GoTriangle
Planning & Legislative Committee
May 25, 2022
10:30 am-11:45 am Eastern Time

Based on NC Safer At Home executive orders in response to COVID-19, the GoTriangle Board of Trustees will meet remotely on Wednesday, May 25, 2022, at 10:30 a.m.

Click here to: Join Webex Meeting
Or dial: +1 415-655-0003
Access code: 2433 259 3227

I. **Call to Order and Adoption of Agenda**
(1 minute Vivian Jones)
ACTION REQUESTED: Adopt agenda.

II. **Draft Minutes | December 15, 2021**
(1 minute Michelle Dawson)
ACTION REQUESTED: Approve minutes.

III. **Commuter Rail Ridership Forecast**
(30 minutes Jay Heikes)
Presentation

IV. **Commuter Rail Demographics Analysis**
(30 minutes Jay Heikes)
Presentation

V. **Adjournment**
(Vivian Jones)

BOARD OF TRUSTEES
PLANNING & LEGISLATIVE COMMITTEE
MEETING MINUTES | *DRAFT*

4600 Emperor Boulevard
Suite 100
Durham, NC 27703

Wednesday, December 15, 2021 **10:30 a.m.** **Virtual | Webex**

Committee members present | Will Allen III, Brenda Howerton, Sig Hutchinson, Renée Price, Charlie Reece

Excused absences | Michael Fox

Committee Chair Will Allen III called the meeting to order at 11:02 a.m. A quorum was present.

I. Adoption of Agenda

Action: A motion was made by Howerton and seconded by Price to adopt the agenda. Upon vote by roll call, the motion was carried unanimously.

II. Approval of Minutes

Action: A motion was made by Hutchinson and seconded by Howerton to approve the minutes of November 17, 2021. Upon vote by roll call, the motion was carried unanimously.

III. Greater Triangle Commuter Rail Economic Impact Briefing Book

Jay Heikes introduced Kyle Vangel. Heikes stated that a key element of the second phase of the Greater Triangle Commuter Rail feasibility study is to assess the cost and benefits of the project to help support and inform decision-making. This study by HR&A Advisors looks at the dynamic and interconnected effects of a potential investment to help understand the impacts that can be linked directly to a commuter rail investment. The study also provides context on how a rail system could support our region's continued expected growth, business environment and quality of life. The presentation is attached and hereby made a part of these minutes.

Keiley Gaston of HR&A added that this study examined three regional impacts: quality of life, employment connectivity and smart development. She said the study consisted of:

- ***Real estate market analysis and projections*** to identify how the commuter rail is likely to influence development dynamics in the Triangle region and specifically rail corridor submarkets over the next 30 years.
- ***Economic impact analysis*** to identify the broad range and potential scale of economic impacts likely to be catalyzed by the commuter rail and objectively measure those effects over the next 30 years.

Kyle Vangel provided background on HR&A Advisors, an economic development, public policy and real estate consulting firm, and its past projects. He also shared history of the Greater Triangle Commuter Rail project and current assumptions about operations. HR&A used the REMI Policy Insight Model to simulate the increase in economic activity catalyzed by the Commuter Rail in "build" and "no build" future scenarios. HR&A also engaged the Triangle Chamber of the

Urban Land Institute and other organizations with local expertise on the real estate and the labor market dynamics in the Triangle as a part of this study.

Vangel shared statistics about the Triangle's population growth and frequent top ranking on lists as one of the best places in the country to live, work and retire. Additionally the Triangle is seeing growth in global business expansion. From 2010-2020 the Triangle has seen growth in the following areas:

- +23.8% population [an average of 95 people per day]
- +22.8% job [an average of 50 new jobs per day]
- +36.6% multifamily units
- +15.6 industrial square footage

This growth is expected to continue with population reaching 2.82 million by 2050 and total jobs, 1.79 million. He shared the impact this growth is forecasted to have on vehicle congestion and said the expected 10,000 daily commuter rail riders could save cumulatively over one million hours annually, valued at $12.9 million annually. The value of time savings results in an additional $210 million person income cumulative from 2031-2050.

Vangel highlighted statistics from East Durham, a historically and culturally significant community with a legacy of mass displacement from transportation projects. He said nearly one third of the residents of East Durham travel over 30 minutes to get to work and many are dependent on public transportation. Likewise, the Hammond Road area in Raleigh also lacks diversity of transit options currently. Commuter rail would contribute to the expansion of employment opportunities for these residents.

Other study highlights:

- With the number of available jobs exceeding the number of candidates, commuter rail will increase connectivity to the region's employment hubs and employers' access to talent. The improvement in labor force access results in productively gains in the region [an additional $430 million personal income, cumulative 2031-2050].
- Workers who cannot or choose not to own a personal vehicle likely will experience benefits from commuter rail not recognized by this study.
- Commuter rail is viewed as a way to help close disproportionate gaps in upward mobility and also provide mobility options for students to work skilled part-time jobs while in school or for workers to obtain advanced degrees, additional skills training or certifications.
- Commuter rail could expand the geography from which employers could recruit, particularly for lower-income jobs. Community colleges throughout the region could place students in skilled internship and career opportunities in the Johnston County manufacturing and industrial job cluster.
- Significant real estate growth is anticipated over the next 30 years, regardless of commuter rail, with over 165,000 new multifamily units [+89%], over 78,000 increase in office square footage [+76%], an increase of over 89 million square feet in industrial [+101%], more than 16 million additional retail square footage [+19%] and over 23,000

new hotel rooms [+77%]. Transit can serve as a magnet for vibrant, transit-oriented development, curbing sprawling development patterns.
- Denser employment hubs lead to an increase in labor force productivity.
- Proactive policies are needed to address the negative externalities of new growth.
- Commuter rail construction will create increased personal income [$1.3 billion, cumulative 2022-2030] and gross regional product [$1.9 billion, cumulative 2022-2030].
- Commuter rail operation will add to personal income of Triangle area employees – an additional $567 per employee in 2040 and $2,071 per employee in 2050 – as well as increased gross regional product of over $5 billion cumulative by 2050.

Hutchinson asked for talking points from the presentation and also how this information will be shared with the community. Eggleston responded that staff will be prepared talking points to be added to the website and to presentation materials.

Price stated the information sounds good in the aggregate but asked about the benefits to specific communities and the range of benefits for individuals. Vangel responded that the data is broken down by economic sectors [service, office, industrial] and can be provided at that level of detail.

Reece said he would like to see what strategies exist within the project to reduce the disparities within the region's communities rather than increase them. He noted significant risks around gentrification and displacement from projects like this. Eggleston responded that staff would put together additional information for the February work session. Reece added that the work has to be done in individual jurisdictions to put in place processes and land use principles that make it possible and attractive to build the kind of things we want in the places where we want it.

IV. Legislative Agenda

President and CEO Charles Lattuca stated presented ideas for consideration for a legislative agenda. His presentation is attached and hereby made a part of these minutes. He noted his goals for the agenda:
- Achieve long term financial stability for GoTriangle
- Enhance and create new revenue streams for large projects
- Create a more flexible service area to meet new regional employment needs and growth [Rocky Mount, Chatham County, Greensboro]

Possible financial initiatives:
- Increase the registration fee, index it to inflation
- Increase the rental vehicle tax, adjust to inflation
- Create enhanced and new funding streams tied to the region's residential and commercial growth

Additional revenue sources from GoTriangle's enabling legislation [Regional Public Transportation Authority Act of 1989]:
- Annual vehicle registration fees;
- Ad valorem taxes;

- Local land transfer taxes;
- Driver's license fees;
- Sales taxes on automobile parts and accessories;
- Motor fuels taxes.

Recommendations:

- Seek statutory change to allow GoTriangle to enter into agreements with municipalities or not-for-profit entities beyond 10 miles outside the territorial jurisdiction of the Authority for the purpose of providing workforce transportation.
- Allow adjacent counties to join the Authority.

Lattuca stated that he would bring more details back to the Committee at the next meeting.

V. Adjournment

Action: Chair Allen adjourned the meeting at 11:58 a.m.

Prepared by:

_____

Michelle C. Dawson, CMC
Clerk to the Board of Trustees

DRAFT

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Planning & Legislative Committee

FROM: Planning and Capital Development

DATE: May 12, 2022

SUBJECT: **Ridership Forecasts from Phase 2 of the Greater Triangle Commuter Rail (GTCR) Feasibility Study**

Strategic Objective or Initiative Supported

1.2 Pursue service improvements and expansion opportunities

Action Requested

None

Key Findings

Ridership forecasts for year 2040 are summarized in the table below. Additional information may be found in this memo describing the service patterns that were forecasted and in the draft presentation. A full technical memo documenting the Phase 2 ridership forecasting effort will be available as a part of the final Phase 2 feasibility study report.

Key findings are as follows:

- The forecast number of trips for the "base case" 8-2-8-2 service pattern is around 12,000 in 2040.
- Inclusion of 3-1-3 service to Clayton does not result in additional forecasted trips relative to the base case that terminates at Auburn. This is a reflection of the relatively large percentage of forecast trips from Johnston County access the system via park-and-ride.
- The forecast number of trips for a 30/60 (half-hourly peak / hourly off-peak) service pattern is about 17% higher than the "base case" 8-2-8-2 service pattern.
- The "base case" 8-2-8-2 peak-oriented service pattern forecasts roughly the same number of trips as does a scenario that includes all day hourly service.
- Ridership is sensitive to fare policy. Scenarios with higher average fares produced relatively fewer forecast trips. Notably, a flat $1 premium fare ($3.50 total per one way rail trip) produced 17% fewer trips relative to the $2.50 fare, which is the base assumption.
- The zero fare scenario produced 50% more forecast trips relative to the base case.

Ridership forecasts are subject to change should the project move forward. These forecasts are sensitive to the particular set of inputs and assumptions documented in the presentation and technical report. Should the project move forward, additional refinements to assumptions, and model inputs, such as a new regional transit rider origin-destination survey, additional changes to the bus network to better connect to the rail system or a different timetable or service assumption, would result in changes to this forecast, in addition to improving its precision.

Table 1: 2040 Commuter Rail Forecasted Trips (STOPS)

Alternative> Fare Assumption	Durham-Auburn 8282 w/ 313 service to Clayton	Durham-Auburn 8282	Durham-Auburn 30/60	Durham-Auburn 60/60
A: All Zero Fare Transit		18,028		
A2: Local Transit Zero Fare, Rail: $2.50		11,353		
B: Zone Commuter Rail: $2.50-4.50 (fare varies based on distance traveled)		11,517		
C: Rail Fare Same as Regional Bus: $2.50	11,818	12,033	14,107	12,246
D: Premium Rail Fare: $3.50		9,976		

Background and Purpose

The ridership modeling consultant will deliver a presentation on the updated Phase 2 ridership modeling forecasts for multiple service scenarios and fare assumptions. The presentation will additionally describe the steps taken to update the model, refinements to inputs such as the future year background transit network, socio-economic data, and highway travel times from the 2050 Metropolitan Transportation Plan and updates to the county transit plans.

This effort builds on and refines the ridership forecasts completed in the Phase 1 Feasibility Study. That effort revealed that a project with 20 daily round trips from West Durham to Auburn or a project from West Durham to Clayton would likely be eligible for the Federal Transit Administration's (FTA) Capital Investment Grant program, which could contribute up to 50% of the project's cost. The Phase 1 ridership effort identified the need for additional refinements that have been incorporated into the Phase 2 ridership effort.

As part of the second phase of the Greater Triangle Commuter Rail Feasibility Study, staff and consultants are assessing the non-monetary costs and benefits of the project to help support informed decision-making regarding the project. The ridership modeling consultant has produced forecasts using the FTA's Simplified-Trips-on-Projects-Software (STOPS) for both the base year (2018) and a future year (2040), consistent with FTA requirements for the Capital Investment Grant Program. Forecasts were produced for multiple service patterns, described below. The effort also included a set of forecasts to assess the effects different fare policies had on forecast ridership. The scenarios that were tested are described in the next section.

Description of Ridership Forecast Scenarios

8-2-8-2 from West Durham to Auburn: This scenario is also referred to as the "base case" for the project, as included in the currently adopted County Transit Plans for Durham and Wake counties. 8-2-8-2 service refers to eight round trips in morning, with service every 30 minutes for a four hour period; two round trips, spaced roughly two hours apart in the midday period; eight round trips in the afternoon, with service every 30 minutes for a four hour period; and then two evening trips spaced roughly 2 two hours apart in the evening period. This level of service is comparable to the August 2019 schedule for the Durham – Raleigh Express route in terms of hours of operation and number of trips.

8-2-8-2 service from West Durham to Auburn, with 3-1-3 service continuing to Clayton: 3-1-3 services refers to three round trips in the morning, with service every hour; 1 round trip at midday; and three round trips in the evening, with service every hour. This scenario was developed in coordination with Johnston County to better understand the ridership and cost of a limited, more affordable infrastructure investment east of Auburn as a part of the initial phase of implementation of a commuter rail system.

30/60 service from West Durham to Auburn: This scenario includes 30 minute service during peak periods in the morning and afternoon and hourly service during early morning, midday, and evening periods. This scenario was developed in response to substantial feedback from project and municipal partners and public engagement to provide a more all day service pattern as a part of the initial operating service. As of the date of this memo, this service scenario has not yet been tested by Norfolk Southern Railroad (NSR) in rail network capacity modeling. Staff and NCRR staff are actively coordinating with NSR to undertake this work.

60/60 service from West Durham to Auburn: This scenario includes 60 minute service all day. This scenario was produced to determine if a lower level of service could initially be provided with a lower infrastructure investment. As of the date of this memo, this service scenario has not yet been tested by NSR in rail network capacity modeling. Staff and NCRR staff are actively coordinating with NSR to undertake this work.

Fare Assumptions

Differing fare assumptions were tested for the "base case" 8-2-8-2 service from West Durham to Auburn to understand the impact of different fare policies on ridership forecasts. The fare assumptions are detailed in the table below. Prior to the suspension of fares, the governing bodies of GoTriangle, GoCary, GoRaleigh, and GoDurham adopted a unified regional fare structure, that sets the cost of an unlimited day pass to $2.50/$5.00 for local / regional + local service. A day pass may be used across all systems. A GoDurham only day pass is assumed to remain $2.00. This structure is assumed for bus services in fare scenarios B-D, and assumes that rail is included in the unifed regional fare structure. In FY20, the GoTriangle board eliminated the premium fare for express bus service, setting the fare all GoTriangle buses to $2.50. Under this structure, it would be possible to travel from Mebane to Garner, the current extent of GoTriangle service for $2.50.

Table 2: Fare Policy Assumptions Tested in Ridership Forecasts

Fare Recommendation (Full one-way fare shown. Similar relative pricing for all fare types.	Bus Services			Commuter Rail
	GoTriangle	GoRaleigh and Go Cary	GoDurham	
A: All Free Transit	$0.00	$0.00	$0.00	$0.00
A2: Free for Local Bus/Regional Fare for Regional Bus and Rail	$2.50	$0.00	$0.00	$2.50
B: Zone Based Rail Fare	$2.50	$1.25	$1.00	$2.50 (1-2 Fare Zones) $3.50 (3 Fare Zones) $4.50 (4 Fare Zones)
C: Rail Same as Regional Bus	$2.50	$1.25	$1.00	$2.50
D: Premium Fare for Rail	$2.50	$1.25	$1.00	$3.50

Note: All fares assumed to be in Year 2022 dollars

For Fare Recommendation "B," stations are assigned to fare zones as follows:

- Fare Zone 1: West Durham, Downtown Durham, and East Durham
- Fare Zone 2: Ellis Road, Research Triangle Park, and Morrisville
- Fare Zone 3: Cary, Corporate Center Drive, Blue Ridge Road, Raleigh, and Hammond
- Fare Zone 4: Garner, Auburn, and Clayton

Financial Impact

None

Attachments

- Draft Presentation (Pending)

Staff Contacts

- Jay Heikes, Senior Transportation Planner, 919-314-8741, jheikes@gotriangle.rog
- Katharine Eggleston, CDO, 919-485-7564, keggleston@gotriangle.org

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Phase II
Greater Triangle Commuter Rail Study

Ridership Forecasting Summary

Overview of Presentation

- Updates to Model and Assumptions
- Commuter Rail Ridership
  - Service plan alternatives
  - Fare alternatives

Updates to Model and Assumptions

Model Update/FTA Review

- Model updated to latest version of STOPS (v2.51)
  - Improved combination of transit survey and census data
  - Improved representation of when and where PNR trips occur
- Preliminary results reviewed with FTA
  - Given limited off-peak service in the base case 8-2-8-2 service pattern, FTA requested that we assign purposes to trips so that:
    - HBW=Home-based trips traveling in peak AND returning in peak
    - HBO=Home-based trips not qualifying as “HBW”
    - NHB=Non-home based trips
- FTA has reviewed updated outputs and concurred with model and results.

Updates to assumptions since Phase I

- Population/Employment Growth:
  - Source: 2050 MTP Community Viz
  - Source: Years: 2020, 2040, 2050
- Highway Travel Times
  - Source: 2050 MTP Community Viz and Future Year Highway Network
  - Estimates generated by MPO application of Regional Travel Model
- Regional No-Build and Build Transit Networks
  - Service planning staff coding of transit plans for Wake, Durham, and Orange Counties in ReMix GTFS
  - BRT lines included in the model, assumptions consistent with GoRaleigh

Summary of Population Forecasts

County	2020	2040	Growth 2020-2040	2050	Growth 2020-2050
Chatham (part)	52,213	85,379	64%	104,395	100%
Durham	324,784	416,879	28%	463,414	43%
Franklin (part)	60,260	82,884	38%	94,853	57%
Granville (part)	37,543	56,581	51%	67,241	79%
Harnett (part)	40,146	57,014	42%	65,893	64%
Johnston (part)	186,096	305,603	64%	370,215	99%
Nash (part)	4,170	4,524	8%	4,710	13%
Orange	148,880	180,554	21%	193,637	30%
Person (part)	31,723	35,001	10%	36,738	16%
Wake	1,129,865	1,564,648	38%	1,780,155	58%
Total	2,015,680	2,789,067	38%	3,181,251	58%

Summary of Employment Forecasts

County	2020	2040	Growth since 2020	2050	Growth since 2020
Chatham (part)	12,272	19,470	59%	24,454	99%
Durham	235,002	342,963	46%	401,926	71%
Franklin (part)	15,082	19,465	29%	21,927	45%
Granville (part)	13,203	18,603	41%	22,301	69%
Harnett (part)	9,832	14,953	52%	17,847	82%
Johnston (part)	54,923	77,716	41%	90,725	65%
Nash (part)	842	1,259	50%	1,466	74%
Orange	74,721	103,428	38%	116,341	56%
Person (part)	10,361	11,337	9%	11,651	12%
Wake	614,734	967,247	57%	1,176,311	91%
Total	1,040,972	1,576,441	51%	1,884,949	81%

Highway travel time forecasts

Minutes to State Capitol area from selected origins

Location	2018*	2040	Difference
SE Raleigh	11.7	14.0	20%
New Hope Area	18.3	27.0	48%
St Fairgrounds Area	19.2	26.4	38%
Garner	19.9	28.9	45%
Apex	30.8	41.8	36%
West Durham	41.4	54.9	33%
Chapel Hill	49.6	64.5	30%
Downtown Durham	40.9	55.4	35%
RTP	29.1	38.5	32%
Western Johnston	41.5	57.4	38%
Total	28.5	37.2	31%

*TRM Model Run for 2016 checked against 2018 actual times and found to be suitable inputs for 2018

Commuter Rail Forecasts

Alternative Definitions

Label	Beginning/Ending Stations	AM Peak	Midday	PM Peak	Evening
WC-8282	West Durham/Auburn Extend to/from E. Clayton	8 trains 3 trains	2 trains 1 train	8 trains 3 trains	2 trains
WA-8282	West Durham/Auburn	8 trains	2 trains	8 trains	2 trains
WA-30/60	West Durham/Auburn	30min Headway	60min Headway	30min Headway	60min Headway
WA-60/60	West Durham/Auburn	60min Headway	60min Headway	60min Headway	60min Headway

Note: 30/60 and 60/60 services are provided to demonstrate potential for 60 minute off-peak service. They have not been tested in a rail simulation.

Fare Alternatives

One-Ride, Full Fare Shown (Similar structure for all fare types assumed)

Fare Alternative	Bus (GT)	Bus (GR/GC)	Bus (GD)	Rail
A: All Free Fare	$0.00	$0.00	$0.00	$0.00
A2: Free for Local Bus / Regional Fare for Regional Bus and Rail ("Local Free")	$2.50	$0.00	$0.00	$2.50
B: Zone Based Rail Fares	$2.50	$1.25	$1.00	$2.50 (1-2 Fare Zones) $3.50 (3 Fare Zones) $4.50 (4 Fare Zones)
C: Rail Same as Regional Bus	$2.50	$1.25	$1.00	$2.50
D: Premium Fare	$2.50	$1.25	$1.00	$3.50

Assignment of Stations to Fare Zones:

1. West Durham, Downtown Durham, East Durham
2. Ellis Rd, RTP, Morrisville
3. Cary, Corporate Center Dr, Blue Ridge Rd, Raleigh, Hammond Rd
4. Garner, Auburn, Clayton

Note on Ridership Model Outputs

The following slides contain direct ridership model outputs that have not been rounded. Overall estimates should be rounded to the nearest 1,000. Station-level estimates are included for reference only at this time.

The unrounded outputs are presented here to allow for relative comparisons between service scenarios and relative comparisons of station level activity to overall ridership.

All ridership forecasts are subject to change with additional refinements to the model itself, inputs such as socio-economic data, and assumptions such as should. These estimates are preliminary and would continue to be refined should the project move forward.

*This note was written by GoTriangle staff.

Daily Commuter Rail Ridership

	WC 8282	WA 8282	WA 30/60	WA 60/60
2018				
Phase I (Published/STOPS v2.50)	6,648*			
Phase 2 (STOPS v2.51)				
- Fare Recommendation A (All Free)		6,046		
- Fare Recommendation A2 (Local Free)		3,748		
- Fare Recommendation B (Zone)		3,762		
- Fare Recommend. C (Reg. Bus)	3,982	3,958	4,825	4,135
- Fare Recommend. D (Premium)		3,252		
2040				
Phase I (Published/STOPS v2.50)	11,785*			
Phase 2 (STOPS v2.51)				
- Fare Recommendation A (All Free)		18,028		
- Fare Recommendation A2 (Local Free)		11,353		
- Fare Recommendation B (Zone)		11,517		
- Fare Recommend. C (Reg. Bus)	11,818	12,033	14,107	12,246
- Fare Recommend. D (Premium)		9,976		

* In Phase I, all trains served Clayton

Daily 2040 Station Boardings by Alternative (Base Fare)

Station	WC 8282	WA 8282	WA 30/60	WA 60/60
West Durham	1,317	1,316	1,427	1,199
Downtown Durham	826	826	1,417	1,324
East Durham	296	297	406	372
Ellis Road	697	689	849	790
RTP	521	517	728	648
Morrisville	121	122	215	164
Downtown Cary	605	605	658	547
Corp Center Dr	213	214	251	211
Blue Ridge Road	570	540	651	514
NCSU	856	849	1,158	1,000
Raleigh	2,799	2,992	3,236	2,801
Hammond	474	466	546	475
Garner	386	365	392	318
Auburn	1,056	2,237	2,173	1,884
East Clayton	1,081	-	-	-
Total	11,818	12,035	14,107	12,247

2040 WA 8282-Base Fare Daily Commuter Rail Trips Station Group-to-Station Group Flows

Home Trip End	Non-Home Trip End								
	WDU	DDU	EDU-ELI	RTP-MOR	DCA-BRR	NCS	RAL	HAM-ECL	Total
WDU	-	28	49	17	367	150	12	-	623
DDU	35	-	49	68	125	381	170	-	828
EDU-ELI	94	51	2	28	30	361	972	14	1,552
RTP-MOR	63	195	15	7	11	203	308	10	812
DCA-BRR	764	334	33	136	37	73	226	27	1,630
NCS	16	46	-	28	9	-	10	-	109
RAL	327	110	128	51	62	5	-	28	711
HAM-ECL	715	60	146	130	445	415	3,573	284	5,768
Total	2,014	824	422	465	1,086	1,588	5,271	363	12,033

Station – Group Definitions

Station	Group	Station	Group
West Durham	WDU	Blue Ridge Road	DCA-BRR
Downtown Durham	DDU	NCSU	NCS
East Durham	EDU-ELI	Raliegh	RAL
Ellis Road	EDU-ELI	Hammond	HAM-ECL
RTP	RTP-MOR	Garner	HAM-ECL
Morrisville	RTP-MOR	Auburn	HAM-ECL
Downtown Cary	DCA-BRR	East Clayton	HAM-ECL
Corp. Center Drive	DCA-BRR		

GO Triangle

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Planning and Legislative Committee

FROM: Planning and Capital Development

DATE: May 12, 2022

SUBJECT: **Demographic Analysis for Greater Triangle Commuter Rail (GTCR) Study**

Strategic Objective or Initiative Supported

1.2 Pursue service improvements and expansion opportunities

Action Requested

None

Background and Purpose

The consultant will deliver a presentation on the demographic analysis completed for the Greater Triangle Commuter Rail study. The presentation will describe the methodology and assumptions included in the analysis and share results. This analysis was prepared for the "base case" 8-2-8-2 West Durham to Auburn Service Scenario and the 30/60 West Durham to Auburn Scenario. Please refer to the ridership forecast agenda item for additional description of these scenarios. This analysis was completed as a part of the study's effort to develop information to better understand the non-monetary costs and benefits associated with the Greater Triangle Commuter Rail project to support informed decision making. This specific analysis is in response to interest from public engagement as well as project stakeholders to better understand the demographic makeup of the communities that might benefit from an investment in rail.

Using standard outputs from the Federal Transit Administration's Simplified Trips on Project Software (STOPS) with demographic information obtained from the 5-year 2015-2019 American Community Survey, the consultant was able to produce a demographic analysis of the race and ethnicity and the household income of communities where rail trips originate. This information is stratified by household vehicle ownership, which is the only demographic factor produced by STOPS, and is the single largest factor linked to transit use.

Financial Impact

None

Attachments

- Draft Presentation (Pending)

Staff Contacts

- Jay Heikes, Senior Transportation Planner, 919-314-8741, jheikes@gotriangle.rog
- Katharine Eggleston, CDO, 919-485-7564, keggleston@gotriangle.org

Demographic Analysis of Trip Production Zones

Methodology

- The FTA STOPS model is used to develop ridership forecasts for the project
- The ridership output includes a breakdown by household vehicle ownership, the factor most closely linked to household transit use
- Commuter Rail trips were linked with Census estimates* for race/ethnicity and income, based on home location
- The result is the percent of Commuter Rail trips by race/ethnicity and income level

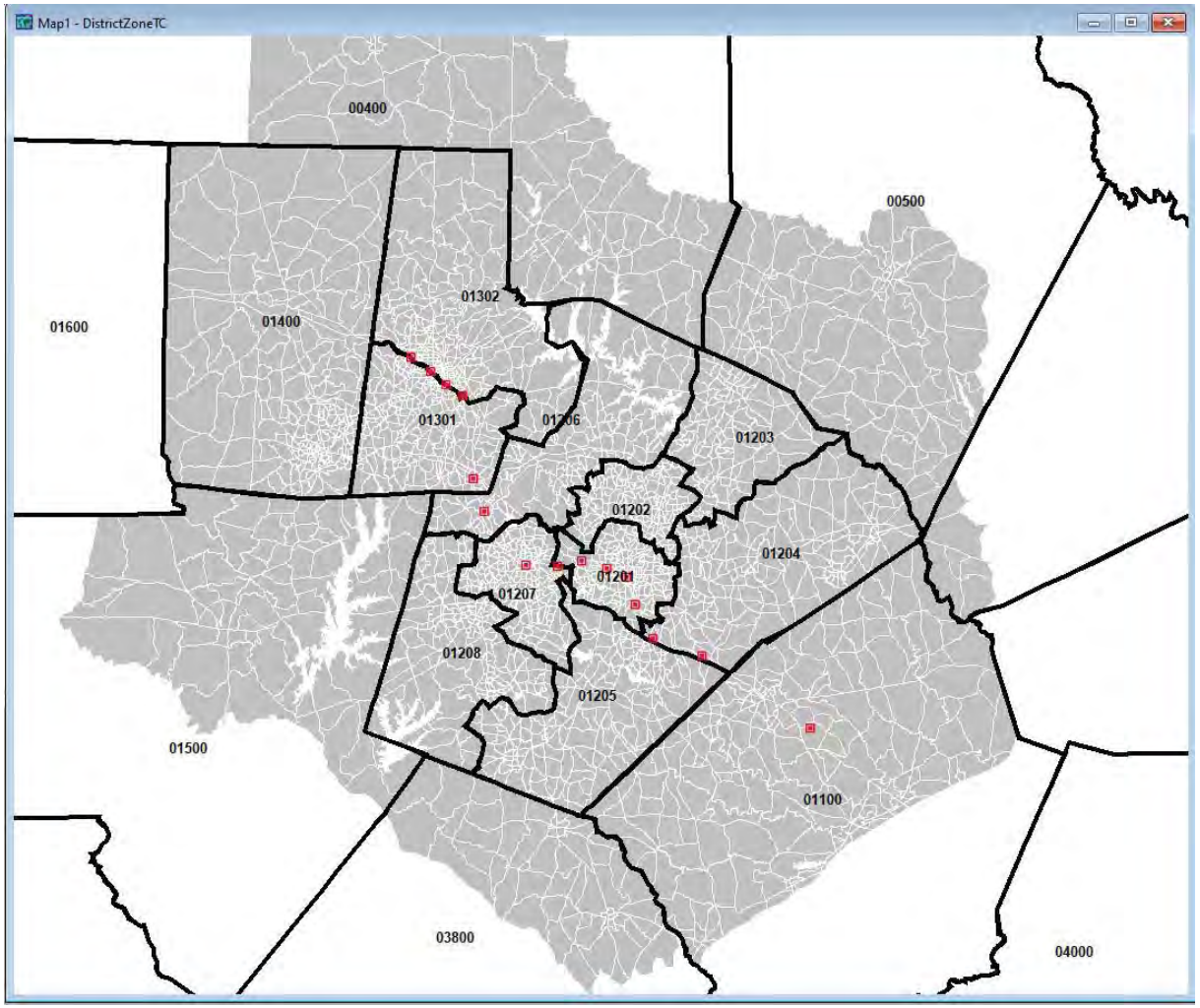
*2015 - 2019 5-year American Community Survey, Public Use Microdata Areas

Notes and Assumptions

- This analysis is not a forecast of the demographics of **future** Commuter Rail riders
- This is a description of the **current** demographics of the home locations of forecast trips on the Commuter Rail
- The data is stratified by vehicle ownership and geographic area
- Commuter Rail riders from a particular geography are assumed to have consistent demographics with that area
- The demographics of a geographic area are assumed to remain constant into the future, consistent with the 2050 MTP
- The analysis assumes that transit/rail use among demographic groups is correlated with household vehicle ownership

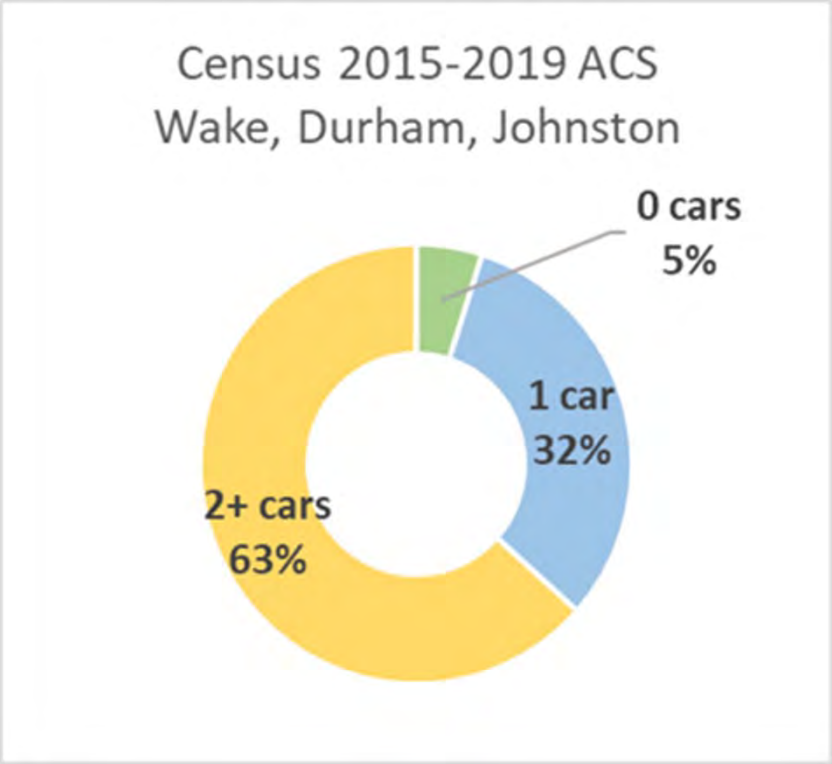
Geographic Level-of-Detail

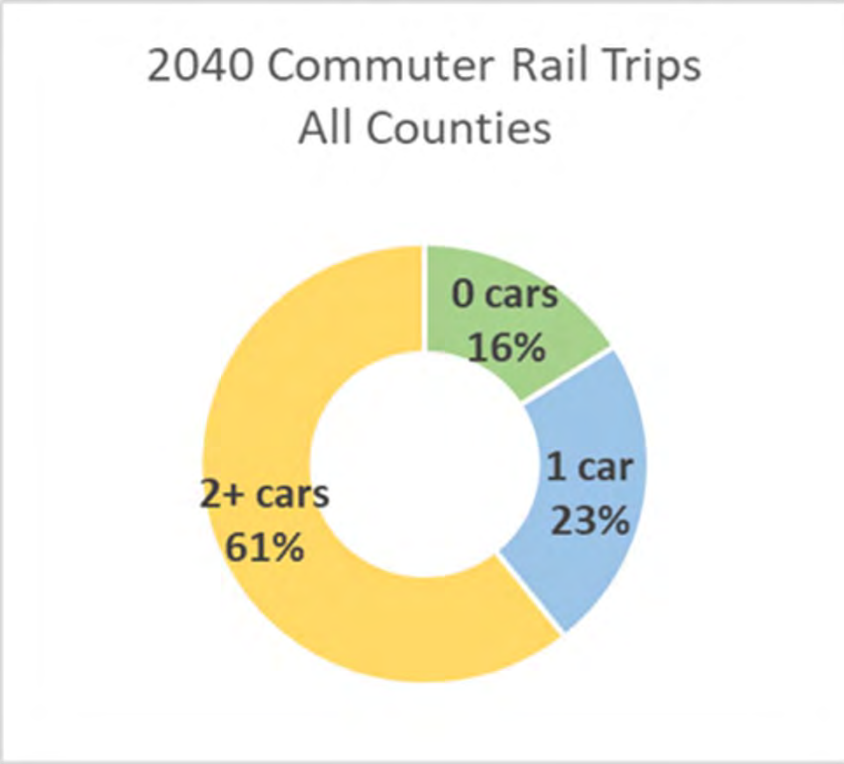
- Proportion of population by income or race/ethnicity: PUMA* (heavy lines)
- Commuter Rail ridership by production TAZ (gray fill /white lines)



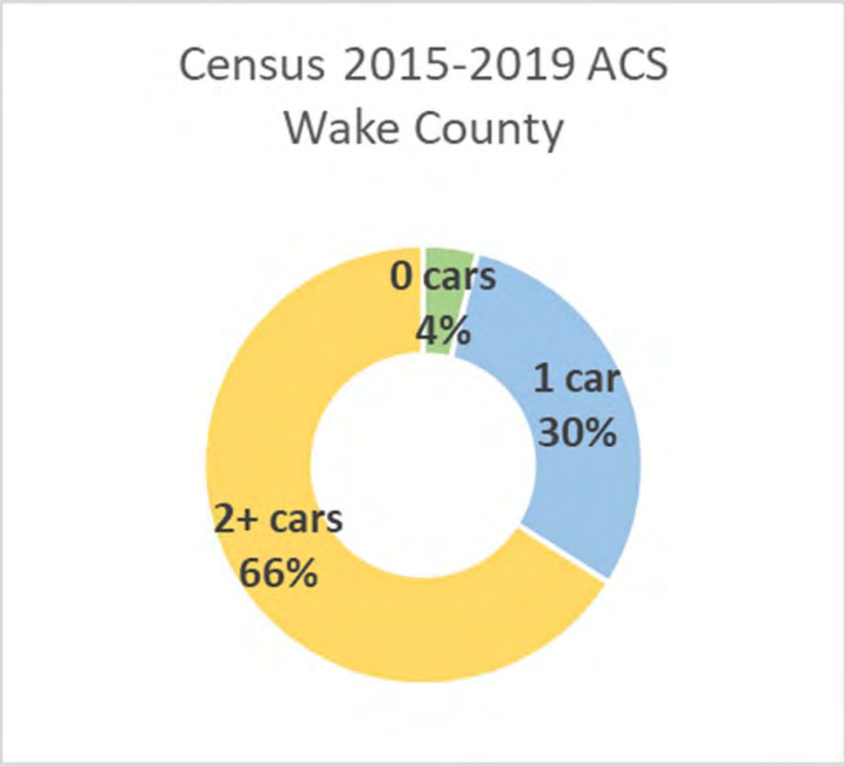
* Public Use Microsample Area as defined by US Census Bureau

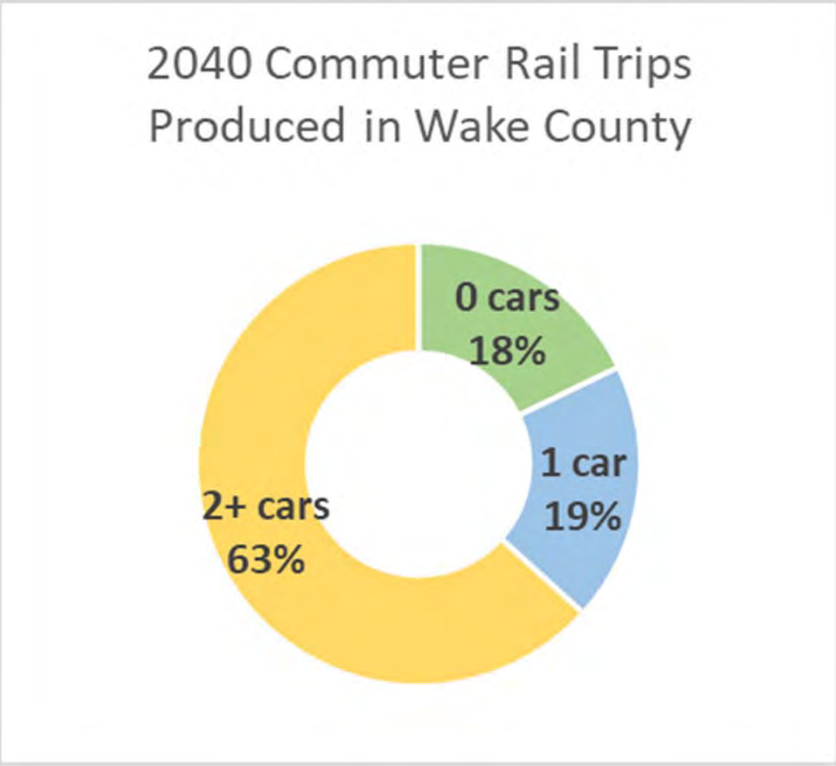
Household Vehicle Ownership - Triangle



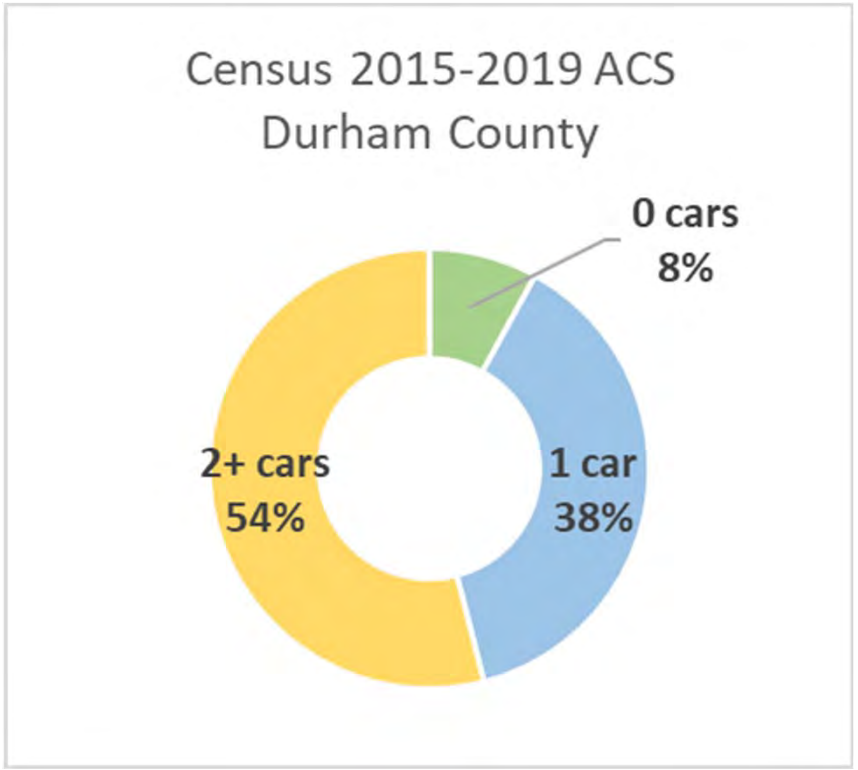


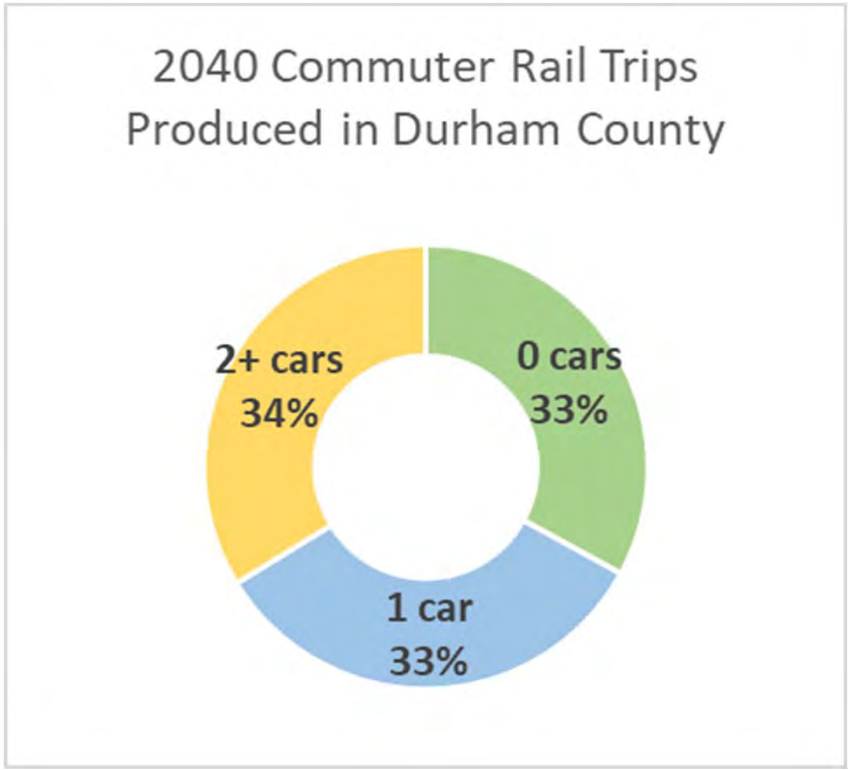
Household Vehicle Ownership - Wake County



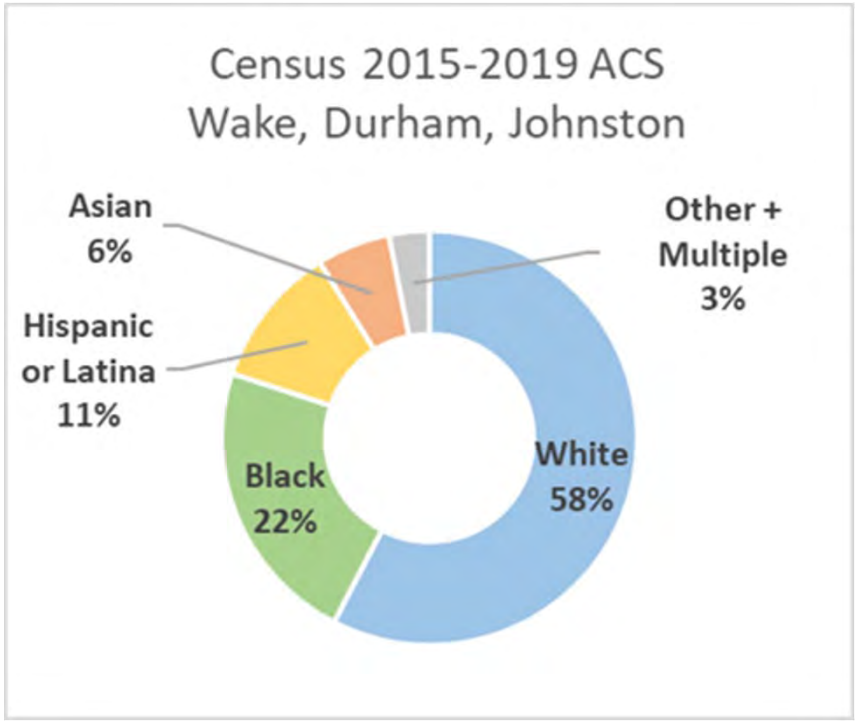


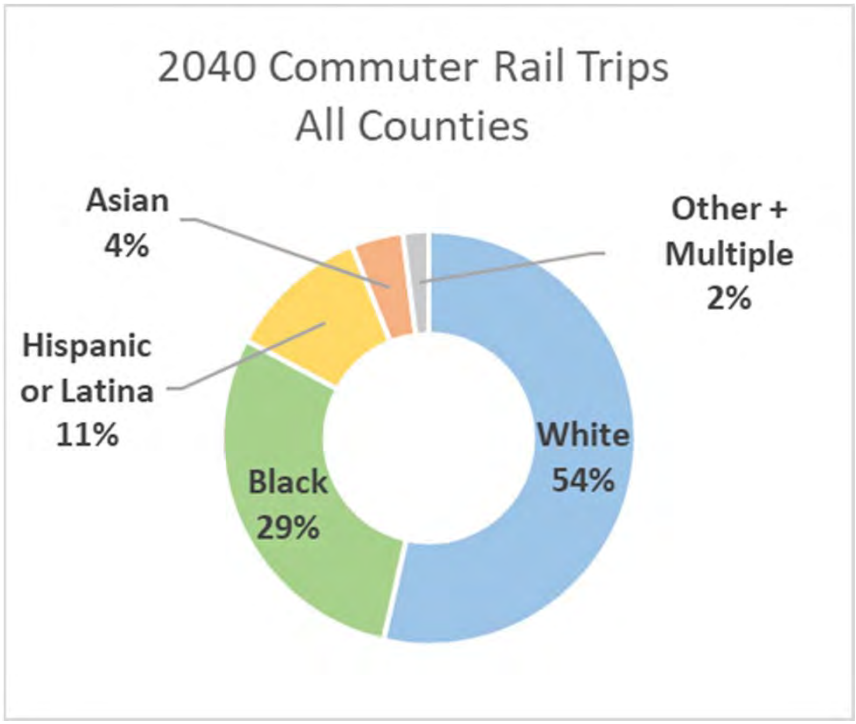
Household Vehicle Ownership - Durham County



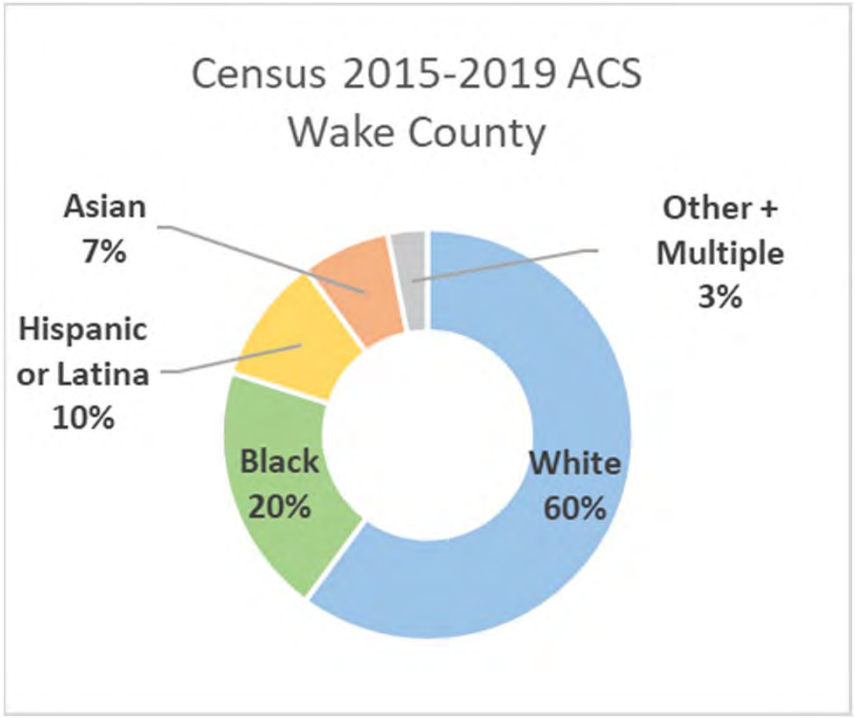


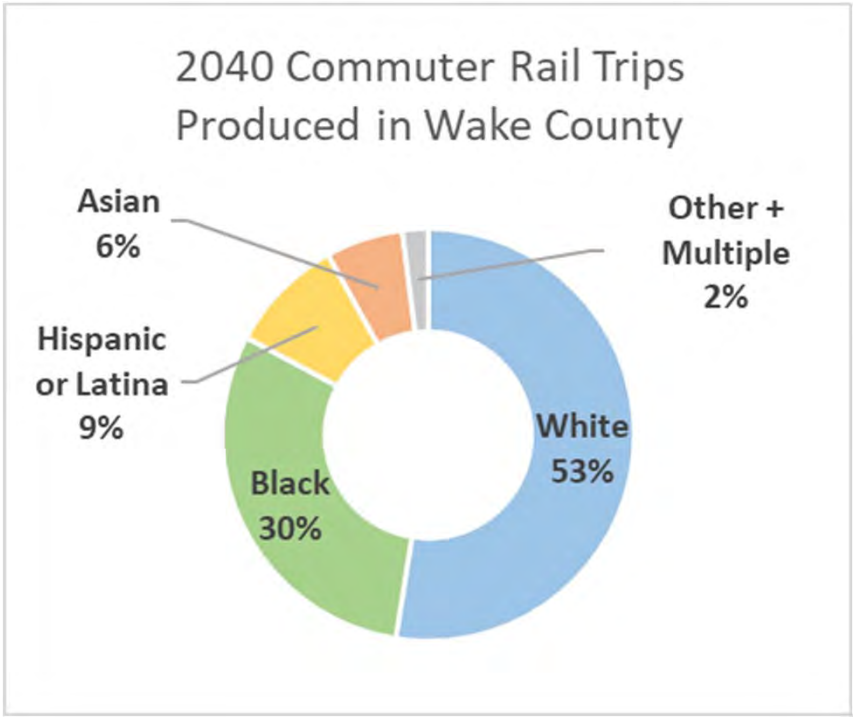
Race/Ethnicity - Triangle



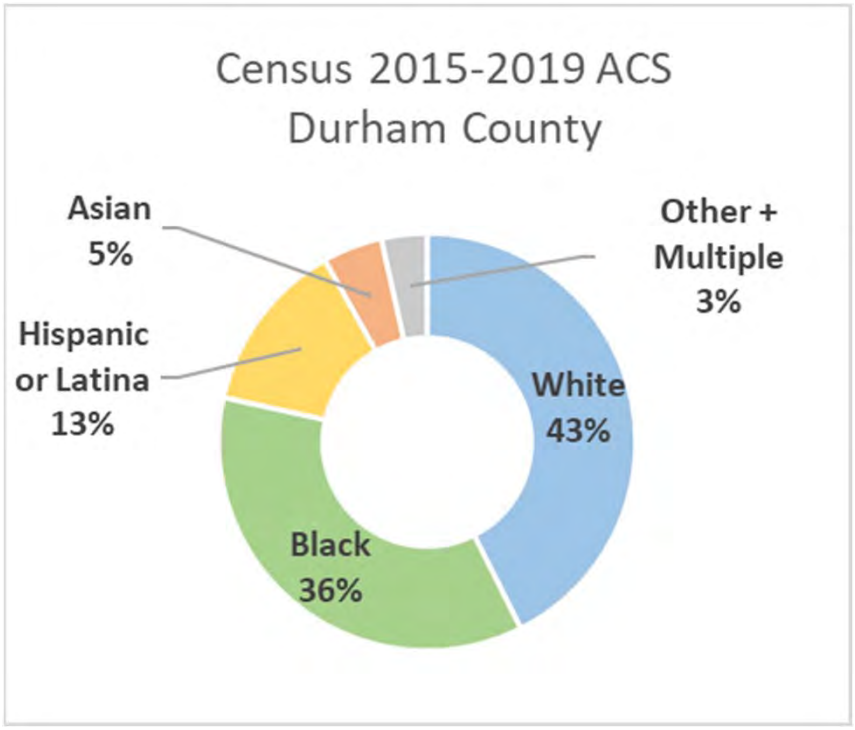


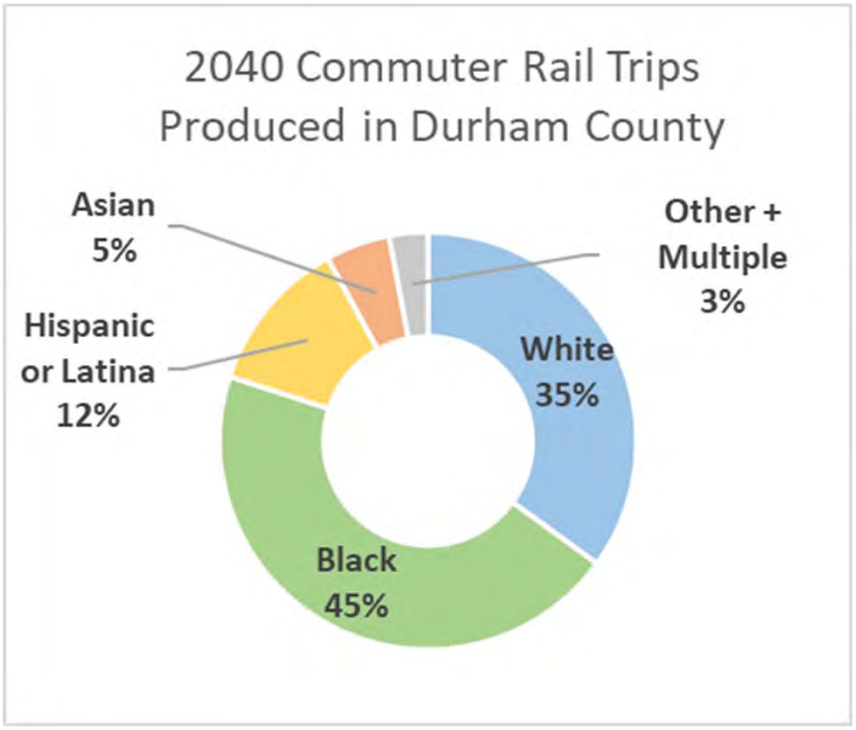
Race/Ethnicity - Wake County



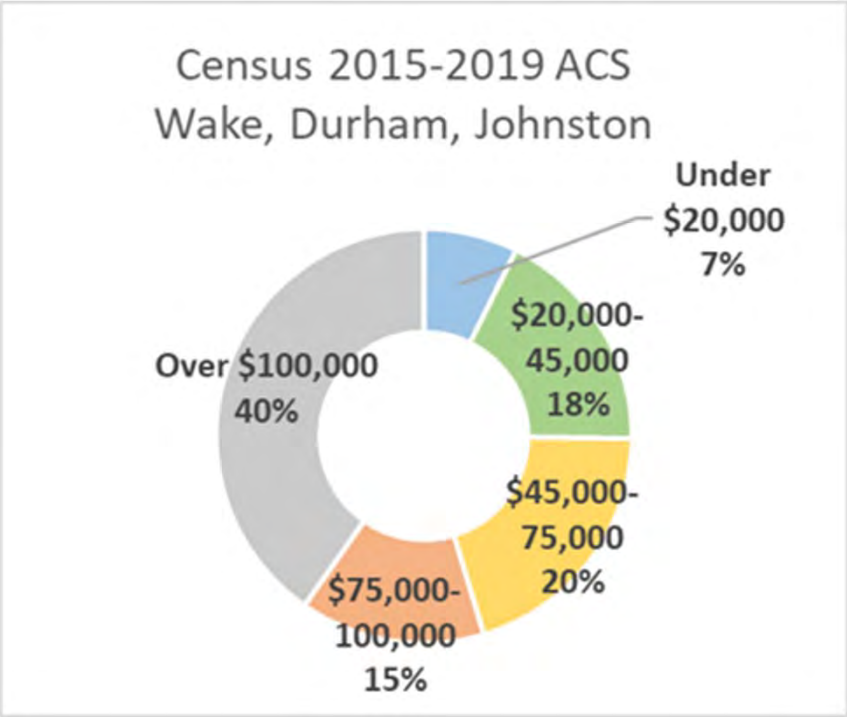


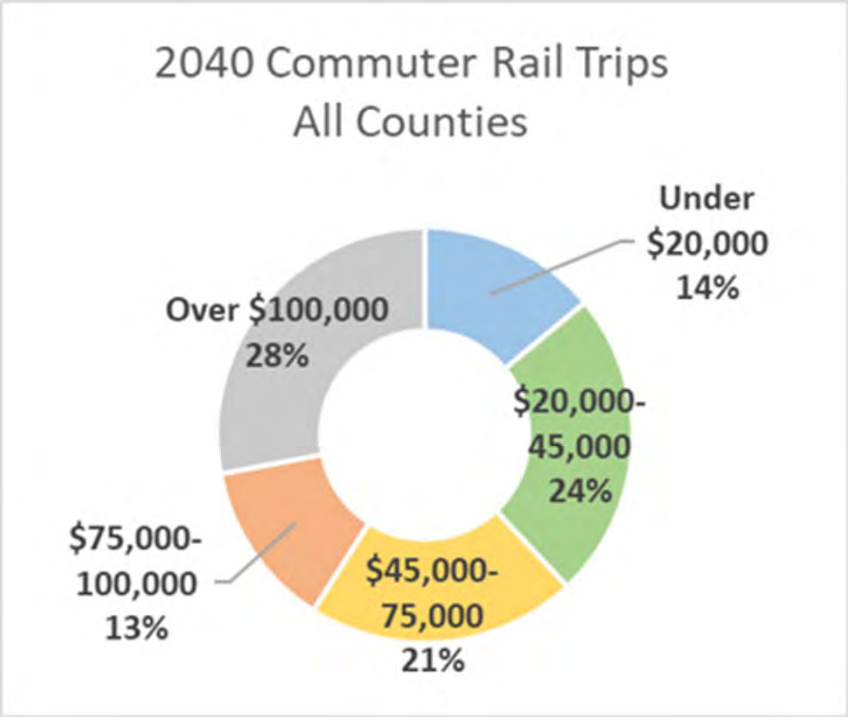
Race/Ethnicity - Durham County



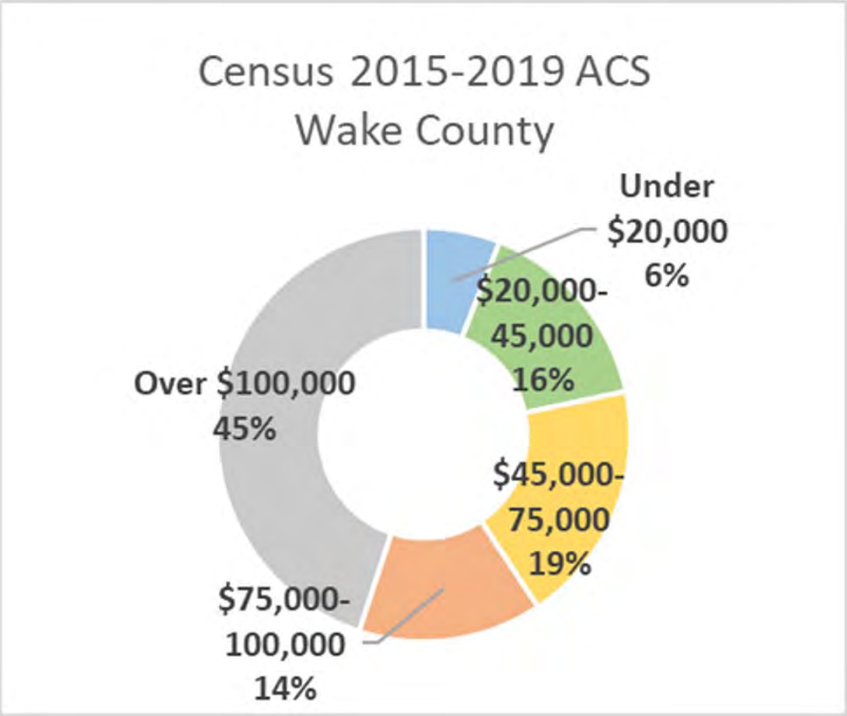


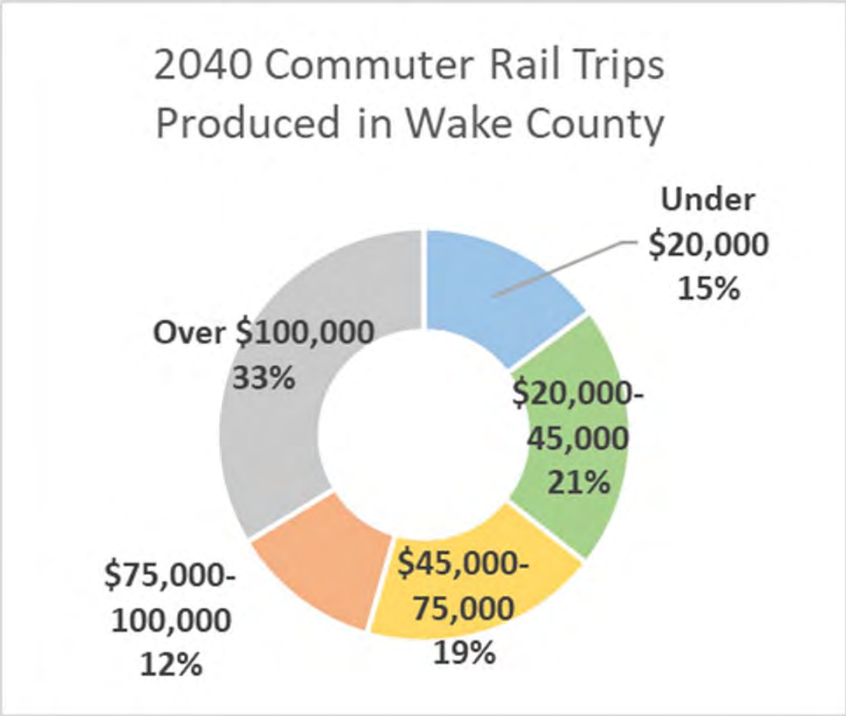
Household Income - Triangle



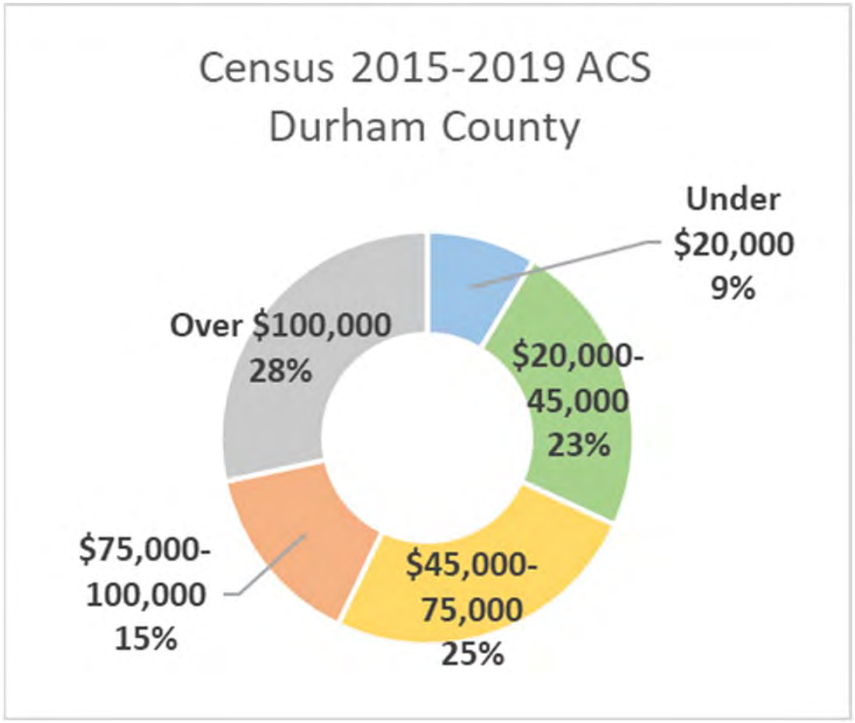


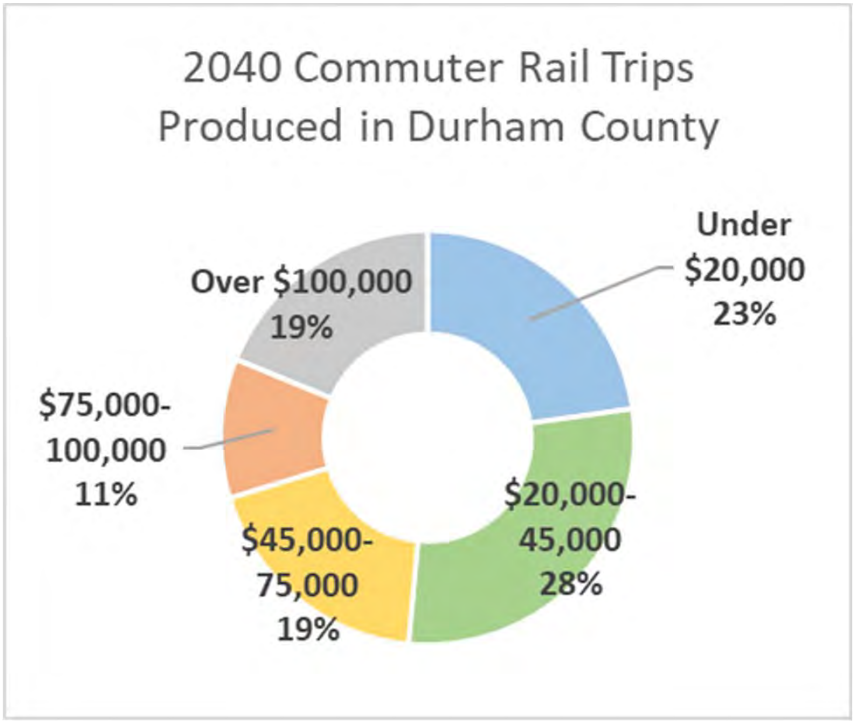
Household Income - Wake County





Household Income - Durham County





WA-8282-Base Fare Year 2040 Commuter Rail Trips Stratified by Vehicle Ownership of Production Location

Home Location	Zero Car	One Car	Two+ Car	Total
Trips				
Wake Co.	776	823	2,755	4,354
Durham Co.	1,114	1,124	1,141	3,379
Johnston Co.	8	778	3,254	4,042
Other	33	70	156	260
Total	1,931	2,795	7,307	12,033
Percent				
Wake Co.	18%	19%	63%	100%
Durham Co.	33%	33%	34%	100%
Johnston Co.	0%	19%	81%	100%
Other	13%	27%	60%	100%
Total	16%	23%	61%	100%

WA-8282-Base Fare Year 2040 Commuter Rail Trips Stratified by Income or Race/Ethnicity of Production Location

Home Location	up to $ 9,999	$10,000-14,999	$15,000-$19,999	$20,000-$29,999	$30,000-$44,999	$45,000-$59,999	$60,000-$74,999	$75,000-$99,999	$100,000 & above	Total
Trips										
Wake Co.	273	197	159	396	527	421	372	516	1,492	4,354
Durham Co.	291	223	235	431	533	376	262	375	653	3,379
Johnston Co.	99	93	111	396	537	588	447	598	1,172	4,042
Other	17	11	11	29	35	32	26	34	64	258
Total	680	524	516	1,252	1,632	1,417	1,107	1,523	3,382	12,033
Percent										
Wake Co.	6%	5%	4%	9%	12%	10%	9%	12%	34%	100%
Durham Co.	9%	7%	7%	13%	16%	11%	8%	11%	19%	100%
Johnston Co.	2%	2%	3%	10%	13%	15%	11%	15%	29%	100%
Other	6%	4%	4%	11%	13%	12%	10%	13%	25%	100%
Total	6%	4%	4%	10%	14%	12%	9%	13%	28%	100%

Home Location	Non-Spanish/Hispanic or Latino						Hispanic or Latino	Total
	White	Black	Asian	Native Am.	Other	2 or more		
Trips								
Wake Co.	2,267	1,286	282	14	18	98	389	4,354
Durham Co.	1,196	1,515	156	6	11	89	406	3,379
Johnston Co.	2,772	592	25	23	8	71	551	4,042
Other	160	52	11	1	2	7	26	258
Total	6,395	3,445	474	45	38	264	1,372	12,033
Percent								
Wake Co.	52%	30%	6%	0%	0%	2%	9%	100%
Durham Co.	35%	45%	5%	0%	0%	3%	12%	100%
Johnston Co.	69%	15%	1%	1%	0%	2%	14%	100%
Other	62%	20%	4%	1%	1%	3%	10%	100%
Total	53%	29%	4%	0%	0%	2%	11%	100%

WA-30/60-Base Fare Year 2040 Commuter Rail Trips Stratified by Income or Race/Ethnicity of Production Location

Home Location	up to $ 9,999	$10,000-14,999	$15,000-$19,999	$20,000-$29,999	$30,000-$44,999	$45,000-$59,999	$60,000-$74,999	$75,000-$99,999	$100,000 & above	Total
Trips										
Wake Co.	355	247	209	519	671	505	440	601	1,719	5,265
Durham Co.	452	332	350	626	735	494	336	478	807	4,609
Johnston Co.	93	86	105	376	510	566	432	580	1,143	3,889
Other	21	14	13	37	44	40	34	45	96	344
Total	921	678	677	1,558	1,959	1,605	1,241	1,703	3,764	14,107
Percent										
Wake Co.	7%	5%	4%	10%	13%	10%	8%	11%	33%	100%

Home Location	Non-Spanish/Hispanic or Latino						Hispanic or Latino	Total
	White	Black	Asian	Native Am.	Other	2 or more		
Trips								
Wake Co.	2,674	1,609	360	17	23	117	464	5,265
Durham Co.	1,563	2,159	208	8	14	119	538	4,609
Johnston Co.	2,673	567	24	22	7	68	527	3,889
Other	217	64	16	2	2	9	34	344
Total	7,128	4,400	608	48	47	313	1,563	14,107
Percent								
Wake Co.	51%	31%	7%	0%	0%	2%	9%	100%
Durham Co.	34%	47%	5%	0%	0%	3%	12%	100%
Johnston Co.	69%	15%	1%	1%	0%	2%	14%	100%
Other	63%	19%	5%	1%	1%	3%	10%	100%