



GoTriangle  
Planning & Legislative Committee  
September 28, 2022  
11:00 am-11:45 am Eastern Time

***GoTriangle's Board of Trustees has resumed in-person meetings.  
The public is encouraged to use the remote option.***

*Microsoft Teams meeting | Join on your computer or mobile app*

*Click here to join the meeting*

*Or call in (audio only) +1 252-210-4099  
Phone Conference ID: # 546 659 726#*

**I. Call to Order and Adoption of Agenda**

*(1 minute Vivian Jones)*

ACTION REQUESTED: Adopt agenda.

**II. Draft Minutes | May 25, 2022**

*(1 minute Michelle Dawson)*

ACTION REQUESTED: Approve minutes.

**III. FY 2022 Bus Service Performance Report**

*(30 minutes David Jerrido)*

Report

**IV. Adjournment**

*(Vivian Jones)*



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

4600 Emperor Boulevard  
 Suite 100  
 Durham, NC 27703

Wednesday, May 25, 2022

10:30 a.m.

Virtual | Webex

**Committee members present** | Will Allen, Brenda Howerton, Vivian Jones, Michael Parker [arr. 10:34 a.m.]

**Excused absences** | Elaine O'Neal

**Committee members absent** | Michael Fox

Committee Chair Vivian Jones officially called the meeting to order at 10:30 a.m. A quorum was present.

**I. Adoption of Agenda**

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

**II. Approval of Minutes**

**Action:** A motion was made by Howerton and seconded by Allen to approve the minutes of December 15, 2021. Upon vote by roll call, the motion was carried unanimously.

**III. Commuter Rail Ridership Forecast**

Jay Heikes' presentation is attached and hereby made a part of these minutes. He stated that GoTriangle's ridership modeling consultant, Resource Systems Group, has refined the model over the past two years, updating it to the latest version of STOPS and improving how the model understands transit travel patterns and park-and-ride travel markets in the region.

Parker arrived.

Heikes explained that the model area is roughly similar to that of the Triangle Regional Model boundary, extending beyond the three core counties to adjoining counties, or portions of them. FTA has requested a more conservative assumption than the standard application of the model as it handles home-based work trips; both legs of the home-based work trip must occur in peak to be counted as a home-based work trip under the more conservative assumption. FTA has concurred with the model and results.

Heikes stated that assumptions since Phase I have been updated for population and employment growth from the 2050 MTP as well as updated highway travel times from the future year of the Triangle Regional Model, which includes all planned transportation improvements by 2050. Finally, an updated future-year background transit network has been included that includes future planned improvements in bus service throughout the three-county region and BRT in Wake County.

### ***Demographic Highlights***

- Population in the core of the three county region is growing at 20-40%; faster in surrounding counties.
- Employment in the core of the three county region, particularly in areas with planned rail and BRT, is growing as fast as or faster than the region as a whole.
- Taken together, these projections mean more and longer trips on the highway network in the future.

### ***Service Alternatives***

- Base case - West Durham to Auburn in eastern Wake County, 8-2-8-2 [number of trains in AM peak, midday, PM peak, evening] with an extension of three AM and PM peak trains and one midday train to East Clayton in Johnston County
- West Durham to Auburn, 8-2-8-2
- West Durham to Auburn, 30 minute headways AM and PM peak, 60 minute headways midday and evening [24 round trips]
- West Durham to Auburn, 60 minute headways all day [less than 20 round trips]

### ***Fare Alternatives***

- Fare free for all
- Local bus fare free; regional bus and rail \$2.50
- Adopted regional fare policy [GoRaleigh and GoCary \$1.25, GoDurham \$1, regional bus \$2.50], rail fares zoned based \$2.50-\$4.50
- Base fare - adopted regional fare policy; rail \$2.50
- Adopted regional fare policy, rail \$3.50

Heikes noted that that the following rail ridership forecasts, while more precise than those from the phase 1 study, are still preliminary and should be rounded to the nearest thousand. Differences in the relative forecasts were provided in the materials for the sake of comparison. Forecasted 2040 ridership for the base case, assuming the adopted regional fare policy, is consistent with results from phase 1 at 11,818 daily trips. Eliminating the extension to East Clayton and applying the various fare scenarios, ridership ranges from 9,976 to 18,028 daily trips, with lower fares yielding more trips than scenarios with higher fares. Increased headways, assuming the adopted regional fare policy at \$2.50 per trip, show higher forecast ridership at 14,107 daily trips for 30/60 headways. The 60/60 headway service scenario yielded 12,246 forecast trips.

Heikes noted that additional testing by the railroads is necessary to know the infrastructure cost of the different service scenarios. Eggleston added that GoTriangle's consultant is evaluating the impact on operating cost for the scenarios.

Parker asked how forecasted ridership compares with similar commuter rail systems around the country. Heikes responded that phase 1 included comparisons of peer systems and the phase 2 ridership for 2040 if equal to or higher than some of the newer systems being built in terms of their future projections. He noted that 2018 ridership is lower for phase 2 than in phase 1.

Heikes shared projected daily boardings by station for the various service scenarios at the base fare. He noted several stations at or above 1000 daily boardings in the 30/60 headway scenario: west Durham, downtown Durham, NCSU, Raleigh and Auburn and the Auburn/East Clayton pair.

Parker asked if a phased approach for building commuter rail was necessary whether the results help determine which segment should be first. Heikes stated that ridership between station pairs is helpful to inform that type of decision. He noted strong forecasted ridership in the eastern Wake County segment, with all stations east of Raleigh Union Station responsible for 3,500 daily round trips to/from Raleigh Union Station. He also noted that Raleigh Union Station and NCSU are strong attracters of trips originating within Durham as well as west and downtown Durham attracting trips originating from Wake County and southern Durham County. Heikes highlighted that downtown Durham is pretty balanced in terms of the number of trips that originate in Durham and go east and trips into downtown Durham.

#### IV. Commuter Rail Demographics Analysis

Jay Heikes' presentation is attached and hereby made a part of these minutes. He said this information was prepared in response to public engagement and stakeholder input to provide a better understanding of the communities that might benefit from a rail investment. The FTA STOPS model was used to develop a ridership forecast which was broken out by household vehicle ownership – the factor most closely linked to household transit use and also included in census data. Heikes explained that the analysis describes current demographics of the home location of forecasted commuter rail trips, but is not a forecast of the demographics of future commuter rail riders. He also noted that commuter rail riders from a particular geography are assumed to have consistent demographics which are assumed to remain constant into the future and transit/rail use is correlated with household vehicle ownership.

Heikes provided comparisons of Wake, Durham and Johnston counties to communities served by rail for household vehicle ownership, race and ethnicity and income.

##### **Key Takeaways**

- A greater number of households report zero vehicle ownership in communities served by rail [16%] than census data for the area as a whole [5%].
- In Wake County, 18% of households report zero vehicle ownership in communities served by rail compared to 4% for the county.
- In Durham County, 33% of households report zero vehicle ownership in communities served by rail compared to 8% for the county, and significantly fewer households own two or more cars in communities served by rail than the county.
- In regards to race and ethnicity, communities served by rail are similar to census data for area as a whole.
- In Wake County, 53% of communities served by rail are white and 30% black compared to 60% and 20%, respectively for the county.
- In Durham County, 45% of communities served by rail are black and 35% white compared to 36% and 43%, respectively for the county.

- A significantly higher proportion of the region [40%] reports household income over \$100,000 than in communities served by rail [28%]. Twice as many households [14%] in communities served by rail report incomes under \$20,000 compared to the area as a whole [7%].
- In Wake County, 33% of communities served by rail report household incomes over \$100,000 and 15% under \$20,000 while in the county 45% of households have incomes over \$100,000 and only 6% less than \$20,000.
- In Durham County, 19% of communities served by rail report household incomes over \$100,000 and 23% under \$20,000 while in the county 28% of households have incomes over \$100,000 and 9% less than \$20,000.

Heikes concluded that compared to census data for the region and by county, communities served by rail own fewer vehicles, are more racially and ethnically diverse, and have lower incomes.

#### V. Adjournment

**Action:** Chair Jones adjourned the meeting at 11:34 a.m.

Prepared by:

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

## MEMORANDUM

**TO:** GoTriangle Board of Trustees Operations & Finance Committee  
**FROM:** Service Planning and Quality Assurance  
**DATE:** September 14, 2022  
**SUBJECT:** **GoTriangle FY 2022 Bus Service Performance Report**

### Action Requested

None.

### Background and Purpose

In September 2003, GoTriangle's Board of Trustees adopted the Regional Bus Service Standards to establish performance expectations for the agency's fixed-route services. This report provides a summary of GoTriangle's regional bus service performance during fiscal year 2022, showing the effects of the ongoing operator shortage and ridership trends.

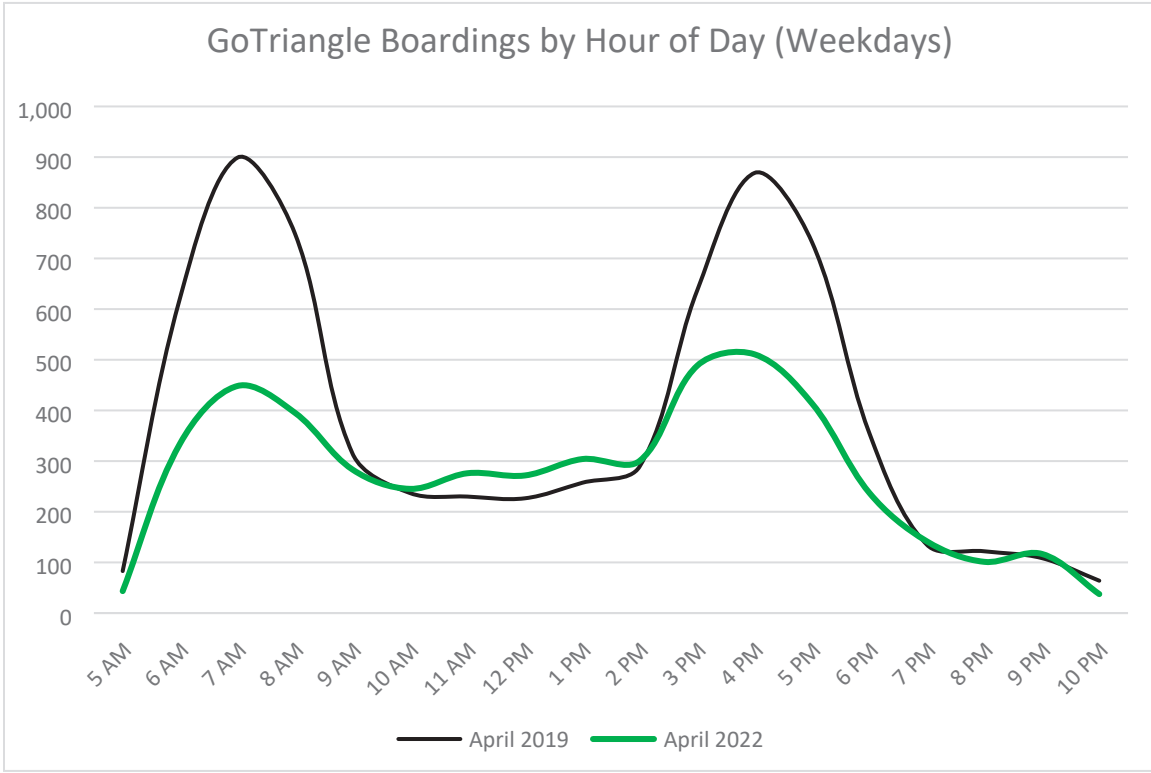
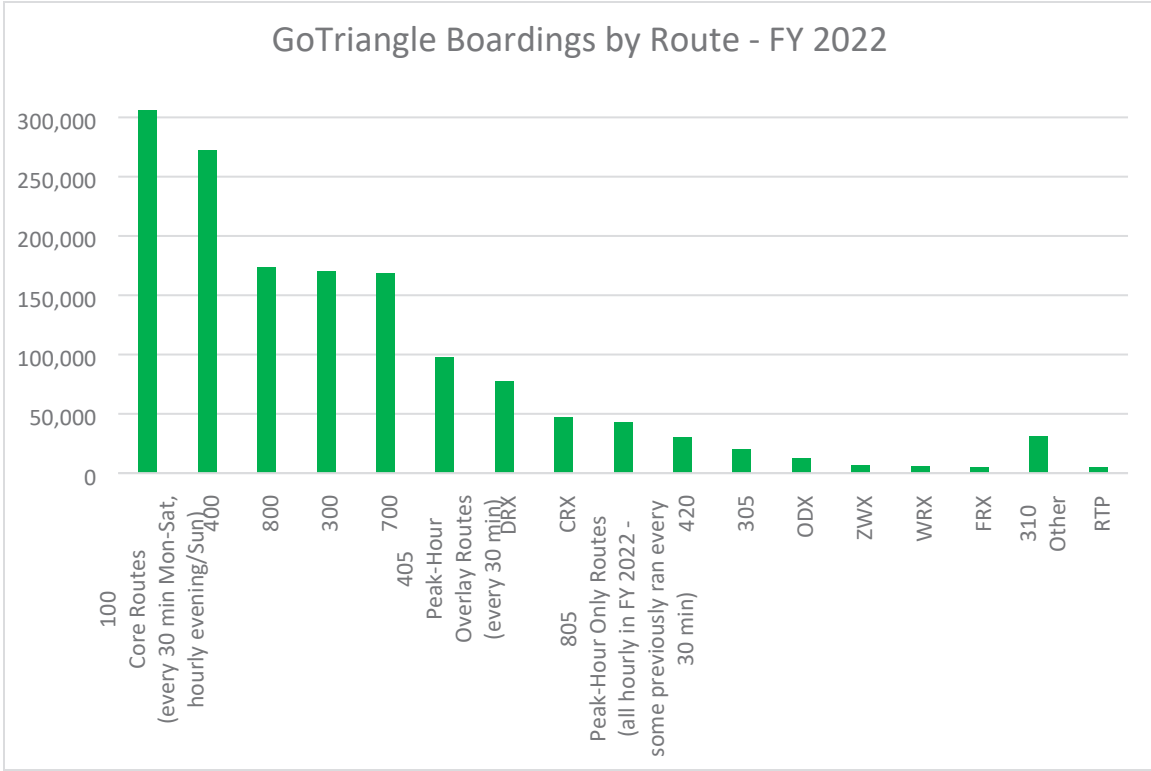
### Key Findings

Note: GoTriangle continued fare-free operations in FY 2022, and continued to operate reduced service due to the operator shortage.

- Ridership increased in FY 2022 (1,469,929 boardings) compared to FY 2021 (1,171,238 boardings), but remains below pre-pandemic levels.
- The majority of GoTriangle ridership (89%) is on the all-day, seven day a week routes and peak-only express or limited stop routes operating in the same corridor as other routes (overlay peak routes). These routes connect Raleigh, Durham, RTP, Chapel Hill, and Cary, and could be considered the backbone of GoTriangle's regional network.
- While midday ridership has increased slightly compared to FY 2019, peak-hour ridership has not returned to pre-pandemic levels, thus resulting in a more level distribution of ridership throughout the day.
- Saturday and Sunday ridership has met and exceeded FY 2019 levels, respectively.

### Financial Impact

None.



## Attachments

- FY22 Annual Bus Service Performance Report

## Staff Contacts

- David Jerrido, Transit Service Planner II, 919-485-7549, [djerrido@gotriangle.org](mailto:djerrido@gotriangle.org)
- Matthew Frazier, Database Analyst, 919-485-7528, [mfrazier@gotriangle.org](mailto:mfrazier@gotriangle.org)
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- Katharine Eggleston, Chief Devt. Officer, 919-485-7564, [keggleston@gotriangle.org](mailto:keggleston@gotriangle.org)







## FY 2022 Annual Bus Service Performance Report

Prepared by:

David Jerrido – Transit Service Planner II

Matthew Frazier – Database Analyst

September 14, 2022

## Executive Summary

The GoTriangle Board of Trustees adopted the Regional Bus Service Standards in 2003 to establish performance expectations for the agency's fixed-route services. The standards were revised in 2004 and 2008. Service standards are intended to drive improvements in productivity by routinely and systematically evaluating bus service performance against quantifiable indicators.

This report will provide an overview of the impacts of the operator shortage on service and a review of ridership by route, hour of day, and day of the week.

Note: GoTriangle continued fare-free operations in FY 2022, and continued to operate reduced service due to the operator shortage.

During fiscal year 2022 (July 1, 2021-June 30, 2022), the key findings are:

- Ridership increased in FY 2022 (1,469,929 boardings) compared to FY 2021 (1,171,238 boardings) but remains below pre-pandemic levels.
- The majority of GoTriangle ridership (89.2%) is on the all-day, seven day a week routes and peak-only express or limited stop routes operating in the same corridor as all-day routes (overlay peak routes). These routes connect Raleigh, Durham, RTP, Chapel Hill, and Cary.
- While midday ridership has increased slightly compared to FY 2019, peak-hour ridership has not returned to pre-pandemic levels, thus resulting in a more level distribution of ridership through the day.
- Saturday and Sunday ridership has met and exceeded FY 2019 levels, respectively.

### Effects of the Operator Shortage on Service Level

The COVID-19 pandemic continued to affect GoTriangle throughout fiscal year 2022 and resulted in a continual decline in the number of available operators. As there were not enough drivers to provide the scheduled service without missing trips or incurring excessive overtime, GoTriangle decided to reduce service in November 2021. This service reduction was in addition to service reductions made in FY 2021 for the same reason.

Figure 1 shows the operators needed for full service, the operators needed for the reduced service, and the available operators. By November 2021, GoTriangle was operating 66% of full service and 74% of pre-pandemic service. This does not include contracted services (FRX, WRX, ZWX, 420, Weekend 300).

The FY22 Wake and Durham work plans allocated additional funds to GoTriangle for service expansion on several routes, which increased the number of operators that would be needed to operate at full-service levels compared to FY 2019 (green line). Due to COVID-19 and a shortage of operators, GoTriangle suspended routes or reduced service to better match service being provided with the actual staffing levels (yellow line). Despite these efforts, the actual number of operators (red line) has remained below the number of operators needed for reduced service. The operator shortage has been the driving force behind the service reductions made in FY 2022.

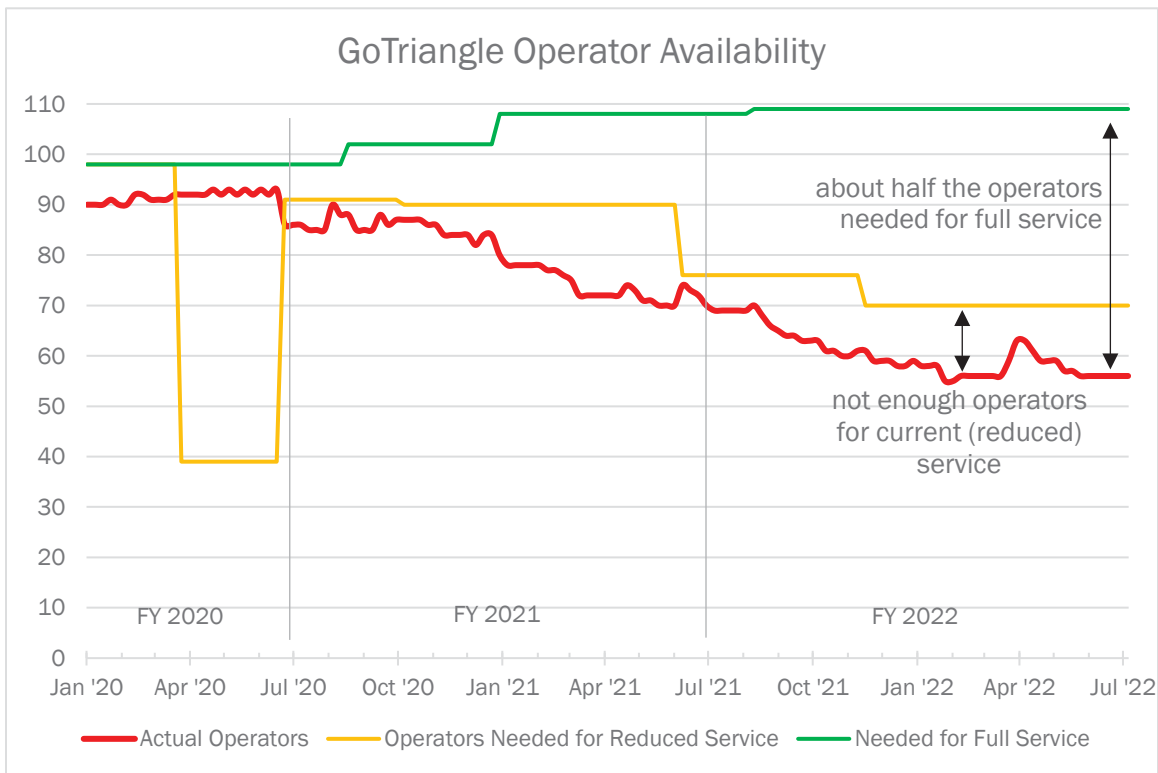


Figure 1: GoTriangle Operator Availability

Service reductions made in November 2021 are as follows:

- **Route DRX:** Suspended two AM and two PM blocks

- Reduced **Saturday service** to hourly on routes 100, 400, 700 and 800
- **Route 300 Saturday:** End at 10pm at Cary Depot
- **Route 420:** Suspended one AM and one PM block

### Annual Ridership by Route

The majority of GoTriangle’s ridership in FY 2022 has been on the all-day network, which operates seven days a week between Raleigh, Durham, Chapel Hill, Cary, and RTP. These routes run every 30-minutes Monday through Saturday and once an hour on evenings and Sundays. The all-day network includes routes 100, 300, 400, 700, and 800. Ridership on the all-day network totaled over 1 million boardings for the fiscal year, which is just under 75% of GoTriangle’s total ridership.

In addition, the peak-hour overlay routes carried more riders than the other peak-hour only routes. The overlay routes (405 Durham-Chapel Hill, CRX Chapel Hill-Raleigh Express, DRX Durham-Raleigh Express) provide peak-only express or limited stop routes operating in the same corridor as the all-day routes. Together, the all-day network and peak-hour overlay routes carried 89% of GoTriangle’s riders in FY 2022.

More details on the ridership, productivity, and on-time performance by route is available in the appendix.

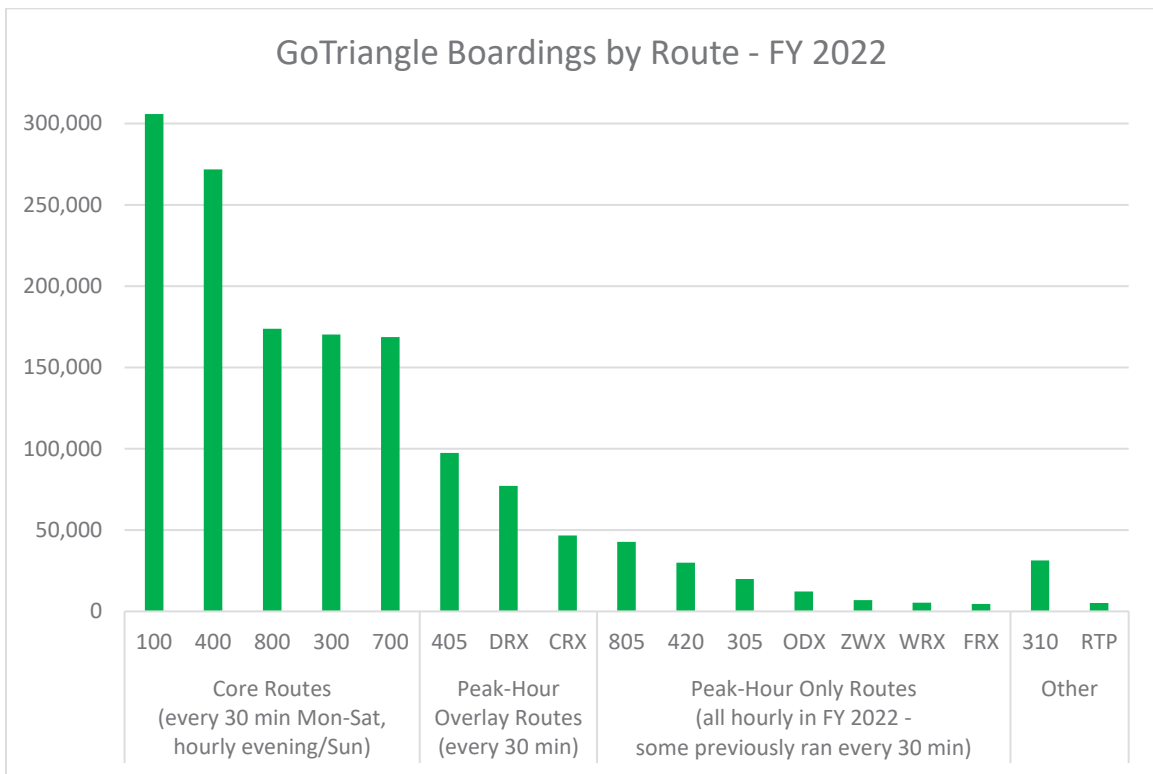


Figure 2: GoTriangle Boardings by Route – FY 2022

### Average Daily Ridership by Day Type

Weekday average daily boardings increased during FY 2022 yet were just over half of pre-pandemic levels in FY 2019 (green line). Weekday ridership took the hardest hit from COVID-19 as many people continued to work from home. Peak hour boardings in FY 2022 continued to be far below that of FY 2019 due to the service reductions caused by the operator shortage and other national trends.

Weekend ridership in FY 2022 exceeded that of FY 2019. Saturday ridership (blue line) grew to a point higher than pre-pandemic levels but fell once service was reduced to hourly in November 2021. Sunday ridership (yellow line) also peaked in October 2021 and has exceeded Sunday FY 2019 ridership.

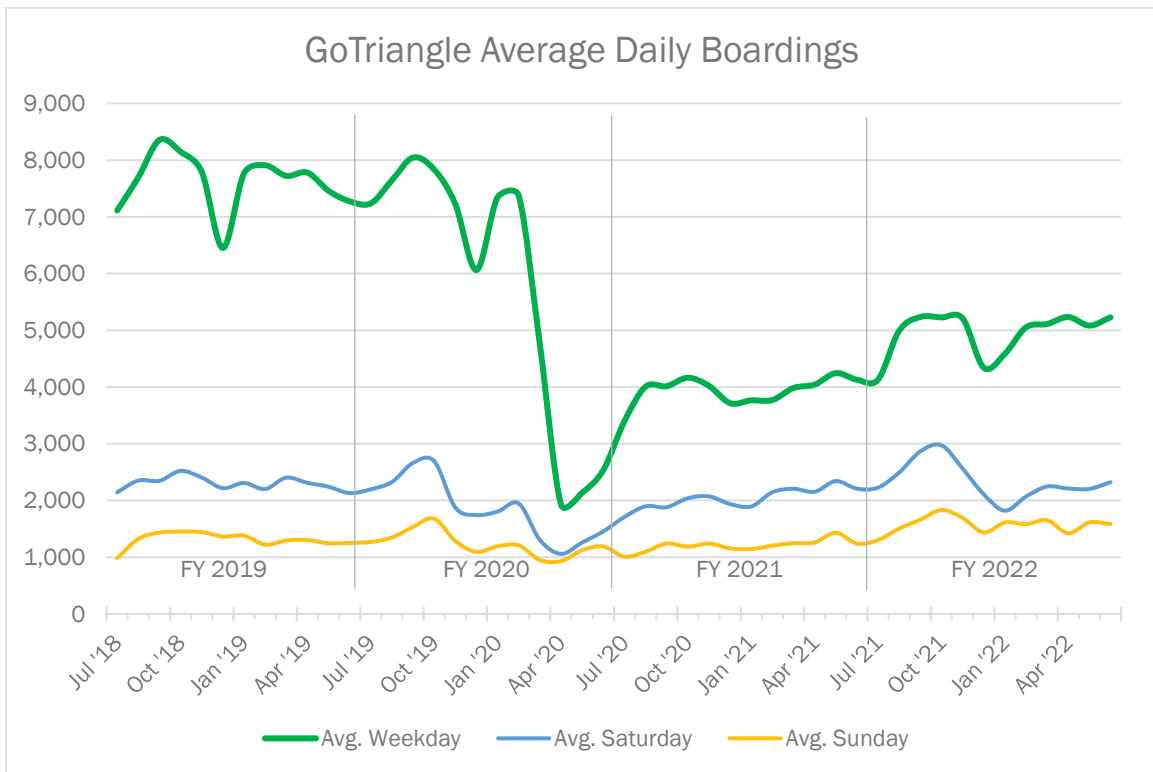


Figure 3: GoTriangle Average Daily Boardings by Day Type

### Average Weekday Ridership by Time of Day

When looking at ridership trends by time of day, we see in Figure 4 that ridership has increased slightly during the weekday midday period (green line, 10am – 2pm) in FY 2022 compared to FY 2019, while the peak hour demand is not as strong and begins earlier in the afternoon. This has resulted in a more level distribution of ridership through the day.

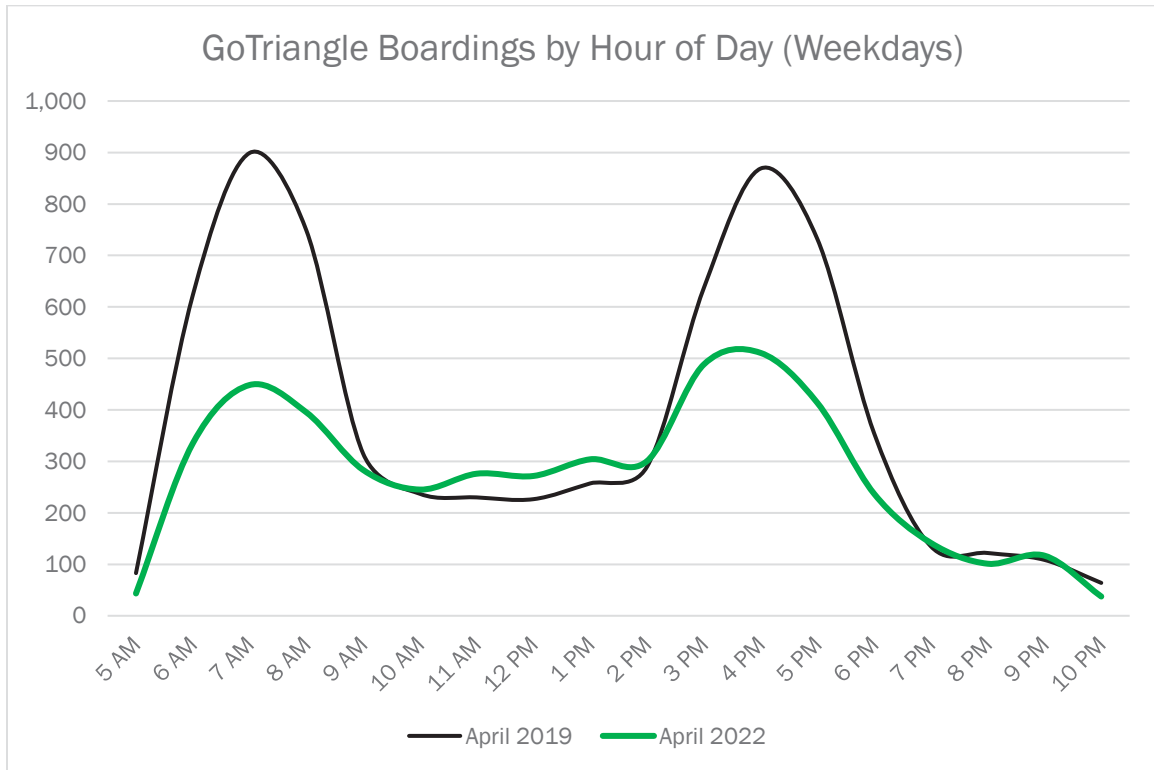


Figure 4: GoTriangle Boardings by Hour of Day (Weekdays)

### Looking Forward to FY 2023

During FY 2023, GoTriangle staff will work with consultants to develop a Short-Range Transit Plan, which will lay out a plan for fiscal years 2024 through 2027 to restore suspended service, realign service to respond to today's operational needs and ridership trends, and prepare for future service expansion.

In addition, GoTriangle implemented multiple service changes in early FY 2023:

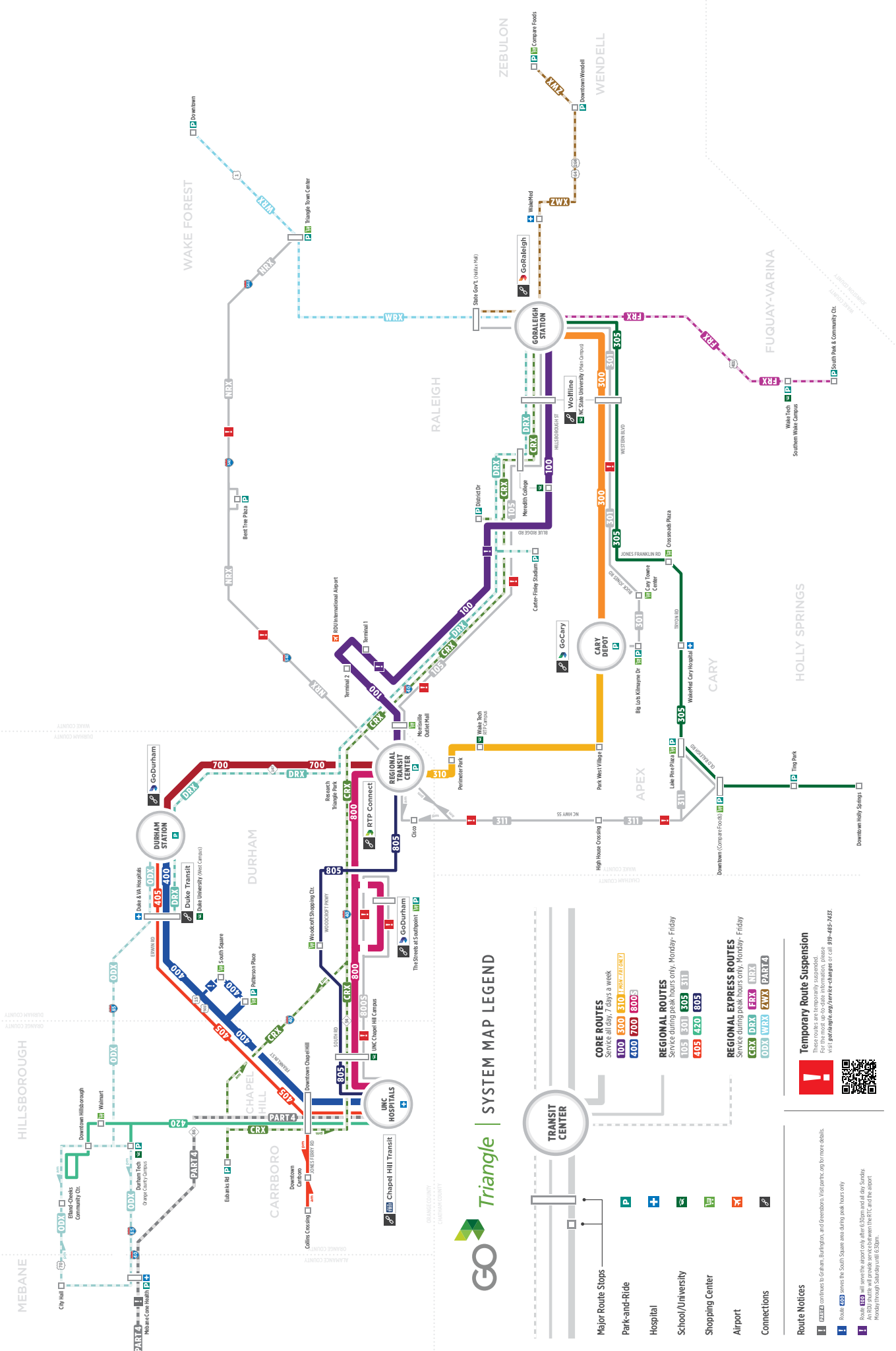
- Route FRX was fully transitioned to GoRaleigh as of July 1, 2022.
- The Route 305 schedule was modified in August 2022 to facilitate transfers to the newly implemented GoApex route 1.
- Route WRX was modified to serve the new park-and-ride at the Northern Wake Senior Center as of July 1, 2022.

## FY 2022 Annual Report Appendix

### GoTriangle System Map



# TEMPORARY



Route	Average Daily Boardings				Boardings per Hour		OTP
	FY 19	FY 20	FY 21	FY 22	FY 19	FY 22	FY 22
<b>Weekday Routes</b>	7,625	5,834	3,936	4,949	14.3	12.9	
<b>Regional Service</b>	6,124	4,773	3,428	4,350	14.9	14.8	
100 Raleigh – Airport – RTC (incl. shuttle)	736	596	642 ●	931 ●	14.1	16.7	91%
300 Raleigh – Cary (excl. Cary – RTC service)	510	501	466	569	15.4	19.7 ★	87%
310 Cary – RTC (was part of 300 in FY 19)	151	150 -	122 ▲	123 ▲	12.2	8.5 ◇	82% ◇
400 Durham – Chapel Hill	921	813	627	872	15.6	14.8	95%
700 Durham – RTC	653	535	433	511	22.2 ★	17.4	97%
800 Chapel Hill – Southpoint – RTC	1,139	793	428	577	18.6	13.3	92%
105 Raleigh – RTC	266	262 -	129 -	- -	14.3		
201 North Raleigh – RTC (NRX in FY 20)	66	48 -	- -	- -	8.1 ◇		
301 Raleigh – Southeast Cary	162	171 -	109	- -	9.5 ◇		
305 Raleigh – Apex – Holly Springs	117	105 -	55 ▲	78 ▲	9.9 ◇	5.6 ◇	72% ◇
311 Apex – Lake Pine – RTC – EPA	110	78 -	- -	- -	7.4 ◇		
405 Durham – Chapel Hill/Carrboro	532	517 -	263	382	22.0 ★	16.3	93%
420 Hillsborough – Chapel Hill	184	130	73	118 ●	13.5	11.6	
805 Chapel Hill – Woodcroft – RTC	418	420 -	162	168 ●	15.2	12.1	96%
RTP Connect (Go OnDemand until FY 20)	86	79	17	20	4.1 ◇	7.2 ◇	n/a
<b>Express Service</b>	1,501	1,060	508	599	12.2	6.7	
CRX Chapel Hill – Raleigh Exp.	432	420 -	139	183 ●	14.0	7.2	87%
DRX Durham – Raleigh Exp.	602	642 -	263	302 ●	16.8 ★	10.4 ★	94%
FRX Fuquay-Varina – Raleigh Exp.	59	58 -	11	18	8.1 ◇	2.4 ◇	91%
ODX Orange – Durham Exp.	133	127 -	52	48	12.4	4.5 ◇	89%
WRX Wake Forest – Raleigh Exp.	55	49 -	19	21	5.6 ◇	2.1 ◇	67% ◇
ZWX Zebulon – Wendell – Raleigh Exp.	76	74 -	25	27	10.7	3.7 ◇	72% ◇
<b>Saturday Routes</b>	2,296	1,859	2,046	2,354	10.6	15.7	
100 Raleigh – Airport – RTC (incl. shuttle)	660	550	652	756 ●	12.4	18.6	91%
300 Raleigh – Cary	243	252	196	283	9.4	11.0 ◇	
400 Durham – Chapel Hill	512	455	556	575 ●	9.8	16.8	84% ◇
700 Durham – RTC	437	312	398	428 ●	16.3 ★	21.2 ★	97%
800 Chapel Hill – Southpoint – RTC	399	290	245	312 ●	7.8 ◇	10.7 ◇	90%
<b>Sunday Routes</b>	1,309	1,230	1,205	1,581	11.6	16.3	
100 Raleigh – Airport – RTC	423	389	397	539	15.3 ★	19.3	98%
300 Raleigh – Cary	139	163	106	190	10.1	13.6	
400 Durham – Chapel Hill	294	281	307	362	11.1	16.1	93%
700 Durham – RTC	249	214	262	296	18.3 ★	21.5 ★	98%
800 Chapel Hill – Southpoint – RTC	181	183	133	194	6.9 ◇	10.3 ◇	95%

## Color code indicates service level

Full service	
Expanded service (relative to FY 2019)	▲
Temporarily modified service	●
Temporarily reduced service	●
Temporarily suspended (partial year)	-
Temporarily suspended (full year)	* -

## Boardings per hour

★	High performer (> 125% of category average)
◇	Low performer (< 75% of category average)

## On-time performance (OTP)

◇	Not meeting target (85%)
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