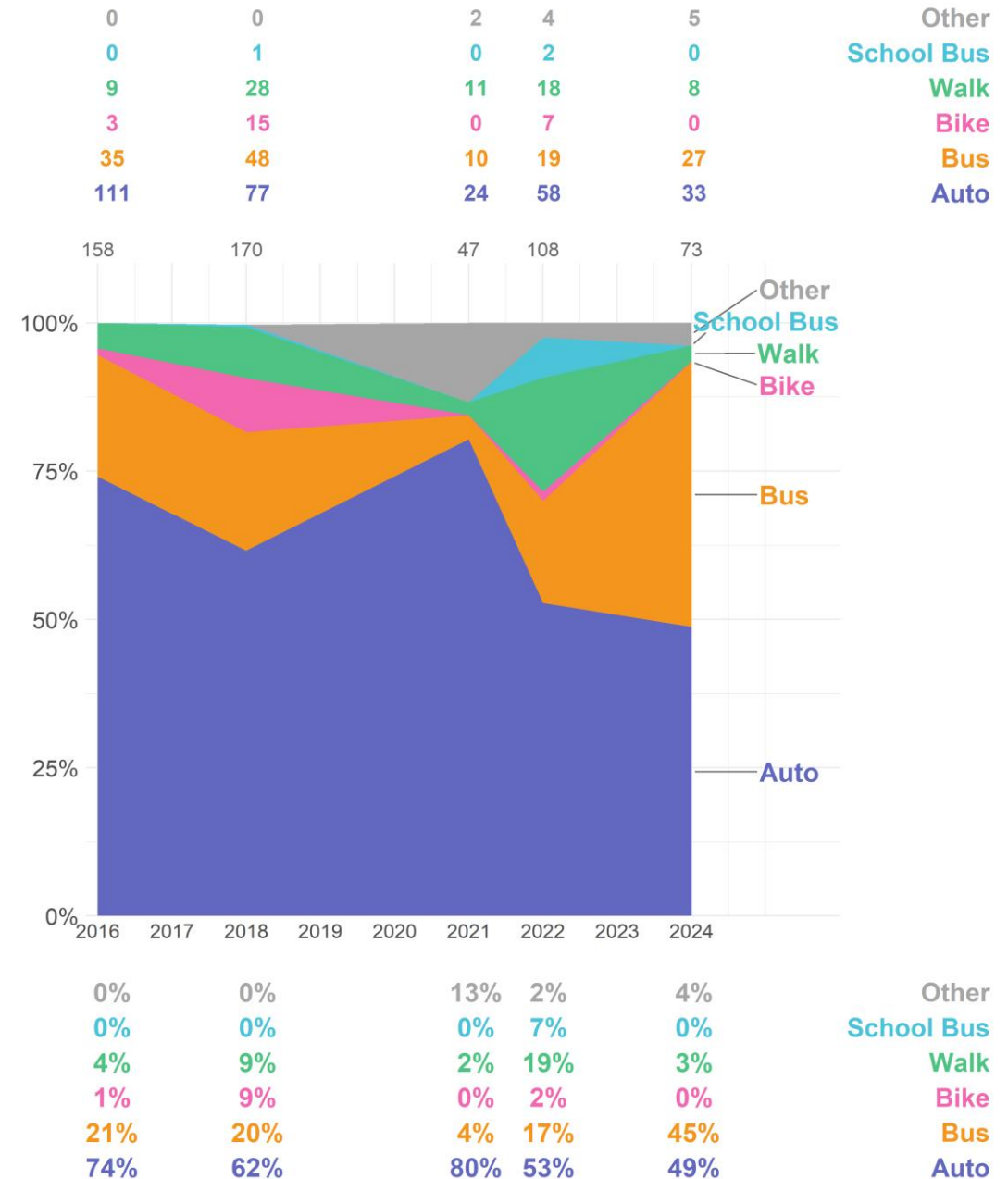
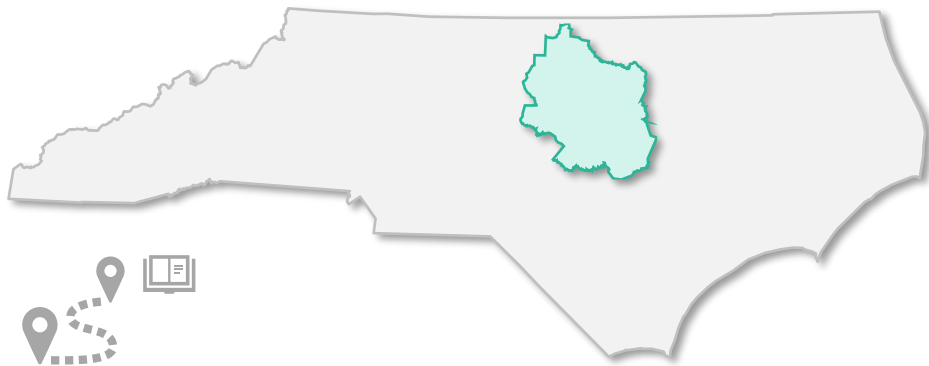
Percentage of University Trips by Travel Mode

Universe: home → university trips ($\subset$ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



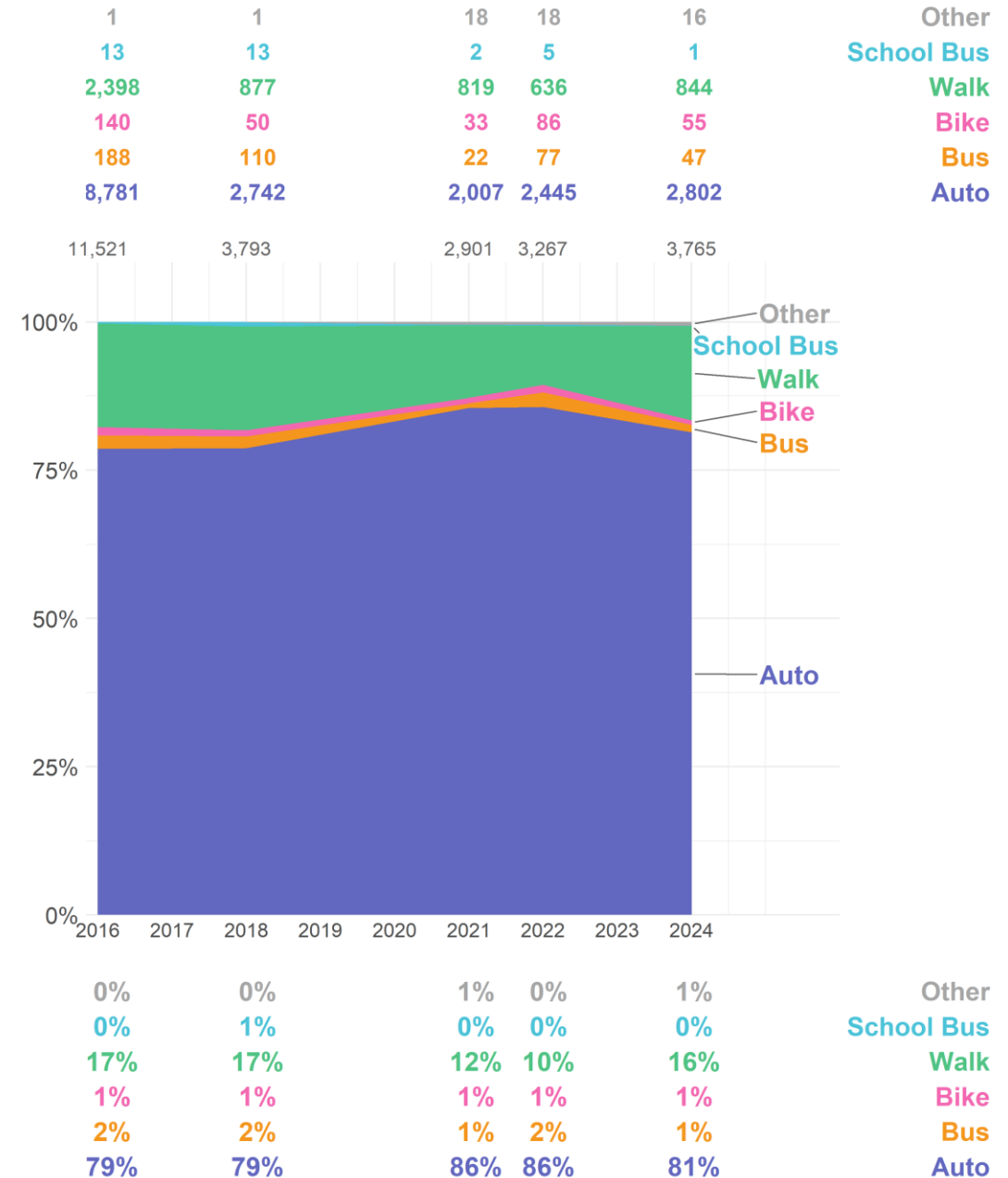
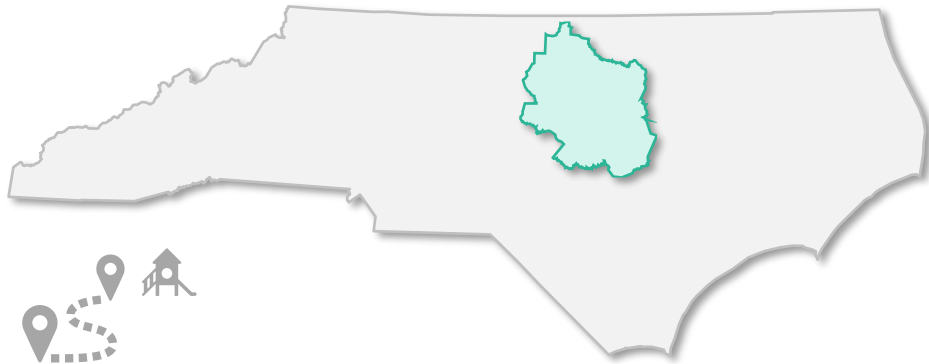
Percentage of Home-to-Other Trips by Travel Mode

Universe: home → other trips
(⊂ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



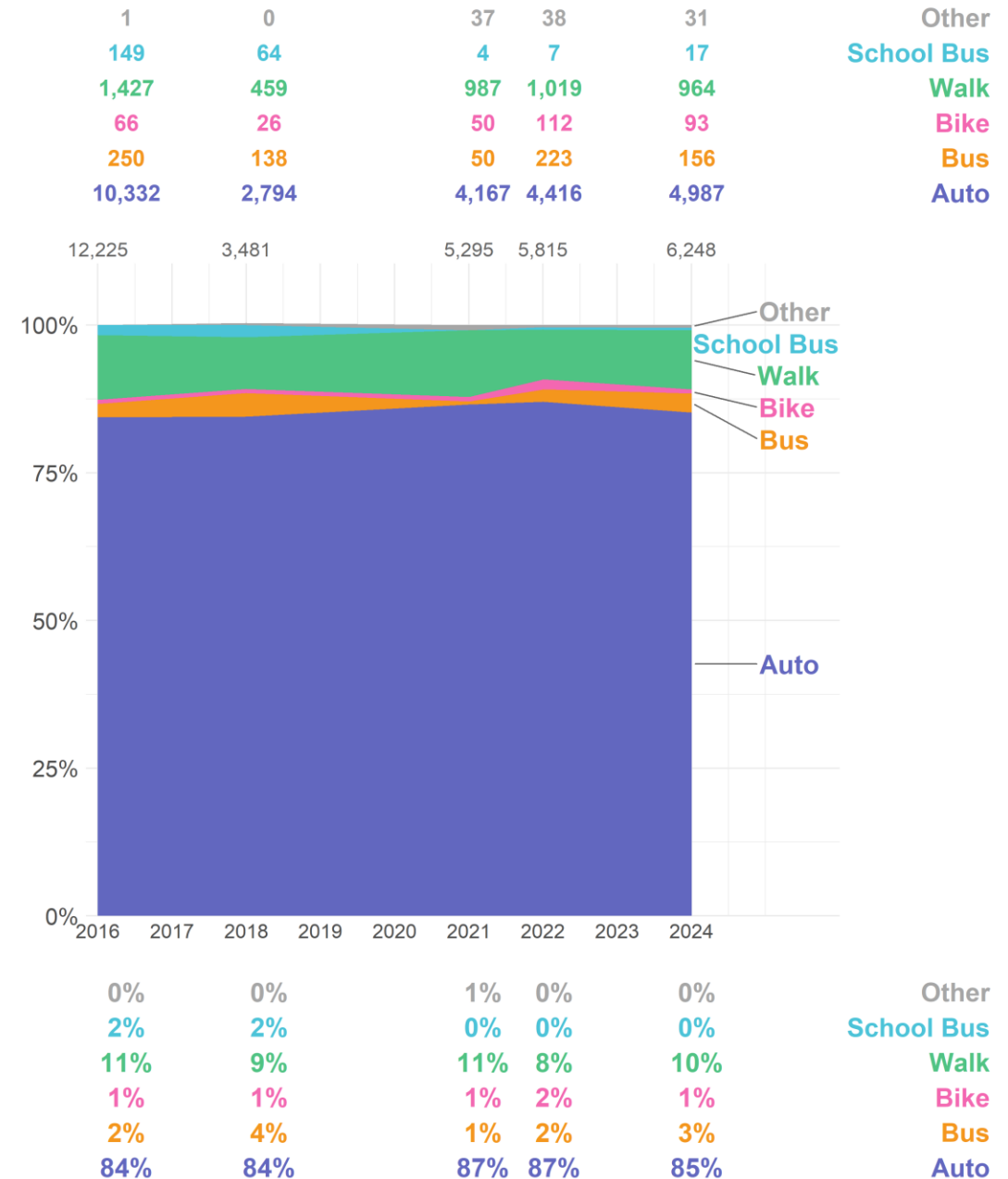
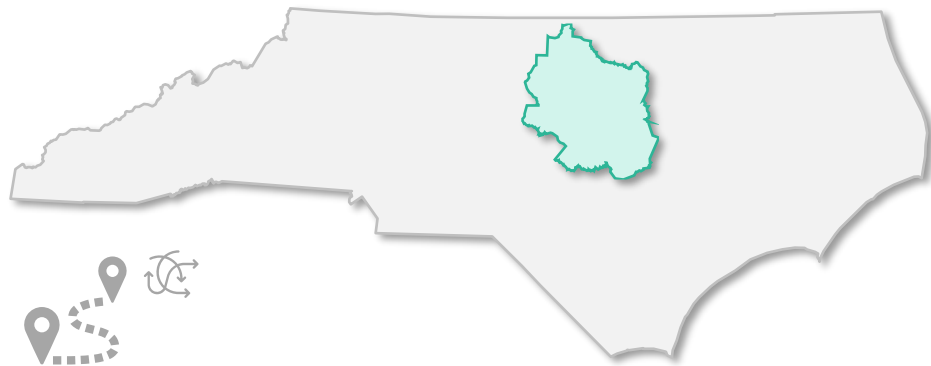
Percentage of Other-to-Other Trips by Travel Mode

Universe: other → other trips
(⊂ trips)

Categorized By: travel mode

Category Type: nominal

Geography: full model region



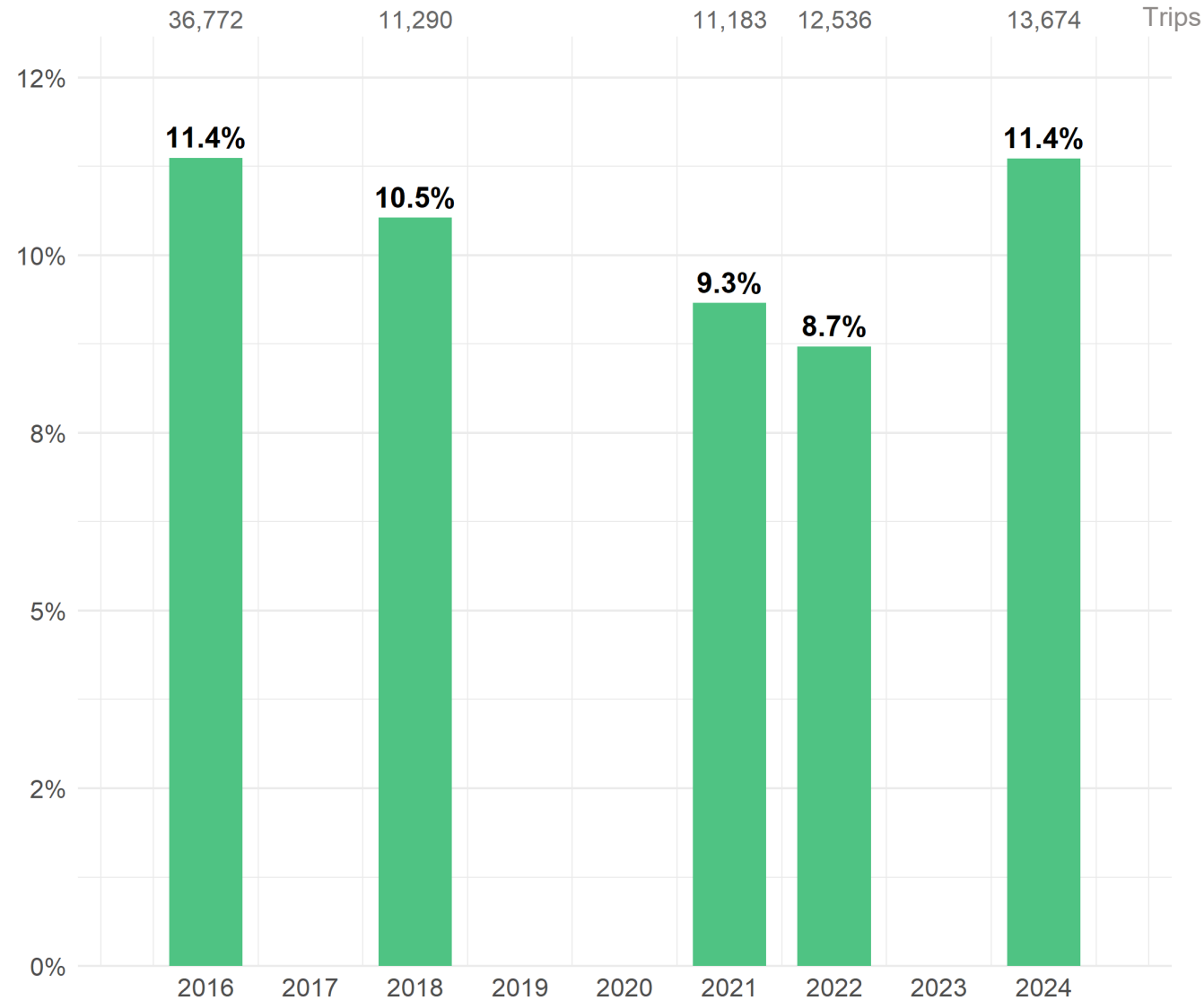
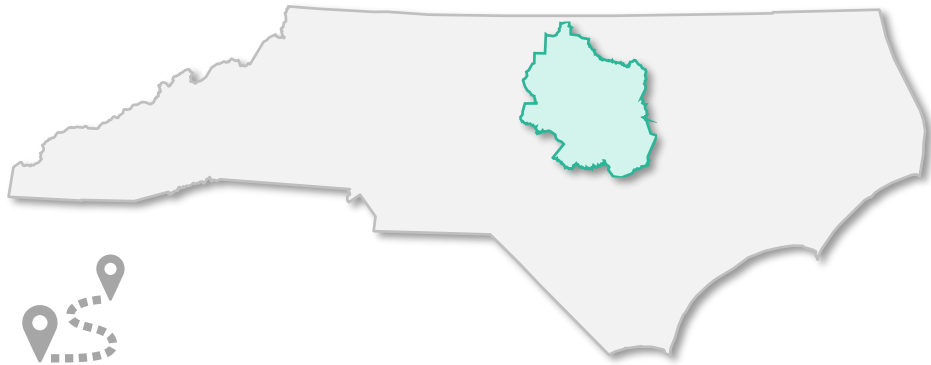
Percentage of Trips that are Non-Motorized

Universe: trips

Categorized By: [N/A]

Category Type: [N/A]

Geography: full model region



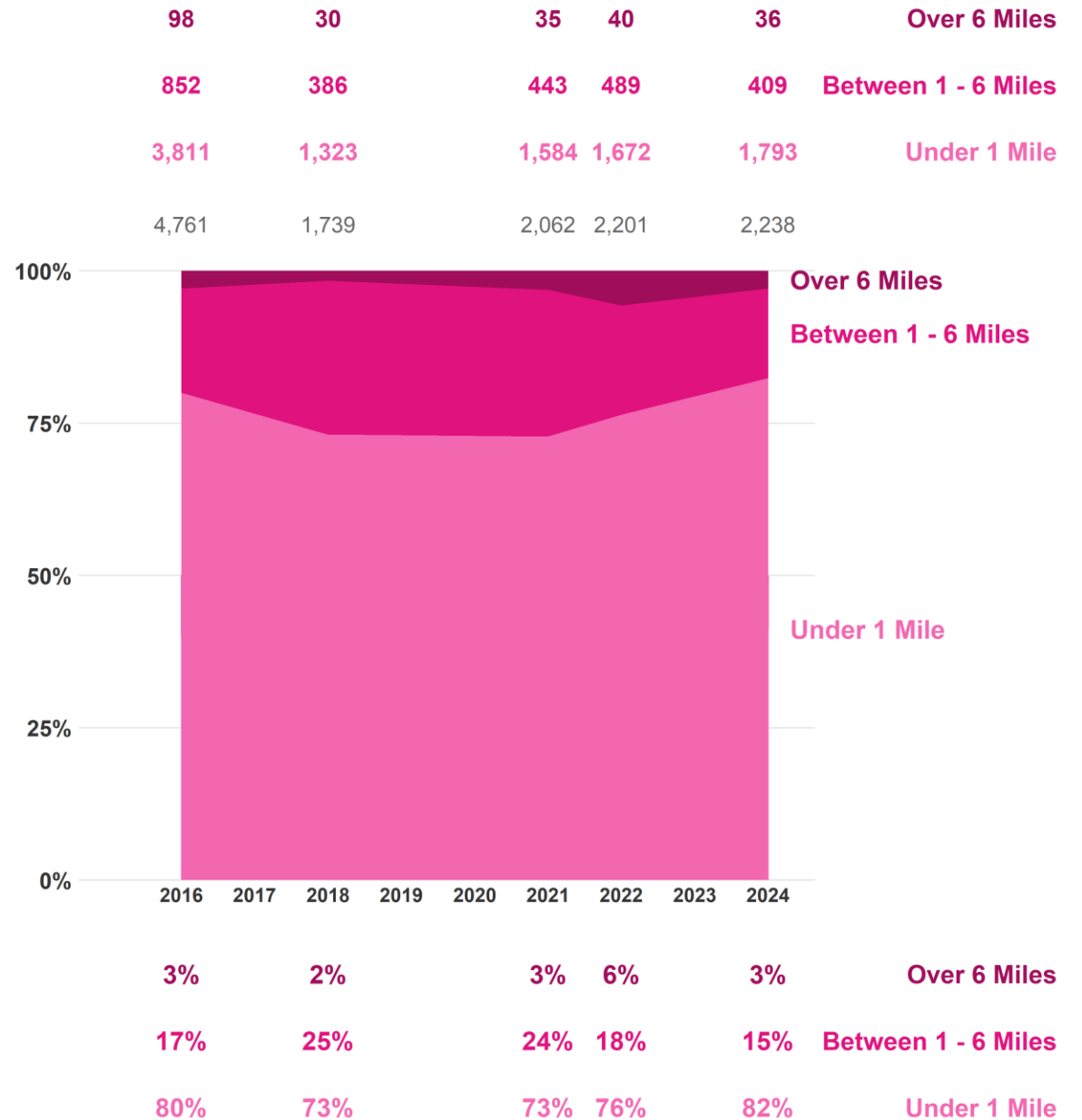
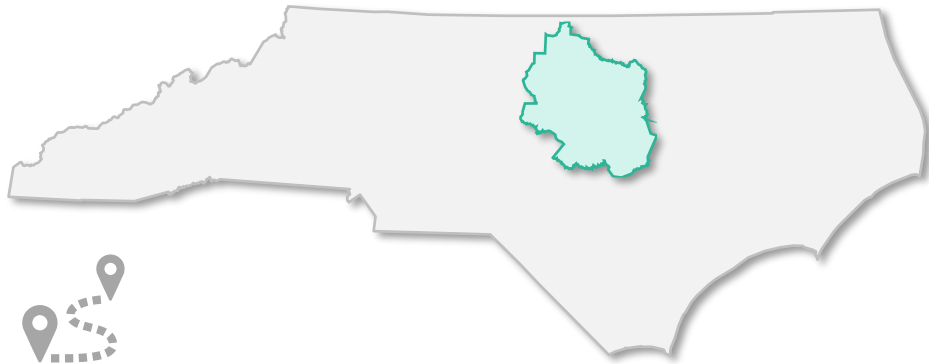
Percentage of Non-Motorized Trips by Trip Distance

Universe: non-motorized trips
($\subset$ trips)

Categorized By: trip distance

Category Type: ordinal

Geography: full model region



An aerial photograph of a city skyline, likely Atlanta, Georgia, featuring prominent skyscrapers like the Bank of America Tower. The image is overlaid with a dark blue gradient and white text. The text 'HOUSEHOLD TRAVEL' is centered in a large, bold, sans-serif font. In the bottom left corner, there is a small copyright notice, and in the bottom right corner, the number '41' is visible.

HOUSEHOLD TRAVEL

Average Daily Auto Trips per Household



Universes: auto trips ($\subset$ trips), households

Geography: full model region

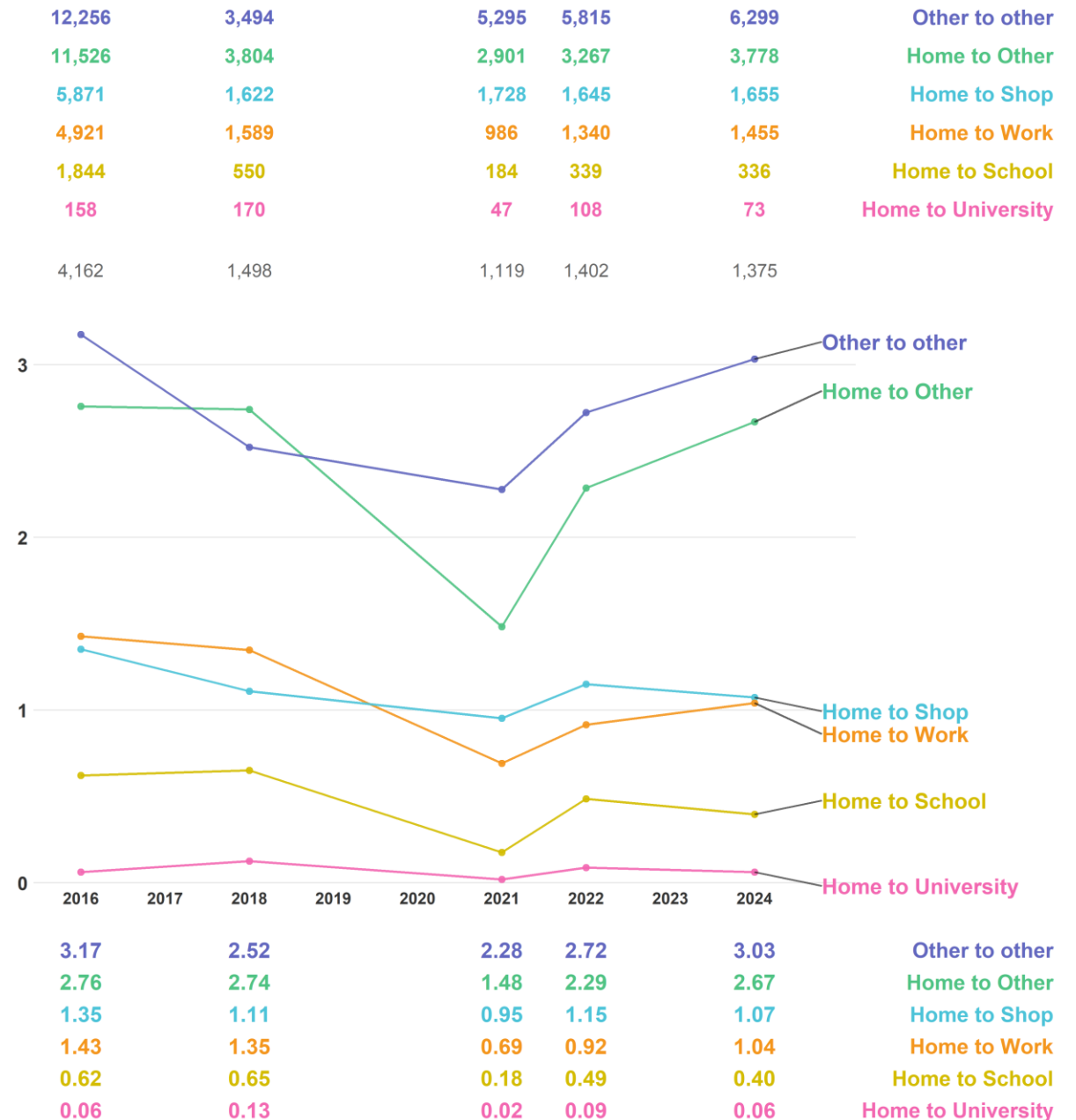
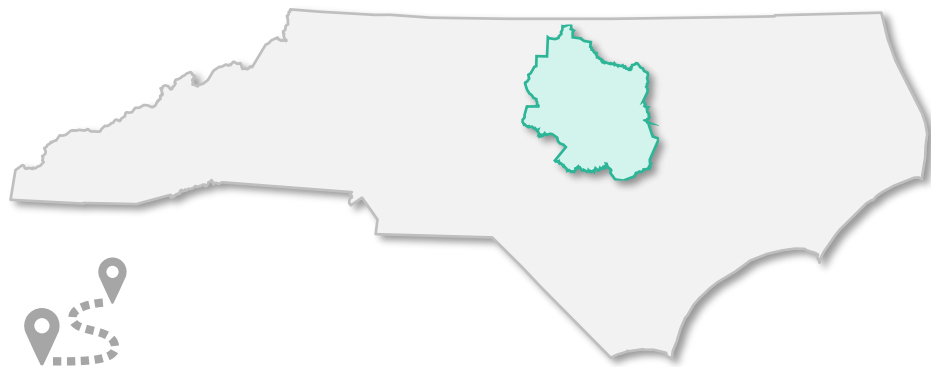
Average Daily Trips per Household by Trip Purpose

Universe: trips, households

Categorized By: trip purpose

Category Type: nominal

Geography: full model region



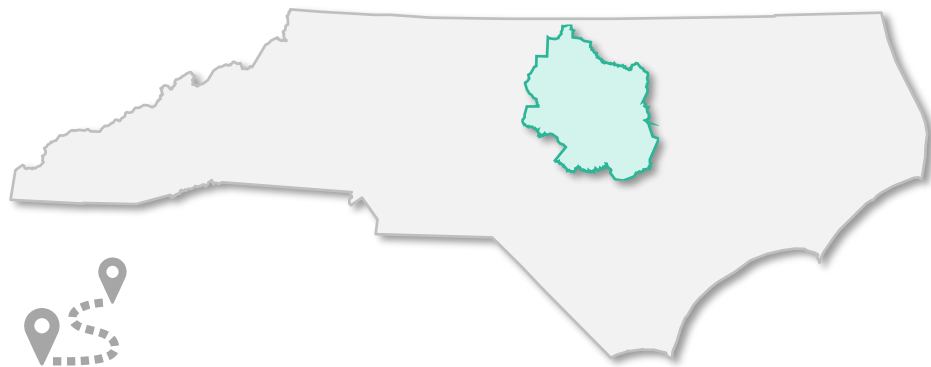
Average Daily Trips per Household by Household Income

Universe: trips, households

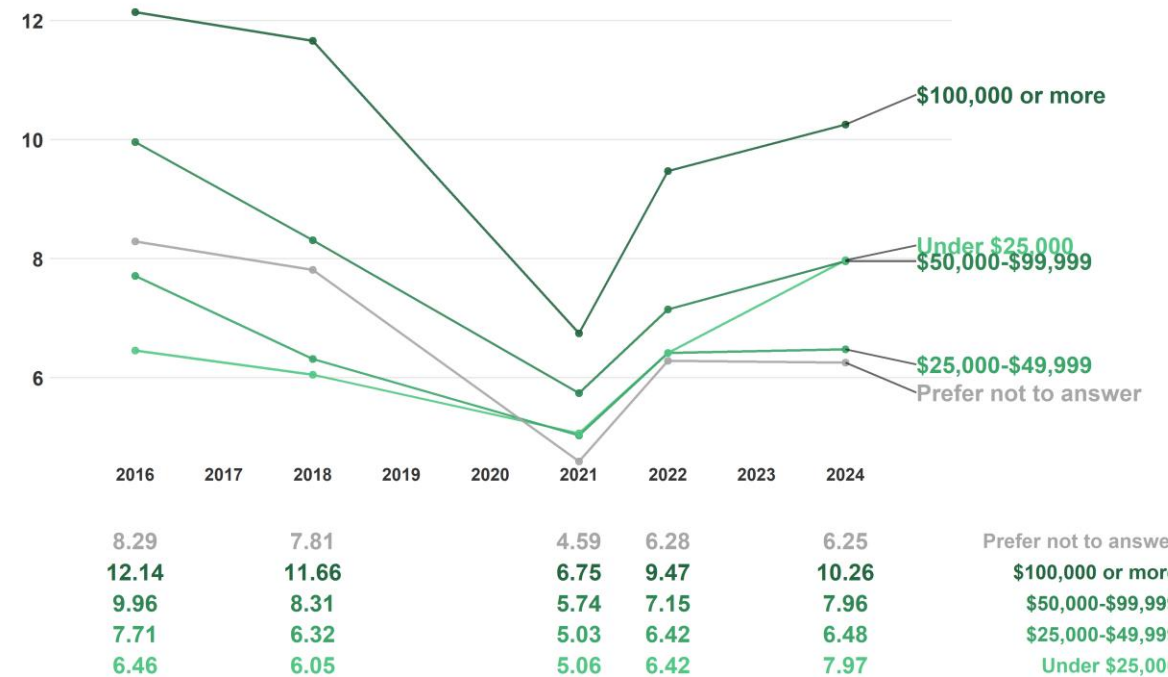
Categorized By: household income bracket

Category Type: ordinal

Geography: full model region

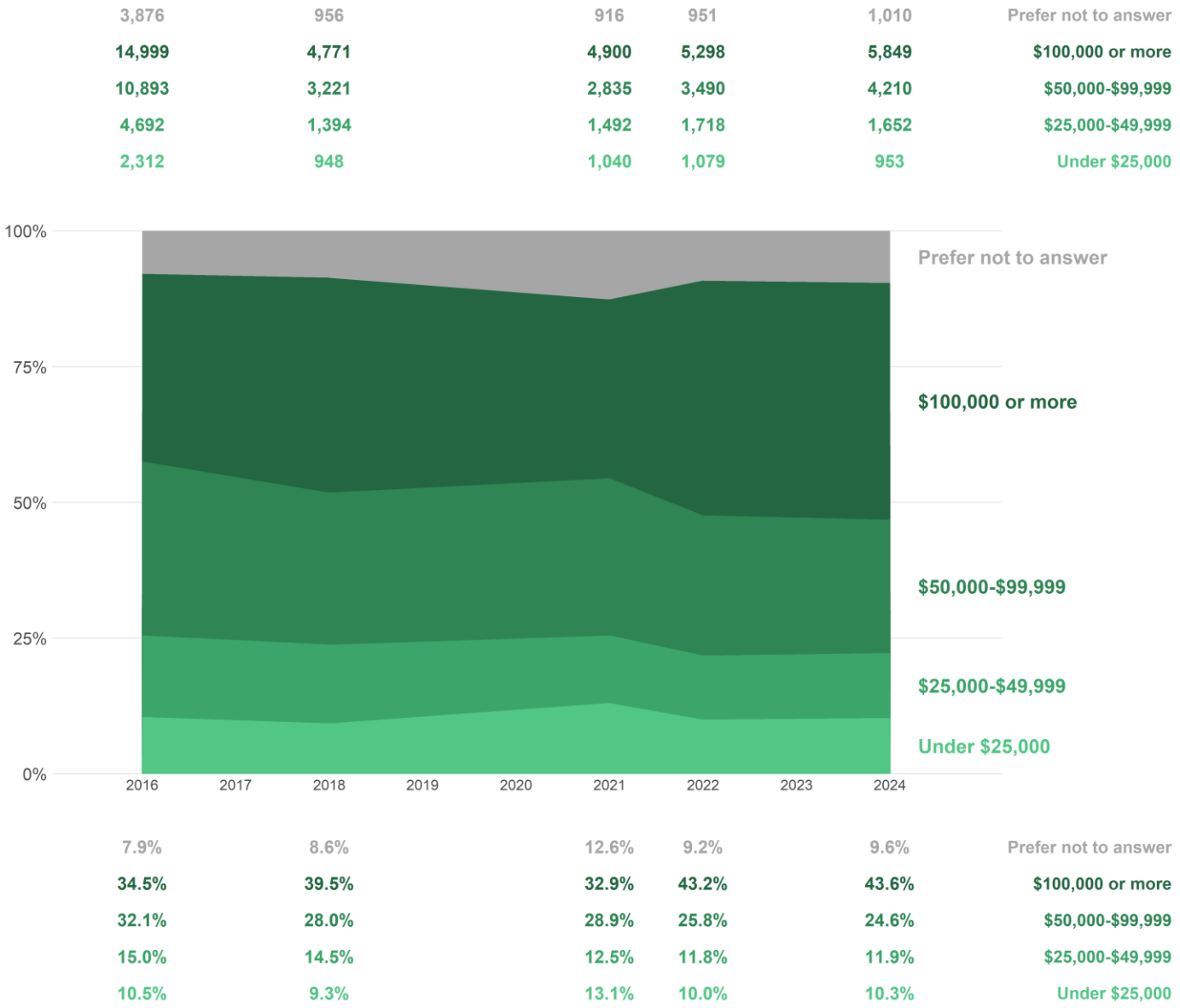
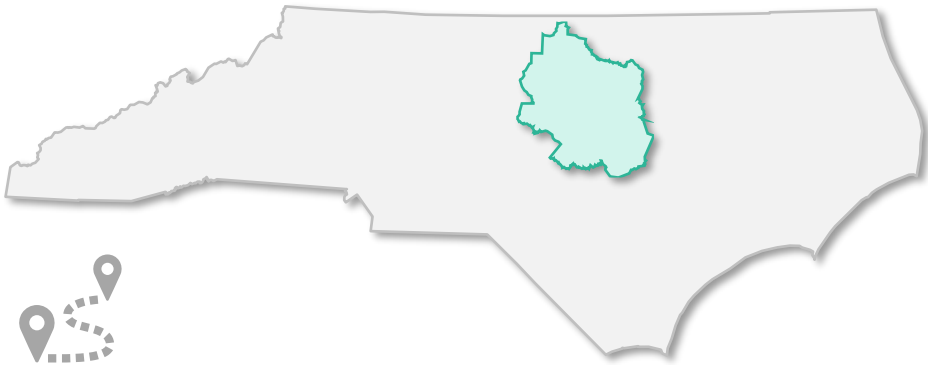


Trips By Income	36,772	11,290	11,183	12,536	13,674	TOTAL
	3,876	956	916	951	1,010	Prefer not to answer
	14,999	4,771	4,900	5,298	5,849	\$100,000 or more
	10,893	3,221	2,835	3,490	4,210	\$50,000-\$99,999
	4,692	1,394	1,492	1,718	1,652	\$25,000-\$49,999
	2,312	948	1,040	1,079	953	Under \$25,000
Households By Income	4,162	1,498	1,119	1,402	1,375	TOTAL
	469	149	133	155	142	Prefer not to answer
	1,361	478	366	493	491	\$100,000 or more
	1,275	445	316	400	438	\$50,000-\$99,999
	673	239	190	197	192	\$25,000-\$49,999
	384	187	114	157	112	Under \$25,000



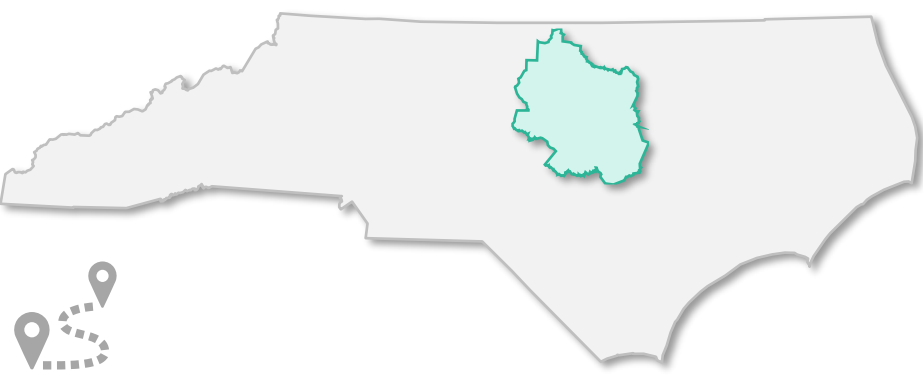
Percentage of Daily Trips by Household Income

Universe: trips
Categorized By: household income bracket
Category Type: ordinal
Geography: full model region



Average Daily Trips per Household by Household Size

Universe: trips, households
Categorized By: persons per household
Category Type: ordinal
Geography: full model region



Trips By Household Size	36,772	11,290	11,183	12,536	13,674	TOTAL
	10,204	2,789	2,533	1,944	2,121	4+ People
	6,185	1,799	1,322	1,482	1,515	3 People
	14,626	4,548	4,534	5,698	5,887	2 People
	5,757	2,154	2,794	3,412	4,151	1 Person
Households By Household Size	4,162	1,498	1,119	1,402	1,375	TOTAL
	609	181	137	156	148	4+ People
	571	182	118	167	155	3 People
	1,799	636	467	576	528	2 People
	1,183	499	397	503	544	1 Person



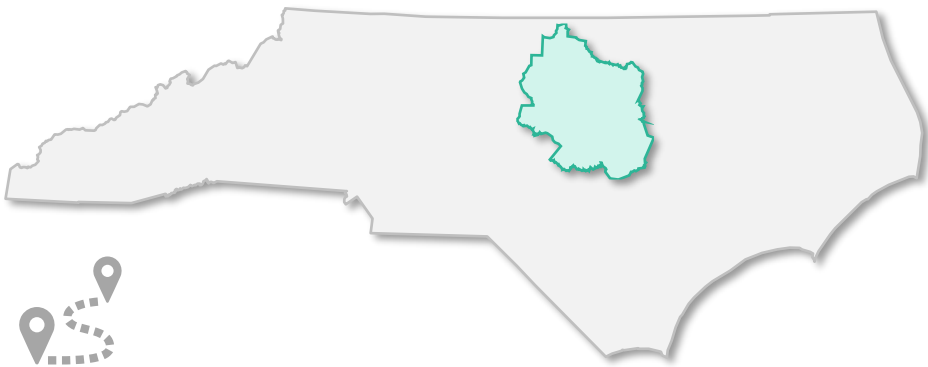
Percentage of Daily Trips by Household Size

Universe: trips

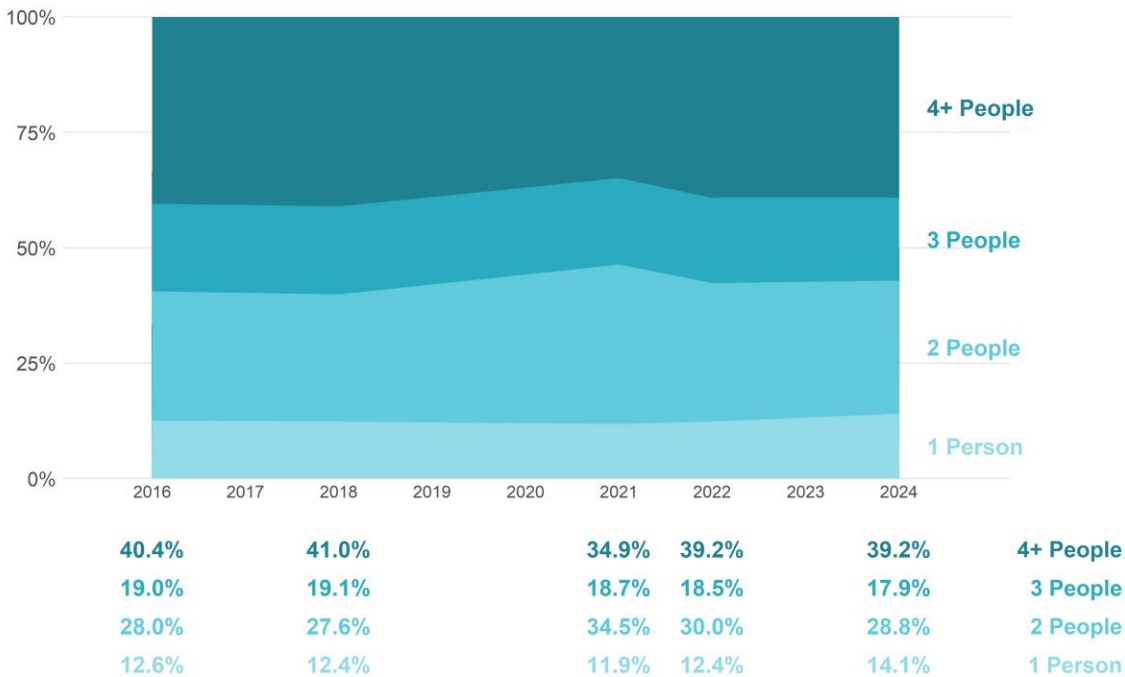
Categorized By: persons per household

Category Type: ordinal

Geography: full model region

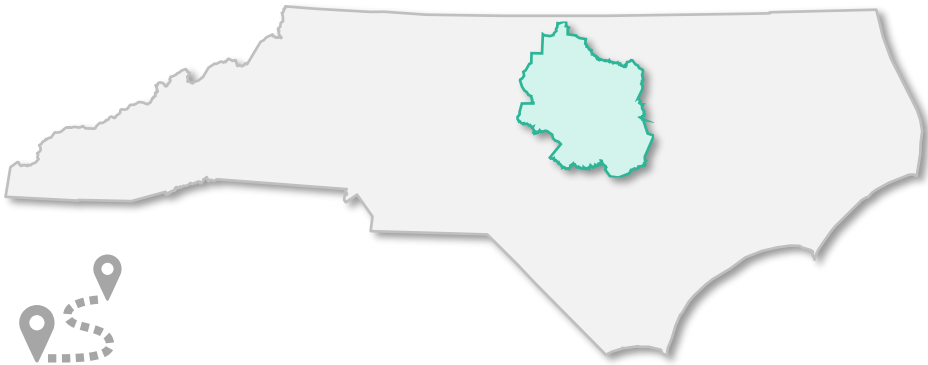


Trips By Household Size	36,772	11,290	11,183	12,536	13,674	TOTAL
	10,204	2,789	2,533	1,944	2,121	4+ People
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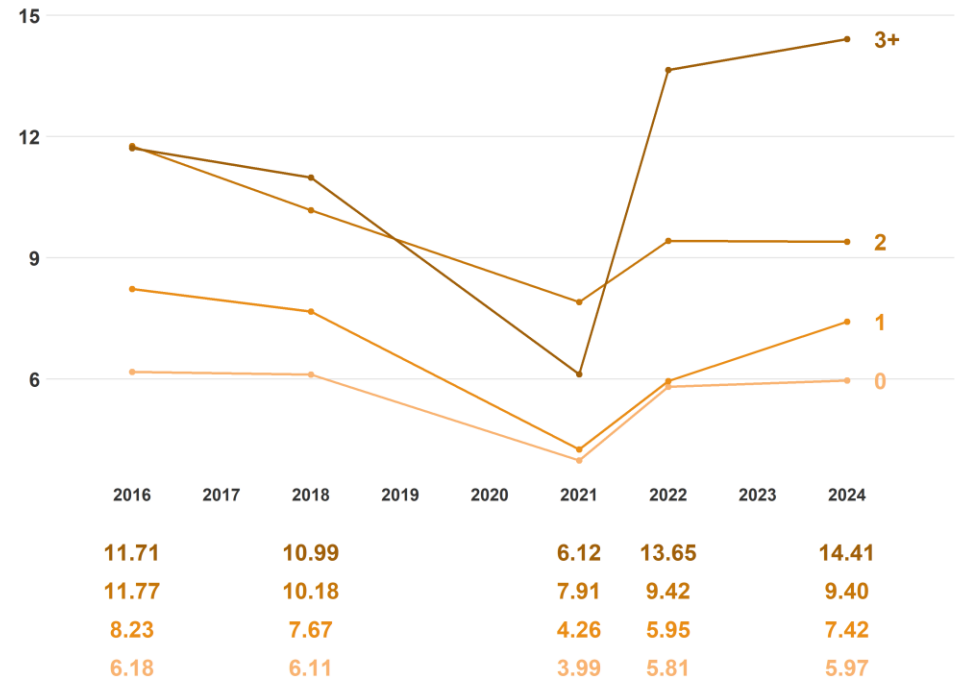


Average Daily Trips per Household by Workers per Household

Universe: trips, households
Categorized By: workers per household
Category Type: ordinal
Geography: full model region



Trips By Number Of Workers	36,772	11,290	11,183	12,536	13,674	TOTAL
	1,196	376	294	503	565	3+
	15,265	4,354	4,727	5,113	4,813	2
	12,993	4,114	4,321	4,627	5,345	1
	7,318	2,446	1,841	2,293	2,951	0
Households By Number Of Workers	4,162	1,498	1,119	1,402	1,375	TOTAL
	107	36	36	48	42	3+
	1,389	456	355	461	387	2
	1,575	587	489	565	593	1
	1,091	419	239	328	353	0



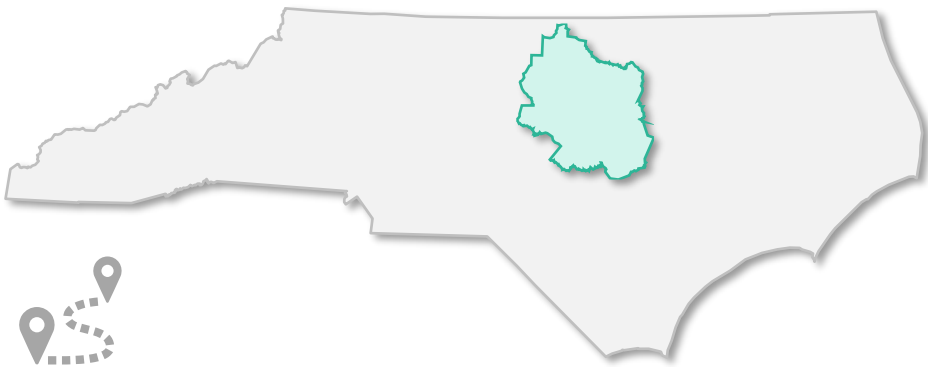
Percentage of Daily Trips by Workers per Household

Universe: trips

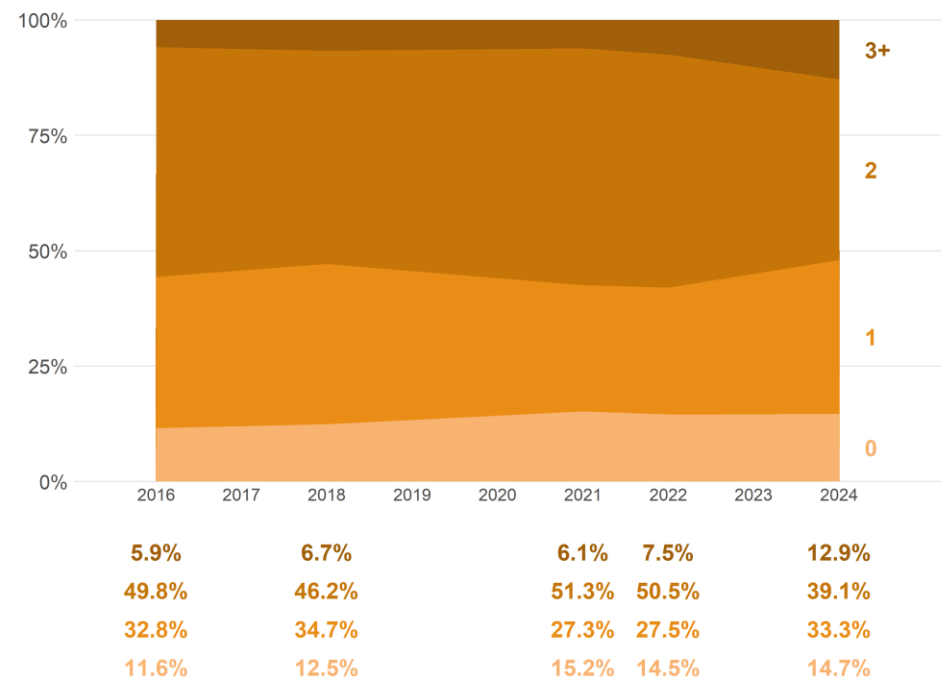
Categorized By: workers per household

Category Type: ordinal

Geography: full model region

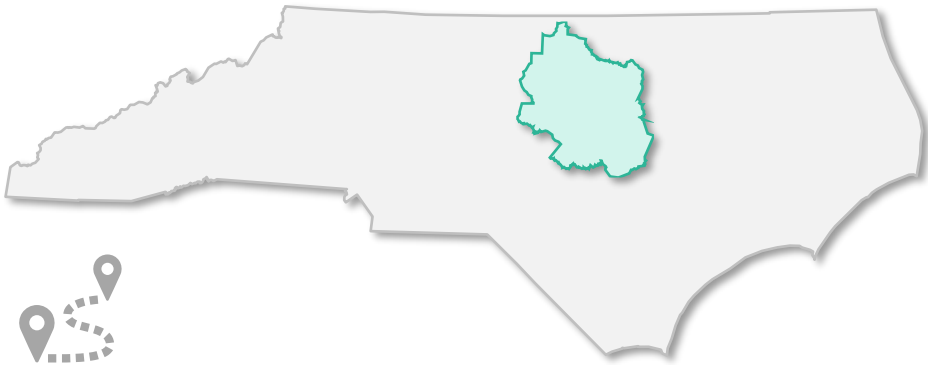


Trips By Number Of Workers	36,772	11,290	11,183	12,536	13,674	TOTAL
	1,196	376	294	503	565	3+
	15,265	4,354	4,727	5,113	4,813	2
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	107	36	36	48	42	3+
	1,389	456	355	461	387	2
	1,575	587	489	565	593	1
	1,091	419	239	328	353	0



Average Daily Trips per Household by Vehicles per Household

Universe: trips, households
Categorized By: vehicles per household
Category Type: ordinal
Geography: full model region

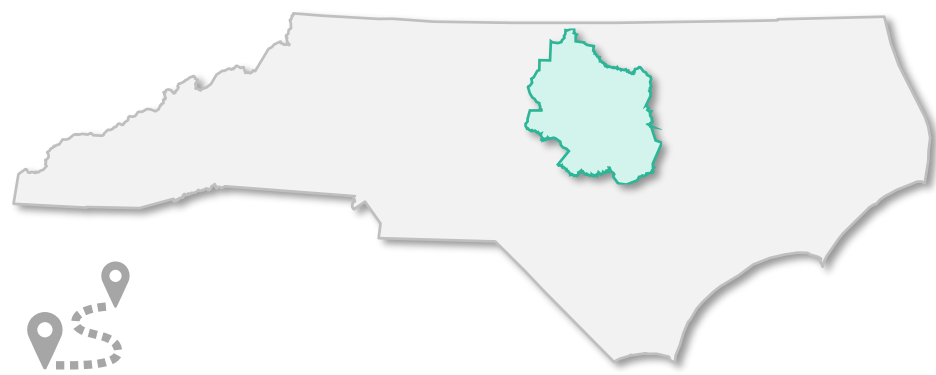


Trips By Auto Ownership	36,772	11,290	11,183	12,536	13,674	TOTAL
	7,502	2,104	1,669	1,602	1,636	3+ Vehicles
	19,994	5,535	5,561	5,579	6,377	2 Vehicles
	8,805	3,181	3,672	4,785	5,190	1 Vehicle
	471	470	281	570	471	0 Vehicle
Households By Auto Ownership	4,162	1,498	1,119	1,402	1,375	TOTAL
	716	229	146	177	153	3+ Vehicles
	1,937	606	482	540	535	2 Vehicles
	1,396	554	448	589	599	1 Vehicle
	113	109	43	96	88	0 Vehicle

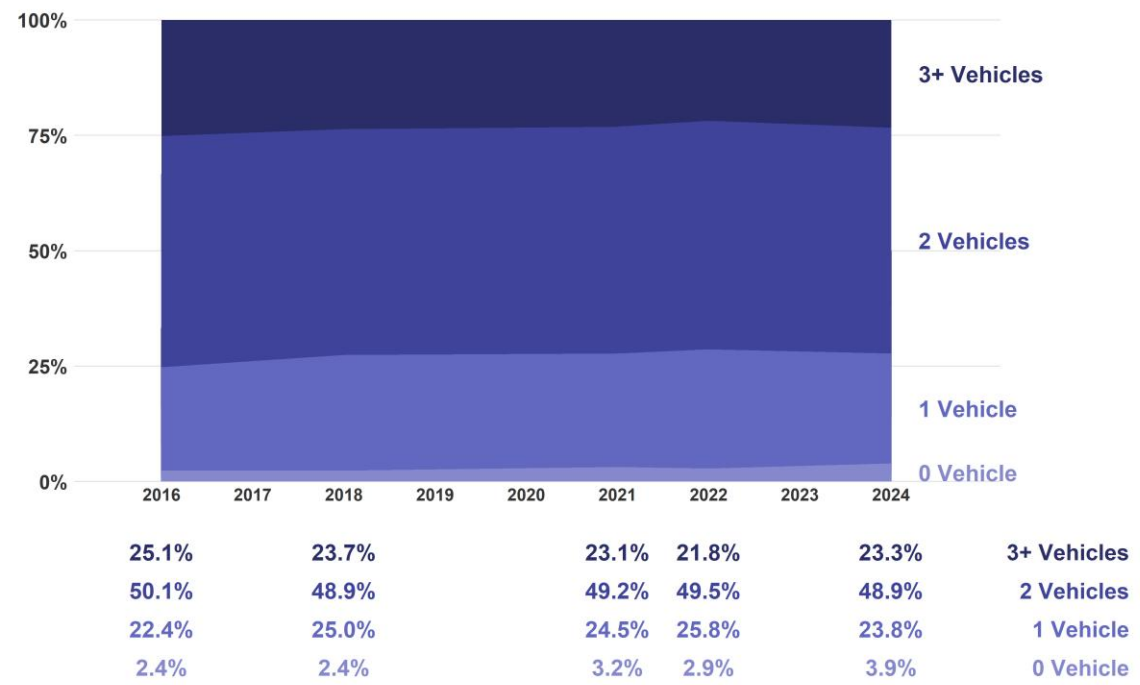


Percentage of Daily Trips by Vehicles per Household

Universe: trips
Categorized By: vehicles per household
Category Type: ordinal
Geography: full model region



Trips By Auto Ownership	36,772	11,290	11,183	12,536	13,674	TOTAL
	7,502	2,104	1,669	1,602	1,636	3+ Vehicles
	19,994	5,535	5,561	5,579	6,377	2 Vehicles
	8,805	3,181	3,672	4,785	5,190	1 Vehicle
	471	470	281	570	471	0 Vehicle
Households By Auto Ownership	4,162	1,498	1,119	1,402	1,375	TOTAL
	716	229	146	177	153	3+ Vehicles
	1,937	606	482	540	535	2 Vehicles
	1,396	554	448	589	599	1 Vehicle
	113	109	43	96	88	0 Vehicle



PERSON TRAVEL



Average Daily Auto Trips per Person



Universes: auto trips ($\subset$ trips), persons

Geography: full model region

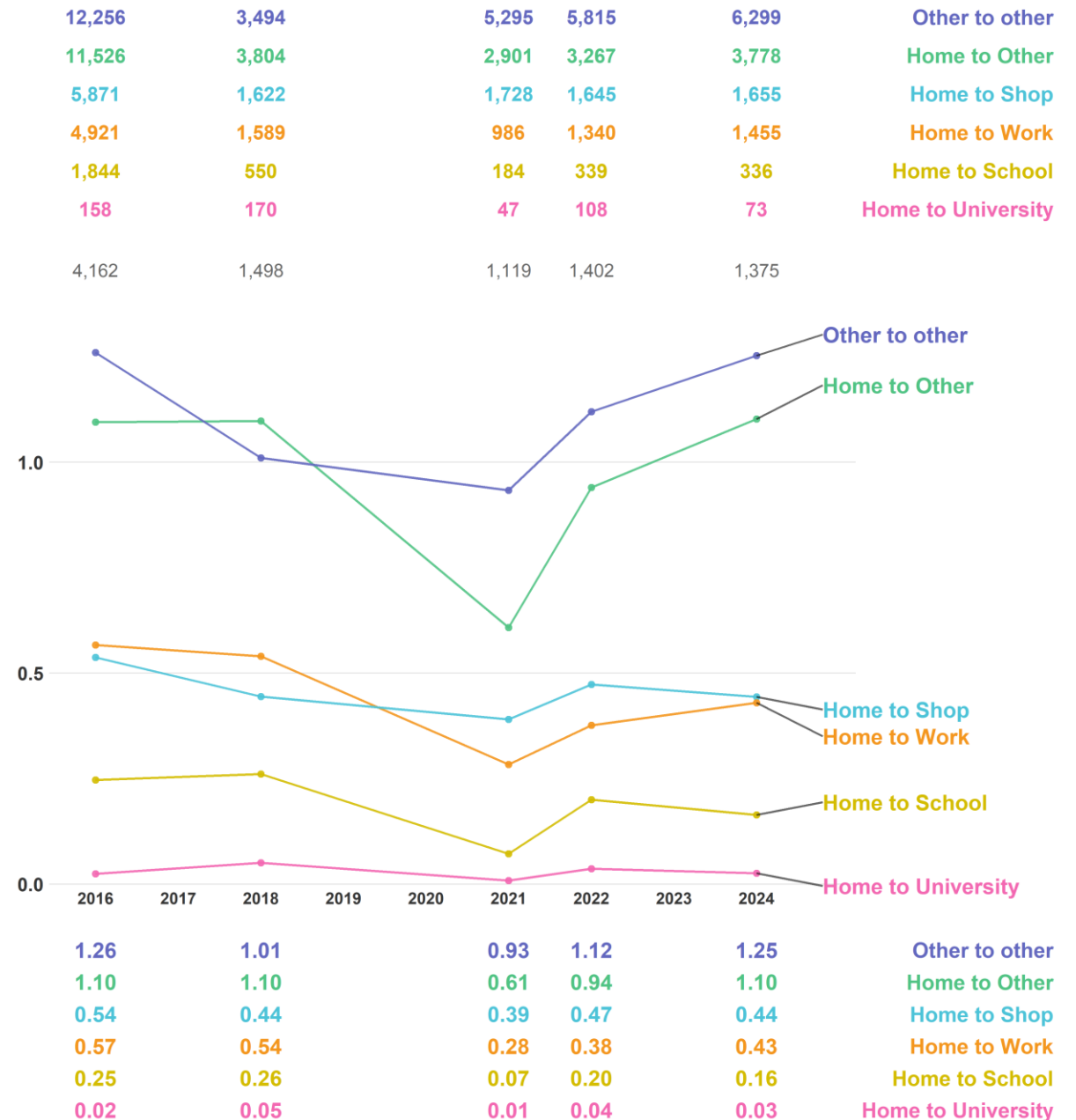
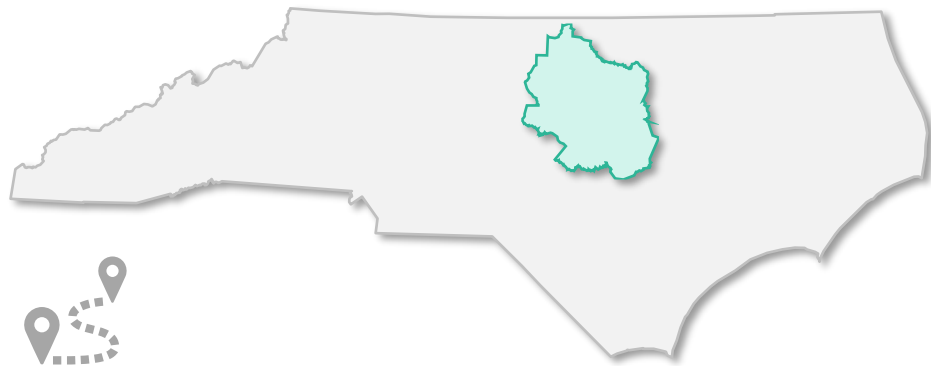
Average Daily Trips per Person by Trip Purpose

Universe: trips, persons

Categorized By: trip purpose

Category Type: nominal

Geography: full model region



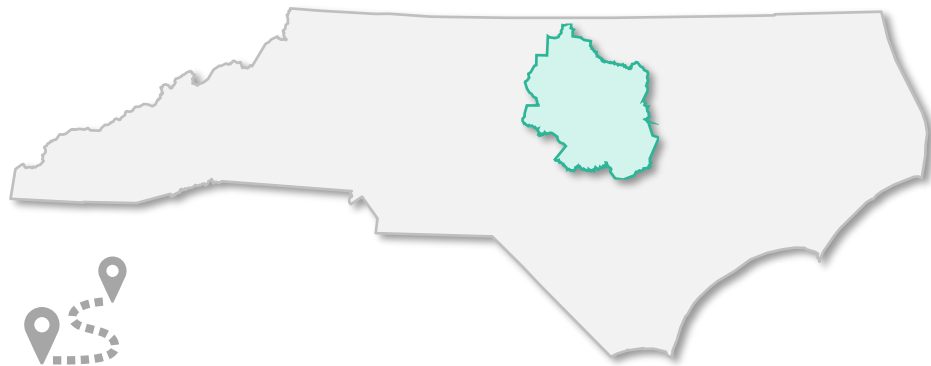
Average Daily Trips per Person by **Age Bracket**

Universe: trips, persons

Categorized By: age bracket

Category Type: ordinal

Geography: full model region



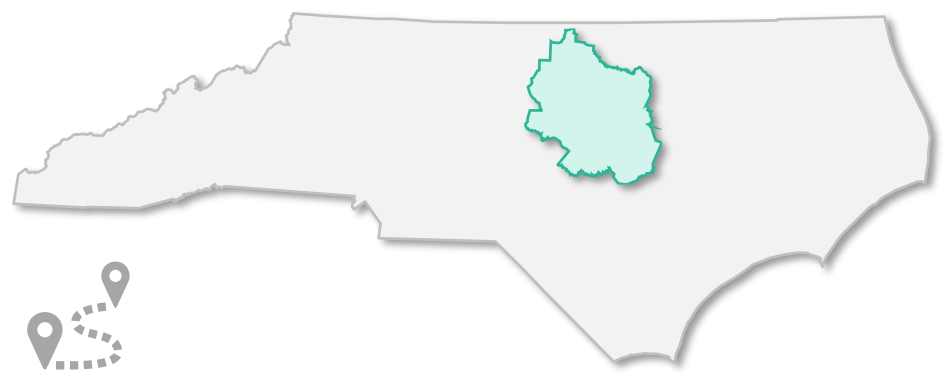
Trips By Age Group	36,772	11,290	11,183	12,536	13,674	TOTAL
	7,168	2,229	1,359	1,892	2,455	65+
	17,724	4,959	5,027	5,335	5,876	35-64
	6,108	2,485	3,699	4,333	4,307	18-34
	5,772	1,617	1,098	976	1,036	Under 18
Persons By Age Group	9,026	3,028	2,094	2,706	2,612	TOTAL
	1,690	590	330	445	475	65+
	3,997	1,213	884	1,169	1,082	35-64
	1,546	690	512	675	625	18-34
	1,793	535	368	417	430	Under 18



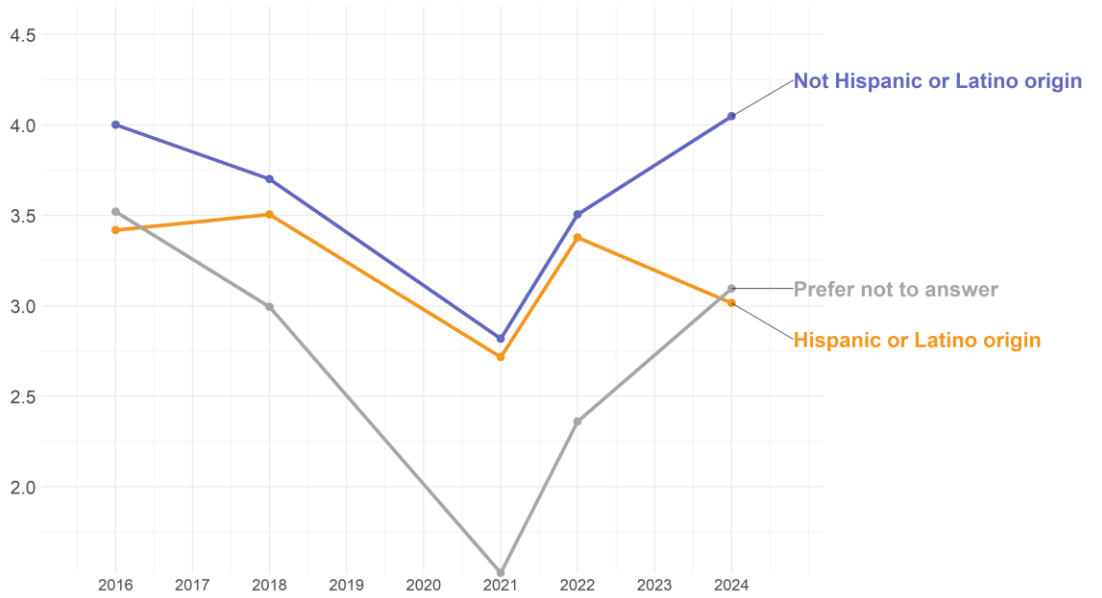
3.79	3.20	2.28	3.37	3.62	65+
4.19	3.89	2.66	3.46	3.87	35-64
3.60	3.30	2.71	3.26	3.79	18-34
3.07	2.85	1.30	2.35	2.21	Under 18

Average Daily Trips per Person by Ethnicity

Universe: trips, persons
Categorized By: ethnicity
Category Type: binary
Geography: full model region



Trips By Ethnicity	31,435	9,673	10,085	11,560	12,580	TOTAL
	2,635	852	611	397	729	Prefer not to answer
	27,852	8,567	8,944	10,493	10,911	Not Hispanic or Latino origin
	948	254	530	670	940	Hispanic or Latino origin
Persons By Ethnicity	7,380	2,493	1,725	2,288	2,164	TOTAL
	686	268	162	148	198	Prefer not to answer
	6,437	2,146	1,479	2,036	1,839	Not Hispanic or Latino origin
	257	79	84	104	127	Hispanic or Latino origin



3.52	3.00	1.52	2.36	3.10	Prefer not to answer
4.00	3.70	2.82	3.51	4.05	Not Hispanic or Latino origin
3.42	3.51	2.72	3.38	3.02	Hispanic or Latino origin

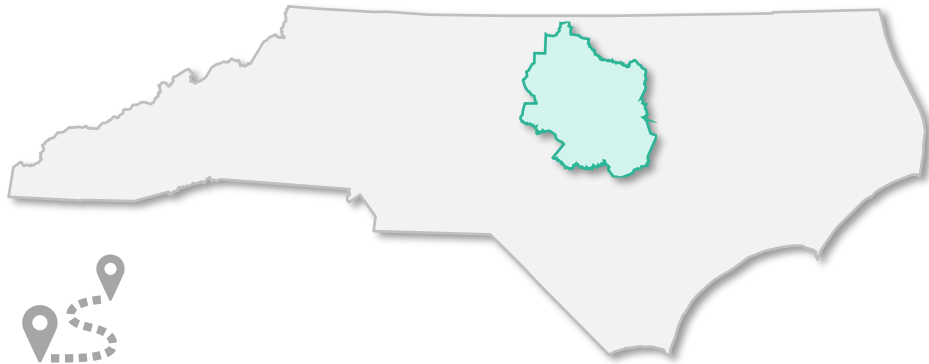
Average Daily Trips per Person by University Student Status

Universe: trips, persons

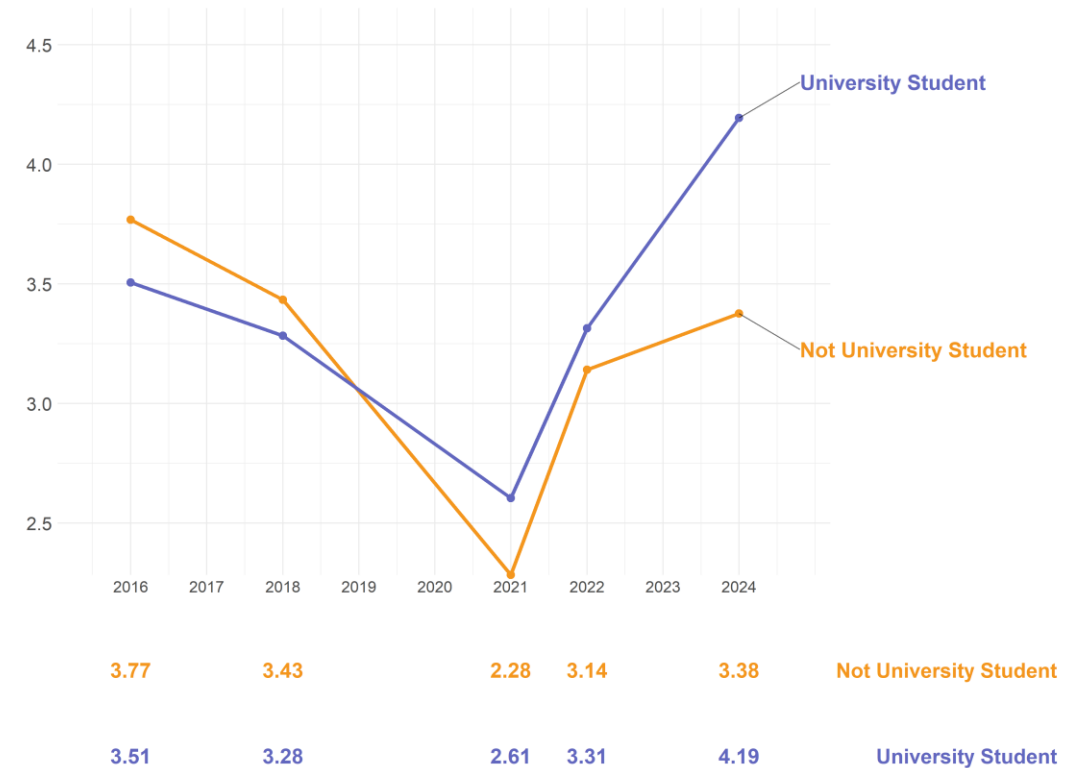
Categorized By: university student status

Category Type: binary

Geography: full model region



	36,772	11,290	11,183	12,536	13,674	TOTAL
Trips By University Status	35,119	10,422	9,830	11,024	12,445	Not University Student
	1,653	868	1,353	1,512	1,229	University Student
	9,026	3,028	2,094	2,706	2,612	TOTAL
Persons By University Status	8,608	2,792	1,926	2,488	2,448	Not University Student
	418	236	168	218	164	University Student



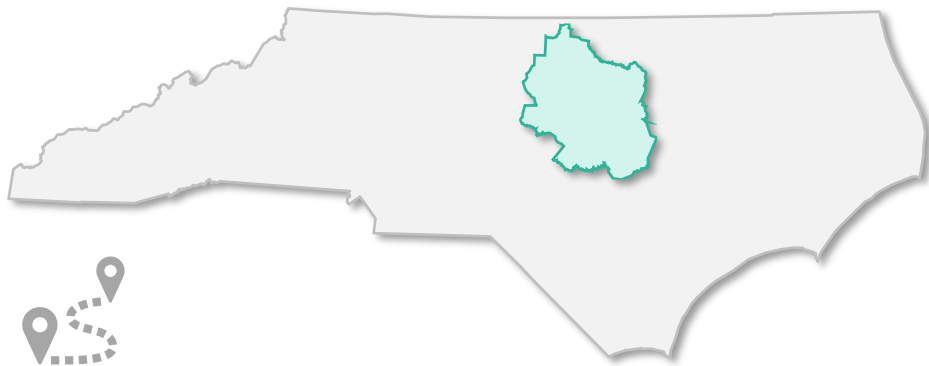
Average Daily Trips per Person by Worker Status

Universe: trips, persons

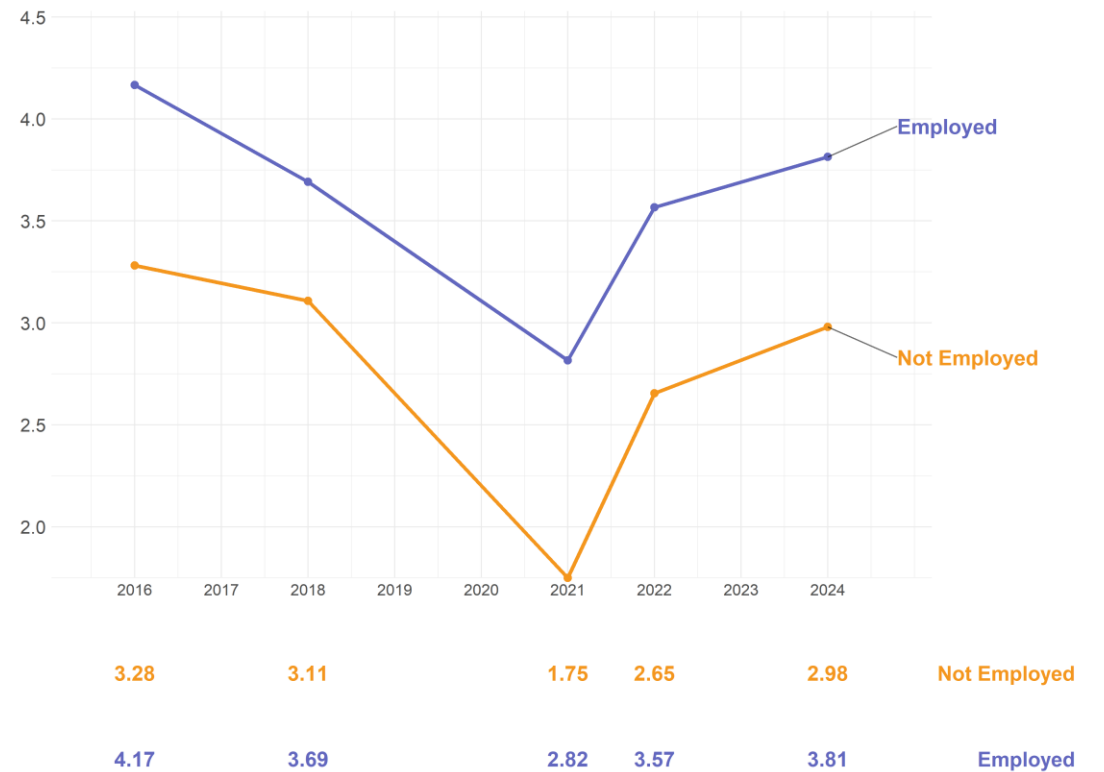
Categorized By: worker status

Category Type: binary

Geography: full model region



	36,772	11,290	11,183	12,536	13,674	TOTAL
Trips By Worker Status	16,608	5,033	3,739	3,990	4,912	Not Employed
	20,164	6,257	7,444	8,546	8,762	Employed
	9,026	3,028	2,094	2,706	2,612	TOTAL
Persons By Worker Status	4,437	1,455	880	1,108	1,162	Not Employed
	4,589	1,573	1,214	1,598	1,450	Employed





ITRE

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