Greater Triangle Commuter Rail Study

FINAL

Appendix H

Phase 2 Ridership Analysis

Technical Memorandum

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Prepared for:

GoTriangle

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1. Introduction

The Greater Triangle Commuter Rail (GTCR) Project proposes to implement a new commuter rail service between Durham, Raleigh, Southeastern Wake County, and potentially western Johnston County, North Carolina. This new line would take advantage of the railroad serving the Raleigh-to-Durham corridor and provide a new, much more convenient option for travelers to the growing activity centers and residential areas that exist in the project area. The commuter rail line is seen as an important opportunity for increasing transit access to regional destinations, providing a new alternative to the private automobile, and supporting continued development of the region's economy.

One part of the process to plan and evaluate this project involves understanding the ridership markets that the commuter rail line will serve. This report documents the ridership forecasting methodology, the results of the calibration that establish its validity for forecasting ridership, and the resulting projections of ridership on the proposed line.

This technical memorandum is organized into seven chapters:

1. This introduction
2. A description of the ridership forecasting methodology
3. The definition of commuter rail alternatives
4. Ridership forecasts for the proposed project
5. A supplemental analysis of different approaches for representing Park-and-Ride (PNR) and Bus Rapid Transit (BRT) utilities
6. A supplemental analysis of the ridership implications of opening the line in different phases (i.e., ridership forecasts of different initial operating segments [IOS])
7. A supplemental analysis of alternative station locations in the area between downtown Cary and downtown Raleigh

2. Ridership Forecasting Methodology

Forecasts for the Greater Triangle Commuter Rail Project were prepared using the Federal Transit Administration's (FTA) Simplified Trips-on-Project Software (STOPS). STOPS was developed by FTA to quickly prepare forecasts of transit ridership in support of its process for recommending projects for funding. It is intended as a standardized national procedure that takes advantage of the ridership experience gained from recent fixed guideway projects (including commuter rail) implemented across the United States. At the same time, STOPS can be customized to represent unique circumstances that describe the market for transit services in specific local areas. This capability is particularly important for the Triangle region with its unique transit systems serving residential areas, business districts, large research-oriented universities, and medical facilities.

To do this, STOPS makes extensive use of local data describing how current transit customers use the transit system. It represents the changes in ridership that can be expected from both demographic growth in the region and from transit service improvements associated with the project. These changes, when added to the existing transit demand, are used to estimate likely demand for the project when it is built, and service is initiated.

For this application, STOPS Version 2.51 was employed. This version of STOPS is in the final stages of review by FTA and will be released in the Summer or Fall of 2022. Many of the enhancements in Version 2.51 were developed in response to the unique transit markets that exist in the Triangle region.

Data on transit service and demand are provided to the model to represent all transit travel occurring within the Triangle region on GoTriangle, GoRaleigh, GoCary, GoDurham, and Chapel Hill Transit. University transit systems for Duke University and North Carolina State University (Wolfline) are also represented.

The calibration year for the model is 2018 and is consistent with current FTA guidance that the model represents conditions in the corridor immediately prior to the beginning of the COVID-19 pandemic[1].

In keeping with FTA requirements for forecasts no more than 20 years into the future, 2040 was selected to represent future-year conditions.

2.1. Selection of the STOPS Operating Mode

STOPS has several operating modes allowing users to adapt a model implementation to local data resources. The modes include:

- **Synthetic Mode.** In the Synthetic Mode, STOPS builds up representations of transit demand using Census Transportation Planning Products (CTPP) Journey-to-Work (JTW) flow information from the 2006-2010 Census American Community Survey (ACS) and transit level-of-service information obtained from transit schedules maintained in General Transit Feed Specification (GTFS) format. This, most basic, mode of operation is usually strongest in markets dominated by commuters to work, which is the strength of the Journey-to-Work dataset. Although the synthetic form of STOPS attempts to represent all trip purposes using transit, the fact that the key input information

[1] Most regions have set the base year as Fall of 2019. Since ridership in the region was almost identical in 2018 and 2019 and since considerable effort was required to reconcile ridership count data for the different operators, 2018 has been retained as the base year for this analysis.

focuses on work trip-making means that markets with significant numbers of special transit users (e.g., airport passengers, university students, or out-of-town visitors) may not generate ideal estimates of transit ridership.

- **Incremental Mode.** In the Incremental Mode, transit rider data obtained from user surveys is fed into STOPS and serve as the basis for computing existing and future ridership patterns. This form of STOPS is generally preferred in cases where survey data on transit travel patterns are available for all relevant markets to be served by the project since all users of transit are fully represented, both commuters traveling to work and non-work uses such as university students, airport passengers, and recreational travel.
- **Special Markets Mode.** In cases where transit survey data are available for a subset of a project corridor, the Special Markets mode of STOPS allows users to combine the Synthetic and Incremental modes of STOPS into a single application.

Both the Incremental and Special Markets modes of STOPS require a robust set of transit survey data to understand existing transit demand patterns and convert them to represent future project ridership. The ideal data source is an on-board or station-intercept survey conducted using interviewers operating a tablet data collection device and interviewing a rigorously controlled sample of approximately 10 percent of all customers. The survey should be relatively recent or conducted in areas where fundamental demand patterns have not changed substantially since the survey was conducted.

In the Greater Triangle area, relatively recent transit rider surveys are available that meet FTA requirements. Together, three surveys represent most, but not all, of the corridor to be served by the Greater Triangle Commuter Rail project. These surveys include:

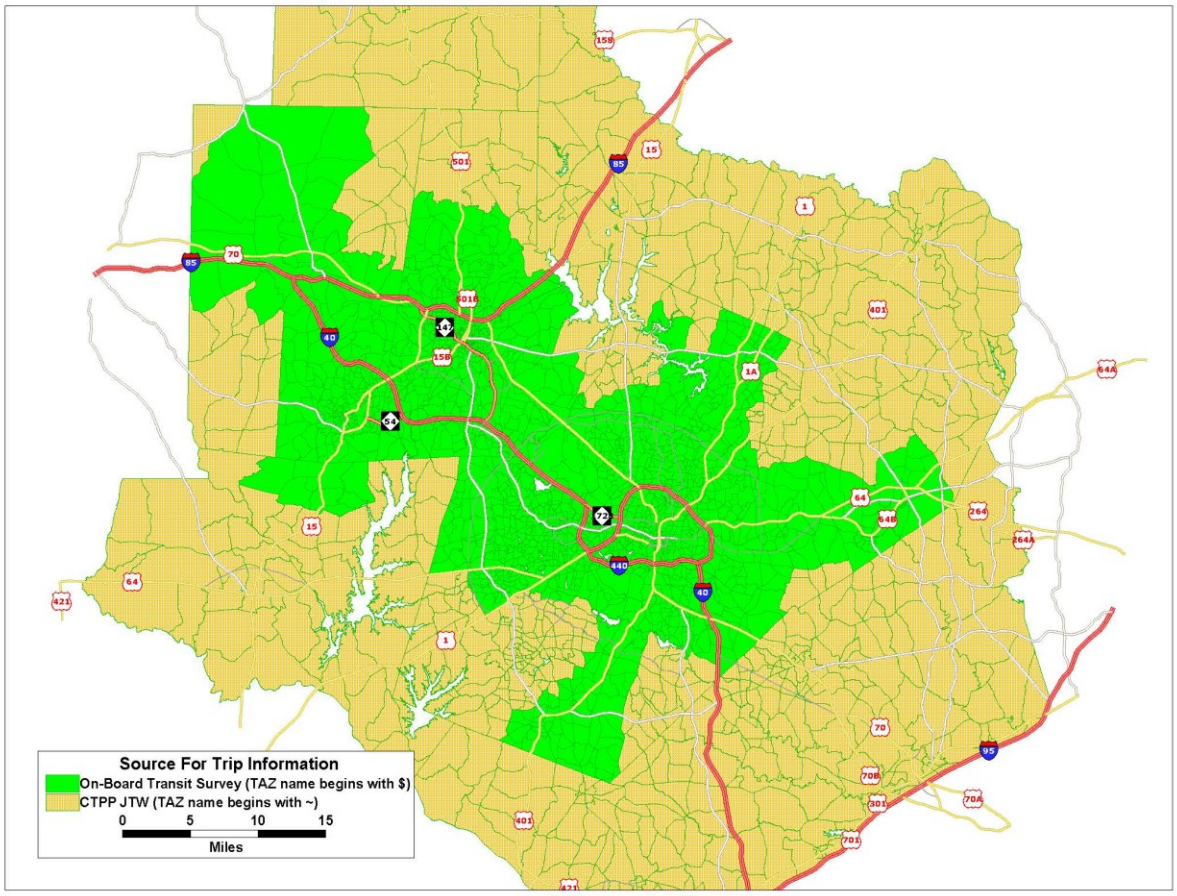
- A Fall 2014 survey (completed in 2015) conducted by GoTriangle covering services in Orange and Durham Counties operated by GoTriangle, Durham Area Transit Authority (now GoDurham), and Chapel Hill Transit. This survey has 9,231 records representing 52,928 weekday unlinked transit trips and 43,726 weekday linked transit trips (both adjusted to represent 2016 ridership levels)
- A Fall 2015 survey (completed in 2016) conducted by GoRaleigh covering services in Wake County operated by GoTriangle, GoRaleigh, C-Tran (now GoCary), and Wolfline. This survey has 10,780 records representing 45,901 unlinked weekday transit trips in 2016 and 36,020 linked weekday transit trips in 2016.
- A 2006 survey conducted by Duke University covering its transit system. This survey has 667 records covering 15,600 weekday unlinked transit trips and 14,760 linked transit trips (both adjusted to represent 2016 ridership levels.

Together, these surveys cover much of the core area of the commuter rail project, between Raleigh and Durham. At the time of the survey, however, the eastern portions of the proposed commuter rail line (East of Hammond, including the southeastern portions of Wake County and all of Johnston County) only had limited existing transit services. The survey data in this portion of the corridor is not adequate to support reliable estimates using the incremental mode of STOPS.

To take advantage of the transit survey data where it is most robust while also using CTPP JTW data in areas with less data, the Special Markets version of STOPS was employed. Figure 1 presents a map of the modeling area showing the portions of the region in which existing transit trip demand is obtained from

the transit survey database and those areas that depend on the CTPP JTW as the source of that data. Trips that travel between the survey and CTPP JTW areas are treated the same way as trips that occur entirely withing the JTW area (i.e., trip data are derived from CTPP JTW flows)[2].

Figure 1: Modeling Area Showing Transit Survey and CTPP JTW Areas



2.2. Modeling Years

Commuter rail ridership forecasts are prepared for two timeframes:

1. A base year that represents current travel demand patterns. The base year is used for developing a calibrated model that represents recent travel patterns and for estimating commuter rail ridership assuming the current population, employment, and highway travel times are used to describe background conditions. Current guidance from the Federal Transit Administration instructs project sponsors to use transit services and demand immediately prior to the pandemic for purposes of calibrating demand forecasting models. Typically, this means Fall of 2019. In the

[2] The capability of treating trips between the two area types (survey and JTW) as being JTW Trips is a new option in STOPS v2.51 known as "Type 2 Special Markets". This project is the first to use this new STOPS capability.

case of the Greater Triangle Commuter Rail project, Year 2018 service and ridership were used. This decision is based on the fact that transit ridership and service changed little between 2018 and 2019 and that creation of the 2018 stop database that had previously been prepared for GTCR Phase I and the New Bern BRT project required a time-consuming data reconciliation task for some services in the region that would be difficult to recreate for 2019.

Another component of the representation of the base timeframe is related to the availability of population and employment forecasts. The 2050 Metropolitan Transportation Plan (adopted in early 2022) has a regional model calibration year of 2016, a base year of 2020, and forecast years of 2040 and 2050. The Year 2020 was selected as the base for the growth factoring process. Accordingly, the STOPS base year represents a time frame of 2018 to 2020 rather than a single defined year.

2. Forecast Year. At the time of this report, FTA's requirements for long range forecasts (up to 20 years into the future) mean that the latest adopted forecast that could be used for project reporting is 2040. When the project is ready for reporting to FTA's Capital Investment Grant Project, it may be necessary to create a socioeconomic forecast representing a time period 20 years into the future from that point in time. If so, FTA may require official adoption of that forecast year and its projections.

2.3. Geographic Scope of the Analysis

The forecasting analysis is designed to represent the vast majority of fixed route transit riders in the Triangle region including transit travel to, from, and within Orange, Durham, Wake and western Johnston Counties, North Carolina.

Figure 2 through Figure 6 present an overview of the regional zone system for the STOPS implementation along with the district system that was developed for this project. These districts are used for both reporting and model calibration. To avoid calibration problems in outer portions of the area where little or no transit service is currently available, the district system combines these outer areas with adjacent suburban areas that have current transit services and can, therefore, be considered as models for how the more remote areas will evolve as they are developed.

Figure 2: TAZ and District System in the Raleigh Area

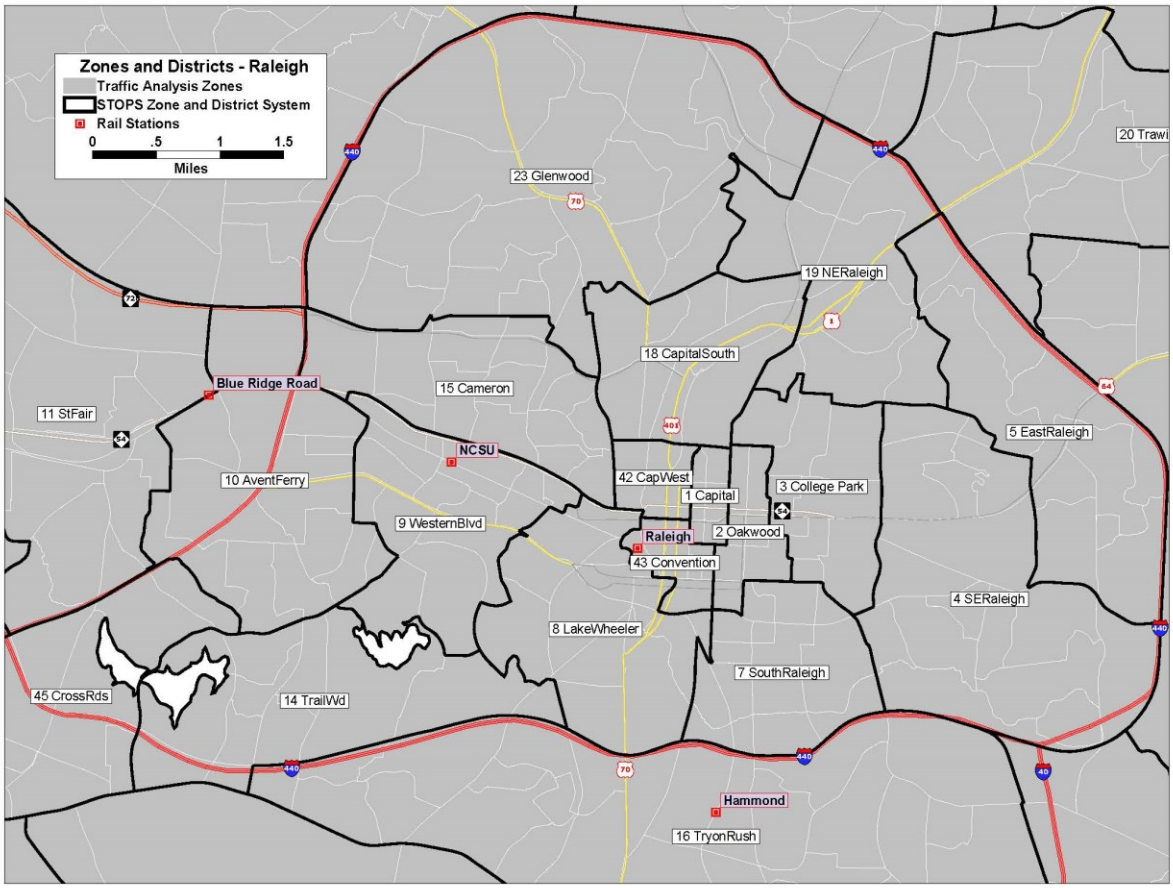


Figure 3: TAZ and District System in the Durham Area

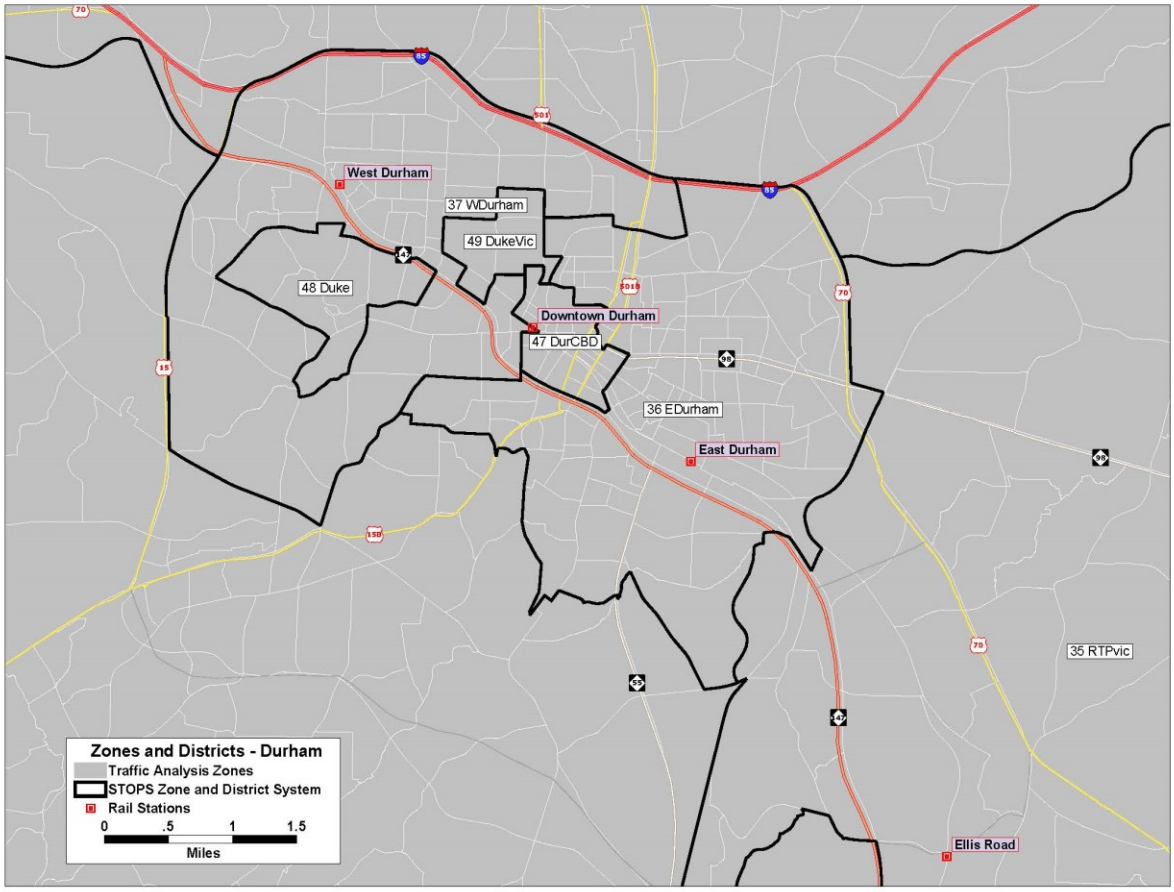


Figure 4: TAZ and District System in the Chapel Hill Area

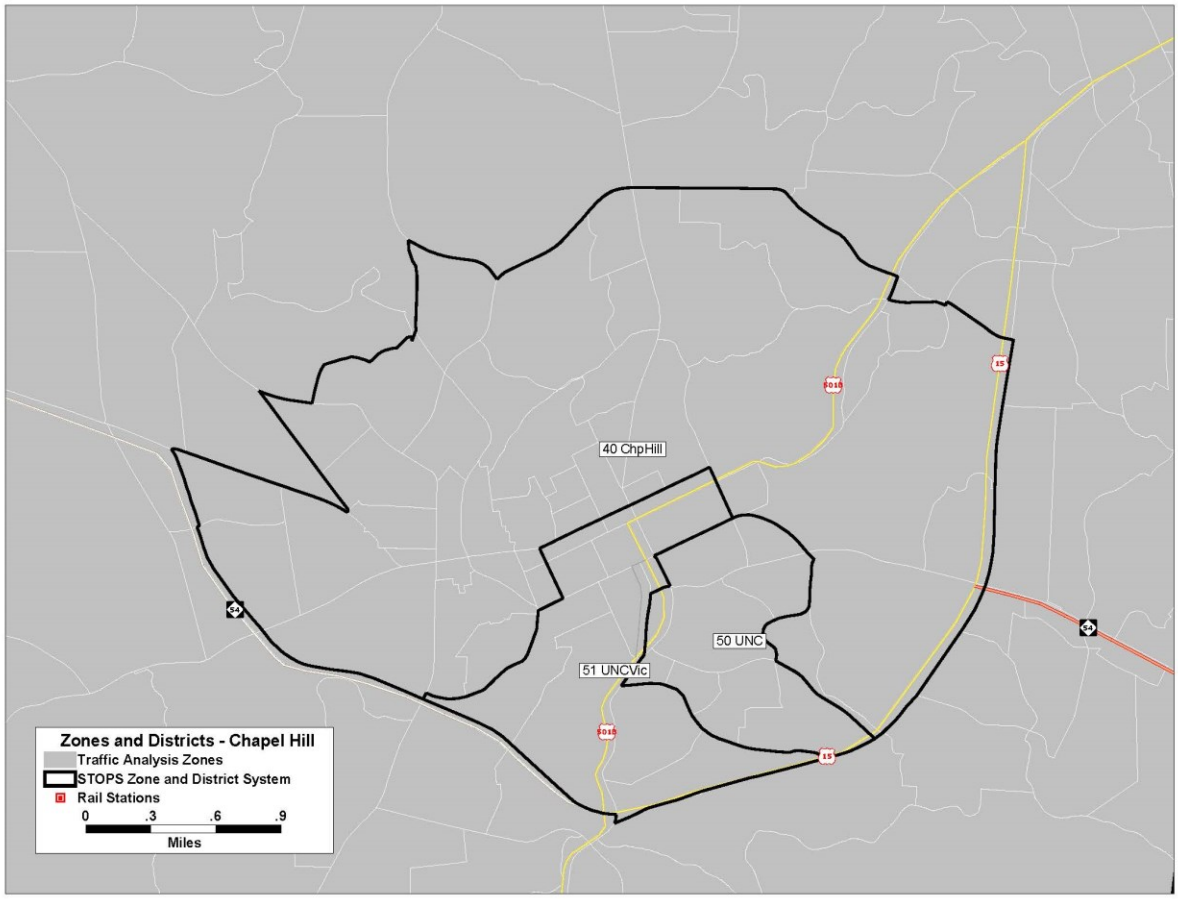


Figure 5: TAZ and District System in the Raleigh-to-Durham Corridor

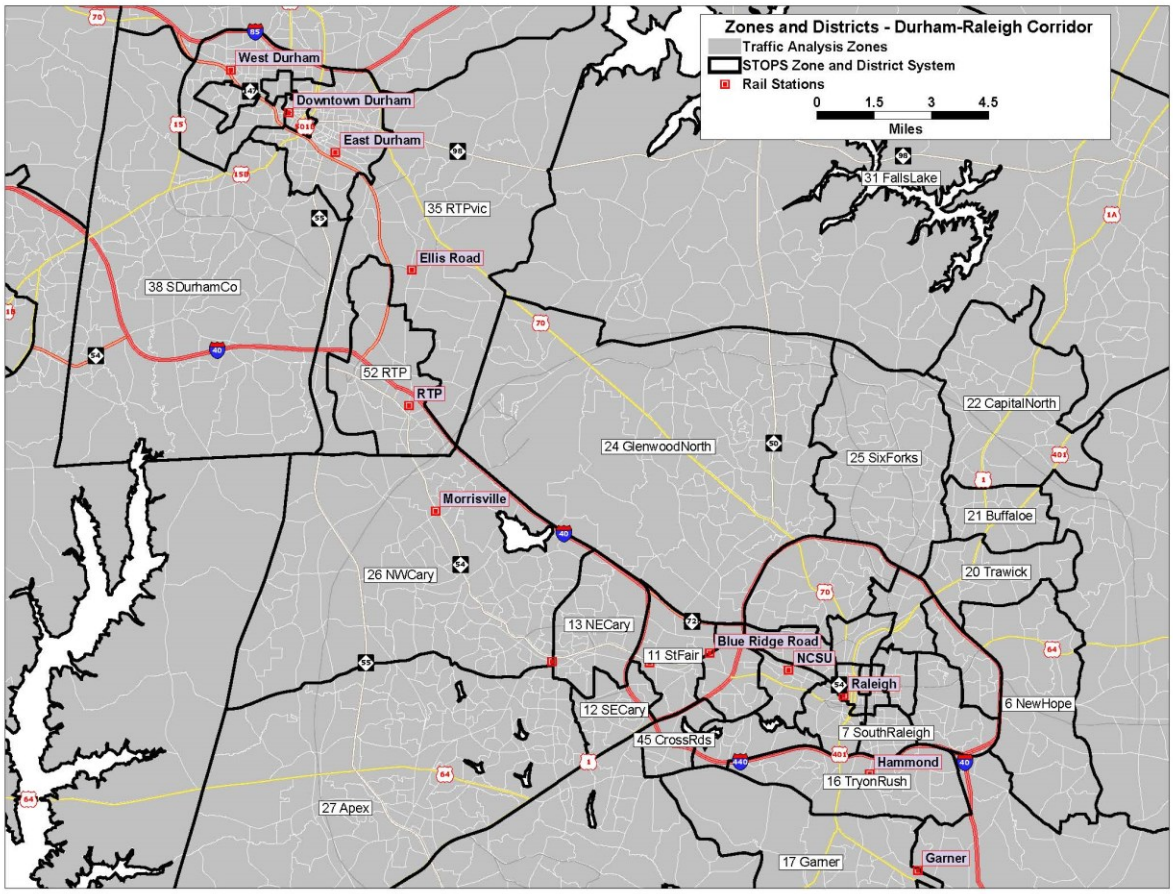
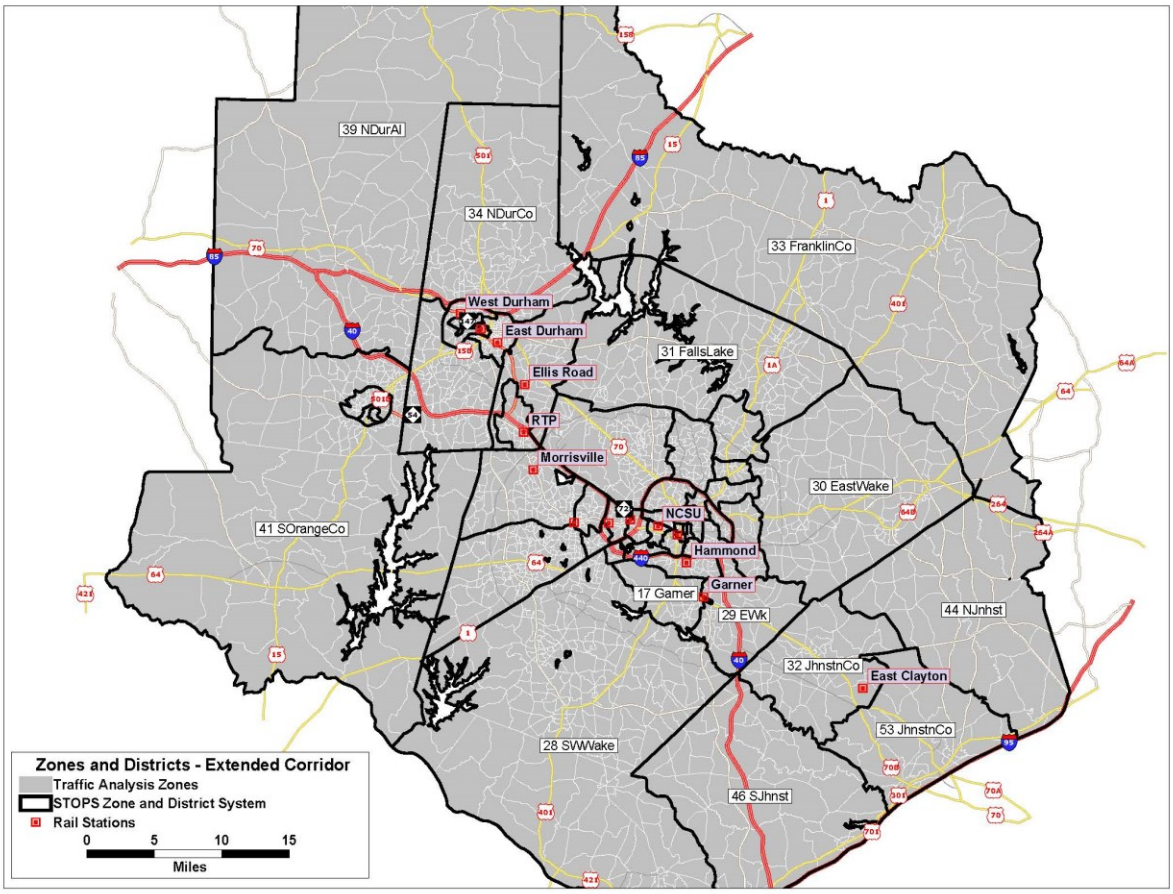


Figure 6: TAZ and District System in the Extended Corridor



2.4. Existing and Projected Population and Employment

Zone-level population and employment projections were obtained from the adopted Triangle J Council of Governments (TJCOG) adopted Community Viz forecasts of population and employment for 2020, 2040, and 2050. This information is incorporated into the 2050 Metropolitan Transportation Plan which was adopted by the Capital Area Metropolitan Planning Organization (CAMPO) and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO) in early 2022.

Table 1 summarizes population and employment by district for the years 2020 and 2040. For the region as a whole, population is expected to grow by 38 percent between 2018 and 2040. Regional employment during the same period is expected to grow by 51 percent. Many portions of the region are expected to grow much more rapidly than the overall region. Of particular note are districts near proposed rail stations (e.g., districts 1, 8, 29, 42, 43, and 47). Population or employment in these areas are expected to more than double between 2018 and 2040. Many of these areas are in the Durham and Raleigh core areas, a finding that is notable because they have some of the highest levels of existing transit use and are therefore likely to be strong future transit trip generators. Other areas near proposed rail stations with high projected growth in population or employment include the Oakwood, Avent Ferry, State Fair, East Wake, and Johnston Corridor districts.

Table 1: Population and Employment Assumptions by District

District	Name	Population			Employment		
		2020	2040	2020 to 2040 Growth	2020	2040	2020 to 2040 Growth
1	Capitol	621	2,184	252%	15,437	20,015	30%
2	Oakwood	3,555	4,969	40%	1,400	7,430	431%
3	College Park	6,100	8,053	32%	2,796	4,759	70%
4	SERaleigh	10,328	12,411	20%	2,559	4,673	83%
5	EastRaleigh	5,041	9,616	91%	14,266	20,615	45%
6	NewHope	30,274	42,998	42%	11,433	26,747	134%
7	SouthRaleigh	5,419	7,552	39%	1,824	5,323	192%
8	LakeWheeler	5,484	12,796	133%	9,609	22,771	137%
9	WesternBlvd	12,229	17,187	41%	27,324	34,250	25%
10	AventFerry	13,107	19,322	47%	6,555	23,382	257%
11	StFair	11,894	18,901	59%	12,746	27,483	116%
12	SECary	11,910	17,896	50%	5,731	14,776	158%
13	NECary	12,622	23,199	84%	14,413	32,139	123%
14	TrailWd	5,987	8,078	35%	1,342	2,515	87%
15	Cameron	9,769	10,391	6%	8,087	8,516	5%
16	TryonRush	28,571	46,014	61%	7,671	25,995	239%
17	Garner	20,540	33,463	63%	14,706	24,976	70%
18	CapitalSouth	6,312	10,898	73%	5,890	12,796	117%
19	NERaleigh	7,242	9,192	27%	6,212	10,085	62%
20	Trawick	15,391	24,200	57%	11,268	21,606	92%
21	Buffaloe	21,652	26,302	21%	7,371	16,089	118%
22	CapitalNorth	39,551	45,507	15%	21,618	31,355	45%
23	Glenwood	19,851	25,595	29%	12,427	15,296	23%
24	GlenwoodNorth	100,573	114,631	14%	77,356	84,840	10%
25	SixForks	49,590	54,842	11%	49,508	55,181	11%
26	NWCary	107,176	139,888	31%	73,443	103,368	41%
27	Apex	111,037	144,648	30%	36,125	51,991	44%
28	SWWake	226,132	332,012	47%	64,649	97,087	50%
29	East Wake	31,676	68,001	115%	12,139	38,231	215%
30	East Wake (2)	102,038	167,676	64%	22,166	35,195	59%

Continued

Table 1: Population and Employment Assumptions by District (Continued)

District	Name	Population			Employment		
		2020	2040	2018 to 2040 Growth	2020	2040	2018 to 2040 Growth
31	FallsLake	133,354	149,710	12%	31,441	37,950	21%
32	Johnston Corridor	59,247	132,502	124%	16,304	37,838	132%
33	FranklinCo	99,059	140,766	42%	28,376	38,281	35%
34	NDurCo	82,478	97,441	18%	34,644	38,533	11%
35	RTPvic	54,001	70,696	31%	24,597	37,638	53%
36	EDurham	32,807	48,941	49%	14,650	29,287	100%
37	WDurham	23,303	26,404	13%	24,485	32,651	33%
38	SDurhamCo	110,546	132,488	20%	49,662	80,647	62%
39	NDurAl	85,858	100,693	17%	25,569	29,332	15%
40	ChpHill	20,695	24,124	17%	8,820	10,136	15%
41	SOrangeCo	113,031	160,624	42%	37,165	56,828	53%
42	CapWest	2,854	7,572	165%	12,489	24,518	96%
43	Convention	2,448	8,711	256%	15,291	33,456	119%
44	N Johnston Co.	27,717	32,440	17%	3,682	3,987	8%
45	CrossRds	6,003	9,972	66%	7,850	9,138	16%
46	South Johnston Co.	66,402	80,765	22%	15,205	15,346	1%
47	DurCBD	3,020	9,437	212%	13,404	24,554	83%
48	Duke	4,358	7,416	70%	26,082	33,421	28%
49	DukeVic	3,724	3,999	7%	2,070	2,570	24%
50	UNC	6,980	7,856	13%	19,736	28,205	43%
51	UNCVic	6,005	7,334	22%	6,056	9,726	61%
52	RTP	4,344	7,503	73%	44,702	61,183	37%
53	East Johnston Co	35,740	63,211	77%	20,591	21,698	5%
Subtotal	Durham Co.	324,784	416,879	28%	235,002	342,963	46%
	Wake Co.	1,129,865	1,564,648	38%	614,734	967,247	57%
	Orange Co.	148,880	180,554	21%	74,721	103,428	38%
	Johnston Co.	186,096	305,603	64%	54,923	77,716	41%
	Other	226,055	321,383	42%	61,592	85,087	38%
	Total	2,015,680	2,789,067	38%	1,040,972	1,576,441	51%

Note: Districts in areas outside the Durham-Raleigh Core may include portions of several counties.

2.5. Highway Travel Times and Distances

Current and future year highway travel time and distance matrices were developed for the Years 2016 and 2050 using the current version of the Triangle Regional Model (TRM), the adopted population and employment forecasts, and the adopted program of transportation projects from the 2050 Metropolitan Transportation Plan. Travel times for 2040 are estimated by interpolating 2016 and 2050 time matrices.

Base year (2016) time estimates from the TRM model were checked against on-line mapping estimates collected in 2019 (i.e., from Phase 1 of this study) beginning at eleven origin locations along the proposed rail line to two destination locations as shown in Figure 7.

The FTA STOPS auto time worksheet was used to determine the most appropriate conversion factor for adjusting modeled estimates of congested automobile time to a definition that is consistent with data used for STOPS calibration. The adjustment factor computed by the spreadsheet was 1.08 but times shorter than 50 minutes were estimated almost exactly without any adjustment. Since the time estimates appear to be good for most trip-making and since the on-line mapping estimates are, themselves, an imprecise estimate of travel times[3],the 2016 TRM times were used without adjustment (i.e., adjustment factor=1.0) for representing highway times in the 2018 to 2020 timeframe. Figure 8 shows a comparison of the on-line auto time estimates and the resulting estimates of modeled travel time. As this figure shows, modeled and observed travel times are well-correlated with most differences for short and moderate length trips being less than 10 minutes.

The TRM predicts significant increases in highway travel times between 2018[4] and 2040. Table 2 presents a comparison of Base Year and 2040 highway travel times for a selection of origin locations traveling to downtown Raleigh and Durham. The increase in travel time ranges from 10 to 50 percent. Over half of all trips will experience an increase of more than 25 percent in their travel time over the next 20 years. This increase is a result of the significant forecasted increases in regional population and employment coupled with modest improvements to highway infrastructure.

[3] One of the longest trips in the on-line mapping database was reported to have a typical time of 70 to 130 minutes. The FTA spreadsheet uses a point 35% of the interval between the shortest and longest time (91 minutes). In this case, some trips may take 21 minutes less than the estimated time or 39 minutes longer.
[4] The source of the 2018 base highway travel times was the 2016 TRM that were then compared to 2018 observed highway times and found to be generally representative of peak travel times in 2018.

Figure 7: Test Origin and Destination Locations for Auto Time Confirmation

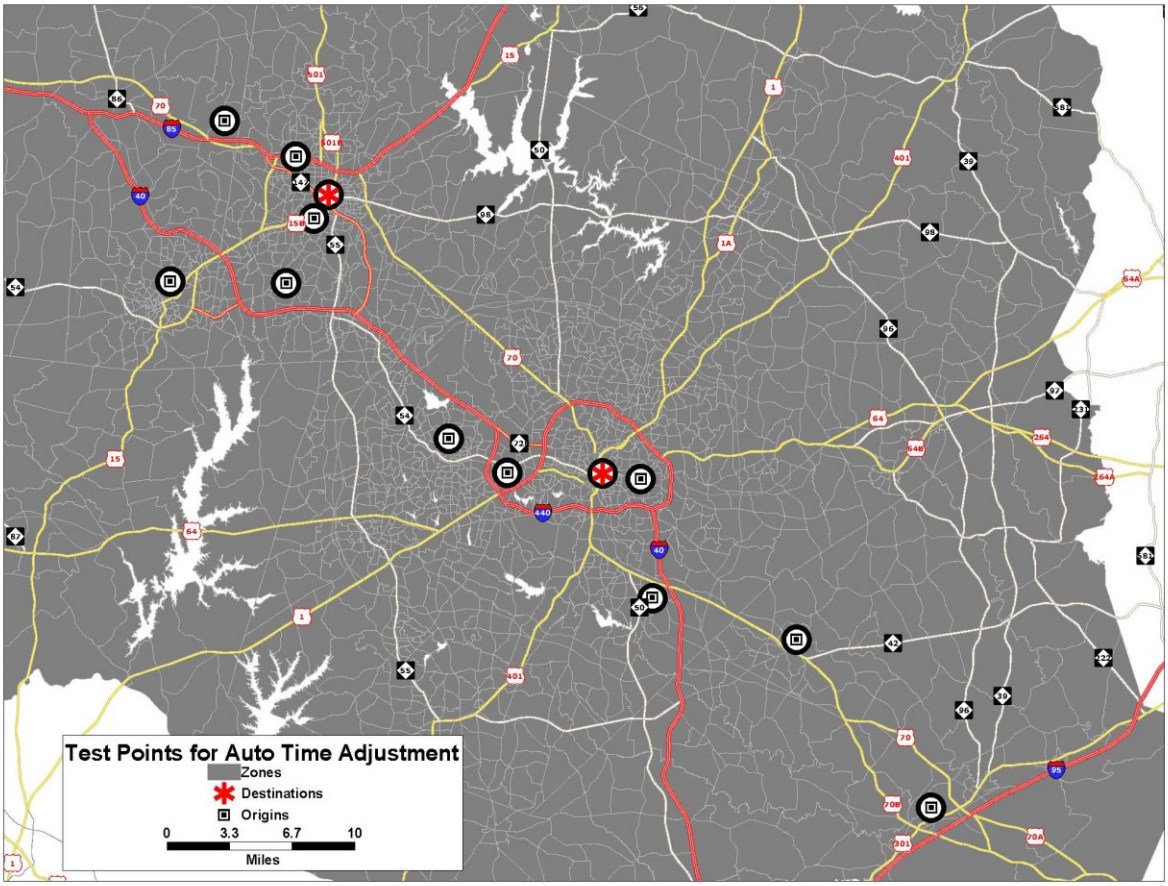
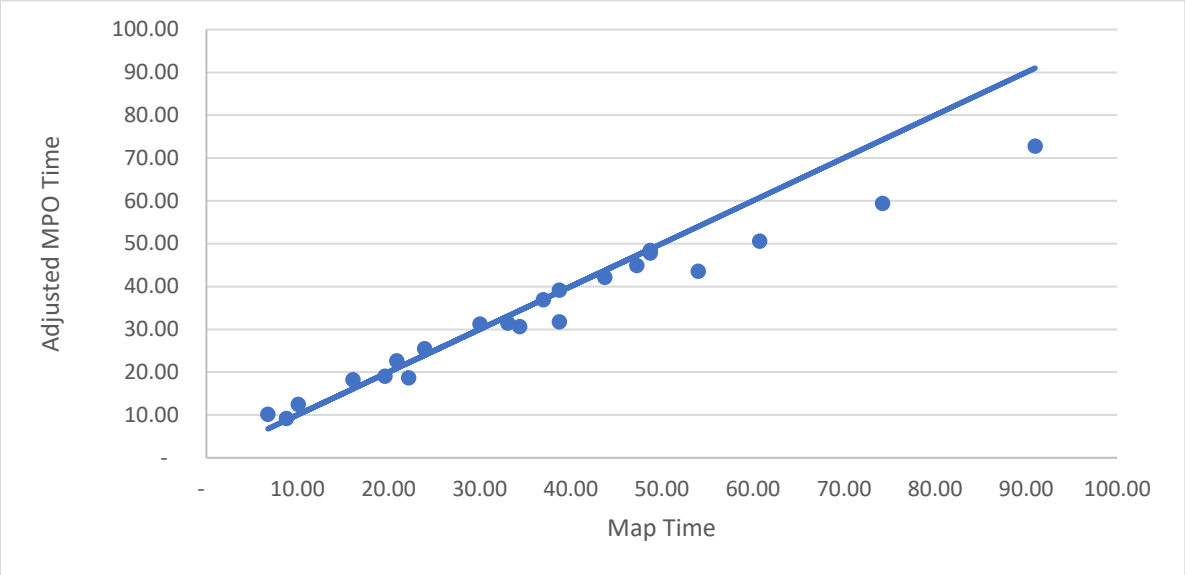


Figure 8: Comparison of Adjusted Model Time and On-Line Highway Time



Notes:

1. MPO Times were obtained from 2016 highway time and distance matrices.
2. For the Phase 2 model, the adjustment factor is equal to 1.0 meaning that adjusted and unadjusted MPO travel times are equal.
3. Map Times were collected in 2019 during Phase 1 of the project and represent pre-pandemic travel conditions,
4. Within the precision of these methods, the conclusion is that 2016 highway skims are representative of base year (2018 to 2019 timeframe) travel conditions without additional adjustment.

Table 2: Comparison of Base Year and 2040 Highway Travel Times for Selected Origins and Destinations

Origin Zone	Destination Zone	Origin Description	Destination Description	Base Year [5]Travel Time (minutes)	Year 2040 Travel Time (minutes)	Change
954	1426	Smithfield-Selma	Raleigh CBD	44.89	60.22	34%
1003	1426	Clayton	Raleigh CBD	31.48	47.17	50%
1816	1426	Garner	Raleigh CBD	22.68	33.12	46%
1546	1426	Raleigh Country Club	Raleigh CBD	10.13	12.18	20%
1631	1426	SW Raleigh	Raleigh CBD	19.08	27.23	43%
2304	1426	Cary	Raleigh CBD	25.47	34.06	34%
502	1426	Woodcroft, Durham	Raleigh CBD	36.9	49.14	33%
1278	1426	Chapel Hill	Raleigh CBD	48.41	62.87	30%
186	1426	Forest Hills, Durham	Raleigh CBD	39.12	53.52	37%
128	1426	Hillandale Durham	Raleigh CBD	42.18	54.96	30%
1171	1426	Eno Township	Raleigh CBD	47.79	61.88	29%
954	201	Smithfield-Selma	Durham CBD	72.78	95.43	31%
1003	201	Clayton	Durham CBD	59.38	75.9	28%
1816	201	Garner	Durham CBD	50.57	68.99	36%
1546	201	Raleigh Country Club	Durham CBD	43.54	58.32	34%
1631	201	SW Raleigh	Durham CBD	31.75	42.29	33%
2304	201	Cary	Durham CBD	30.67	40.71	33%
502	201	Woodcroft, Durham	Durham CBD	18.65	21.39	15%
1278	201	Chapel Hill	Durham CBD	31.2	34.88	12%
186	201	Forest Hills, Durham	Durham CBD	9.16	10.07	10%
128	201	Hillandale Durham	Durham CBD	12.51	13.73	10%
1171	201	Eno Township	Durham CBD	18.24	20.06	10%

[5] Base Year refers to 2018-2020 timeframe for the model. Transit service and ridership data are based on 2018 to represent pre-pandemic conditions. The closest population and employment estimates for this timeframe are for 2020.

2.6. Transit Service Assumptions

The representation of base year (2018) / existing (calibration) transit services is based on the transit schedules in General Transit Feed Specification (GTFS) format. The following operators and service dates are used in the STOPS Greater Triangle Commuter Rail application:

- Chapel Hill Transit – 10/24/2018
- GoDurham – 10/24/2018
- GoRaleigh – 10/24/2018
- GoCary – 10/24/2018
- Wolfline – 10/24/2018
- Duke University Bus – 10/24/18
- GoTriangle – 10/24/18

No-Build networks are based on GTFS schedules prepared for the Wake Transit Plan and similar future transit plans prepared for Durham and Orange Counties. These networks include significant increases in bus service, particularly in Wake County, and the introduction of Bus Rapid Transit (BRT) in three corridors.[6] The full BRT portions of each line are coded as partial Fixed Guideway routes (i.e., GTFS route_type of 0). The rapid bus extensions of each line are coded as traditional bus routes (i.e., GTFS route_type of 3). The partial fixed guideway setting in STOPS conforms with FTA guidance and is set to 0.1. An alternate coding for BRT is explored in the chapter on supplemental analysis. In that section, coding of all BRT and rapid bus services are coded as partial fixed guideway with a setting of 0.1 to determine the extent to which this alternate coding approach materially changes commuter rail or BRT ridership.

Bus service for the Build alternatives removes a parallel express service that would duplicate commuter rail. Modest adjustments were made to some connecting services. Key changes include:

- DRX (Durham-Raleigh Express) would not operate in Build alternatives with full West-Durham to Auburn or Clayton commuter rail service.
- Rerouting of GoDurham Route 12 and 12B
- Elimination of the GoTriangle RDU Shuttle
- Creation of GoTriangle Route 110 (RTC-RDU-Morrisville)

Table 3 presents a summary of bus service provided in the base (2018), no-build, and build alternatives.

[6] BRT corridors are New Bern BRT (from New Bern to downtown Raleigh), Southern BRT (from Purser to downtown Raleigh with a Rapid Bus extension to East Clayton), and Western BRT (from Cary Station to Downtown Raleigh with a Rapid Bus extension to Research Triangle High School).

Table 3: Bus Revenue Vehicle Hours for Base, No-Build, and Build Scenarios

Time Period	**Operator**	**Base (2018)**	**No-Build**	**Build**
6:00-9:00 AM	GoTriangle	3,016	2,450	2,747
	GoRaleigh	2,012	4,449	4,387
	GoDurham	1,399	1,478	1,592
	GoCary	310	279	336
	Chapel Hill Transit	1,554	1,253	1,253
	Total	8,291	9,909	10,315
All Day	GoTriangle	9,440	8,598	8,561
	GoRaleigh	8,761	21,655	21,322
	GoDurham	6,884	8,145	8,827
	GoCary	1,624	1,576	1,845
	Chapel Hill Transit	5,997	5,400	5,400
	Total	32,706	45,374	45,955

Note: Build statistics represent bus service assuming the implementation of full-length commuter rail options from West Durham to Auburn or East Clayton.

2.7. Walk Network

A walk network was developed for this project representing all non-limited access roadway links in the modeling region. This network was supplemented with non-roadway connections on university campuses where pedestrians can cross open spaces in places without streets.

These walk network links are used as part of the process that generates walk-to-transit connectors and help to ensure water and other barriers between TAZs and nearby transit services are respected.

2.8. Transit Ridership Counts

Transit ridership counts were obtained from the Wake County BRT study for GoRaleigh, GoCary, and Wolfline services. All other counts were obtained from GoTriangle in consultation with GoDurham, Duke University, and Chapel Hill Transit. In both cases, bus ridership information is based on Automatic Passenger Count (APC) equipment and are recorded for each route and bus stop. During the Wake County BRT study, some discrepancies were found between count information and official ridership estimates transmitted to the National Transit Database. These issues were investigated (as part of the BRT study) and, to the greatest extent possible, resolved before being used within STOPS.

Where available, ridership estimates were compared to the 2018 and 2019 National Transit Database (NTD) to confirm that these estimates of counted ridership (prepared in July 2019) were generally consistent with ridership levels reported to the Federal Transit Administration. This comparison is shown in Table 4. As shown in this table, there are some minor differences between stop and route counts that are due to several factors including:

- Some routes are operated by a different agency than the one that appears on the schedule.
- The survey data includes bus routes operated in the past in Johnston County (JCX and CLX) that may be helpful for understanding ridership potential for a commuter rail line to Clayton. Stop counts were estimated from the survey data but are not included as route counts since those services did not operate in 2018. Instead, the demand generated in that area was assumed to shift to nearby park-and-ride facilities in Wake County.
- Some routes are added, dropped, and altered over the course of the year and may not be completely consistent in all reporting systems.

In general, the final stop and route counts closely mirror the original count information. These counts are, for some systems, higher than the average ridership reported to the National Transit Database. Some of this difference is due to the fact that count data used in this study represent a typical weekday in the fall of 2018 rather than the annual average weekday ridership that is reported to the NTD. These two statistics can be significantly different for systems serving a large proportion of university trips. The annual average for these systems is suppressed by weekdays occurring during semester breaks when transit ridership is lower.

Table 4: Comparison of Counted Ridership by Carrier to the National Transit Database

Agency	Counts as obtained from Wake BRT Study and GoTriangle	Stop Counts used in model calibration	Route Counts used in model calibration	2018 NTD	2019 NTD[7]
GoTriangle	6,719	7,281	6,905	6,040	6,081
GoRaleigh	17,765	17,611	17,267	16,222	16,884
GoCary	746	744	746		
GoDurham	20,534	19,701	20,314	21,465	20,953
Chapel Hill Transit	23,998	23,914	23,998	25,004	25,980
Wolfline	21,515	21,494	21,359	16,356	13,520
Duke University	14,334	14,250	14,905		
Total	105,611	104,995	105,495		

2.9. Stop/Station Groups

Stop and station groups are generally defined on the basis of the district that contained the station or bus stop. The only exceptions occur for districts greater than or equal to 47 (Major Activity Center detail for Downtown Durham, Chapel Hill, and Research Triangle Park) which were added late in the calibration

[7] The 2019 NTD ridership estimates show that little change in ridership occurred between 2018 and 2019, an outcome that supports the decision to use the ridership service and count data collected and consistency-checked in 2018.

process to aid STOPS in distinguishing between strong park-and-ride markets and those with less park-and-ride potential. Since park-and-ride calibration is not directly related to transit ridership counts, the groupings used for count-based adjustment reflect the original district assignments. The following districts are affected by this decision:

- Group 47 (Durham CBD) merged into Group 36 (East Durham)
- Group 48 (Duke University) merged into Group 37 (West Durham)
- Group 49 (Duke Vicinity) merged into Group 37 (West Durham)
- Group 50 (UNC) merged into Group 40 (Chapel Hill)
- Group 51 (UNC Vicinity) merged into Group 40 (Chapel Hill)
- Group 52 (Research Triangle Park) merged into Group 35 (RTP Vicinity)

Note that the group process is only used for aggregating ridership counts by station for use in calibration. New stations (or others without ridership count data) may not always be assigned according to these rules but this difference has no impact on the model or forecast results.

2.10. Route-Level Ridership and Route Groups

Route-level ridership estimates are available for bus routes from the APC database described above. Each bus route is coded as its own group.

2.11. Transit Rider Surveys

Information on transit demand characteristics obtained from rider surveys is used as an input to STOPS in two ways:

1. Estimates of the number of regional linked transit trips by purpose and auto ownership are an optional input to all STOPS operating modes (i.e., incremental, synthetic, and special markets). This input helps STOPS know the total amount of transit travel that occurs for each type of trip and aids in efficient model calibration.
2. Zone-to-zone transit trip tables stratified by purpose and auto ownership are read by the STOPS incremental and special markets modes to establish existing transit trip-making patterns. After calibration, this base is adjusted to reflect changes in socioeconomic conditions and transit services to estimate no-build and build transit demand.

Trip information is typically obtained from carefully controlled transit user surveys conducted according to guidance available from the Federal Transit Administration. FTA strongly recommends a sufficiently large sample size (up to 10 percent) to reflect the geographic distribution of trip origins and destinations, survey controls intended to ensure a representative sample of all riders, and a tablet-based interview process to generate accurate and complete responses from transit riders.

In the case of transit service in the Greater Triangle region, three surveys are available that, together, represent most transit ridership. These surveys are:

- A Fall 2014 survey (completed in 2015) conducted by GoTriangle covering services in Orange and Durham Counties operated by GoTriangle, Durham Area Transit Authority (now GoDurham), and Chapel Hill Transit. The survey database has 9,231 records representing 52,928 weekday unlinked transit trips and 43,726 weekday linked transit trips (both adjusted to represent 2016 ridership levels).
- A Fall 2015 survey (completed in 2016) conducted by GoRaleigh covering services in Wake County operated by GoTriangle, GoRaleigh, C-Tran (now GoCary), and Wolfline. This survey has 10,780 records representing 45,901 unlinked weekday transit trips in 2016 and 36,020 linked weekday transit trips in 2016.
- A 2006 survey conducted by Duke University covering its transit system. This survey has 667 records covering 15,600 weekday unlinked transit trips and 14,760 linked transit trips (both adjusted to represent 2016 ridership levels.

The survey was combined into a single dataset by regional planning staff and weighted to 2016 to support re-calibration of the Triangle Regional Model. As part of the Greater Triangle Commuter Rail Project (i.e., this project), the combined survey file was reweighted to match 2018 unlinked trip totals obtained from the count database. In cases where a route was covered in multiple underlying surveys (i.e., GoTriangle route CRX and DRX), survey records were used from the 2014 Orange and Durham County Survey that had more than twice as many records for the overlapping routes than the 2016 Wake County Survey.

After the unlinked trip weights were updated, new linked trip weights were computed based on the number of transit boardings (i.e., the original boarding plus all transfers) made on each trip. Table 5 presents a summary of the re-weighting process.

Table 5: Summary of Survey Re-Weighting Process

	Before Re-Weighting	After Re-Weighting	Unlinked Counts (for Comparison)[8]
Number of trip records with non-blank weights	14,977	14,547	
Year Represented	2016	2018	2018
Unlinked Weekday Trip Weights			
GoTriangle[9]	8,997	6,284	6,166
GoRaleigh	24,162	17,765	17,765
GoCary	1,003	746	746
GoDurham	21,483	20,534	17,836
Chapel Hill Transit	26,504	23,998	23,952
Wolfline	16,678	21,515	19,084
Duke University	15,600	13,334	13,334
Total	114,428	98,883	98,883
Linked Weekday Trip Weights	94,505	87,711	
Average Transit Boardings per Trip	1.21	1.19	

The next adjustment to the survey accounts for the substantial number of transit park-and-ride trips that involve more time in an automobile than on transit. These trips are sometimes called "remote parking transit trips." Typically, these trips travel to one of the three major universities in the region and park in a remote parking lot and transfer to a shuttle bus to reach the final destination. These trips are the result of limited parking in close-in lots and are much less likely to switch to a new transit mode than trips that walk to transit or park in a more conventional park-and-ride lot. To account for these trips, remote parkers were flagged using one of the following rules:

- Records involving Chapel Hill Transit – Any park-and-ride trip that uses a parking lot restricted to UNC permit holders is treated as a remote parker. A trip parking at a lot open to the general public is treated as a transit Park-and-Ride trip[10].
- Records involving Wolfline or Duke University Transit – All park-and-ride trips are treated as remote parkers.

[8] Routes with low ridership may have changed between the time of the survey and current counts. In some cases, it is not possible to match existing counts with surveyed routes leading to a small difference between the counts and the refactored surveys.

[9] Survey retained records for Johnston County Services that are not in the 2018 count database. These records were retained to better understand transit demand in Johnston County.

[10] Public park-and-ride lots for Chapel Hill Transit are Eubanks Road (TAZ 1228), Jones Ferry Road (TAZ 1139), Southern Village (TAZ 1373), and Carrboro Plaza (TAZ 1133). Survey trips qualified as parking at a public parking lot are identified by the TAZ boarding zone number and are retained as transit park-and-ride trips. All others are treated as a remote parking trip.

Remote parking trip records are updated so that the production zone is reset to the zone containing the remote parking lot and the mode of access (used for computing calibration statistics) is reset to “walk.” In effect, this coding revision means that remote parkers are assumed to begin their modeled trip at the parking lot they use, and their transit trip is just that portion of the journey that uses the parking shuttle bus to connect to their ultimate destination.

The conversion of remote parking trips from park-and-ride to walk access trips beginning at the parking lot is summarized in Table 6, Table 7, and Table 8.

Table 6: Linked Park-and-Ride Transit Trips Before and After Conversion of Remote Parking Trips to Walk Access Trips from the Lot Itself

Agency	Before Remote Parking Conversion			After Conversion
	Regular Park-and-Ride	Remote Parking	Total	Regular Park-and-Ride
GoTriangle	1,138	-	1,138	1,138
GoRaleigh	288	-	288	288
GoCary	5	-	5	5
GoDurham	90	-	90	90
Chapel Hill Transit	1,292	2,899	4,191	1,292
Wolfline	-	2,805	2,805	-
Duke	-	2,480	2,480	-
Total	2,814	8,184	10,998	2,814

Table 7: Mode of Access by Agency Before Conversion of Remote Parking Trips to Walk Access

	Walk	Kiss-and-Ride (KNR)	Park-and-Ride (PNR, (includes remote parkers)	Total
GoTriangle	3,007	445	1,138	4,590
GoRaleigh	11,470	455	288	12,213
GoCary	504	3	5	512
GoDurham	13,557	397	90	14,043
Chapel Hill Transit	18,371	265	4,191	22,828
Wolfline	18,093	4	2,805	20,902
Duke	10,108	34	2,480	12,623
Total	75,110	1,603	10,998	87,711

Table 8: Mode of Access by Agency After Conversion of Remote Parking Trips to Walk Access

	Walk (Includes remote parkers)	Kiss-and-Ride (KNR)	Park-and-Ride (PNR)	Total
GoTriangle	2,837	614	1,138	4,590
GoRaleigh	11,304	613	296	12,213
GoCary	496	11	5	512
GoDurham	13,373	581	90	14,043
Chapel Hill Transit	21,123	412	1,292	22,828
Wolfline	20,760	141	-	20,902
Duke	12,491	133	-	12,623
Total	82,384	2,506	2,821	87,711

The final processing involved converting the survey results to the format required by STOPS—a transit person trip table showing the number of linked transit trips between each pair of Traffic Analysis Zones stratified by purpose and household auto ownership level. During initial reviews with FTA, it was noted that some potential commuter rail options may offer less than hourly service during the midday and evening off-peak time periods. FTA recommended that the STOPS purpose definitions be adjusted according to the rules presented in Table 9.

Table 9: Revised Trip Definitions Used in GTCR Model

STOPS Standard Definition	Modified Definition for GTCR Project
Home-Based Work (HBW) Trips (Modeled using peak period transit service levels)	Any Home-Based Trip for which both directions of travel (to and from home) occur during the AM or PM peak periods
Home-Based Other (HBO) Trips (Modeled using off-peak period transit service levels)	Any Home-Based Trip not qualifying as a HBW trip
Non-Home Based (NHB) Trips (Modeled using off-peak period transit service levels)	Any trip not beginning or ending at home

Table 10 presents a summary of linked transit trips by purpose and auto ownership developed from the survey and the additions described above. Trips in this trip table are one of the key inputs to the special markets version of STOPS.

Table 10: Survey Weekday 2018 Linked Transit Trips Classified by Trip Purpose and Auto Ownership

	0-car	1-car	2+ Cars	Total
Home-Based Work (HBW)	5,514	7,356	6,638	18,752
Home-Based Other (HBO)	18,361	14,962	18,361	52,075
Non-Home-Based (NHB)	5,426	4,509	6,193	16,128
Total	29,692	30,226	27,794	87,711

2.12. Transit Fares

Optional STOPS fare processing procedures were applied in this project. Key fare parameters are based on the one-way cash fare for all operators and are expressed in Year 2022 Dollars. Base year transit fares reflect the fares that were in effect in 2018 and were inflated to 2022 using the 2017-to-2021 change in the US Consumer Price Index[11]. A series of alternative future GoTriangle and commuter rail fares were tested and are discussed in the Chapter 4, Alternative Definition.

Base year (2018) fares coded in 2018 and 2022 dollars are as follows:

- The value-of-time was set at $12 per hour, the STOPS defaults
- Boarding fares were established as follows:
  - GoTriangle regional bus - $2.25 (2018 dollars) / $2.48 (2022 dollars)
  - GoTriangle express bus - $3.00 (2018 dollars) / $3.31 (2022 dollars)

[11] The 2017-to-2021 CPIs were used to inflate fares forward four years from 2018 since the 2022 CPI is not yet available.

- GoRaleigh and GoCary - $1.25 (2018 dollars) / $1.38 (2022 dollars)
- GoDurham - $1.00 (2018 dollars) / $1.10 (2022 dollars)
- Chapel Hill Transit, Wolfline, and Duke University – free

- Transfers are set so that intra-agency transfers are free. Transfers between agencies cost money only when transferring from a less expensive service to a more expensive service. Then the transfer fee is equal to the boarding cost of the "transfer-to" service less the boarding cost of the "transfer-from" service.

2.13. Station/Stop Boarding Penalties

Station and stop boarding penalties are used to represent both physical and perceived impedances to using various stations and transit services. Early runs of STOPS revealed that the model tended to overestimate walk access and underestimate park-and ride access for regional and express services such as those offered by GoTriangle. Conversely, local services, particularly those offered by GoRaleigh, GoDurham, and Chapel Hill Transit forecasted more park-and-ride trips than actually occurred and too few walk-access trips.

To accurately represent the modes of access attracted to each type of service, station penalties were used to discourage walk-access usage of regional and express transit services (including commuter rail) and to discourage park-and-ride usage of local carriers. This adjustment was accomplished with the following station/stop penalties:

- Duke University and NC State University bus services – 10-minute boarding penalty for park-and-ride any access to reflect the fact that these trips have been recoded as walk access trips.
- GoTriangle bus– 1-minute boarding penalty for all access modes and for GoTriangle to/from other operator bus transfers. This coding is intended to provide a small preference to local carriers over more expensive GoTriangle services. This coding helps to create trips that use local buses unless the GoTriangle bus provides a benefit of at least 2 minutes.
- Commuter Rail – 1-minute boarding penalty for all access modes except transfers from different systems which are set to 5 minutes. This coding is based on station penalties coded for new commuter rail systems included in the nationwide calibration of STOPS v2.51.[12]

[12] In the STOPS commuter rail tests in other cities, boarding penalties were set to 1 minute for all boarding types except transfers from different systems, which was set to 7.5 minutes. This was necessary to match observed transfers between those commuter rail and connecting bus services. The 7.5 minute parameter for other cities was reduced for this application since it has a higher overall transfer penalty and higher transit boarding penalties for regional bus services than were used in the other cities. As a consequence, some of the 7.5 minute transfer penalty has already been accounted for in other parameters.

2.14. Other Parameters

STOPS parameters were set so that modeled ridership (before count adjustment) closely matched observed values. This approach helps to limit the potential distortions that can arise from blindly forcing the model to match counted ridership. Adjustments that vary from STOPS defaults are as follows:

- The fraction of the Transfer Penalty to apply is set to 1.2 (default is 1.0). This adjustment is slightly higher than the nationwide default of 5 minutes and has the impact of increasing the boarding penalty to 6 minutes. This was required to match the observed transfer rate seen in regional surveys.
- The KNR Transit parameter was set to 0.4 (default is 1.0). This adjustment has the effect of reducing kiss-and-ride demand below the national default values to match experience in the Raleigh-Durham area. This level of adjustment is not unusual and affects a small proportion of trips (approximately 5% after adjustment) that are dropped off at a transit stop in the Raleigh-Durham area.
- Special park-and-ride adjustments were employed to reflect the unique park-and-ride market in the Raleigh-Durham area. STOPS includes a process to identify large park-and-ride markets based on the density of one-car and two-car household transit riders (at the attraction or non-home end of the trip) and based on the park-and-ride/transit trip being time competitive with driving all the way to the destination. Typically (i.e., in most cities in the United States), this means that most park-and-ride trips are made by commuters working in large, dense downtown areas. In the Greater Triangle area, circumstances are different. While there is a downtown commute park-and-ride market in Raleigh and Durham, the largest park-and-ride market consists of travelers to universities with highly constrained parking supplies. Many trips are made for non-work purposes and the park-and-ride trip may not be as time-competitive as in other areas of the country. To address both issues, the following changes were made.
    - PNR constants for Home-Based Other trips were altered to make PNR trips more attractive by 15 minutes compared to the STOPS defaults. The value was selected to make modeled PNR trips match observed PNR trips for each of the recoded purposes used in this application.
    - Short PNR trips from the areas immediately surrounding NC State and Duke and traveling to their respective campuses were discouraged by a negative constant of -1.5 (equivalent to 50 minutes of travel time) to reflect the fact that campus PNR lots served by each university's shuttle buses are recoded as walk trips. A similar penalty is applied to UNC but the value there is -2.8 (equivalent to 93 minutes) for the same purpose.
    - Reduce the PNR demand for the lowest two density classifications to 0.0 (the lowest allowed), to reflect small PNR demand in these areas.
    - Override the PNR density function's relationship to transit share and employment density in selected areas to reflect the fact that the CTPP data is inconsistent in some key transit markets[13]. PNR density parameters in these areas are hard coded as:

[13] These values were set by iterative application of the model and a comparison between modeled and observed park-and-ride usage at each location

        - Raleigh CBD: 3.7 (slightly higher than the STOPS default for a very high density/high transit share area)
        - NC State: 1.9 (equivalent to the STOPS representation of a moderate activity center)
        - Research Triangle Park: 0.9 (equivalent to the STOPS representation of a low-density activity center)
        - Duke University: 2.5 (equivalent to the STOPS representation of a moderately-high density activity center)
    - Retain the default PNR relationship for the University of North Carolina.
    - Reduce the impact of the backtracking computation to 75 percent of the default value. This adjustment allows more circuitous park-and-ride to transit trips that occur in several parts of the region, most notably travelers to UNC.
    - Set the limit on sum of PNR constants to 1.0 (the STOPS maximum, representing places where parking demand may be severely constrained may require a positive inducement to use PNR-to-transit as compared to driving all the way to the destination).
- Count-based factoring, by default, can adjust demand up by 400% and down to 20% of its survey-based value. In this application, the adjustments were limited to 50% (up or down). This more limited adjustment may result in a less precise match to counted volumes but also reduces the opportunities for the count-adjustment process to distort the model.
- Values for several calibration settings (Constant Multiplier for Low Share Application, KNR-to-Fixed Guideway discount, and weight of auto time for long trips) are slightly different from the final Version 2.51 defaults because the GoTriangle model was calibrated and validated prior to the final defaults being established.

The success of these adjustments (particularly the park-and-ride adjustments) will be demonstrated in the next section on calibration results.

2.15. STOPS Calibration

The STOPS application for the Greater Triangle region was calibrated according to the approach recommended by FTA in "Ridership Forecasting with STOPS for Transit Project Planning," a training course offered by the National Transit Institute in cooperation with FTA. The recommended approach begins with error detection and correction and then proceeds to high-level adjustment to basic model parameters. Once the soundness of the basic modeling approach has been established, transit rider counts are used to tune the model to match detailed ridership statistics. This approach emphasizes modest adjustments with an understanding of why typical parameters may not apply in a particular situation over large, blunt adjustments that merely force the model to match observed values.

Calibration results were judged according to how well STOPS represents key travel patterns before and after count-based adjustment. As much as possible, the pre-count adjustment results should demonstrate that STOPS properly represents the overall transit market and that the counts merely serve to tune the results to close match observed ridership counts. As shown below, the Greater Triangle implementation of STOPS largely achieves this goal.

The first evidence that STOPS understands overall transit usage patterns is presented in Table 11 and Table 12. These tables compare counted ridership to ridership generated by STOPS before and after the count-based adjustment to demonstrate the accuracy of the initial model (pre-adjustment) and the success of the final model (post-adjustment) to replicate existing transit demand patterns. Table 11 presents these results for aggregated station/stop groups and Table 12 presents these results for key existing routes that parallel the rail line and for each transit agency in the region.

As these tables show, the STOPS results closely match observed values before and after count adjustment. The largest discrepancies occur with the Duke University transit system (and the Durham stop groups) but, even in these areas, the modeled demand before adjustment differs from the count by 20 percent or less and are corrected by the count-based adjustment that is the final element of the STOPS calibration process.

Fortunately, this issue is unlikely to affect commuter rail forecasts since that the Duke University transit system serves much a shorter-distance market than the commuter rail system.

Otherwise, the model does well in representing ridership along the corridor with a good distribution of trips along the entire extent of the commuter rail project and among the various GoTriangle bus routes that are most comparable to the project.

Table 11: Comparison of Counted 2018 Weekday Ridership by Aggregated Stop/Station Group to STOPS Estimates Before and After Count Based Adjustment

	Count	Pre-Adjustment Model	Post-Adjustment Model
Commuter Rail Corridor			
Clayton-Selma	24	38	55
Garner	1,451	1,419	1,549
Raleigh CBD	7,529	6,241	6,676
NCSU	9,248	8,981	9,200
Other Raleigh Area	22,665	23,621	22,391
Cary Area	1,020	1,081	929
RTP Area	1,984	1,883	1,777
Durham	29,540	26,415	28,086
S Durham County	3,599	4,896	3,911
West Corridor	2,094	2,713	2,238
Subtotal Commuter Rail Corridor	79,154	77,288	76,812
Other Areas			
SW Wake	190	262	189
East Wake Co	67	31	28
Other	418	175	200
Chapel Hill	18,563	20,364	18,735
South Orange Co.	6,603	7,189	6,665
Total	104,995	105,310	102,630

Table 12: Comparison of Counted 2018 Weekday Ridership by Route and Agency to STOPS Estimates Before and After Count Based Adjustment

	Count	Initial STOPS Estimate	Final STOPS Estimate
Routes most comparable to proposed commuter rail service			
GoTriangle 700	532	494	521
GoTriangle DRX	547	336	479
GoTriangle 100	641	1,020	832
GoTriangle 102	271	100	127
GoTriangle 105	233	108	152
GoTriangle 300	580	998	837
GoTriangle 301	132	105	106
GoTriangle 305	109	89	85
Total Comparable Routes	3,045	3,250	3,137
Ridership by System			
GoTriangle	6,719	8,001	7,010
GoRaleigh	17,267	16,233	16,645
GoCary	746	873	752
GoDurham*	20,314	20,635	19,469
Chapel Hill Transit	23,998	25,715	23,933
Wolfline	21,360	21,999	21,224
Duke University	14,905	11,853	13,596
All Transit	105,309	105,310	102,630

The next series of comparisons concerns the proper representation of mode-of-access to transit for separate groups of travelers. The usage patterns of park-and-ride customers is particularly important since a sizable proportion of commuter rail customers may choose to park at rail stations given the plans to provide parking and the fact that the line serves many suburban neighborhoods where park-and-ride will often be the best option.

Table 13 compares STOPS results to survey estimates of linked trips by access mode. Overall, STOPS results match observed distributions of access mode closely. Table 14, Table 15 and Table 16 show that park-and-ride trips generated by STOPS match survey distributions of park-and-ride trips by trip purpose, auto ownership, and transit agency used. The most significant mismatch is that STOPS tends to over-assign some park-and-ride trips to GoDurham and GoTriangle under-assign trips to Chapel Hill Transit services. Although the percentage difference is large, the number of trips is relatively small. To avoid model distortions that could arise with larger stop time penalties, no further adjustments were made beyond those listed in the previous section.

Table 13: Comparison of Modeled and Surveyed 2018 Linked Transit Trips by Access Mode

Access Mode	Survey		Model	
	Trips	Percent	Trips	Percent
Walk	82,384	94%	79,696	93%
KNR	2,506	3%	2,808	3%
PNR	2,821	3%	2,781	3%
Total	87,711	100%	85,285	100%

Table 14: Comparison of Modeled and Surveyed 2018 Linked Park-and-Ride Transit Trips by Purpose

Access Mode	Survey		Model	
	Trips	Percent	Trips	Percent
Home-Based Work[14]	1,804	64%	1,869	67%
Home-Based Other[15]	901	32%	758	27%
Non-Home Based	116	4%	154	6%
Total	2,821	100%	2,781	100%

Table 15: Comparison of Modeled and Surveyed 2018 Linked Park-and-Ride Transit Trips by Auto Ownership

	Survey		Model	
Auto Ownership	Trips	Percent	Trips	Percent
0-car	71	3%	42	2%
1-car	1,036	37%	1,054	38%
2+ cars	1,715	61%	1,686	61%
Total	2,822	100%	2,782	100%

Table 16: Comparison of Modeled and Surveyed 2018 Linked Park-and-Ride Trips by Agency

Agency	Survey Trips	Model Trips
Go Cary	6	38
Go Durham	90	158
Chapel Hill Transit	1,292	902
Duke University	0	0
Go Raleigh	296	112
Go Triangle	1,138	1,560
Wolfline	0	10
Total	2,822	2,780

[14] In the GTCR implementation, Home-Based Work trips represent Home-Based trips which travel in both directions (to and from home) during the AM or PM peaks.

[15] In the GTCR implementation, Home-Based Other trips represent Home-Based trips which travel in one or both directions (to and from home) occur outside of the AM or PM peaks.

The final set of comparisons examine production-to-attraction linked transit trip flows from the survey (shown in Table 17) and those generated by STOPS (shown in Table 18). Percentage differences for any survey cell with more than 250 trips are shown in Table 19. Although model results do not exactly match the input survey, the general pattern is the same for the survey and STOPS. Major transit destinations include the area near NC State University, the University of North Carolina, and Duke University. This outcome is not surprising since well over half of all linked transit trips are provided by the two University systems plus Chapel Hill Transit, which functions (in part) as UNC's shuttle bus system. The central corridor (Raleigh to Durham) produces or attracts half of all regional transit trips.

These tables are repeated for the park-and-ride access mode in Table 20 through Table 22. Park-and-ride attractions are much more highly concentrated (on the attraction trip end) in the three downtown areas (Raleigh, Chapel Hill, and Durham) and the three major universities (NC State, University of North Carolina, and Duke University). Over half of all existing park-and-ride trips travel to UNC or other nearby areas in Chapel Hill. The Raleigh CBD, NC State, and Duke University attract smaller concentrations of trips. As the comparison between the survey and STOPS shows, the model successfully replicates park-and-ride trip patterns and demonstrates a basic understanding of the park-and-ride market. STOPS over-estimates parking demand for trips occurring within the central part of the rail corridor (i.e., Raleigh to Durham, excluding universities and Central Business Districts) by approximately 500 trips. This over-estimate is spread over a large area and is not concentrated in any one area and was not adjusted for fear of distorting model results.

Table 17: Surveyed 2018 Super District Linked Transit Production-Attraction Trip Flows

Attraction> Production	Raleigh Core	NC State	Other Raleigh Area	Central Durham	Duke	Other Durham Area	Chapel Hill CBD	UNC	Cary Area	RTP	Other	Total
Raleigh inside Loop	1,653	18,949	7,575	43	139	160	19	114	151	75	672	29,551
N Raleigh	620	141	2,488	86	40	68	17	74	24	33	161	3,752
Cary-Apex	115	88	88	3	17	47	13	175	281	103	123	1,054
RTP	6	30	34	115	46	538	1	207	3	114	17	1,113
Durham	111	114	279	3,963	8,341	9,369	121	1,703	48	466	752	25,268
Chapel Hill	51	51	80	72	202	270	1,108	8,126	0	12	1,562	11,532
Hillsboro-Burlington	7	7	7	-	17	57	26	298	-	1	11	431
Other Orange Co	21	44	43	42	97	222	296	9,357	-	13	876	11,011
Garner	79	10	139	-	-	4	-	15	-	-	32	279
SE Wake	51	4	85	-	12	35	-	7	6	10	43	253
E Wake	39	1	62	-	2	-	-	1	-	5	15	125
SW Wake	64	43	73	-	-	-	-	15	6	0	12	214
N Wake+Franklin	48	-	46	-	-	1	-	22	-	1	116	233
North Durham Co	7	17	72	326	190	1,814	13	141	4	111	29	2,723
Johnston Co	101	-	33	-	-	-	-	5	13	-	21	172
Total	2,973	19,499	11,104	4,651	9,102	12,584	1,614	20,260	538	946	4,441	87,711

Table 18: Modeled 2018 Super District Linked Transit Production-Attraction Trip Flows

Attraction> Production	Raleigh Core	NC State	Other Raleigh Area	Central Durham	Duke	Other Durham Area	Chapel Hill CBD	UNC	Cary Area	RTP	Other	Total
Raleigh inside Loop	1,986	18,065	7,533	40	171	69	29	104	94	69	515	28,675
N Raleigh	656	145	2,086	78	27	60	5	71	13	37	82	3,260
Cary-Apex	68	41	62	2	16	12	9	108	273	58	81	730
RTP	4	26	32	127	36	504	1	184	3	84	7	1,008
Durham	147	101	227	4,840	9,065	9,491	67	1,377	35	519	115	25,984
Chapel Hill	57	58	51	52	148	197	894	8,036	-	8	1,451	10,952
Hillsboro-Burlington	-	6	1	1	1	9	23	278	-	-	10	329
Other Orange Co	32	34	40	35	85	192	287	9,697	3	23	758	11,186
Garner	58	4	99	-	-	-	-	-	-	-	22	183
SE Wake	32	-	9	-	-	7	-	-	4	-	29	81
E Wake	21	1	35	-	-	-	-	-	-	2	13	72
SW Wake	44	5	72	2	2	2	-	1	78	19	45	270
N Wake+Franklin	16	-	27	-	-	-	-	11	-	-	126	180
North Durham Co	10	13	56	369	96	1,589	19	91	3	123	15	2,384
Johnston Co	1	-	-	-	-	-	-	-	-	-	-	1
Total	3,132	18,499	10,330	5,546	9,647	12,132	1,334	19,958	506	942	3,269	85,295

Table 19: Difference between STOPS and Survey 2018 Super District Linked Transit Trip Flows (cells with more than 250 survey trips)

Attraction> Production	Raleigh Core	NC State	Other Raleigh Area	Central Durham	Duke	Other Durham Area	Chapel Hill CBD	UNC	Cary Area	RTP	Other	Total
Raleigh inside Loop	20%	-5%	-1%								-23%	-3%
N Raleigh	6%		-16%									-13%
Cary-Apex									-3%			-31%
RTP						-6%						-9%
Durham			-19%	22%	9%	1%		-19%		11%	-85%	3%
Chapel Hill						-27%	-19%	-1%			-7%	-5%
Hillsboro-Burlington								-7%				-24%
Other Orange Co							-3%	4%			-13%	2%
Garner												-34%
SE Wake												-68%
E Wake												
SW Wake												
N Wake+Franklin												
North Durham Co				13%		-12%						-12%
Johnston Co												
Total	5%	-5%	-7%	19%	6%	-4%	-17%	-1%	-6%	0%	-26%	-3%

Table 20: Surveyed 2018 Super District Linked Transit Park-and-Ride Production-Attraction Trip Flows

Attraction> Production	Raleigh Core	NC State	Other Raleigh Area	Central Durham	Duke	Other Durham Area	Chapel Hill CBD	UNC	Cary Area	RTP	Other	Total
Raleigh inside Loop	11	3	17	14	102	4	-	54	-	-	25	231
N Raleigh	29	6	6	14	20	20	17	53	-	4	2	170
Cary-Apex	66	2	9	2	14	7	-	128	2	43	2	276
RTP	-	25	5	-	2	17	-	72	-	-	-	121
Durham	40	53	-	-	38	25	18	332	-	10	2	518
Chapel Hill	-	14	35	19	5	6	-	26	-	-	49	154
Hillsboro-Burlington	5	7	2	-	-	7	4	236	-	-	-	262
Other Orange Co	13	4	10	9	2	14	-	667	-	4	-	723
Garner	-	-	-	-	-	-	-	15	-	-	-	15
SE Wake	43	-	2	-	9	18	-	5	-	6	-	83
E Wake	4	-	3	-	1	-	-	-	-	0	-	8
SW Wake	21	-	9	-	-	-	-	15	-	-	-	45
N Wake+Franklin	12	-	1	-	-	-	-	19	-	-	-	32
North Durham Co	5	11	9	-	2	-	-	60	1	-	-	88
Johnston Co	76	-	8	-	-	-	-	5	-	-	-	89
Total	325	126	116	57	196	117	39	1,688	3	67	81	2,814

Table 21: Modeled 2018 Super District Linked Transit Park-and-Ride Production-Attraction Trip Flows

Attraction> Production	Raleigh Core	NC State	Other Raleigh Area	Central Durham	Duke	Other Durham Area	Chapel Hill CBD	UNC	Cary Area	RTP	Other	Total
Raleigh inside Loop	3	6	14	14	99	2	-	65	-	5	-	208
N Raleigh	55	5	7	13	5	6	-	48	-	-	2	141
Cary-Apex	47	5	1	1	8	2	3	94	2	13	2	178
RTP	2	15	-	2	2	12	-	135	-	-	-	168
Durham	98	25	-	10	33	37	1	397	-	8	3	612
Chapel Hill	22	10	1	5	33	2	-	16	-	-	1	90
Hillsboro-Burlington	-	4	-	1	1	5	5	238	-	-	2	256
Other Orange Co	19	14	3	7	32	10	14	702	1	8	21	831
Garner	2	-	2	-	-	-	-	-	-	-	1	5
SE Wake	4	-	-	-	-	5	-	-	-	-	-	9
E Wake	10	-	1	-	-	-	-	-	-	-	-	11
SW Wake	21	1	15	2	1	2	-	1	23	14	10	90
N Wake+Franklin	7	-	-	-	-	-	-	11	-	-	2	20
North Durham Co	8	11	1	3	8	30	1	40	-	8	-	110
Johnston Co	1	-	-	-	-	-	-	-	-	-	-	1
Total	299	96	45	58	222	113	24	1,747	26	56	44	2,730

Table 22: Difference between STOPS and Survey 2018 Super District Linked Transit Park-and-Ride Trip Flows (cells with more than 100 survey trips)

Attraction> Production	Raleigh Core	NC State	Other Raleigh Area	Central Durham	Duke	Other Durham Area	Chapel Hill CBD	UNC	Cary Area	RTP	Other	Total
Raleigh inside Loop					-3%							-10%
N Raleigh												-17%
Cary-Apex								-26%				-35%
RTP												39%
Durham								20%				18%
Chapel Hill												-42%
Hillsboro-Burlington								1%				-2%
Other Orange Co								5%				15%
Garner												
SE Wake												
E Wake												
SW Wake												
N Wake+Franklin												
North Durham Co												
Johnston Co												
Total	-8%	-24%	-61%		13%	-4%		3%				-3%

2.16. Build Up of Regional Transit Forecasts from Existing to Future Year No-Build

Table 23 presents a step-by-step buildup of regional unlinked and linked transit trips between 2018 and 2040. The overall growth between 2018 and 2040 in linked transit trips is nearly 70 percent, a higher growth than occurs in many regions. This high growth is explained by examining each of the steps that is responsible for the change. Changes related to transportation levels-of-service (i.e., the no-build transit system and future year highway congestion) are relatively modest and account for only a small proportion of the change. Both effects are consistent with recognized service elasticities.

The big change in regional growth is directly tied to the increase in employment growth projected for the region. Where population and employment growth rates differ, STOPS controls the overall forecasts to employment growth and, in essence, assumes that a higher proportion of the regional population will be making work trips than did so in the base year. The growth in transit trip-making is almost identical to the regional growth in population.

Table 23 Buildup of Regional Transit Trips from 2018 Existing to 2040 No-Build

Step	Unlinked Trips	Growth from Previous Step	Linked Trips	Growth from Previous Step	Notes
2018 (Existing)	102,630		92,968		
2018 (No-Build)	117,516	15%	96,913	4%	Elasticity of linked trips vs revenue miles=0.2
2040 (No-Build)-2018 Hwy Time	177,991	51%	147,052	52%	Matches employment growth
2040 (No-Build)-2040 Hwy Time	185,349	4%	155,467	6%	Cross-elasticity of linked trips vs. highway time= -0.3

3. Alternative Definition

The Greater Triangle Commuter Rail (GTCR) Project proposes to implement a new commuter rail service between Raleigh and Durham, potentially extending to Clayton, North Carolina to the east. The new service would utilize the existing freight and intercity passenger rail corridor between these locales, the North Carolina Railroad (NCRR)-owned "H-Line." The service would use FRA-compliant commuter rail locomotives and coaches and would operate mixed with freight and intercity passenger traffic in a shared-use corridor.

3.1. Service Plans

This study examined a several service scenarios derived from previous studies (including Phase I of this project). These alternatives include three service frequencies and two length options, combining for six alternatives:

- 20 daily round trips (8 – 2 – 8 – 2)[16]
    - West Durham to Auburn (8-2-8-2) with selected trains extended to East Clayton (3-1-3)
    - West Durham to Auburn
- 23 daily round trips (30-minute headway peak/60-minute headway off-peak)
    - West Durham to Auburn
- 19 daily round trips (60 minute all day)
    - West Durham to Auburn

3.2. Station Locations

For each of the studied alternatives, the stations defined in Table 24 were included in the analysis. Station locations are mapped in Figure 9 through Figure 11.

[16] The sequence number shows the number of round-trip trains in the AM peak period, the midday period, the PM Peak Period, and the evening period. For instance, the 8 – 2 – 8 – 2 sequence is defined as 8 round trips in the AM peak period, 2 round trips in the midday period, 8 round trips in the PM peak period, and 2 round trips in the evening period. When only three numbers appear, no evening trains are operated.

Table 24: Commuter Rail Station Definitions

Station	Cumulative Run Time Including Dwell (minutes)	Station-Station Run Time Including Dwell (minutes)	Approx. H-Line Milepost	Spacing (miles)	Park and Ride Type[17]
West Durham			52.8		4
Downtown Durham	3.7	3.7	54.7	1.9	[18]
East Durham	7.0	3.4	56.0	1.3	4
Ellis Road	12.6	5.6	60.6	4.6	2
RTP	19.0	6.4	63.8	3.2	2
Morrisville	23.6	4.6	66.8	3.0	2
Downtown Cary	31.0	7.5	72.5	5.7	4
Corp Center Dr	35.6	4.6	75.2	2.7	2
Blue Ridge Road	39.0	3.4	76.9	1.7	2
NCSU	43.0	4.0	79.3	2.4	
Raleigh	47.7	4.7	81.1	1.8	
Hammond	52.0	4.3	83.2	2.1	2
Garner	57.7	5.7	86.4	3.2	2
Auburn	64.0	3.0	90.6	3.3	1 or 2[19]
Clayton	72.5	8.5	98.0	7.4	1

[17] Blank means no park-ride assumed. Each coded type corresponds to a maximum PNR drive distance as follows: 1=25 miles, 2=10 miles, 3=6 miles, 4=3 miles. For this series of model runs, Type 4 applied to all stations in core areas where PNR must compete with other demands on parking capacity. Later sensitivity tests will explore additional assumptions. Since the exact location of parking facilities have not been identified, an extra minute of travel time has been added at each PNR lot to account for the time required to travel from the parked car to the train platform.

[18] No dedicated rail PNR provided at Downtown Durham. Rail riders could park at the existing American Tobacco PNR.

[19] Type 1 is used in scenarios in which Auburn is the end-of-line. Type 2 is used otherwise.

Figure 9: Station Locations (Durham-Morrisville)

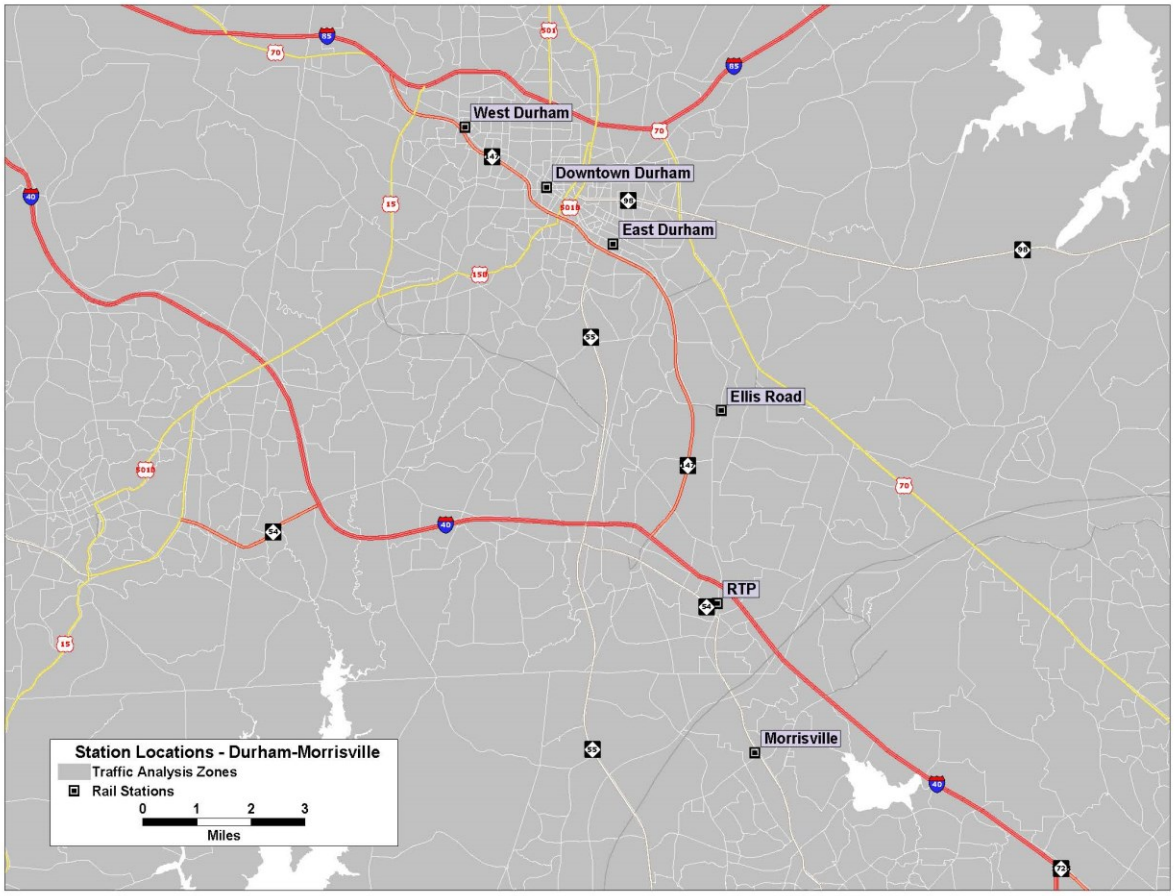


Figure 10: Station Locations (Morrisville-Raleigh-Garner)

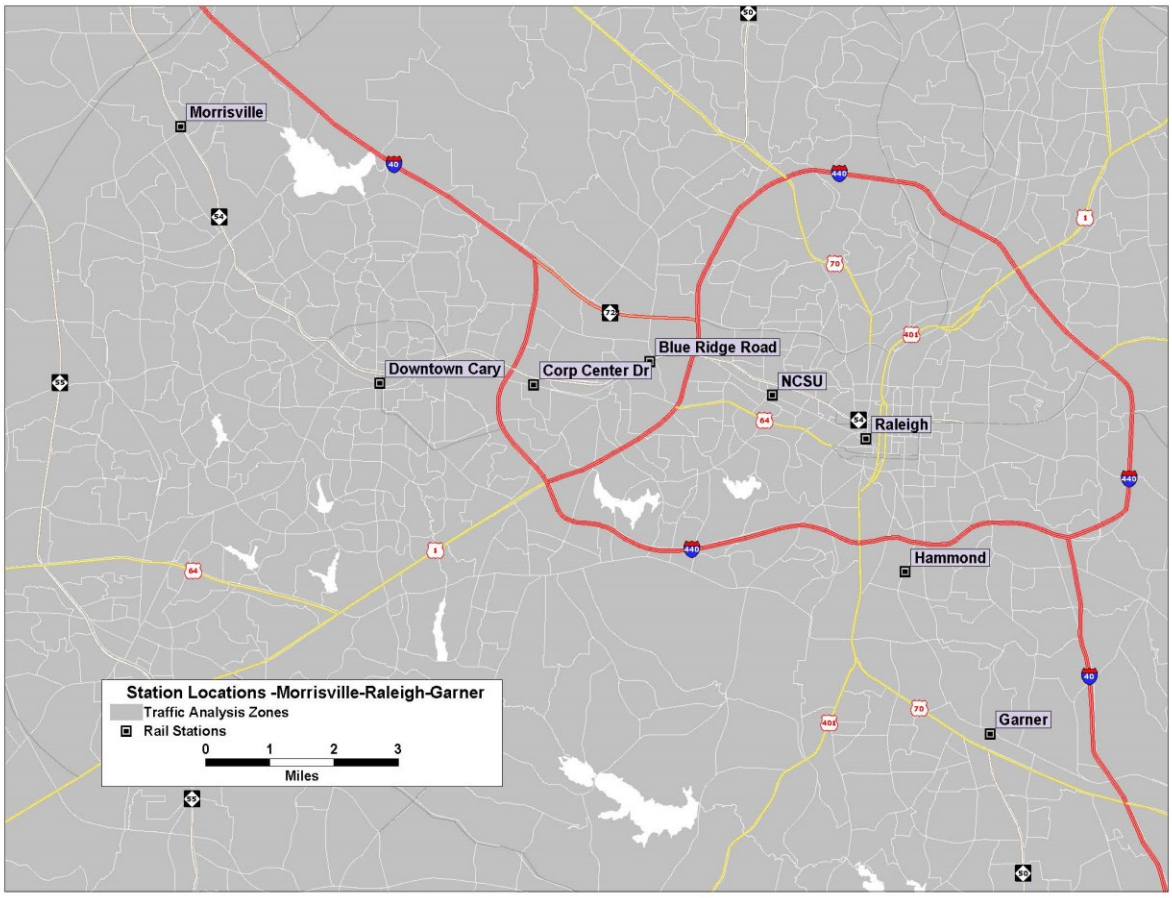


Figure 11: Station Locations (Garner-East Clayton)

3.3. Commuter Rail Schedules

Commuter rail schedules for each service plan are presented in Table 25 through Table 32.

Please note that all schedules tested with the ridership forecasting model are being refined and tested by the operations planning team and are subject to revision based on the results of railroad simulation models. Additionally, it is possible that some of these schedules may be infeasible or require major infrastructure investments to operate.

Table 25: West Durham-Clayton 8-2-8-2 Eastbound Schedule

Station	AM1	AM2	AM3	AM4	AM5	AM6	AM7	AM8	MD1	MD2	PM1	PM2	PM3	PM4	PM5	PM6	PM7	PM8	EV1	EV2
West Durham	5:31	6:01	6:31	7:01	7:31	8:01	8:26	9:01	11:01	13:01	15:01	15:31	16:01	16:31	17:01	17:31	18:01	18:31	20:31	22:31
Downtown Durham	5:34	6:04	6:34	7:04	7:34	8:04	8:29	9:04	11:04	13:04	15:04	15:34	16:04	16:34	17:04	17:34	18:04	18:34	20:34	22:34
East Durham	5:38	6:08	6:38	7:08	7:38	8:08	8:33	9:08	11:08	13:08	15:08	15:38	16:08	16:38	17:08	17:38	18:08	18:38	20:38	22:38
Ellis Road	5:43	6:13	6:43	7:13	7:43	8:13	8:38	9:13	11:13	13:13	15:13	15:43	16:13	16:43	17:13	17:43	18:13	18:43	20:43	22:43
RTP	5:50	6:20	6:50	7:20	7:50	8:20	8:45	9:20	11:20	13:20	15:20	15:50	16:20	16:50	17:20	17:50	18:20	18:50	20:50	22:50
Morrisville	5:54	6:24	6:54	7:24	7:54	8:24	8:49	9:24	11:24	13:24	15:24	15:54	16:24	16:54	17:24	17:54	18:24	18:54	20:54	22:54
Downtown Cary	6:02	6:32	7:02	7:32	8:02	8:32	8:57	9:32	11:32	13:32	15:32	16:02	16:32	17:02	17:32	18:02	18:32	19:02	21:02	23:02
Corp Center Dr	6:06	6:36	7:06	7:36	8:06	8:36	9:01	9:36	11:36	13:36	15:36	16:06	16:36	17:06	17:36	18:06	18:36	19:06	21:06	23:06
Blue Ridge Road	6:10	6:40	7:10	7:40	8:10	8:40	9:05	9:40	11:40	13:40	15:40	16:10	16:40	17:10	17:40	18:10	18:40	19:10	21:10	23:10
NCSU	6:14	6:44	7:14	7:44	8:14	8:44	9:09	9:44	11:44	13:44	15:44	16:14	16:44	17:14	17:44	18:14	18:44	19:14	21:14	23:14
Raleigh	6:18	6:48	7:18	7:48	8:18	8:48	9:13	9:48	11:48	13:48	15:48	16:18	16:48	17:18	17:48	18:18	18:48	19:18	21:18	23:18
Hammond	6:23	6:53	7:23	7:53	8:23	8:53	9:18	9:53	11:53	13:53	15:53	16:23	16:53	17:23	17:53	18:23	18:53	19:23	21:23	23:23
Garner	6:28	6:58	7:28	7:58	8:28	8:58	9:23	9:58	11:58	13:58	15:58	16:28	16:58	17:28	17:58	18:28	18:58	19:28	21:28	23:28
Auburn	6:35	7:05	7:35	8:05	8:35	9:05	9:30	10:05	12:05	14:05	16:05	16:35	17:05	17:35	18:05	18:35	19:05	19:35	21:35	23:35
Clayton		7:13		8:13		9:13			12:13			16:43		17:43		18:43				

Table 26: West Durham-Clayton 8-2-8-2 Westbound Schedule

Station	AM1	AM2	AM3	AM4	AM5	AM6	AM7	AM8	MD1	MD2	PM1	PM2	PM3	PM4	PM5	PM6	PM7	PM8	EV1	EV2
Clayton		5:40		6:40		7:40				12:40				16:10		17:10		18:10		
Auburn	5:18	5:48	6:18	6:48	7:18	7:48	8:18	9:03	10:48	12:48	14:48	15:18	15:48	16:18	16:48	17:18	17:48	18:18	20:18	22:18
Garner	5:25	5:55	6:25	6:55	7:25	7:55	8:25	9:10	10:55	12:55	14:55	15:25	15:55	16:25	16:55	17:25	17:55	18:25	20:25	22:25
Hammond	5:31	6:01	6:31	7:01	7:31	8:01	8:31	9:16	11:01	13:01	15:01	15:31	16:01	16:31	17:01	17:31	18:01	18:31	20:31	22:31
Raleigh	5:36	6:06	6:36	7:06	7:36	8:06	8:36	9:21	11:06	13:06	15:06	15:36	16:06	16:36	17:06	17:36	18:06	18:36	20:36	22:36
NCSU	5:40	6:10	6:40	7:10	7:40	8:10	8:40	9:25	11:10	13:10	15:10	15:40	16:10	16:40	17:10	17:40	18:10	18:40	20:40	22:40
Blue Ridge Road	5:44	6:14	6:44	7:14	7:44	8:14	8:44	9:29	11:14	13:14	15:14	15:44	16:14	16:44	17:14	17:44	18:14	18:44	20:44	22:44
Corp Center Dr	5:47	6:17	6:47	7:17	7:47	8:17	8:47	9:32	11:17	13:17	15:17	15:47	16:17	16:47	17:17	17:47	18:17	18:47	20:47	22:47
Downtown Cary	5:52	6:22	6:52	7:22	7:52	8:22	8:52	9:37	11:22	13:22	15:22	15:52	16:22	16:52	17:22	17:52	18:22	18:52	20:52	22:52
Morrisville	5:59	6:29	6:59	7:29	7:59	8:29	8:59	9:44	11:29	13:29	15:29	15:59	16:29	16:59	17:29	17:59	18:29	18:59	20:59	22:59
RTP	6:04	6:34	7:04	7:34	8:04	8:34	9:04	9:49	11:34	13:34	15:34	16:04	16:34	17:04	17:34	18:04	18:34	19:04	21:04	23:04
Ellis Road	6:12	6:42	7:12	7:42	8:12	8:42	9:12	9:57	11:42	13:42	15:42	16:12	16:42	17:12	17:42	18:12	18:42	19:12	21:12	23:12
East Durham	6:17	6:47	7:17	7:47	8:17	8:47	9:17	10:02	11:47	13:47	15:47	16:17	16:47	17:17	17:47	18:17	18:47	19:17	21:17	23:17
Downtown Durham	6:20	6:50	7:20	7:50	8:20	8:50	9:20	10:05	11:50	13:50	15:50	16:20	16:50	17:20	17:50	18:20	18:50	19:20	21:20	23:20
West Durham	6:24	6:54	7:24	7:54	8:24	8:54	9:24	10:09	11:54	13:54	15:54	16:24	16:54	17:24	17:54	18:24	18:54	19:24	21:24	23:24

Table 27: West Durham-Auburn 8-2-8-2 Eastbound Schedule

Station	AM1	AM2	AM3	AM4	AM5	AM6	AM7	AM8	MD1	MD2	PM1	PM2	PM3	PM4	PM5	PM6	PM7	PM8	EV1	EV2
West Durham	5:31	6:01	6:31	7:01	7:31	8:01	8:26	9:01	11:01	13:01	15:01	15:31	16:01	16:31	17:01	17:31	18:01	18:31	20:31	22:31
Downtown Durham	5:34	6:04	6:34	7:04	7:34	8:04	8:29	9:04	11:04	13:04	15:04	15:34	16:04	16:34	17:04	17:34	18:04	18:34	20:34	22:34
East Durham	5:38	6:08	6:38	7:08	7:38	8:08	8:33	9:08	11:08	13:08	15:08	15:38	16:08	16:38	17:08	17:38	18:08	18:38	20:38	22:38
Ellis Road	5:43	6:13	6:43	7:13	7:43	8:13	8:38	9:13	11:13	13:13	15:13	15:43	16:13	16:43	17:13	17:43	18:13	18:43	20:43	22:43
RTP	5:50	6:20	6:50	7:20	7:50	8:20	8:45	9:20	11:20	13:20	15:20	15:50	16:20	16:50	17:20	17:50	18:20	18:50	20:50	22:50
Morrisville	5:54	6:24	6:54	7:24	7:54	8:24	8:49	9:24	11:24	13:24	15:24	15:54	16:24	16:54	17:24	17:54	18:24	18:54	20:54	22:54
Downtown Cary	6:02	6:32	7:02	7:32	8:02	8:32	8:57	9:32	11:32	13:32	15:32	16:02	16:32	17:02	17:32	18:02	18:32	19:02	21:02	23:02
Corp Center Dr	6:06	6:36	7:06	7:36	8:06	8:36	9:01	9:36	11:36	13:36	15:36	16:06	16:36	17:06	17:36	18:06	18:36	19:06	21:06	23:06
Blue Ridge Road	6:10	6:40	7:10	7:40	8:10	8:40	9:05	9:40	11:40	13:40	15:40	16:10	16:40	17:10	17:40	18:10	18:40	19:10	21:10	23:10
NCSU	6:14	6:44	7:14	7:44	8:14	8:44	9:09	9:44	11:44	13:44	15:44	16:14	16:44	17:14	17:44	18:14	18:44	19:14	21:14	23:14
Raleigh	6:18	6:48	7:18	7:48	8:18	8:48	9:13	9:48	11:48	13:48	15:48	16:18	16:48	17:18	17:48	18:18	18:48	19:18	21:18	23:18
Hammond	6:23	6:53	7:23	7:53	8:23	8:53	9:18	9:53	11:53	13:53	15:53	16:23	16:53	17:23	17:53	18:23	18:53	19:23	21:23	23:23
Garner	6:28	6:58	7:28	7:58	8:28	8:58	9:23	9:58	11:58	13:58	15:58	16:28	16:58	17:28	17:58	18:28	18:58	19:28	21:28	23:28
Auburn	6:35	7:05	7:35	8:05	8:35	9:05	9:30	10:05	12:05	14:05	16:05	16:35	17:05	17:35	18:05	18:35	19:05	19:35	21:35	23:35

Table 28: West Durham-Auburn 8-2-8-2 Westbound Schedule

Station	AM1	AM2	AM3	AM4	AM5	AM6	AM7	AM8	MD1	MD2	PM1	PM2	PM3	PM4	PM5	PM6	PM7	PM8	EV1	EV2
Auburn	5:18	5:48	6:18	6:48	7:18	7:48	8:18	9:03	10:48	12:48	14:48	15:18	15:48	16:18	16:48	17:18	17:48	18:18	20:18	22:18
Garner	5:24	5:54	6:24	6:54	7:24	7:54	8:24	9:09	10:54	12:54	14:54	15:24	15:54	16:24	16:54	17:24	17:54	18:24	20:24	22:24
Hammond	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:15	11:00	13:00	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	20:30	22:30
Raleigh	5:35	6:05	6:35	7:05	7:35	8:05	8:35	9:20	11:05	13:05	15:05	15:35	16:05	16:35	17:05	17:35	18:05	18:35	20:35	22:35
NCSU	5:39	6:09	6:39	7:09	7:39	8:09	8:39	9:24	11:09	13:09	15:09	15:39	16:09	16:39	17:09	17:39	18:09	18:39	20:39	22:39
Blue Ridge Road	5:43	6:13	6:43	7:13	7:43	8:13	8:43	9:28	11:13	13:13	15:13	15:43	16:13	16:43	17:13	17:43	18:13	18:43	20:43	22:43
Corp Center Dr	5:47	6:17	6:47	7:17	7:47	8:17	8:47	9:32	11:17	13:17	15:17	15:47	16:17	16:47	17:17	17:47	18:17	18:47	20:47	22:47
Downtown Cary	5:51	6:21	6:51	7:21	7:51	8:21	8:51	9:36	11:21	13:21	15:21	15:51	16:21	16:51	17:21	17:51	18:21	18:51	20:51	22:51
Morrisville	5:59	6:29	6:59	7:29	7:59	8:29	8:59	9:44	11:29	13:29	15:29	15:59	16:29	16:59	17:29	17:59	18:29	18:59	20:59	22:59
RTP	6:03	6:33	7:03	7:33	8:03	8:33	9:03	9:48	11:33	13:33	15:33	16:03	16:33	17:03	17:33	18:03	18:33	19:03	21:03	23:03
Ellis Road	6:11	6:41	7:11	7:41	8:11	8:41	9:11	9:56	11:41	13:41	15:41	16:11	16:41	17:11	17:41	18:11	18:41	19:11	21:11	23:11
East Durham	6:17	6:47	7:17	7:47	8:17	8:47	9:17	10:02	11:47	13:47	15:47	16:17	16:47	17:17	17:47	18:17	18:47	19:17	21:17	23:17
Downtown Durham	6:20	6:50	7:20	7:50	8:20	8:50	9:20	10:05	11:50	13:50	15:50	16:20	16:50	17:20	17:50	18:20	18:50	19:20	21:20	23:20
West Durham	6:24	6:54	7:24	7:54	8:24	8:54	9:24	10:09	11:54	13:54	15:54	16:24	16:54	17:24	17:54	18:24	18:54	19:24	21:24	23:24

Table 29: West Durham-Auburn 30/60 Eastbound Schedule

Station	EM1	AM1	AM2	AM3	AM4	AM5	MD1	MD2	MD3	MD4	MD5	MD6	PM1	PM2	PM3	PM4	PM5	PM6	EV1	EV2	EV3	EV4	EV5
West Durham	5:31	6:31	7:01	7:31	8:01	8:31	9:12	10:31	11:31	12:31	13:31	14:31	15:31	16:01	16:31	17:01	17:31	18:01	19:01	20:01	21:01	22:01	23:31
Downtown Durham	5:34	6:34	7:04	7:34	8:04	8:34	9:15	10:34	11:34	12:34	13:34	14:34	15:34	16:04	16:34	17:04	17:34	18:04	19:04	20:04	21:04	22:04	23:34
East Durham	5:38	6:38	7:08	7:38	8:08	8:38	9:19	10:38	11:38	12:38	13:38	14:38	15:38	16:08	16:38	17:08	17:38	18:08	19:08	20:08	21:08	22:08	23:38
Ellis Road	5:43	6:43	7:13	7:43	8:13	8:43	9:24	10:43	11:43	12:43	13:43	14:43	15:43	16:13	16:43	17:13	17:43	18:13	19:13	20:13	21:13	22:13	23:43
RTP	5:50	6:50	7:20	7:50	8:20	8:50	9:31	10:50	11:50	12:50	13:50	14:50	15:50	16:20	16:50	17:20	17:50	18:20	19:20	20:20	21:20	22:20	23:50
Morrisville	5:54	6:54	7:24	7:54	8:24	8:54	9:35	10:54	11:54	12:54	13:54	14:54	15:54	16:24	16:54	17:24	17:54	18:24	19:24	20:24	21:24	22:24	23:54
Down-town Cary	6:02	7:02	7:32	8:02	8:32	9:02	9:43	11:02	12:02	13:02	14:02	15:02	16:02	16:32	17:02	17:32	18:02	18:32	19:32	20:32	21:32	22:32	0:02
Corp Center Dr	6:06	7:06	7:36	8:06	8:36	9:06	9:47	11:06	12:06	13:06	14:06	15:06	16:06	16:36	17:06	17:36	18:06	18:36	19:36	20:36	21:36	22:36	0:06
Blue Ridge Road	6:10	7:10	7:40	8:10	8:40	9:10	9:51	11:10	12:10	13:10	14:10	15:10	16:10	16:40	17:10	17:40	18:10	18:40	19:40	20:40	21:40	22:40	0:10
NCSU	6:14	7:14	7:44	8:14	8:44	9:14	9:55	11:14	12:14	13:14	14:14	15:14	16:14	16:44	17:14	17:44	18:14	18:44	19:44	20:44	21:44	22:44	0:14
Raleigh	6:18	7:18	7:48	8:18	8:48	9:18	9:59	11:18	12:18	13:18	14:18	15:18	16:18	16:48	17:18	17:48	18:18	18:48	19:48	20:48	21:48	22:48	0:18
Hammond	6:23	7:23	7:53	8:23	8:53	9:23	10:04	11:23	12:23	13:23	14:23	15:23	16:23	16:53	17:23	17:53	18:23	18:53	19:53	20:53	21:53	22:53	0:23
Garner	6:28	7:28	7:58	8:28	8:58	9:28	10:09	11:28	12:28	13:28	14:28	15:28	16:28	16:58	17:28	17:58	18:28	18:58	19:58	20:58	21:58	22:58	0:28
Auburn	6:35	7:35	8:05	8:35	9:05	9:35	10:16	11:35	12:35	13:35	14:35	15:35	16:35	17:05	17:35	18:05	18:35	19:05	20:05	21:05	22:05	23:05	0:35

Table 30: West Durham-Auburn 30/60 Westbound Schedule

Station	EM1	AM1	AM2	AM3	AM4	AM5	MD1	MD2	MD3	MD4	MD5	MD6	PM1	PM2	PM3	PM4	PM5	PM6	EV1	EV2	EV3	EV4	EV5
Auburn	5:18	6:18	6:48	7:18	7:48	8:18	9:18	10:30	11:18	12:18	13:18	14:18	15:18	15:48	16:18	16:48	17:18	17:48	18:48	19:48	20:25	21:48	22:48
Garner	5:24	6:24	6:54	7:24	7:54	8:24	9:24	10:36	11:24	12:24	13:24	14:24	15:24	15:54	16:24	16:54	17:24	17:54	18:54	19:54	20:31	21:54	22:54
Hammond	5:30	6:30	7:00	7:30	8:00	8:30	9:30	10:42	11:30	12:30	13:30	14:30	15:30	16:00	16:30	17:00	17:30	18:00	19:00	20:00	20:37	22:00	23:00
Raleigh	5:35	6:35	7:05	7:35	8:05	8:35	9:35	10:52	11:35	12:35	13:35	14:35	15:35	16:05	16:35	17:05	17:35	18:05	19:05	20:05	20:42	22:05	23:05
NCSU	5:39	6:39	7:09	7:39	8:09	8:39	9:39	10:56	11:39	12:39	13:39	14:39	15:39	16:09	16:39	17:09	17:39	18:09	19:09	20:09	20:46	22:09	23:09
Blue Ridge Road	5:43	6:43	7:13	7:43	8:13	8:43	9:43	11:00	11:43	12:43	13:43	14:43	15:43	16:13	16:43	17:13	17:43	18:13	19:13	20:13	20:50	22:13	23:13
Corp Center Dr	5:47	6:47	7:17	7:47	8:17	8:47	9:47	11:04	11:47	12:47	13:47	14:47	15:47	16:17	16:47	17:17	17:47	18:17	19:17	20:17	20:54	22:17	23:17
Downtown Cary	5:51	6:51	7:21	7:51	8:21	8:51	9:51	11:08	11:51	12:51	13:51	14:51	15:51	16:21	16:51	17:21	17:51	18:21	19:21	20:21	20:58	22:21	23:21
Morrisville	5:59	6:59	7:29	7:59	8:29	8:59	9:59	11:16	11:59	12:59	13:59	14:59	15:59	16:29	16:59	17:29	17:59	18:29	19:29	20:29	21:06	22:29	23:29
RTP	6:03	7:03	7:33	8:03	8:33	9:03	10:03	11:20	12:03	13:03	14:03	15:03	16:03	16:33	17:03	17:33	18:03	18:33	19:33	20:33	21:10	22:33	23:33
Ellis Road	6:11	7:11	7:41	8:11	8:41	9:11	10:11	11:28	12:11	13:11	14:11	15:11	16:11	16:41	17:11	17:41	18:11	18:41	19:41	20:41	21:18	22:41	23:41
East Durham	6:17	7:17	7:47	8:17	8:47	9:17	10:17	11:34	12:17	13:17	14:17	15:17	16:17	16:47	17:17	17:47	18:17	18:47	19:47	20:47	21:24	22:47	23:47
Downtown Durham	6:20	7:20	7:50	8:20	8:50	9:20	10:20	11:37	12:20	13:20	14:20	15:20	16:20	16:50	17:20	17:50	18:20	18:50	19:50	20:50	21:27	22:50	23:50
West Durham	6:24	7:24	7:54	8:24	8:54	9:24	10:24	11:41	12:24	13:24	14:24	15:24	16:24	16:54	17:24	17:54	18:24	18:54	19:54	20:54	21:31	22:54	23:54

Table 31: West Durham-Auburn 60/60 Eastbound Schedule

Station	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
West Durham	5:31	6:31	7:31	8:31	9:12	10:31	11:31	12:31	13:31	14:31	15:31	16:31	17:31	18:31	19:31	20:31	21:31	22:31	23:31
Downtown Durham	5:34	6:34	7:34	8:34	9:15	10:34	11:34	12:34	13:34	14:34	15:34	16:34	17:34	18:34	19:34	20:34	21:34	22:34	23:34
East Durham	5:38	6:38	7:38	8:38	9:19	10:38	11:38	12:38	13:38	14:38	15:38	16:38	17:38	18:38	19:38	20:38	21:38	22:38	23:38
Ellis Road	5:43	6:43	7:43	8:43	9:24	10:43	11:43	12:43	13:43	14:43	15:43	16:43	17:43	18:43	19:43	20:43	21:43	22:43	23:43
RTP	5:50	6:50	7:50	8:50	9:31	10:50	11:50	12:50	13:50	14:50	15:50	16:50	17:50	18:50	19:50	20:50	21:50	22:50	23:50
Morrisville	5:54	6:54	7:54	8:54	9:35	10:54	11:54	12:54	13:54	14:54	15:54	16:54	17:54	18:54	19:54	20:54	21:54	22:54	23:54
Downtown Cary	6:02	7:02	8:02	9:02	9:43	11:02	12:02	13:02	14:02	15:02	16:02	17:02	18:02	19:02	20:02	21:02	22:02	23:02	0:02
Corp Center Dr	6:06	7:06	8:06	9:06	9:47	11:06	12:06	13:06	14:06	15:06	16:06	17:06	18:06	19:06	20:06	21:06	22:06	23:06	0:06
Blue Ridge Road	6:10	7:10	8:10	9:10	9:51	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:10	19:10	20:10	21:10	22:10	23:10	0:10
NCSU	6:14	7:14	8:14	9:14	9:55	11:14	12:14	13:14	14:14	15:14	16:14	17:14	18:14	19:14	20:14	21:14	22:14	23:14	0:14
Raleigh	6:18	7:18	8:18	9:18	9:59	11:18	12:18	13:18	14:18	15:18	16:18	17:18	18:18	19:18	20:18	21:18	22:18	23:18	0:18
Hammond	6:23	7:23	8:23	9:23	10:04	11:23	12:23	13:23	14:23	15:23	16:23	17:23	18:23	19:23	20:23	21:23	22:23	23:23	0:23
Garner	6:28	7:28	8:28	9:28	10:09	11:28	12:28	13:28	14:28	15:28	16:28	17:28	18:28	19:28	20:28	21:28	22:28	23:28	0:28
Auburn	6:35	7:35	8:35	9:35	10:16	11:35	12:35	13:35	14:35	15:35	16:35	17:35	18:35	19:35	20:35	21:35	22:35	23:35	0:35

Table 32: West Durham-Auburn 60/60 Westbound Schedule

Station	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Auburn	5:19	6:19	7:19	8:19	9:19	10:30	11:19	12:19	13:19	14:19	15:19	16:19	17:19	18:19	19:19	20:19	21:19	22:19	23:19
Garner	5:25	6:25	7:25	8:25	9:25	10:36	11:25	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:25	20:25	21:25	22:25	23:25
Hammond	5:31	6:31	7:31	8:31	9:31	10:42	11:31	12:31	13:31	14:31	15:31	16:31	17:31	18:31	19:31	20:31	21:31	22:31	23:31
Raleigh	5:36	6:36	7:36	8:36	9:36	10:47	11:36	12:36	13:36	14:36	15:36	16:36	17:36	18:36	19:36	20:36	21:36	22:36	23:36
NCSU	5:40	6:40	7:40	8:40	9:40	10:51	11:40	12:40	13:40	14:40	15:40	16:40	17:40	18:40	19:40	20:40	21:40	22:40	23:40
Blue Ridge Road	5:44	6:44	7:44	8:44	9:44	10:55	11:44	12:44	13:44	14:44	15:44	16:44	17:44	18:44	19:44	20:44	21:44	22:44	23:44
Corp Center Dr	5:48	6:48	7:48	8:48	9:48	10:59	11:48	12:48	13:48	14:48	15:48	16:48	17:48	18:48	19:48	20:48	21:48	22:48	23:48
Downtown Cary	5:52	6:52	7:52	8:52	9:52	11:03	11:52	12:52	13:52	14:52	15:52	16:52	17:52	18:52	19:52	20:52	21:52	22:52	23:52
Morrisville	6:00	7:00	8:00	9:00	10:00	11:11	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
RTP	6:04	7:04	8:04	9:04	10:04	11:15	12:04	13:04	14:04	15:04	16:04	17:04	18:04	19:04	20:04	21:04	22:04	23:04	0:04
Ellis Road	6:12	7:12	8:12	9:12	10:12	11:23	12:12	13:12	14:12	15:12	16:12	17:12	18:12	19:12	20:12	21:12	22:12	23:12	0:12
East Durham	6:18	7:18	8:18	9:18	10:18	11:29	12:18	13:18	14:18	15:18	16:18	17:18	18:18	19:18	20:18	21:18	22:18	23:18	0:18
Downtown Durham	6:21	7:21	8:21	9:21	10:21	11:32	12:21	13:21	14:21	15:21	16:21	17:21	18:21	19:21	20:21	21:21	22:21	23:21	0:21
West Durham	6:25	7:25	8:25	9:25	10:25	11:36	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:25	20:25	21:25	22:25	23:25	0:25

3.4. Commuter Rail Fare Alternatives

At the time of this analysis, the fare policy has not been finalized for the Greater Triangle Commuter Rail project. Since fares can have a material impact on commuter rail ridership, a range of potential fare policies specified by GoTriangle were tested. All service alternatives were tested against Fare Recommendation "C" (Commuter Rail Fare equal to regional bus fare). The West Durham to Auburn 8-2-8-2 schedule was tested against all fare policies. Each potential fare policy is presented in Table 33.

Table 33: Definition of Fare Recommendations for 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

4. Forecasted Ridership

This section presents forecasts of the ridership impacts associated with the different alternative service plans and fare alternatives described in the previous chapter.

4.1. Overview of Results

Table 34 presents an overview of Year 2018 commuter rail ridership for each modeled alternative (columns) and each fare policy (rows). Table 35 presents similar information for the Year 2040.

Table 34: 2018 Weekday Commuter Rail Boardings by Alternative and Fare Scenario

Alternative> / Fare Assumption	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Fare Recommendation A: (All Free Transit)		6,209		
Fare Recommendation A2: (Local Transit Free)		3,840		
Fare Recommendation B: Zone Commuter Rail Fare		3,844		
Fare Recommendation C: Rail Fare Same as Regional Bus	4,069	4,036	4,926	4,262
Fare Recommendation D: Premium Rail		3,298		

Table 35: 2040 Weekday Commuter Rail Boardings by Alternative and Fare Scenario

Alternative> / Fare Assumption	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Fare Recommendation A: (All Free Transit)		18,341		
Fare Recommendation A2: (Local Transit Free)		11,561		
Fare Recommendation B: Zone Commuter Rail Fare		11,687		
Fare Recommendation C: Rail Fare Same as Regional Bus	12,019	12,190	14,373	12,633
Fare Recommendation D: Premium Rail		10,106		

Key findings are as follows:

1. When Clayton or Auburn are compared as potential eastern termini, each option generates similar levels of ridership. The results suggest that park-and-ride customers who would choose a Clayton station, if it were available, would divert to Auburn if that station were the end-of-line. Few riders would abandon the commuter rail service if there was no Clayton Station.
2. The highest levels of ridership occur for options offered on a 30-minute headway in the peak and hourly in the off-peak. Ridership for all-day, hourly service is slightly higher than ridership for the 8-2-8-2 service plan.
3. Ridership for a full free scenario is approximately 50 percent higher than ridership for the Fare Scenario "C". All other fare scenarios result in fewer commuter rail riders than Fare Scenario "C" in part because Fare Scenarios "A2", "B", and "D" either impose a surcharge on some commuter rail riders or reduce fare on competing local modes.

4.2. Detailed Forecast Results

The first set of results are presented in Table 36 through Table 37 and show Year 2018 project and total ridership for the commuter rail line, parallel corridor routes and overall system ridership for each operating agency in the region. Separate tables are provided for:

- Year 2018 ridership by schedule alternative assuming Fare Alternative C (Commuter Rail Fare set equal to Regional Bus Fare)
- Year 2018 ridership for the West Durham-Auburn 8-2-8-2 alternative by fare alternative

Project ridership on a route is defined as any trip that travels on the stated route that boards, alights, or passes through a project station. By this definition, all commuter rail trips are also project trips since the entire line is defined as being part of the project. Ridership forecasts on parallel regional lines are presented to give context to the commuter rail ridership. This statistic shows how much of this demand already exists today (and therefore has a higher degree of certainty) and how much of the demand will be new riders to transit (greater impact of the project on diverting passengers from automobiles to transit but also a more speculative and uncertain market). This statistic also shows how ridership on the parallel routes will change in response to the introduction of a new travel option. Finally, this table shows the impact of the project on other (non-parallel) GoTriangle services and services offered by other regional transit agencies.

As shown in Table 36, Year 2018 project route boardings (Fare Alternative C) range from 4,000 to 4,900 weekday trips. As in the previous section, the difference between the ridership for the alternatives terminating at Clayton and Auburn is relatively small owning to the fact that residents of the area between Auburn and Selma can opt to use the shorter line by driving to the park-and-ride lots serving the Auburn station.

Another key finding is that service frequency affects ridership in a significant manner. Compared to the 8-2-8-2 options, the 30/60 option carries approximately 22 percent more riders and the 60/60 option carries

about 6 percent more ridership. These results suggest that STOPS is showing that midday service operating at least hourly will be important to serving the market.

Finally, these tables show that ridership on parallel regional bus routes declines only slightly when the no-build is compared to any of the build alternatives. This is reflective of several phenomena. One is that many of the commuter rail line's projected riders will be new to transit and are therefore not diverted away from existing bus routes. Another is that some commuter rail riders may begin their journeys by riding one of the same corridor bus routes from their home to the rail line and then transferring to the rail line to complete their journey. In either event, the relatively small drop in bus ridership should be studied in more detail as project planning advances.

Table 38 through Table 39 shows route- and agency-level ridership results for the year 2040. Commuter ridership in 2040 is approximately three times higher than corresponding forecasts in 2018. This growth in ridership is substantially higher than the region-wide growth in overall transit ridership due to:

1. Demographic growth between 2018 and 2040 is concentrated in the corridor served by the commuter rail line.
2. Much higher population growth than employment growth in SE Wake and Johnston County coupled with higher employment growth in the Raleigh-Durham core. These two factors work together to increase the need for new households to travel from their homes in SE Wake and Johnston Counties to their jobs. The commuter rail line is well located to serve this market effectively.
3. The two demographic factors cited above will lead to comparatively higher auto travel times in the corridor than elsewhere.
4. Higher highway travel times will lead to more cases where park-and-ride to commuter rail will offer a competitive trip to the drive-all-the-way option.

Table 36: 2018 Weekday Boardings by Corridor Route and By System (C: Regional Fare)

Service	Count	Existing	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Commuter Rail and Parallel Regional Routes							
Greater Triangle Commuter Rail	**0**	**0**	**0**	**4,069**	**4,036**	**4,926**	**4,262**
100-Raleigh-Airport-RTC	640	831	0	0	0	0	0
105-Raleigh-RTC	232	152	0	0	0	0	0
700-Durham-RTC	531	521	0	0	0	0	0
DRX-Durham-Raleigh Express	547	479	225	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	0	0	1,227	986	988	742	761
102-Raleigh-Garner	271	127	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	0	0	191	275	274	284	297
20-CW-FY24 Garner Clockwise	0	0	352	337	337	333	334
7-South Saunders	1,369	1,194	99	109	108	107	107
SBRT-Southern BRT	0	0	1,796	1,727	1,742	1,732	1,756
SBRT-Southern BRT + Rapid Bus	0	0	367	510	473	468	484
301-Cary-Raleigh	132	106	0	0	0	0	0
300-RTC-Cary-Raleigh	579	837	0	0	0	0	0
WBRT-Western BRT	0	0	1,587	1,581	1,583	1,543	1,567
WBRT-Western BRT + Rapid Bus	0	0	316	232	232	252	256
Subtotal	4,301	4,247	6,160	9,826	9,773	10,387	9,824
Other Transit							
Other GoTriangle	3,776	3,960	4,056	4,036	4,034	4,065	4,043
GoRaleigh	15,879	15,451	25,720	25,604	25,593	25,654	25,627
GoDurham	20,302	19,468	22,384	22,999	23,000	22,903	22,897
Chapel Hill Transit	23,991	23,933	24,408	24,378	24,379	24,388	24,388
GoCary	743	751	637	735	736	772	756
Wolf Line	21,353	21,226	20,961	20,907	20,906	20,872	20,874
Duke University Transit	14,903	13,597	13,188	13,224	13,223	13,208	13,210
Total	105,248	102,633	117,514	121,709	121,644	122,249	121,619

Table 37: 2018 Weekday Boardings by Corridor Route and By System and Fare (West Durham-Auburn 8282)

Service	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Commuter Rail and Parallel Regional Routes					
Greater Triangle Commuter Rail	**6,209**	**3,840**	**3,844**	**4,036**	**3,298**
100-Raleigh-Airport-RTC	0	0	0	0	0
105-Raleigh-RTC	0	0	0	0	0
700-Durham-RTC	0	0	0	0	0
DRX-Durham-Raleigh Express	0	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	1,942	913	1,003	988	1,029
102-Raleigh-Garner	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	313	336	275	274	287
20-CW-FY24 Garner Clockwise	375	396	337	337	338
7-South Saunders	116	112	108	108	106
SBRT-Southern BRT	1,957	2,046	1,742	1,742	1,764
SBRT-Southern BRT + Rapid Bus	567	587	473	473	484
301-Cary-Raleigh	0	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0	0
WBRT-Western BRT	1,781	1,947	1,582	1,583	1,606
WBRT-Western BRT + Rapid Bus	277	290	232	232	238
Subtotal	13,537	10,467	9,596	9,773	9,150
Other Transit					
Other GoTriangle	8,145	3,683	4,024	4,034	4,008
GoRaleigh	33,110	32,342	25,578	25,593	25,605
GoDurham	26,327	27,135	22,986	23,000	23,005
Chapel Hill Transit	23,178	24,449	24,379	24,379	24,379
GoCary	895	870	730	736	720
Wolf Line	18,573	18,584	20,908	20,906	20,917
Duke University Transit	12,202	12,437	13,224	13,223	13,225
Total	135,967	129,967	121,425	121,644	121,009

Table 38: 2040 Weekday Boardings by Corridor Route and By System (C: Regional Fare)

Service	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Commuter Rail and Parallel Regional Routes					
Greater Triangle Commuter Rail	**0**	**12,019**	**12,190**	**14,373**	**12,633**
100-Raleigh-Airport-RTC	0	0	0	0	0
105-Raleigh-RTC	0	0	0	0	0
700-Durham-RTC	0	0	0	0	0
DRX-Durham-Raleigh Express	436	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	2,398	1,757	1,766	1,275	1,265
102-Raleigh-Garner	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	351	543	538	549	576
20-CW-FY24 Garner Clockwise	896	890	888	875	871
7-South Saunders	199	223	214	213	211
SBRT-Southern BRT	5,184	4,964	5,017	5,042	5,180
SBRT-Southern BRT + Rapid Bus	1,042	1,409	1,267	1,328	1,447
301-Cary-Raleigh	0	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0	0
WBRT-Western BRT	4,521	4,320	4,322	4,211	4,299
WBRT-Western BRT + Rapid Bus	570	403	403	463	469
Subtotal	15,597	26,528	26,605	28,329	26,951
Other Transit					
Other GoTriangle	6,485	6,482	6,459	6,542	6,507
GoRaleigh	46,002	45,829	45,816	45,973	45,862
GoDurham	35,371	36,346	36,343	36,161	36,150
Chapel Hill Transit	35,153	35,102	35,103	35,121	35,121
GoCary	1,135	1,329	1,328	1,432	1,402
Wolf Line	28,676	28,542	28,537	28,485	28,462
Duke University Transit	16,931	16,965	16,964	16,930	16,932
Total	185,350	197,123	197,155	198,973	197,387

Table 39: 2040 Weekday Boardings by Corridor Route and By System and Fare (West Durham-Auburn 8282)

Service	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Commuter Rail and Parallel Regional Routes					
Greater Triangle Commuter Rail	**18,341**	**11,561**	**11,687**	**12,190**	**10,106**
100-Raleigh-Airport-RTC	0	0	0	0	0
105-Raleigh-RTC	0	0	0	0	0
700-Durham-RTC	0	0	0	0	0
DRX-Durham-Raleigh Express	0	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	3,515	1,667	1,800	1,766	1,838
102-Raleigh-Garner	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	617	658	539	538	561
20-CW-FY24 Garner Clockwise	987	1,038	888	888	889
7-South Saunders	253	243	214	214	210
SBRT-Southern BRT	5,590	6,010	5,017	5,017	5,164
SBRT-Southern BRT + Rapid Bus	1,488	1,651	1,266	1,267	1,373
301-Cary-Raleigh	0	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0	0
WBRT-Western BRT	4,943	5,292	4,323	4,322	4,405
WBRT-Western BRT + Rapid Bus	469	494	401	403	415
Subtotal	36,203	28,614	26,135	26,605	24,961
Other Transit					
Other GoTriangle	12,934	5,898	6,440	6,459	6,401
GoRaleigh	58,436	56,900	45,781	45,816	45,738
GoDurham	41,067	42,539	36,322	36,343	36,366
Chapel Hill Transit	33,298	35,230	35,106	35,103	35,108
GoCary	1,593	1,549	1,314	1,328	1,294
Wolf Line	25,287	25,317	28,548	28,537	28,566
Duke University Transit	15,709	15,987	16,964	16,964	16,967
Total	224,527	212,034	196,610	197,155	195,401

Table 40 through Table 59 present weekday forecasts of boarding passengers by station as follows:

- Table 40 through Table 43 present daily boardings made by travelers accessing commuter rail stations by walk access for the years 2018 and 2040, for different combinations of schedule and fare alternative. Walk access accounts for 50 to 60 percent of all trips using the commuter rail system.
- Table 44 through Table 47 present daily boardings made by travelers accessing the stations by kiss-and-ride (auto drop-off) for years 2018 and 2040 and for various combinations of schedule and fare alternatives. The kiss-and-ride access mode accounts for less than 5 percent of all commuter rail trips.
- Table 48 through Table 51 present daily boardings made by travelers accessing the stations by the park-and-ride access mode for years 2018 and 2040 and for various combinations of schedule and fare alternative. The park-and-ride access mode accounts for 25 to 32 percent of all commuter rail trips. The number of park-and-ride boardings is similar to the number of cars parking in rail park-and-ride lots each day, particularly if the vehicle occupancy of the park-and-ride access trip is close to one (i.e., driver only). Please note that a similar number of trips will also alight from commuter rail, pick up their cars, and drive home each day. Together, trips that use the park-and-ride mode for either access or egress account for about 60 percent of all trips (i.e., twice the proportion of park-and-ride access trips). This high share of park-and-ride trips is consistent with other, new commuter rail lines across the United States. For instance, the 2019 customer satisfaction survey for VRE shows that approximately 80 percent of all customers arrive at their morning station by the park-and-ride mode.
- Table 52 through Table 55 present daily boardings made by travelers accessing commuter rail stations by transferring from another transit service. Transfers account for 8 to 12 percent of all commuter rail boardings.
- Table 56 through Table 59 present total (all access mode) daily boardings for each commuter rail station.

In the 2018 base year, stations with the highest levels of overall ridership include those serving major city centers and universities such as the downtown Raleigh, NCSU, Durham, and West Durham stations. At each of these stations, most travelers either access the station by walking or transferring from another transit vehicle.

Stations serving less-dense residential or employment areas have lower levels of ridership but higher levels of park-and-ride usage. The highest volume stations in this category include East Clayton, Auburn, RTP, and Ellis Road. Each of these stations serve over 100 daily park-ride boardings in 2018. Station usage patterns in 2040 show similar characteristics with the exception that stations on the eastern end of the service (Auburn and East Clayton) grow to have almost as many total riders as the stations in the city centers. Most of this ridership growth is generated by large numbers of new park-ride access trips created by the projections of increased population in Johnston and eastern Wake Counties.

Table 40: 2018 Weekday Walk Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	473	472	519	431
Downtown Durham	296	295	454	425
East Durham	111	109	163	147
Ellis Road	71	70	57	54
RTP	53	53	91	87
Morrisville	10	10	15	14
Downtown Cary	115	115	118	111
Corp Center Dr	10	10	15	13
Blue Ridge Road	31	27	39	36
NCSU	368	368	475	404
Raleigh	653	662	750	648
Hammond	51	50	62	58
Garner	99	90	86	60
Auburn	3	0	1	1
East Clayton	9	0	0	0
Total	2,353	2,331	2,845	2,489

Table 41: 2018 Weekday Walk Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	684	466	423	472	397
Downtown Durham	426	287	271	295	244
East Durham	178	103	100	109	88
Ellis Road	102	67	70	70	59
RTP	70	52	52	53	46
Morrisville	15	10	10	10	9
Downtown Cary	140	110	109	115	102
Corp Center Dr	14	10	10	10	9
Blue Ridge Road	48	25	27	27	21
NCSU	536	352	351	368	305
Raleigh	1,106	617	654	662	542
Hammond	79	46	48	50	41
Garner	128	84	86	90	76
Auburn	1	0	0	0	0
East Clayton	0	0	0	0	0
Total	3,527	2,229	2,211	2,331	1,939

Table 42: 2040 Weekday Walk Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	1,170	1,167	1,265	1,034
Downtown Durham	911	906	1,366	1,287
East Durham	276	268	411	382
Ellis Road	132	131	111	104
RTP	92	93	152	145
Morrisville	17	17	24	23
Downtown Cary	296	293	298	281
Corp Center Dr	30	31	40	35
Blue Ridge Road	181	142	198	188
NCSU	780	778	1,061	938
Raleigh	2,427	2,621	2,815	2,464
Hammond	208	200	250	234
Garner	246	225	222	163
Auburn	14	2	5	5
East Clayton	50	0	0	0
Total	6,830	6,874	8,218	7,283

Table 43: 2040 Weekday Walk Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	1,643	1,155	1,041	1,167	999
Downtown Durham	1,271	891	829	906	765
East Durham	418	254	245	268	221
Ellis Road	189	126	131	131	110
RTP	123	92	91	93	82
Morrisville	25	17	16	17	15
Downtown Cary	348	284	280	293	266
Corp Center Dr	44	31	31	31	27
Blue Ridge Road	230	135	141	142	116
NCSU	1,117	753	735	778	651
Raleigh	4,139	2,469	2,598	2,621	2,200
Hammond	305	186	194	200	164
Garner	307	214	210	225	194
Auburn	3	2	2	2	1
East Clayton	0	0	0	0	0
Total	10,162	6,609	6,544	6,874	5,811

Table 44: 2018 Weekday Kiss-Ride Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	4	4	5	5
Downtown Durham	6	5	11	10
East Durham	2	2	4	3
Ellis Road	14	14	23	22
RTP	6	6	13	13
Morrisville	2	2	7	7
Downtown Cary	10	10	14	12
Corp Center Dr	5	5	8	7
Blue Ridge Road	13	12	23	21
NCSU	0	0	0	0
Raleigh	1	1	1	1
Hammond	11	11	11	11
Garner	12	12	14	12
Auburn	31	72	84	77
East Clayton	46	0	0	0
Total	163	156	218	201

Table 45: 2018 Weekday Kiss-Ride Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	7	4	3	4	3
Downtown Durham	9	5	4	5	4
East Durham	3	2	1	2	1
Ellis Road	21	13	18	14	11
RTP	9	6	6	6	5
Morrisville	3	2	2	2	2
Downtown Cary	15	8	9	10	7
Corp Center Dr	8	5	5	5	4
Blue Ridge Road	21	11	11	12	10
NCSU	0	0	0	0	0
Raleigh	1	0	1	1	0
Hammond	21	10	15	11	8
Garner	18	11	12	12	10
Auburn	113	67	67	72	58
East Clayton	0	0	0	0	0
Total	249	144	154	156	123

Table 46: 2040 Weekday Kiss-Ride Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	9	9	11	11
Downtown Durham	12	12	21	20
East Durham	5	5	11	10
Ellis Road	27	27	47	44
RTP	14	14	31	29
Morrisville	4	4	12	12
Downtown Cary	20	20	29	26
Corp Center Dr	16	16	23	22
Blue Ridge Road	31	31	59	54
NCSU	0	0	0	0
Raleigh	1	2	2	1
Hammond	34	34	32	32
Garner	34	34	38	34
Auburn	111	263	299	275
East Clayton	185	0	0	0
Total	503	471	615	570

Table 47: 2040 Weekday Kiss-Ride Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	14	8	5	9	7
Downtown Durham	19	11	9	12	9
East Durham	7	5	2	5	4
Ellis Road	40	26	37	27	22
RTP	21	14	15	14	12
Morrisville	6	4	4	4	3
Downtown Cary	30	17	19	20	15
Corp Center Dr	24	15	15	16	13
Blue Ridge Road	54	29	29	31	24
NCSU	1	0	0	0	0
Raleigh	2	1	1	2	1
Hammond	61	30	47	34	24
Garner	49	32	33	34	28
Auburn	405	246	243	263	215
East Clayton	0	0	0	0	0
Total	733	438	459	471	377

Table 48: 2018 Weekday Park-Ride Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	29	29	29	27
Downtown Durham	48	28	61	50
East Durham	86	107	89	77
Ellis Road	136	136	150	134
RTP	122	122	166	146
Morrisville	13	12	15	15
Downtown Cary	74	74	81	64
Corp Center Dr	67	68	72	61
Blue Ridge Road	79	79	88	60
NCSU	0	0	0	0
Raleigh	0	0	0	0
Hammond	81	80	91	70
Garner	44	44	49	42
Auburn	199	394	382	328
East Clayton	189	0	0	0
Total	1,167	1,173	1,273	1,074

Table 49: 2018 Weekday Park-Ride Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	40	29	1	29	25
Downtown Durham	70	47	10	28	40
East Durham	120	86	1	107	75
Ellis Road	196	135	292	136	117
RTP	173	122	122	122	104
Morrisville	22	9	14	12	8
Downtown Cary	120	62	68	74	54
Corp Center Dr	97	67	59	68	58
Blue Ridge Road	116	73	71	79	66
NCSU	0	0	0	0	0
Raleigh	0	0	0	0	0
Hammond	116	79	90	80	69
Garner	210	40	41	44	35
Auburn	570	371	370	394	324
East Clayton	0	0	0	0	0
Total	1,850	1,120	1,139	1,173	975

Table 50: 2040 Weekday Park-Ride Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	77	77	78	74
Downtown Durham	97	97	130	111
East Durham	257	257	270	241
Ellis Road	361	361	395	362
RTP	282	281	371	334
Morrisville	23	23	29	29
Downtown Cary	172	172	185	150
Corp Center Dr	201	202	227	189
Blue Ridge Road	232	231	256	187
NCSU	0	0	0	0
Raleigh	0	0	0	0
Hammond	208	206	242	191
Garner	111	112	126	111
Auburn	865	1,912	1,822	1,568
East Clayton	829	0	0	0
Total	3,715	3,931	4,131	3,547

Table 51: 2040 Weekday Park-Ride Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	105	77	4	77	68
Downtown Durham	141	96	19	97	82
East Durham	351	257	3	257	226
Ellis Road	510	358	780	361	311
RTP	393	281	282	281	242
Morrisville	42	12	25	23	11
Downtown Cary	267	143	159	172	126
Corp Center Dr	288	201	176	202	175
Blue Ridge Road	337	199	211	231	195
NCSU	0	0	0	0	0
Raleigh	0	0	0	0	0
Hammond	296	199	254	206	176
Garner	630	104	108	112	91
Auburn	2,689	1,788	1,821	1,912	1,578
East Clayton	0	0	0	0	0
Total	6,049	3,715	3,842	3,931	3,281

Table 52: 2018 Weekday Transfer Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	82	82	97	96
Downtown Durham	61	60	119	95
East Durham	1	1	1	1
Ellis Road	0	0	0	0
RTP	72	71	130	108
Morrisville	4	4	32	29
Downtown Cary	44	45	59	46
Corp Center Dr	1	1	2	1
Blue Ridge Road	20	17	22	17
NCSU	10	9	22	16
Raleigh	81	78	101	79
Hammond	1	0	1	1
Garner	3	3	3	4
Auburn	8	1	2	4
East Clayton	1	0	0	0
Total	389	372	591	497

Table 53: 2018 Weekday Transfer Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	110	81	77	82	74
Downtown Durham	94	58	51	60	41
East Durham	2	1	1	1	0
Ellis Road	0	0	0	0	0
RTP	114	60	65	71	32
Morrisville	7	4	3	4	3
Downtown Cary	68	40	42	45	32
Corp Center Dr	5	4	1	1	1
Blue Ridge Road	25	16	16	17	14
NCSU	21	17	10	9	8
Raleigh	129	60	70	78	51
Hammond	1	0	0	0	0
Garner	4	2	3	3	2
Auburn	3	1	1	1	1
East Clayton	0	0	0	0	0
Total	583	344	340	372	259

Table 54: 2040 Weekday Transfer Access Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	200	199	226	224
Downtown Durham	111	106	230	200
East Durham	2	2	2	2
Ellis Road	0	0	0	0
RTP	149	142	265	242
Morrisville	9	8	75	69
Downtown Cary	88	89	122	97
Corp Center Dr	3	4	4	2
Blue Ridge Road	41	32	42	37
NCSU	41	35	66	42
Raleigh	277	281	358	286
Hammond	2	2	4	4
Garner	7	7	9	10
Auburn	38	6	8	18
East Clayton	2	0	0	0
Total	970	913	1,411	1,233

Table 55: 2040 Weekday Transfer Access Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	257	195	188	199	182
Downtown Durham	168	102	89	106	76
East Durham	3	2	2	2	0
Ellis Road	0	0	0	0	0
RTP	224	126	129	142	75
Morrisville	14	8	7	8	6
Downtown Cary	133	79	83	89	63
Corp Center Dr	9	6	3	4	3
Blue Ridge Road	47	31	31	32	27
NCSU	61	46	37	35	30
Raleigh	457	194	260	281	168
Hammond	3	0	2	2	0
Garner	10	5	7	7	4
Auburn	11	4	5	6	3
East Clayton	0	0	0	0	0
Total	1,397	798	843	913	637

Table 56: 2018 Weekday Total (All Access) Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	589	587	650	559
Downtown Durham	410	388	645	581
East Durham	200	219	256	228
Ellis Road	221	220	230	209
RTP	253	252	401	353
Morrisville	29	29	69	65
Downtown Cary	243	244	272	233
Corp Center Dr	84	85	97	82
Blue Ridge Road	142	135	172	135
NCSU	379	377	497	421
Raleigh	735	741	852	728
Hammond	145	142	166	140
Garner	157	149	152	118
Auburn	240	468	469	409
East Clayton	245	0	0	0
Total	4,072	4,036	4,928	4,261

Table 57: 2018 Weekday Total (All Access) Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	840	579	504	587	499
Downtown Durham	599	397	336	388	329
East Durham	303	192	102	219	165
Ellis Road	318	215	380	220	186
RTP	366	240	245	252	188
Morrisville	48	25	29	29	21
Downtown Cary	343	220	228	244	195
Corp Center Dr	125	85	75	85	72
Blue Ridge Road	210	126	126	135	112
NCSU	557	369	361	377	312
Raleigh	1,236	677	725	741	593
Hammond	217	136	153	142	118
Garner	361	138	141	149	123
Auburn	686	439	438	468	384
East Clayton	0	0	0	0	0
Total	6,209	3,838	3,843	4,036	3,297

Table 58: 2040 Weekday Total (All Access) Boardings by Station (C: Regional Fare)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
West Durham	1,456	1,452	1,579	1,342
Downtown Durham	1,130	1,121	1,748	1,617
East Durham	541	533	694	635
Ellis Road	520	519	553	511
RTP	538	531	819	750
Morrisville	53	52	140	133
Downtown Cary	577	574	635	553
Corp Center Dr	251	253	294	247
Blue Ridge Road	485	436	554	466
NCSU	821	814	1,127	980
Raleigh	2,705	2,904	3,174	2,752
Hammond	452	441	527	461
Garner	398	378	395	318
Auburn	1,028	2,183	2,135	1,866
East Clayton	1,066	0	0	0
Total	12,021	12,191	14,374	12,631

Table 59: 2040 Weekday Total (All Access) Boardings by Station by Fare Alternative (West Durham-Auburn 8282)

Station	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
West Durham	2,019	1,436	1,238	1,452	1,257
Downtown Durham	1,600	1,100	946	1,121	931
East Durham	780	518	252	533	450
Ellis Road	739	509	948	519	443
RTP	761	513	516	531	411
Morrisville	87	41	52	52	35
Downtown Cary	779	524	540	574	469
Corp Center Dr	365	253	225	253	217
Blue Ridge Road	668	394	412	436	363
NCSU	1,179	800	772	814	681
Raleigh	4,598	2,664	2,860	2,904	2,369
Hammond	664	416	497	441	364
Garner	995	355	358	378	317
Auburn	3,107	2,039	2,071	2,183	1,797
East Clayton	0	0	0	0	0
Total	18,341	11,562	11,687	12,191	10,104

Table 60 through Table 63 present weekday linked transit trips by trip purpose and auto ownership for 2018 and 2040 for various combinations of schedule and fare alternative. Table 64 through Table 67 present incremental linked transit trips for each build option as compared to the no-build. These results present another way of looking at the ridership impacts of the project—the overall increase in transit usage that will occur when the commuter rail line is built. As these tables show, Year 2040 weekday linked trips are forecasted to increase by between 11,600 and 13,100 daily trips in the base fare scenarios. In some cases, this number is nearly equal to estimates of project ridership. This happens because some improvements including feeder bus routes, new park-and-ride facilities, and changes to fare policies attract bus-only customers who never use the rail line but benefit from the rail line infrastructure and bus service improvements.

It should be noted that this share of new riders is much higher than a typical urban transit project in which fewer than 50 percent of project riders are new riders. This means that while the project is projected to be highly successful in building new markets for transit in the region, there is also greater uncertainty about when and if this ridership will materialize. Experience has shown that forecasts of ridership diverted from existing transit modes occurs more rapidly and more reliably than forecasts that depend on changing habits of automobile drivers and having them switch to transit.

Table 68 through Table 71 present results for Trips-on-Project for 2018 and 2040 and various combinations of schedule and fare alternatives. This metric is used as part of the Federal Transit Administration's project rating system. The majority of project trips are being made for Home-Based Work[20] purposes and by members of households with two or more cars. Both outcomes are consistent with a longer-distance commuter rail line and with the projection that the majority of trips will involve park-and-ride access or egress.

[20] Home-Based Work (HBW) trips as as defined in the GTCR implementation of STOPS. As described in the section on survey processing, these trips are more precisely defined as home-based trips traveling in both directions (to and from home) during the AM or PM peak periods.

Table 60: 2018 Weekday Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Home-Based Work					
0-car	6,384	6,664	6,664	6,664	6,608
1-car	7,359	7,992	7,998	7,998	7,856
2+cars	6,740	8,442	8,391	8,387	8,048
Total	20,483	23,097	23,053	23,049	22,512
Home-Based Other					
0-car	20,535	20,808	20,807	20,969	20,967
1-car	19,493	19,824	19,828	19,934	19,934
2+cars	15,633	16,279	16,254	16,398	16,399
Total	55,661	56,912	56,889	57,301	57,300
Non-Home-Based					
0-car	5,710	5,771	5,772	5,847	5,847
1-car	4,736	4,786	4,788	4,811	4,810
2+cars	6,378	6,536	6,525	6,531	6,532
Total	16,824	17,093	17,084	17,190	17,189
All Trip Purposes					
0-car	32,629	33,243	33,243	33,480	33,422
1-car	31,588	32,602	32,614	32,743	32,601
2+cars	28,751	31,257	31,170	31,316	30,979
Total	92,968	97,102	97,027	97,540	97,002

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 61: 2018 Weekday Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (West Durham-Auburn 8-2-8-2)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Home-Based Work					
0-car	7,533	7,238	6,645	6,664	6,623
1-car	9,341	8,491	7,961	7,998	7,897
2+cars	9,838	8,709	8,299	8,391	8,120
Total	26,711	24,437	22,905	23,053	22,641
Home-Based Other					
0-car	22,579	22,197	20,794	20,807	20,781
1-car	21,466	21,033	19,826	19,828	19,800
2+cars	17,489	16,956	16,249	16,254	16,197
Total	61,534	60,186	56,868	56,889	56,778
Non-Home-Based					
0-car	6,224	6,109	5,768	5,772	5,766
1-car	5,135	5,033	4,787	4,788	4,783
2+cars	6,873	6,748	6,524	6,525	6,507
Total	18,233	17,890	17,079	17,084	17,056
All Trip Purposes					
0-car	36,336	35,544	33,207	33,243	33,170
1-car	35,942	34,557	32,573	32,614	32,481
2+cars	34,199	32,412	31,072	31,170	30,824
Total	106,478	102,513	96,852	97,027	96,475

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 62: 2040 Weekday Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Home-Based Work					
0-car	10,941	11,573	11,574	11,574	11,454
1-car	11,753	13,545	13,557	13,556	13,139
2+cars	11,084	16,079	16,020	16,013	15,113
Total	33,778	41,198	41,151	41,142	39,706
Home-Based Other					
0-car	32,938	33,556	33,553	33,970	33,962
1-car	28,563	29,457	29,472	29,744	29,754
2+cars	23,505	25,473	25,537	25,914	25,931
Total	85,005	88,486	88,562	89,628	89,646
Non-Home-Based					
0-car	9,142	9,295	9,297	9,583	9,583
1-car	7,073	7,171	7,174	7,241	7,239
2+cars	9,105	9,549	9,567	9,578	9,580
Total	25,319	26,015	26,038	26,402	26,401
All Trip Purposes					
0-car	53,021	54,425	54,424	55,126	54,999
1-car	47,389	50,173	50,203	50,542	50,132
2+cars	43,693	51,101	51,124	51,505	50,624
Total	144,103	155,699	155,751	157,172	155,754

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 63: 2040 Weekday Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (West Durham-Auburn 8-2-8-2)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Home-Based Work					
0-car	13,163	12,638	11,531	11,574	11,490
1-car	16,415	14,397	13,452	13,557	13,297
2+cars	19,374	16,631	15,783	16,020	15,264
Total	48,952	43,667	40,766	41,151	40,051
Home-Based Other					
0-car	36,732	36,053	33,520	33,553	33,495
1-car	32,304	31,460	29,466	29,472	29,376
2+cars	28,146	26,852	25,520	25,537	25,318
Total	97,182	94,364	88,505	88,562	88,189
Non-Home-Based					
0-car	10,173	9,925	9,279	9,297	9,274
1-car	7,794	7,612	7,172	7,174	7,162
2+cars	10,284	9,982	9,565	9,567	9,505
Total	28,251	27,520	26,017	26,038	25,941
All Trip Purposes					
0-car	60,069	58,616	54,330	54,424	54,258
1-car	56,513	53,470	50,090	50,203	49,835
2+cars	57,803	53,465	50,868	51,124	50,088
Total	174,385	165,551	155,288	155,751	154,181

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 64: 2018 Weekday Incremental Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Home-Based Work					
0-car	0	280	280	280	224
1-car	0	633	639	639	497
2+cars	0	1,702	1,651	1,647	1,308
Total	0	2,614	2,570	2,566	2,029
Home-Based Other					
0-car	0	273	272	434	432
1-car	0	331	335	441	441
2+cars	0	646	621	765	766
Total	0	1,251	1,228	1,640	1,639
Non-Home-Based					
0-car	0	61	62	137	137
1-car	0	50	52	75	74
2+cars	0	158	147	153	154
Total	0	269	260	366	365
All Trip Purposes					
0-car	0	614	614	851	793
1-car	0	1,014	1,026	1,155	1,013
2+cars	0	2,506	2,419	2,565	2,228
Total	0	4,134	4,059	4,572	4,034

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 65: 2018 Weekday Incremental Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (West Durham-Auburn 8-2-8-2)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Home-Based Work					
0-car	355	282	261	280	239
1-car	1,098	652	602	639	538
2+cars	2,353	1,647	1,559	1,651	1,380
Total	3,805	2,580	2,422	2,570	2,158
Home-Based Other					
0-car	328	264	259	272	246
1-car	445	351	333	335	307
2+cars	877	641	616	621	564
Total	1,650	1,255	1,207	1,228	1,117
Non-Home-Based					
0-car	70	60	58	62	56
1-car	71	57	51	52	47
2+cars	217	157	146	147	129
Total	359	275	255	260	232
All Trip Purposes					
0-car	753	606	578	614	541
1-car	1,613	1,060	985	1,026	893
2+cars	3,446	2,444	2,321	2,419	2,073
Total	5,813	4,110	3,884	4,059	3,507

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 66: 2040 Weekday Incremental Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Home-Based Work					
0-car	0	632	633	633	513
1-car	0	1,792	1,804	1,803	1,386
2+cars	0	4,995	4,936	4,929	4,029
Total	0	7,420	7,373	7,364	5,928
Home-Based Other					
0-car	0	618	615	1,032	1,024
1-car	0	894	909	1,181	1,191
2+cars	0	1,968	2,032	2,409	2,426
Total	0	3,481	3,557	4,623	4,641
Non-Home-Based					
0-car	0	153	155	441	441
1-car	0	98	101	168	166
2+cars	0	444	462	473	475
Total	0	696	719	1,083	1,082
All Trip Purposes					
0-car	0	1,404	1,403	2,105	1,978
1-car	0	2,784	2,814	3,153	2,743
2+cars	0	7,408	7,431	7,812	6,931
Total	0	11,596	11,648	13,069	11,651

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 67: 2040 Weekday Incremental Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (West Durham-Auburn 8-2-8-2)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Home-Based Work					
0-car	785	630	590	633	549
1-car	3,134	1,777	1,699	1,804	1,544
2+cars	6,884	4,885	4,699	4,936	4,180
Total	10,803	7,294	6,988	7,373	6,273
Home-Based Other					
0-car	719	603	582	615	557
1-car	1,216	931	903	909	813
2+cars	2,845	2,065	2,015	2,032	1,813
Total	4,780	3,598	3,500	3,557	3,184
Non-Home-Based					
0-car	186	153	137	155	132
1-car	140	107	99	101	89
2+cars	669	472	460	462	400
Total	995	733	698	719	622
All Trip Purposes					
0-car	1,690	1,386	1,309	1,403	1,237
1-car	4,490	2,817	2,701	2,814	2,446
2+cars	10,396	7,422	7,175	7,431	6,395
Total	16,577	11,625	11,185	11,648	10,078

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 68: 2018 Weekday Linked Transit Trips on Project by Purpose and Auto Ownership (C: Regional Fare)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Home-Based Work					
0-car	0	375	376	375	284
1-car	0	690	697	696	518
2+cars	0	1,872	1,824	1,819	1,425
Total	0	2,937	2,897	2,891	2,227
Home-Based Other					
0-car	0	320	316	629	623
1-car	0	185	194	372	375
2+cars	0	426	429	660	663
Total	0	931	938	1,661	1,661
Non-Home-Based					
0-car	0	57	58	177	177
1-car	0	30	31	68	67
2+cars	0	114	112	130	131
Total	0	201	201	374	375
All Trip Purposes					
0-car	0	752	749	1,181	1,083
1-car	0	905	922	1,136	960
2+cars	0	2,413	2,365	2,609	2,218
Total	0	4,069	4,036	4,926	4,262

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 69: 2018 Weekday Linked Transit Trips on Project by Purpose, Auto Ownership, and Fare Alternative (West Durham-Auburn 8-2-8-2)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Home-Based Work					
0-car	524	359	355	376	313
1-car	1,270	669	659	697	560
2+cars	2,699	1,757	1,728	1,824	1,510
Total	4,493	2,785	2,741	2,897	2,382
Home-Based Other					
0-car	425	286	299	316	260
1-car	297	187	189	194	156
2+cars	683	395	422	429	343
Total	1,405	868	910	938	759
Non-Home-Based					
0-car	80	55	50	58	45
1-car	51	29	30	31	24
2+cars	180	103	111	112	88
Total	311	186	192	201	156
All Trip Purposes					
0-car	1,029	700	704	749	617
1-car	1,618	885	878	922	740
2+cars	3,562	2,255	2,261	2,365	1,941
Total	6,209	3,840	3,844	4,036	3,298

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 70: 2040 Weekday Linked Transit Trips on Project by Purpose and Auto Ownership (C: Regional Fare)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Home-Based Work					
0-car	0	849	852	851	671
1-car	0	1,981	1,994	1,992	1,486
2+cars	0	5,446	5,402	5,394	4,295
Total	0	8,276	8,248	8,236	6,452
Home-Based Other					
0-car	0	788	772	1,536	1,522
1-car	0	690	718	1,143	1,165
2+cars	0	1,594	1,740	2,231	2,267
Total	0	3,073	3,229	4,911	4,954
Non-Home-Based					
0-car	0	221	221	604	604
1-car	0	86	89	188	186
2+cars	0	363	402	435	437
Total	0	670	713	1,226	1,227
All Trip Purposes					
0-car	0	1,858	1,845	2,991	2,797
1-car	0	2,757	2,801	3,323	2,837
2+cars	0	7,403	7,544	8,060	6,999
Total	0	12,019	12,190	14,373	12,633

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 71: 2040 Weekday Linked Transit Trips on Project by Purpose, Auto Ownership, and Fare Alternative (West Durham-Auburn 8-2-8-2)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Home-Based Work					
0-car	1,150	821	807	852	729
1-car	3,665	1,880	1,888	1,994	1,661
2+cars	7,778	5,165	5,157	5,402	4,486
Total	12,592	7,866	7,852	8,248	6,876
Home-Based Other					
0-car	996	723	730	772	662
1-car	1,061	693	709	718	594
2+cars	2,628	1,609	1,719	1,740	1,407
Total	4,686	3,025	3,158	3,229	2,663
Non-Home-Based					
0-car	301	216	189	221	178
1-car	143	84	87	89	69
2+cars	619	370	401	402	319
Total	1,063	670	678	713	567
All Trip Purposes					
0-car	2,446	1,760	1,726	1,845	1,569
1-car	4,869	2,656	2,685	2,801	2,324
2+cars	11,025	7,145	7,276	7,544	6,212
Total	18,341	11,561	11,687	12,190	10,106

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 72 through Table 75 present estimates of the impact that the project will have on automobile travel for 2018 and 2040, respectively. In all years and alternatives, the commuter rail project will help to make modest reductions in automobile travel.

Table 72: 2018 Weekday Impacts on Automobile Travel (C: Regional Fare)

Measure	Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Change in Person-Miles vs. No-Build	-60,893	-55,942	-65,424	-55,700
Change in Vehicle-Miles	-55,357	-50,856	-59,476	-50,636

Table 73: 2018 Weekday Impacts on Automobile Travel by Fare Alternative (West Durham-Auburn 8-2-8-2)

Measure	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Change in Person-Miles vs. No-Build	-77,954	-56,054	-50,619	-55,942	-47,160
Change in Vehicle-Miles	-70,867	-50,958	-46,017	-50,856	-42,873

Table 74: 2040 Weekday Impacts on Automobile Travel (C: Regional Fare)

Measure	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60
Change in Person-Miles vs. No-Build	-188,640	-169,641	-198,512	-172,811
Change in Vehicle-Miles	-171,491	-154,219	-180,465	-157,101

Table 75: 2040 Weekday Impacts on Automobile Travel by Fare Alternative (West Durham-Auburn 8-2-8-2)

Measure	A: All Free Fare	A2: Local Free Fare	B: Zone Fare	C: Regional Fare	D: Premium Fare
Change in Person-Miles vs. No-Build	-231,904	-169,012	-154,939	-169,641	-144,942
Change in Vehicle-Miles	-210,822	-153,647	-140,854	-154,219	-131,765

Station-to-Station flows are presented in Table 76 through Table 83 for each alternative and each forecast year. These tables are in production-attraction format. Each row represents trip "productions" in the area around the listed station. Trip productions refer to the home end of trips regardless of the trip's origin or destination location. Each column represents trip "attractions" in the area around the listed station. Trip attractions refer to the other (i.e., non-home) end of the trip.

Tables in production-attraction format are not balanced like origin-destination tables. Instead, stations in areas that are residentially oriented (e.g., bedroom-community suburbs) will have more trips in their rows than in their columns. Stations that are in downtown areas or other activity centers will have more trips in their columns. Mixed-use communities may have approximately equal row and column totals.

Production-attraction format tables can be useful since they help describe the nature of ridership. For instance, if a station principally serves trip attractions, then park-and-ride facilities may be less important than business park shuttles to make the last mile connections between stations and surrounding land uses. These tables also provide a connection to population and employment growth forecasts—stations that are primarily production-oriented are driven by population growth assumptions while trip attractions are driven by employment assumptions.

The basic message from the production-attraction station-to-station matrices are similar for all of the forecasts. For this discussion, Table 80 (Year 2040 West Durham-East Clayton 8-2-8-2) will be discussed in detail. This alternative represents the most comprehensive service studied in this analysis in terms of both the most stations and the highest scheduled peak period train frequencies. Key observations are as follows:

- Downtown Raleigh station is principally an attraction station. Out of 12,000 daily trips on the line, 4,800 (about 40 percent) have an attraction end in Raleigh. There is a modest number of trip productions at the station serving a growing population base nearby, but residential-end trips are also likely to use other, nearby stations.
- The production-end locations for Raleigh trip attractions are concentrated toward the Southeast side of the area. Over half of Raleigh attractions come from the Auburn and Clayton stations. The west side has nearly as many productions, but they are distributed over many more stations and volumes over 100 trips per day extend as far west as Durham.
- Other key attraction locations (over 500 attractions per day) include NC State University, Downtown Cary, Downtown Durham, and West Durham. Each station serves a combination of Central Business Districts and major research universities.

- The Durham/West Durham stations serves trip productions distributed in the corridor between Durham and Raleigh showing the regional role these areas play in the economy of the Raleigh-Durham area and the ability of the commuter rail line to assist in connecting various communities to the region's activity centers.
- By contrast to trip attractions, trip productions are distributed across the area with fewer large production-end stations. Only East Clayton and Auburn serve more than 2,000 daily trip productions and none serves more than 2,100 daily productions.

Table 76: 2018 Weekday Production-Attraction Station Flows for West Durham-East Clayton 8-2-8-2 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	15	17	85	27	0	145	0	0	72	50	0	0	0	0	411
DDU	12	0	20	20	43	1	44	0	11	188	70	3	0	0	0	412
EDU	24	4	0	1	6	0	0	0	0	71	180	2	0	0	0	288
ELI	54	191	2	0	4	0	14	0	0	56	9	0	0	0	0	330
RTP	14	13	3	3	0	1	3	0	0	137	123	2	0	0	0	299
MOR	22	1	1	0	1	0	1	0	0	2	9	0	2	0	0	39
DCA	87	41	1	0	34	4	0	2	1	19	33	2	2	0	1	227
CCD	95	40	2	0	1	1	6	0	1	1	0	0	0	0	0	147
BRR	86	39	2	0	5	0	1	1	0	12	45	3	0	0	0	194
NCS	4	18	0	0	11	0	0	0	2	0	7	0	0	0	0	42
RAL	116	26	31	0	13	1	11	5	7	1	0	0	13	0	0	224
HAM	159	0	25	0	1	1	0	0	13	28	8	0	0	0	0	235
GAR	42	3	0	0	10	0	10	2	9	96	79	4	0	0	1	256
AUB	46	9	6	0	24	4	10	6	18	10	310	13	16	0	1	473
ECL	5	6	1	1	27	4	14	4	27	21	322	24	25	6	0	487
Total	766	406	111	110	207	17	259	20	89	714	1,245	53	58	6	3	4,064

Key to Stations

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RTP – Research Triangle Park
MOR – Morrisville
DCA – Downtown Cary
CCD – Corp. Center Dr.
BRR – Blue Ridge Pkwy
NCS – NC State University
RAL – Downtown Raleigh
HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 77: 2018 Weekday Production-Attraction Station Flows for West Durham-Auburn 8-2-8-2 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	15	17	85	27	0	145	0	0	72	50	0	0	0	0	411
DDU	12	0	20	20	43	1	44	0	11	167	51	3	0	0	0	372
EDU	23	4	0	1	7	0	0	0	0	94	199	2	0	0	0	330
ELI	54	190	2	0	4	0	14	0	0	56	9	0	0	0	0	329
RTP	14	13	3	3	0	1	3	0	0	137	123	2	0	0	0	299
MOR	22	1	1	0	1	0	1	0	0	2	9	0	1	0	0	38
DCA	88	42	1	0	34	4	0	2	1	19	33	2	2	0	0	228
CCD	95	40	2	0	1	1	6	0	1	1	0	0	0	0	0	147
BRR	86	34	2	0	5	0	1	1	0	12	45	3	0	0	0	189
NCS	4	18	0	0	11	0	0	0	2	0	7	0	0	0	0	42
RAL	115	28	28	0	14	1	12	5	5	2	0	0	13	0	0	223
HAM	157	0	25	0	1	1	0	0	13	28	7	0	0	0	0	232
GAR	42	3	0	0	10	0	10	2	9	96	79	4	0	1	0	256
AUB	50	14	7	1	48	8	24	11	39	28	645	36	25	0	0	936
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	762	402	108	110	206	17	260	21	81	714	1,257	52	41	1	0	4,032

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ECL – East Clayton

Table 78: 2018 Weekday Production-Attraction Station Flows for West Durham-Auburn 30/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	24	48	47	74	0	136	0	0	77	50	0	0	0	0	456
DDU	28	0	14	12	106	53	46	0	17	268	136	7	0	0	0	687
EDU	39	8	0	1	13	0	6	0	0	76	185	2	0	0	0	330
ELI	82	210	9	0	4	0	14	0	1	64	13	0	0	0	0	397
RTP	15	36	16	3	0	2	3	0	1	164	197	3	0	0	0	440
MOR	23	2	1	0	4	0	1	0	1	13	11	1	8	0	0	65
DCA	89	57	1	0	39	5	0	2	1	28	41	5	2	0	0	270
CCD	103	42	4	0	1	1	6	0	1	12	2	0	0	0	0	172
BRR	87	50	4	0	10	0	2	1	0	23	49	12	0	0	0	238
NCS	1	103	12	0	23	0	0	0	1	0	0	2	0	0	0	142
RAL	120	54	39	0	21	1	17	5	13	1	0	0	13	0	0	284
HAM	161	0	25	0	2	1	1	0	18	23	23	0	0	0	0	254
GAR	42	4	0	0	11	1	11	2	10	73	92	3	0	2	0	251
AUB	51	15	7	1	52	9	29	11	44	30	618	42	28	0	0	937
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	841	605	180	64	360	73	272	21	108	852	1,417	77	51	2	0	4,923

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AUB – Auburn
ECL – East Clayton

Table 79: 2018 Weekday Production-Attraction Station Flows for West Durham-Auburn 60/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	21	48	47	66	0	136	0	0	74	48	0	0	0	0	440
DDU	26	0	14	7	96	52	35	0	7	225	129	7	0	0	0	598
EDU	29	7	0	1	12	0	6	0	0	58	161	2	0	0	0	276
ELI	77	200	9	0	3	0	14	0	1	46	10	0	0	0	0	360
RTP	19	26	15	3	0	2	1	0	1	134	188	3	0	0	0	392
MOR	24	1	1	0	4	0	2	0	1	12	11	1	8	0	0	65
DCA	86	48	1	0	31	4	0	2	1	26	20	4	2	0	0	225
CCD	81	41	4	0	1	0	5	0	1	12	2	0	0	0	0	147
BRR	66	55	4	0	18	0	1	1	0	18	7	10	0	0	0	180
NCS	1	101	12	0	23	0	0	0	1	0	0	2	0	0	0	140
RAL	91	45	38	0	20	0	6	3	10	0	0	0	5	0	0	218
HAM	119	0	25	0	2	0	0	0	19	23	23	0	0	0	0	211
GAR	27	3	0	0	7	1	11	2	9	48	82	2	0	2	0	194
AUB	34	15	7	1	32	8	24	10	39	25	556	40	26	0	0	817
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	680	563	178	59	315	67	241	18	90	701	1,237	71	41	2	0	4,263

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GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 80: 2040 Weekday Production-Attraction Station Flows for West Durham-East Clayton 8-2-8-2 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	27	42	150	41	0	351	0	0	149	145	0	0	0	0	905
DDU	24	0	44	38	71	4	105	0	16	489	248	12	0	0	0	1,051
EDU	47	7	0	1	12	0	0	0	0	125	540	10	0	0	0	742
ELI	95	565	6	0	6	0	22	1	1	97	42	0	0	0	0	835
RTP	27	27	9	11	0	2	7	1	0	220	365	6	0	0	0	675
MOR	26	3	1	0	2	0	1	0	1	3	26	0	3	0	0	66
DCA	211	116	2	0	56	6	0	4	4	29	85	10	4	0	1	528
CCD	286	116	8	0	2	1	16	0	3	3	2	0	0	0	0	437
BRR	230	114	6	0	10	0	2	2	0	38	147	10	0	1	0	560
NCS	15	55	0	0	17	0	0	0	7	0	9	0	0	0	1	104
RAL	326	107	105	0	24	2	19	13	25	3	0	0	27	0	1	652
HAM	385	0	75	0	2	3	1	0	63	85	32	0	0	0	1	647
GAR	148	7	0	0	14	1	21	7	32	189	229	14	0	2	3	667
AUB	169	40	32	0	66	10	28	24	84	29	1,438	72	31	0	2	2,025
ECL	19	24	8	3	77	9	52	13	173	79	1,450	123	64	27	0	2,121
Total	2,008	1,208	338	203	400	38	625	65	409	1,538	4,758	257	129	30	9	12,015

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HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 81: 2040 Weekday Production-Attraction Station Flows for West Durham-Auburn 8-2-8-2 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	27	42	150	41	0	351	0	0	149	145	0	0	0	0	905
DDU	24	0	44	38	71	4	105	0	16	489	248	12	0	0	0	1,051
EDU	47	7	0	1	12	0	0	0	0	125	540	10	0	0	0	742
ELI	95	564	6	0	6	0	22	1	1	97	42	0	0	0	0	834
RTP	26	27	9	10	0	2	7	1	0	220	365	6	0	0	0	673
MOR	26	3	1	0	2	0	1	0	1	3	26	0	3	0	0	66
DCA	212	117	2	0	56	7	0	4	3	29	85	9	3	1	0	528
CCD	287	118	8	0	1	1	16	0	3	3	2	0	0	0	0	439
BRR	230	100	6	0	10	0	2	2	0	38	147	10	0	1	0	546
NCS	14	55	0	0	17	0	0	0	7	0	9	0	0	0	0	102
RAL	322	111	87	0	25	2	22	13	14	5	0	0	27	0	0	628
HAM	380	0	75	0	2	3	1	0	63	85	32	0	0	0	0	641
GAR	150	7	0	0	14	1	21	7	32	188	230	14	0	3	0	667
AUB	186	55	41	2	131	19	70	39	186	92	3,308	178	54	0	0	4,361
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,999	1,191	321	201	388	39	618	67	326	1,523	5,179	239	87	5	0	12,183

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HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 82: 2040 Weekday Production-Attraction Station Flows for West Durham-Auburn 30/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	41	115	87	119	0	332	0	0	158	147	0	0	0	0	999
DDU	55	0	34	23	177	128	108	0	27	784	443	23	0	0	0	1,802
EDU	76	23	0	1	25	0	11	0	0	137	564	10	0	0	0	847
ELI	140	608	23	0	6	0	23	1	1	110	67	1	0	0	0	980
RTP	29	85	45	10	0	3	7	1	2	269	516	10	0	0	0	977
MOR	29	4	2	0	6	0	2	0	3	18	33	3	15	0	0	115
DCA	216	166	3	1	69	7	0	6	4	43	95	18	5	0	0	633
CCD	316	122	13	0	3	1	16	0	5	22	20	0	1	0	0	519
BRR	232	136	13	0	19	0	3	2	0	72	157	39	0	1	0	674
NCS	2	240	43	0	32	0	0	0	2	0	1	8	0	0	0	328
RAL	337	201	132	0	37	2	29	13	52	3	0	0	28	0	0	834
HAM	391	1	76	0	8	3	2	0	94	61	92	0	0	0	0	728
GAR	150	7	0	0	16	1	23	6	36	152	267	10	0	9	0	677
AUB	188	57	42	2	142	21	81	39	208	98	3,112	205	63	0	0	4,258
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,161	1,691	541	124	659	166	637	68	434	1,927	5,514	327	112	10	0	14,371

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BRR – Blue Ridge Pkwy
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RAL – Downtown Raleigh
HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 83: 2040 Weekday Production-Attraction Station Flows for West Durham-Auburn 60/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	36	115	87	109	0	331	0	0	152	140	0	0	0	0	970
DDU	50	0	33	15	161	124	90	0	13	692	432	23	0	0	0	1,633
EDU	59	21	0	1	24	0	11	0	0	104	502	10	0	0	0	732
ELI	132	580	24	0	5	0	23	0	1	80	59	1	0	0	0	905
RTP	38	67	41	11	0	3	1	0	2	220	494	10	0	0	0	887
MOR	29	3	2	0	6	0	3	0	3	18	32	3	15	0	0	114
DCA	208	144	3	1	54	6	0	6	4	39	49	11	4	0	0	529
CCD	241	122	13	0	2	0	14	0	3	22	20	0	0	0	0	437
BRR	176	152	13	0	79	0	2	2	0	60	20	32	0	1	0	537
NCS	2	235	43	0	32	0	0	0	2	0	1	8	0	0	0	323
RAL	257	167	138	0	36	0	10	7	44	0	0	0	11	0	0	670
HAM	295	1	74	0	8	0	1	0	97	64	83	0	0	0	0	623
GAR	100	6	0	0	11	1	23	5	34	111	240	6	0	9	0	546
AUB	127	66	38	2	84	17	69	36	192	76	2,759	194	59	0	0	3,719
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,714	1,600	537	117	611	151	578	56	395	1,638	4,831	298	89	10	0	12,625

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5. Supplemental Ridership Forecasts of West Durham-Auburn 8-2-8-2 Alternative

This section presents supplemental forecasts of the ridership for the Greater Triangle Commuter Rail Project. Three supplemental runs of the West Durham-Auburn 8-2-8-2 alternative were run, each assuming Fare Alternative C (Regional Fare). The supplemental fares test:

1. West Durham Park and Ride lot coded with a 25-mile capture radius (specified in STOPS as being a suburban end-of-line station adjacent to a limited access highway serving a large suburban/exurban catchment area)
2. West Durham Park and Ride lot coded with a 10-mile capture radius (specified in STOPS as being a suburban station service a moderately-large catchment area)
3. The Southern and Western BRT rapid buses being coded as partial fixed guideway even though these services operate, in part, in shared-used lanes.

These tests help to demonstrate the sensitivity of the model to different input assumptions. Results from these tests may not be appropriate for reporting to the Federal Transit Administration. Before forecasts like these are presented for Capital Investment Grant Funding, the underlying assumptions should be reviewed with FTA staff together with the rationale for their applicability to the forecasting process.

In all cases, these alternative representations of commuter rail and parallel bus services make some difference to the results. However, none of these changes lead to results that are significant in terms of the overall performance of the project.

Table 84: 2018 Weekday Boardings by Corridor Route and By System and Fare (West Durham-Auburn, Supplemental Analysis)

Service	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Commuter Rail and Parallel Regional Routes				
Greater Triangle Commuter Rail	**4,036**	**4,211**	**4,096**	**3,955**
100-Raleigh-Airport-RTC	0	0	0	0
105-Raleigh-RTC	0	0	0	0
700-Durham-RTC	0	0	0	0
DRX-Durham-Raleigh Express	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	988	964	983	987
102-Raleigh-Garner	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	274	275	274	270
20-CW-FY24 Garner Clockwise	337	337	337	338
7-South Saunders	108	108	108	100
SBRT-Southern BRT	1,742	1,742	1,742	2,237
SBRT-Southern BRT + Rapid Bus	473	473	473	0
301-Cary-Raleigh	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0
WBRT-Western BRT	1,583	1,583	1,583	1,820
WBRT-Western BRT + Rapid Bus	232	237	234	0
Subtotal	9,773	9,930	9,830	9,707
Other Transit				
Other GoTriangle	4,034	4,018	3,997	4,034
GoRaleigh	25,593	25,594	25,593	25,565
GoDurham	23,000	23,416	23,061	22,981
Chapel Hill Transit	24,379	24,367	24,375	24,380
GoCary	736	738	736	726
Wolf Line	20,906	20,899	20,901	20,906
Duke University Transit	13,223	13,240	13,217	13,223
Total	121,644	122,202	121,710	121,522

*Forecast previously presented in Chapter 4

Table 85: 2040 Weekday Boardings by Corridor Route and By System and Fare (West Durham-Auburn, Supplemental Analysis)

Service	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Commuter Rail and Parallel Regional Routes				
Greater Triangle Commuter Rail	12,190	12,651	12,393	11,700
100-Raleigh-Airport-RTC	0	0	0	0
105-Raleigh-RTC	0	0	0	0
700-Durham-RTC	0	0	0	0
DRX-Durham-Raleigh Express	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	1,766	1,723	1,752	1,798
102-Raleigh-Garner	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	538	539	538	519
20-CW-FY24 Garner Clockwise	888	888	888	893
7-South Saunders	214	214	214	197
SBRT-Southern BRT	5,017	5,017	5,017	6,654
SBRT-Southern BRT + Rapid Bus	1,267	1,267	1,267	0
301-Cary-Raleigh	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0
WBRT-Western BRT	4,322	4,322	4,322	4,781
WBRT-Western BRT + Rapid Bus	403	410	407	0
Subtotal	26,605	27,031	26,798	26,542
Other Transit				
Other GoTriangle	6,459	6,408	6,375	6,469
GoRaleigh	45,816	45,821	45,816	45,674
GoDurham	36,343	36,982	36,431	36,324
Chapel Hill Transit	35,103	35,072	35,092	35,110
GoCary	1,328	1,330	1,328	1,321
Wolf Line	28,537	28,522	28,526	28,533
Duke University Transit	16,964	16,992	16,955	16,964
Total	197,155	198,158	197,321	196,937

*Forecast previously presented in Chapter 4

Table 86: 2018 Weekday Walk Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	472	466	472	472
Downtown Durham	295	303	297	295
East Durham	109	118	113	111
Ellis Road	70	71	70	70
RTP	53	62	54	50
Morrisville	10	11	10	11
Downtown Cary	115	116	115	115
Corp Center Dr	10	10	10	10
Blue Ridge Road	27	31	29	27
NCSU	368	401	379	365
Raleigh	662	674	670	644
Hammond	50	52	50	47
Garner	90	91	90	91
Auburn	0	0	0	1
East Clayton	0	0	0	0
Total	2,331	2,406	2,359	2,309

*Forecast previously presented in Chapter 4

Table 87: 2040 Weekday Walk Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	1,167	1,157	1,166	1,167
Downtown Durham	906	927	912	906
East Durham	268	292	278	270
Ellis Road	131	133	131	131
RTP	93	108	94	87
Morrisville	17	18	17	17
Downtown Cary	293	294	293	292
Corp Center Dr	31	31	31	31
Blue Ridge Road	142	160	149	141
NCSU	778	843	805	773
Raleigh	2,621	2,677	2,665	2,511
Hammond	200	205	200	186
Garner	225	226	225	223
Auburn	2	2	2	2
East Clayton	0	0	0	0
Total	6,874	7,073	6,968	6,737

*Forecast previously presented in Chapter 4

Table 88: 2018 Weekday Kiss-Ride Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	4	38	15	4
Downtown Durham	5	5	5	6
East Durham	2	2	2	2
Ellis Road	14	12	12	13
RTP	6	6	6	6
Morrisville	2	2	2	2
Downtown Cary	10	9	10	10
Corp Center Dr	5	4	5	5
Blue Ridge Road	12	10	12	13
NCSU	0	0	0	0
Raleigh	1	1	1	1
Hammond	11	11	11	11
Garner	12	12	12	11
Auburn	72	72	72	68
East Clayton	0	0	0	0
Total	156	184	165	152

*Forecast previously presented in Chapter 4

Table 89: 2040 Weekday Kiss-Ride Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	9	93	36	9
Downtown Durham	12	10	10	12
East Durham	5	5	5	4
Ellis Road	27	24	25	26
RTP	14	14	14	14
Morrisville	4	4	4	4
Downtown Cary	20	19	20	20
Corp Center Dr	16	12	16	16
Blue Ridge Road	31	27	31	32
NCSU	0	0	0	0
Raleigh	2	1	2	1
Hammond	34	33	34	33
Garner	34	34	34	30
Auburn	263	262	263	245
East Clayton	0	0	0	0
Total	471	538	494	446

*Forecast previously presented in Chapter 4

Table 90: 2018 Weekday Park-Ride Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	29	115	67	29
Downtown Durham	28	34	34	44
East Durham	107	86	86	86
Ellis Road	136	133	134	135
RTP	122	121	122	119
Morrisville	12	12	12	13
Downtown Cary	74	73	74	73
Corp Center Dr	68	67	68	68
Blue Ridge Road	79	77	79	79
NCSU	0	0	0	0
Raleigh	0	0	0	0
Hammond	80	80	80	80
Garner	44	44	44	43
Auburn	394	393	394	376
East Clayton	0	0	0	0
Total	1,173	1,235	1,194	1,145

*Forecast previously presented in Chapter 4

Table 91: 2040 Weekday Park-Ride Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	77	293	191	77
Downtown Durham	97	67	67	82
East Durham	257	257	257	256
Ellis Road	361	354	356	353
RTP	281	280	281	274
Morrisville	23	23	23	23
Downtown Cary	172	170	172	171
Corp Center Dr	202	202	202	202
Blue Ridge Road	231	227	231	232
NCSU	0	0	0	0
Raleigh	0	0	0	0
Hammond	206	205	206	206
Garner	112	112	112	111
Auburn	1,912	1,910	1,912	1,745
East Clayton	0	0	0	0
Total	3,931	4,100	4,010	3,732

*Forecast previously presented in Chapter 4

Table 92: 2018 Weekday Transfer Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	82	82	82	82
Downtown Durham	60	57	59	60
East Durham	1	2	1	1
Ellis Road	0	0	0	0
RTP	71	79	73	67
Morrisville	4	6	5	3
Downtown Cary	45	45	45	39
Corp Center Dr	1	2	1	1
Blue Ridge Road	17	18	17	17
NCSU	9	9	9	9
Raleigh	78	78	78	66
Hammond	0	1	0	0
Garner	3	3	3	2
Auburn	1	1	1	1
East Clayton	0	0	0	0
Total	372	383	374	348

*Forecast previously presented in Chapter 4

Table 93: 2040 Weekday Transfer Access Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	199	198	199	199
Downtown Durham	106	102	106	105
East Durham	2	4	2	2
Ellis Road	0	0	0	0
RTP	142	160	147	134
Morrisville	8	11	10	7
Downtown Cary	89	90	89	76
Corp Center Dr	4	4	4	3
Blue Ridge Road	32	33	32	32
NCSU	35	36	35	35
Raleigh	281	283	281	181
Hammond	2	2	2	0
Garner	7	7	7	5
Auburn	6	6	6	3
East Clayton	0	0	0	0
Total	913	936	920	782

*Forecast previously presented in Chapter 4

Table 94: 2018 Weekday Total (All Access) Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	587	702	636	587
Downtown Durham	388	399	395	405
East Durham	219	208	202	200
Ellis Road	220	216	216	219
RTP	252	268	255	243
Morrisville	29	32	30	29
Downtown Cary	244	243	244	237
Corp Center Dr	85	83	85	85
Blue Ridge Road	135	136	137	136
NCSU	377	410	388	374
Raleigh	741	753	748	711
Hammond	142	143	142	139
Garner	149	150	149	147
Auburn	468	467	468	446
East Clayton	0	0	0	0
Total	4,036	4,210	4,095	3,958

*Forecast previously presented in Chapter 4

Table 95: 2040 Weekday Total (All Access) Boardings by Station (West Durham-Auburn, Supplemental Analysis)

Station	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
West Durham	1,452	1,742	1,592	1,452
Downtown Durham	1,121	1,107	1,095	1,105
East Durham	533	558	542	533
Ellis Road	519	511	511	510
RTP	531	563	537	510
Morrisville	52	56	54	51
Downtown Cary	574	573	574	559
Corp Center Dr	253	249	253	253
Blue Ridge Road	436	447	444	437
NCSU	814	879	841	809
Raleigh	2,904	2,961	2,947	2,693
Hammond	441	446	441	426
Garner	378	378	378	368
Auburn	2,183	2,181	2,183	1,995
East Clayton	0	0	0	0
Total	12,191	12,651	12,392	11,701

*Forecast previously presented in Chapter 4

Table 96: 2018 Weekday Linked Transit Trips by Purpose, and Auto Ownership (West Durham-Auburn 8282, Supplemental Analysis)

Trip Purpose and Household Autos Owned	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Home-Based Work				
0-car	6,664	6,666	6,665	6,667
1-car	7,998	8,036	8,009	8,002
2+cars	8,391	8,581	8,413	8,391
Total	23,053	23,283	23,086	23,059
Home-Based Other				
0-car	20,807	20,824	20,816	20,812
1-car	19,828	19,886	19,860	19,837
2+cars	16,254	16,363	16,272	16,263
Total	56,889	57,073	56,948	56,911
Non-Home-Based				
0-car	5,772	5,773	5,772	5,773
1-car	4,788	4,816	4,793	4,787
2+cars	6,525	6,561	6,530	6,528
Total	17,084	17,150	17,095	17,088
All Trip Purposes				
0-car	33,243	33,263	33,253	33,252
1-car	32,614	32,738	32,662	32,626
2+cars	31,170	31,505	31,214	31,181
Total	97,027	97,506	97,129	97,059

*Forecast previously presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 97: 2040 Weekday Linked Transit Trips by Purpose, and Auto Ownership (West Durham-Auburn 8282, Supplemental Analysis)

Trip Purpose and Household Autos Owned	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Home-Based Work				
0-car	11,574	11,577	11,575	11,579
1-car	13,557	13,651	13,592	13,576
2+cars	16,020	16,399	16,098	16,059
Total	41,151	41,628	41,265	41,214
Home-Based Other				
0-car	33,553	33,580	33,567	33,572
1-car	29,472	29,566	29,522	29,515
2+cars	25,537	25,721	25,568	25,632
Total	88,562	88,867	88,657	88,719
Non-Home-Based				
0-car	9,297	9,299	9,298	9,301
1-car	7,174	7,211	7,181	7,168
2+cars	9,567	9,618	9,573	9,592
Total	26,038	26,128	26,052	26,060
All Trip Purposes				
0-car	54,424	54,456	54,440	54,452
1-car	50,203	50,428	50,295	50,258
2+cars	51,124	51,739	51,240	51,283
Total	155,751	156,622	155,974	155,993

*Forecast previously presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 98: 2018 Weekday Incremental Linked Transit Trips by Purpose, and Auto Ownership (West Durham-Auburn 8282, Supplemental Analysis)

Trip Purpose and Household Autos Owned	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Home-Based Work				
0-car	280	282	281	277
1-car	639	677	650	635
2+cars	1,651	1,841	1,673	1,633
Total	2,570	2,800	2,603	2,544
Home-Based Other				
0-car	272	289	281	268
1-car	335	393	367	328
2+cars	621	730	639	611
Total	1,228	1,412	1,287	1,207
Non-Home-Based				
0-car	62	63	62	62
1-car	52	80	57	49
2+cars	147	183	152	145
Total	260	326	271	256
All Trip Purposes				
0-car	614	634	624	607
1-car	1,026	1,150	1,074	1,012
2+cars	2,419	2,754	2,463	2,388
Total	4,059	4,538	4,161	4,008

*Forecast previously presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 99: 2040 Weekday Incremental Linked Transit Trips by Purpose, and Auto Ownership (West Durham-Auburn 8282, Supplemental Analysis)

Trip Purpose and Household Autos Owned	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Home-Based Work				
0-car	633	636	634	620
1-car	1,804	1,898	1,839	1,790
2+cars	4,936	5,315	5,014	4,888
Total	7,373	7,850	7,487	7,298
Home-Based Other				
0-car	615	642	629	588
1-car	909	1,003	959	884
2+cars	2,032	2,216	2,063	2,007
Total	3,557	3,862	3,652	3,479
Non-Home-Based				
0-car	155	157	156	156
1-car	101	138	108	90
2+cars	462	513	468	462
Total	719	809	733	707
All Trip Purposes				
0-car	1,403	1,435	1,419	1,364
1-car	2,814	3,039	2,906	2,762
2+cars	7,431	8,046	7,547	7,357
Total	11,648	12,519	11,871	11,483

*Forecast previously presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 100: 2018 Weekday Linked Transit Trips on Project by Purpose, and Auto Ownership (West Durham-Auburn 8282, Supplemental Analysis)

Trip Purpose and Household Autos Owned	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Home-Based Work				
0-car	376	376	376	377
1-car	697	727	715	690
2+cars	1,824	1,925	1,845	1,793
Total	2,897	3,028	2,936	2,860
Home-Based Other				
0-car	316	317	318	312
1-car	194	207	202	183
2+cars	429	450	436	407
Total	938	974	956	903
Non-Home-Based				
0-car	58	58	58	58
1-car	31	33	32	26
2+cars	112	119	114	109
Total	201	209	204	193
All Trip Purposes				
0-car	749	750	752	747
1-car	922	967	949	899
2+cars	2,365	2,494	2,395	2,310
Total	4,036	4,211	4,096	3,955

*Forecast previously presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 101: 2040 Weekday Linked Transit Trips on Project by Purpose, and Auto Ownership (West Durham-Auburn 8282, Supplemental Analysis)

Trip Purpose and Household Autos Owned	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Home-Based Work				
0-car	852	853	852	853
1-car	1,994	2,085	2,045	1,951
2+cars	5,402	5,662	5,500	5,233
Total	8,248	8,600	8,397	8,037
Home-Based Other				
0-car	772	772	777	760
1-car	718	756	741	663
2+cars	1,740	1,791	1,758	1,583
Total	3,229	3,319	3,276	3,006
Non-Home-Based				
0-car	221	222	222	221
1-car	89	94	92	62
2+cars	402	416	407	373
Total	713	732	720	657
All Trip Purposes				
0-car	1,845	1,847	1,851	1,835
1-car	2,801	2,934	2,878	2,676
2+cars	7,544	7,870	7,664	7,189
Total	12,190	12,651	12,393	11,700

*Forecast previously presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 102: 2018 Weekday Impacts on Automobile Travel (West Durham-Auburn 8282, Supplemental Analysis)

Measure	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Change in Person-Miles vs. No-Build	-55,942	-59,368	-56,100	-55,112
Change in Vehicle-Miles	-50,856	-53,971	-51,000	-50,102

*Forecast previously presented in Chapter 4

Table 103: 2040 Weekday Impacts on Automobile Travel (West Durham-Auburn 8282, Supplemental Analysis)

Measure	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Bus*	C: Regional Fare, 25 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 10 Mile PNR Radius, Rapid Bus as Bus	C: Regional Fare, 3 Mile PNR Radius, Rapid Bus as Partial FG
Change in Person-Miles vs. No-Build	-169,641	-177,277	-171,082	-166,182
Change in Vehicle-Miles	-154,219	-161,161	-155,529	-151,075

*Forecast previously presented in Chapter 4

6. Supplemental Ridership Forecasts for Phased Implementation of GTRC

This section presents supplemental forecasts of the ridership for two differing possible initial operating segments (IOS) of the Greater Triangle Commuter Rail Project:

- Raleigh to Auburn
- Research Triangle Park to Auburn

For each of the IOS options, ridership is presented for three fare options:

- A: All Free Fare
- A2: Local Free Fare
- C: Regional Fare

Results are presented for these alternatives in the tables that follow. The overview tables (Table 104 and Table 107) also present forecasted ridership for each full-length alternative (Fare Option C, Regional Fare) previously reported in Chapter 4. This comparison helps to illustrate the impact of the shorter alignments on commuter rail ridership.

Table 104: 2018 Weekday Boardings by Corridor Route and By System (C: Regional Fare, Full and IOS Options)

Service	Count	Existing	No-Build	West Durham-Auburn 8282 w/ 313 extension to Clayton	West Durham-Auburn 8282	West Durham-Auburn 30/60	West Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Commuter Rail and Parallel Regional Routes									
Greater Triangle Commuter Rail	**0**	**0**	**0**	**4,069**	**4,036**	**4,926**	**4,262**	**799**	**2,420**
100-Raleigh-Airport-RTC	640	831	0	0	0	0	0	0	0
105-Raleigh-RTC	232	152	0	0	0	0	0	0	0
700-Durham-RTC	531	521	0	0	0	0	0	0	0
DRX-Durham-Raleigh Express	547	479	225	0	0	0	0	660	533
600-Raleigh - RTC - DTCC - Durham	0	0	1,227	986	988	742	761	1,280	1,297
102-Raleigh-Garner	271	127	0	0	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	0	0	191	275	274	284	297	306	297
20-CW-FY24 Garner Clockwise	0	0	352	337	337	333	334	346	333
7-South Saunders	1,369	1,194	99	109	108	107	107	110	107
SBRT-Southern BRT	0	0	1,796	1,727	1,742	1,732	1,756	1,809	1,746
SBRT-Southern BRT + Rapid Bus	0	0	367	510	473	468	484	494	482
301-Cary-Raleigh	132	106	0	0	0	0	0	0	0
300-RTC-Cary-Raleigh	579	837	0	0	0	0	0	0	0
WBRT-Western BRT	0	0	1,587	1,581	1,583	1,543	1,567	1,689	1,547
WBRT-Western BRT + Rapid Bus	0	0	316	232	232	252	256	300	295
Subtotal	4,301	4,247	6,160	9,826	9,773	10,387	9,824	7,793	9,057
Other Transit									
Other GoTriangle	3,776	3,960	4,056	4,036	4,034	4,065	4,043	3,953	4,196
GoRaleigh	15,879	15,451	25,720	25,604	25,593	25,654	25,627	25,660	25,609
GoDurham	20,302	19,468	22,384	22,999	23,000	22,903	22,897	23,077	23,249
Chapel Hill Transit	23,991	23,933	24,408	24,378	24,379	24,388	24,388	24,369	24,350
GoCary	743	751	637	735	736	772	756	678	719
Wolf Line	21,353	21,226	20,961	20,907	20,906	20,872	20,874	21,002	20,937
Duke University Transit	14,903	13,597	13,188	13,224	13,223	13,208	13,210	13,399	13,408
Total	105,248	102,633	117,514	121,709	121,644	122,249	121,619	119,931	121,525

Table 105: 2018 Weekday Boardings by Corridor Route and By System and Fare (Raleigh-Auburn 60/60)

Service	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Commuter Rail and Parallel Regional Routes			
Greater Triangle Commuter Rail	**1,510**	**724**	**799**
100-Raleigh-Airport-RTC	0	0	0
105-Raleigh-RTC	0	0	0
700-Durham-RTC	0	0	0
DRX-Durham-Raleigh Express	926	644	660
600-Raleigh - RTC - DTCC - Durham	2,517	1,167	1,280
102-Raleigh-Garner	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	357	364	306
20-CW-FY24 Garner Clockwise	381	410	346
7-South Saunders	122	114	110
SBRT-Southern BRT	2,041	2,129	1,809
SBRT-Southern BRT + Rapid Bus	590	610	494
301-Cary-Raleigh	0	0	0
300-RTC-Cary-Raleigh	0	0	0
WBRT-Western BRT	1,958	2,052	1,689
WBRT-Western BRT + Rapid Bus	376	341	300
Subtotal	10,778	8,555	7,793
Other Transit			
Other GoTriangle	8,050	3,578	3,953
GoRaleigh	33,136	32,419	25,660
GoDurham	26,534	27,239	23,077
Chapel Hill Transit	23,170	24,458	24,369
GoCary	814	813	678
Wolf Line	18,691	18,665	21,002
Duke University Transit	12,214	12,595	13,399
Total	133,387	128,322	119,931

Table 106: 2018 Weekday Boardings by Corridor Route and By System and Fare (RTP-Auburn 60/60)

Service	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Commuter Rail and Parallel Regional Routes			
Greater Triangle Commuter Rail	**3,887**	**2,267**	**2,420**
100-Raleigh-Airport-RTC	0	0	0
105-Raleigh-RTC	0	0	0
700-Durham-RTC	0	0	0
DRX-Durham-Raleigh Express	737	525	533
600-Raleigh - RTC - DTCC - Durham	2,533	1,187	1,297
102-Raleigh-Garner	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	340	354	297
20-CW-FY24 Garner Clockwise	362	398	333
7-South Saunders	118	111	107
SBRT-Southern BRT	1,966	2,062	1,746
SBRT-Southern BRT + Rapid Bus	586	594	482
301-Cary-Raleigh	0	0	0
300-RTC-Cary-Raleigh	0	0	0
WBRT-Western BRT	1,720	1,917	1,547
WBRT-Western BRT + Rapid Bus	337	356	295
Subtotal	12,586	9,771	9,057
Other Transit			
Other GoTriangle	8,391	3,832	4,196
GoRaleigh	33,083	32,398	25,609
GoDurham	26,712	27,423	23,249
Chapel Hill Transit	23,147	24,426	24,350
GoCary	866	853	719
Wolf Line	18,594	18,615	20,937
Duke University Transit	12,213	12,597	13,408
Total	135,592	129,915	121,525

Table 107: 2040 Weekday Boardings by Corridor Route and By System (C: Regional Fare, Full and IOS Options)

Service	No-Build	West Durham-Auburn 8282 w/ 313 extension to Clayton	West Durham-Auburn 8282	West Durham-Auburn 30/60	West Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Commuter Rail and Parallel Regional Routes							
Greater Triangle Commuter Rail	**0**	**12,019**	**12,190**	**14,373**	**12,633**	**3,607**	**7,773**
100-Raleigh-Airport-RTC	0	0	0	0	0	0	0
105-Raleigh-RTC	0	0	0	0	0	0	0
700-Durham-RTC	0	0	0	0	0	0	0
DRX-Durham-Raleigh Express	436	0	0	0	0	1,330	1,023
600-Raleigh - RTC - DTCC - Durham	2,398	1,757	1,766	1,275	1,265	2,552	2,468
102-Raleigh-Garner	0	0	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	351	543	538	549	576	608	577
20-CW-FY24 Garner Clockwise	896	890	888	875	871	899	872
7-South Saunders	199	223	214	213	211	216	213
SBRT-Southern BRT	5,184	4,964	5,017	5,042	5,180	5,344	5,193
SBRT-Southern BRT + Rapid Bus	1,042	1,409	1,267	1,328	1,447	1,479	1,449
301-Cary-Raleigh	0	0	0	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0	0	0	0
WBRT-Western BRT	4,521	4,320	4,322	4,211	4,299	4,683	4,302
WBRT-Western BRT + Rapid Bus	570	403	403	463	469	532	488
Subtotal	15,597	26,528	26,605	28,329	26,951	21,250	24,358
Other Transit							
Other GoTriangle	6,485	6,482	6,459	6,542	6,507	6,340	6,662
GoRaleigh	46,002	45,829	45,816	45,973	45,862	46,010	45,687
GoDurham	35,371	36,346	36,343	36,161	36,150	36,469	36,760
Chapel Hill Transit	35,153	35,102	35,103	35,121	35,121	35,092	35,051
GoCary	1,135	1,329	1,328	1,432	1,402	1,217	1,290
Wolf Line	28,676	28,542	28,537	28,485	28,462	28,735	28,600
Duke University Transit	16,931	16,965	16,964	16,930	16,932	17,329	17,340
Total	185,350	197,123	197,155	198,973	197,387	192,442	195,748

Table 108: 2040 Weekday Boardings by Corridor Route and By System and Fare (Raleigh-Auburn 60/60)

Service	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Commuter Rail and Parallel Regional Routes			
Greater Triangle Commuter Rail	**6,330**	**3,291**	**3,607**
100-Raleigh-Airport-RTC	0	0	0
105-Raleigh-RTC	0	0	0
700-Durham-RTC	0	0	0
DRX-Durham-Raleigh Express	1,828	1,305	1,330
600-Raleigh - RTC - DTCC - Durham	4,808	2,348	2,552
102-Raleigh-Garner	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	714	729	608
20-CW-FY24 Garner Clockwise	989	1,061	899
7-South Saunders	260	244	216
SBRT-Southern BRT	5,876	6,368	5,344
SBRT-Southern BRT + Rapid Bus	1,702	1,854	1,479
301-Cary-Raleigh	0	0	0
300-RTC-Cary-Raleigh	0	0	0
WBRT-Western BRT	5,587	5,648	4,683
WBRT-Western BRT + Rapid Bus	672	604	532
Subtotal	28,766	23,452	21,250
Other Transit			
Other GoTriangle	12,810	5,721	6,340
GoRaleigh	58,639	57,199	46,010
GoDurham	41,420	42,739	36,469
Chapel Hill Transit	33,287	35,253	35,092
GoCary	1,439	1,448	1,217
Wolf Line	25,545	25,476	28,735
Duke University Transit	15,733	16,314	17,329
Total	217,639	207,602	192,442

Table 109: 2040 Weekday Boardings by Corridor Route and By System and Fare (RTP-Auburn 60/60)

Service	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Commuter Rail and Parallel Regional Routes			
Greater Triangle Commuter Rail	**12,337**	**7,257**	**7,773**
100-Raleigh-Airport-RTC	0	0	0
105-Raleigh-RTC	0	0	0
700-Durham-RTC	0	0	0
DRX-Durham-Raleigh Express	1,376	1,008	1,023
600-Raleigh - RTC - DTCC - Durham	4,656	2,287	2,468
102-Raleigh-Garner	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	662	698	577
20-CW-FY24 Garner Clockwise	952	1,037	872
7-South Saunders	258	242	213
SBRT-Southern BRT	5,701	6,200	5,193
SBRT-Southern BRT + Rapid Bus	1,698	1,809	1,449
301-Cary-Raleigh	0	0	0
300-RTC-Cary-Raleigh	0	0	0
WBRT-Western BRT	4,921	5,293	4,302
WBRT-Western BRT + Rapid Bus	565	588	488
Subtotal	33,126	26,419	24,358
Other Transit			
Other GoTriangle	13,255	6,074	6,662
GoRaleigh	58,214	56,909	45,687
GoDurham	41,719	43,047	36,760
Chapel Hill Transit	33,239	35,187	35,051
GoCary	1,533	1,520	1,290
Wolf Line	25,367	25,383	28,600
Duke University Transit	15,730	16,317	17,340
Total	222,183	210,856	195,748

Table 110: 2018 Weekday Walk Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	473	472	519	431	0	0
Downtown Durham	296	295	454	425	0	0
East Durham	111	109	163	147	0	0
Ellis Road	71	70	57	54	0	0
RTP	53	53	91	87	0	41
Morrisville	10	10	15	14	0	10
Downtown Cary	115	115	118	111	0	55
Corp Center Dr	10	10	15	13	0	13
Blue Ridge Road	31	27	39	36	0	39
NCSU	368	368	475	404	0	313
Raleigh	653	662	750	648	318	660
Hammond	51	50	62	58	21	43
Garner	99	90	86	60	33	53
Auburn	3	0	1	1	1	1
East Clayton	9	0	0	0	0	0
Total	2,353	2,331	2,845	2,489	373	1,228

Table 111: 2018 Weekday Walk Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	615	290	318
Hammond	34	19	21
Garner	54	29	33
Auburn	2	1	1
East Clayton	0	0	0
Total	705	339	373

Table 112: 2018 Weekday Walk Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	54	40	41
Morrisville	14	9	10
Downtown Cary	84	50	55
Corp Center Dr	19	13	13
Blue Ridge Road	59	36	39
NCSU	470	301	313
Raleigh	1,109	616	660
Hammond	68	39	43
Garner	87	47	53
Auburn	2	1	1
East Clayton	0	0	0
Total	1,966	1,152	1,228

Table 113: 2040 Weekday Walk Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	1,170	1,167	1,265	1,034	0	0
Downtown Durham	911	906	1,366	1,287	0	0
East Durham	276	268	411	382	0	0
Ellis Road	132	131	111	104	0	0
RTP	92	93	152	145	0	72
Morrisville	17	17	24	23	0	17
Downtown Cary	296	293	298	281	0	142
Corp Center Dr	30	31	40	35	0	34
Blue Ridge Road	181	142	198	188	0	202
NCSU	780	778	1,061	938	0	610
Raleigh	2,427	2,621	2,815	2,464	1,472	2,468
Hammond	208	200	250	234	106	190
Garner	246	225	222	163	90	139
Auburn	14	2	5	5	5	6
East Clayton	50	0	0	0	0	0
Total	6,830	6,874	8,218	7,283	1,673	3,880

Table 114: 2040 Weekday Walk Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	2,623	1,358	1,472
Hammond	167	97	106
Garner	144	83	90
Auburn	8	5	5
East Clayton	0	0	0
Total	2,942	1,543	1,673

Table 115: 2040 Weekday Walk Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	93	70	72
Morrisville	25	16	17
Downtown Cary	207	133	142
Corp Center Dr	50	34	34
Blue Ridge Road	300	191	202
NCSU	922	586	610
Raleigh	4,028	2,301	2,468
Hammond	291	174	190
Garner	216	126	139
Auburn	9	5	6
East Clayton	0	0	0
Total	6,141	3,636	3,880

Table 116: 2018 Weekday Kiss-Ride Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	Durham-Auburn 8282 w/ 313 extension to Clayton	Durham-Auburn 8282	Durham-Auburn 30/60	Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	4	4	5	5	0	0
Downtown Durham	6	5	11	10	0	0
East Durham	2	2	4	3	0	0
Ellis Road	14	14	23	22	0	0
RTP	6	6	13	13	0	48
Morrisville	2	2	7	7	0	6
Downtown Cary	10	10	14	12	0	7
Corp Center Dr	5	5	8	7	0	4
Blue Ridge Road	13	12	23	21	0	10
NCSU	0	0	0	0	0	0
Raleigh	1	1	1	1	0	0
Hammond	11	11	11	11	1	9
Garner	12	12	14	12	5	11
Auburn	31	72	84	77	50	66
East Clayton	46	0	0	0	0	0
Total	163	156	218	201	56	161

Table 117: 2018 Weekday Kiss-Ride Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	0	0	0
Hammond	2	1	1
Garner	8	4	5
Auburn	79	45	50
East Clayton	0	0	0
Total	89	50	56

Table 118: 2018 Weekday Kiss-Ride Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	68	47	48
Morrisville	9	6	6
Downtown Cary	11	6	7
Corp Center Dr	6	3	4
Blue Ridge Road	20	8	10
NCSU	0	0	0
Raleigh	1	0	0
Hammond	17	7	9
Garner	18	10	11
Auburn	101	61	66
East Clayton	0	0	0
Total	251	148	161

Table 119: 2040 Weekday Kiss-Ride Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	9	9	11	11	0	0
Downtown Durham	12	12	21	20	0	0
East Durham	5	5	11	10	0	0
Ellis Road	27	27	47	44	0	0
RTP	14	14	31	29	0	128
Morrisville	4	4	12	12	0	11
Downtown Cary	20	20	29	26	0	14
Corp Center Dr	16	16	23	22	0	9
Blue Ridge Road	31	31	59	54	0	27
NCSU	0	0	0	0	0	0
Raleigh	1	2	2	1	0	1
Hammond	34	34	32	32	4	27
Garner	34	34	38	34	16	32
Auburn	111	263	299	275	177	243
East Clayton	185	0	0	0	0	0
Total	503	471	615	570	197	492

Table 120: 2040 Weekday Kiss-Ride Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	0	0	0
Hammond	7	2	4
Garner	25	13	16
Auburn	275	160	177
East Clayton	0	0	0
Total	307	175	197

Table 121: 2040 Weekday Kiss-Ride Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	179	127	128
Morrisville	16	10	11
Downtown Cary	22	11	14
Corp Center Dr	15	8	9
Blue Ridge Road	55	22	27
NCSU	1	0	0
Raleigh	2	1	1
Hammond	51	22	27
Garner	51	30	32
Auburn	366	227	243
East Clayton	0	0	0
Total	758	458	492

Table 122: 2018 Weekday Park-Ride Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	29	29	29	27	0	0
Downtown Durham	48	28	61	50	0	0
East Durham	86	107	89	77	0	0
Ellis Road	136	136	150	134	0	0
RTP	122	122	166	146	0	496
Morrisville	13	12	15	15	0	7
Downtown Cary	74	74	81	64	0	21
Corp Center Dr	67	68	72	61	0	2
Blue Ridge Road	79	79	88	60	0	7
NCSU	0	0	0	0	0	0
Raleigh	0	0	0	0	0	0
Hammond	81	80	91	70	12	15
Garner	44	44	49	42	31	39
Auburn	199	394	382	328	280	304
East Clayton	189	0	0	0	0	0
Total	1,167	1,173	1,273	1,074	323	891

Table 123: 2018 Weekday Park-Ride Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	0	0	0
Hammond	19	6	12
Garner	191	25	31
Auburn	418	262	280
East Clayton	0	0	0
Total	628	293	323

Table 124: 2018 Weekday Park-Ride Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	698	496	496
Morrisville	15	3	7
Downtown Cary	38	10	21
Corp Center Dr	3	1	2
Blue Ridge Road	14	4	7
NCSU	0	0	0
Raleigh	0	0	0
Hammond	23	8	15
Garner	204	33	39
Auburn	448	287	304
East Clayton	0	0	0
Total	1,443	842	891

Table 125: 2040 Weekday Park-Ride Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	77	77	78	74	0	0
Downtown Durham	97	97	130	111	0	0
East Durham	257	257	270	241	0	0
Ellis Road	361	361	395	362	0	0
RTP	282	281	371	334	0	1,240
Morrisville	23	23	29	29	0	19
Downtown Cary	172	172	185	150	0	42
Corp Center Dr	201	202	227	189	0	13
Blue Ridge Road	232	231	256	187	0	24
NCSU	0	0	0	0	0	0
Raleigh	0	0	0	0	0	0
Hammond	208	206	242	191	47	58
Garner	111	112	126	111	86	105
Auburn	865	1,912	1,822	1,568	1,398	1,484
East Clayton	829	0	0	0	0	0
Total	3,715	3,931	4,131	3,547	1,531	2,985

Table 126: 2040 Weekday Park-Ride Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	0	0	0
Hammond	78	24	47
Garner	621	71	86
Auburn	2,033	1,303	1,398
East Clayton	0	0	0
Total	2,732	1,398	1,531

Table 127: 2040 Weekday Park-Ride Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	1,710	1,239	1,240
Morrisville	36	5	19
Downtown Cary	79	15	42
Corp Center Dr	20	3	13
Blue Ridge Road	47	17	24
NCSU	0	0	0
Raleigh	0	0	0
Hammond	94	30	58
Garner	649	90	105
Auburn	2,140	1,391	1,484
East Clayton	0	0	0
Total	4,775	2,790	2,985

Table 128: 2018 Weekday Transfer Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	82	82	97	96	0	0
Downtown Durham	61	60	119	95	0	0
East Durham	1	1	1	1	0	0
Ellis Road	0	0	0	0	0	0
RTP	72	71	130	108	0	59
Morrisville	4	4	32	29	0	3
Downtown Cary	44	45	59	46	0	16
Corp Center Dr	1	1	2	1	0	0
Blue Ridge Road	20	17	22	17	0	9
NCSU	10	9	22	16	0	16
Raleigh	81	78	101	79	45	25
Hammond	1	0	1	1	1	2
Garner	3	3	3	4	1	4
Auburn	8	1	2	4	1	3
East Clayton	1	0	0	0	0	0
Total	389	372	591	497	48	137

Table 129: 2018 Weekday Transfer Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	79	39	45
Hammond	2	1	1
Garner	2	1	1
Auburn	5	1	1
East Clayton	0	0	0
Total	88	42	48

Table 130: 2018 Weekday Transfer Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	85	58	59
Morrisville	5	3	3
Downtown Cary	32	15	16
Corp Center Dr	1	0	0
Blue Ridge Road	15	8	9
NCSU	22	16	16
Raleigh	51	20	25
Hammond	3	1	2
Garner	6	1	4
Auburn	9	3	3
East Clayton	0	0	0
Total	229	125	137

Table 131: 2040 Weekday Transfer Access Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	200	199	226	224	0	0
Downtown Durham	111	106	230	200	0	0
East Durham	2	2	2	2	0	0
Ellis Road	0	0	0	0	0	0
RTP	149	142	265	242	0	154
Morrisville	9	8	75	69	0	5
Downtown Cary	88	89	122	97	0	40
Corp Center Dr	3	4	4	2	0	1
Blue Ridge Road	41	32	42	37	0	18
NCSU	41	35	66	42	0	62
Raleigh	277	281	358	286	192	105
Hammond	2	2	4	4	4	5
Garner	7	7	9	10	4	10
Auburn	38	6	8	18	6	16
East Clayton	2	0	0	0	0	0
Total	970	913	1,411	1,233	206	416

Table 132: 2040 Weekday Transfer Access Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	313	163	192
Hammond	6	3	4
Garner	10	3	4
Auburn	20	5	6
East Clayton	0	0	0
Total	349	174	206

Table 133: 2040 Weekday Transfer Access Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	214	152	154
Morrisville	10	5	5
Downtown Cary	73	36	40
Corp Center Dr	2	1	1
Blue Ridge Road	30	17	18
NCSU	85	62	62
Raleigh	189	79	105
Hammond	7	3	5
Garner	16	3	10
Auburn	37	14	16
East Clayton	0	0	0
Total	663	372	416

Table 134: 2018 Weekday Total (All Access) Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	589	587	650	559	0	0
Downtown Durham	410	388	645	581	0	0
East Durham	200	219	256	228	0	0
Ellis Road	221	220	230	209	0	0
RTP	253	252	401	353	0	645
Morrisville	29	29	69	65	0	26
Downtown Cary	243	244	272	233	0	99
Corp Center Dr	84	85	97	82	0	18
Blue Ridge Road	142	135	172	135	0	65
NCSU	379	377	497	421	0	330
Raleigh	735	741	852	728	363	685
Hammond	145	142	166	140	36	69
Garner	157	149	152	118	69	107
Auburn	240	468	469	409	332	375
East Clayton	245	0	0	0	0	0
Total	4,072	4,036	4,928	4,261	800	2,419

Table 135: 2018 Weekday Total (All Access) Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	694	330	363
Hammond	58	27	36
Garner	254	59	69
Auburn	504	309	332
East Clayton	0	0	0
Total	1,510	725	800

Table 136: 2018 Weekday Total (All Access) Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	904	642	645
Morrisville	43	20	26
Downtown Cary	166	80	99
Corp Center Dr	28	17	18
Blue Ridge Road	107	57	65
NCSU	492	317	330
Raleigh	1,161	636	685
Hammond	111	54	69
Garner	314	91	107
Auburn	560	352	375
East Clayton	0	0	0
Total	3,886	2,266	2,419

Table 137: 2040 Weekday Total (All Access) Boardings by Station (C: Regional Fare, Full and IOS Options)

Station	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
West Durham	1,456	1,452	1,579	1,342	0	0
Downtown Durham	1,130	1,121	1,748	1,617	0	0
East Durham	541	533	694	635	0	0
Ellis Road	520	519	553	511	0	0
RTP	538	531	819	750	0	1,593
Morrisville	53	52	140	133	0	52
Downtown Cary	577	574	635	553	0	238
Corp Center Dr	251	253	294	247	0	57
Blue Ridge Road	485	436	554	466	0	272
NCSU	821	814	1,127	980	0	672
Raleigh	2,705	2,904	3,174	2,752	1,664	2,574
Hammond	452	441	527	461	161	279
Garner	398	378	395	318	195	287
Auburn	1,028	2,183	2,135	1,866	1,587	1,749
East Clayton	1,066	0	0	0	0	0
Total	12,021	12,191	14,374	12,631	3,607	7,773

Table 138: 2040 Weekday Total (All Access) Boardings by Station by Fare Alternative (Raleigh-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	0	0	0
Morrisville	0	0	0
Downtown Cary	0	0	0
Corp Center Dr	0	0	0
Blue Ridge Road	0	0	0
NCSU	0	0	0
Raleigh	2,936	1,521	1,664
Hammond	257	126	161
Garner	801	170	195
Auburn	2,336	1,474	1,587
East Clayton	0	0	0
Total	6,330	3,291	3,607

Table 139: 2040 Weekday Total (All Access) Boardings by Station by Fare Alternative (RTP-Auburn 60/60)

Station	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
West Durham	0	0	0
Downtown Durham	0	0	0
East Durham	0	0	0
Ellis Road	0	0	0
RTP	2,196	1,588	1,593
Morrisville	86	37	52
Downtown Cary	380	195	238
Corp Center Dr	87	46	57
Blue Ridge Road	433	247	272
NCSU	1,008	648	672
Raleigh	4,219	2,381	2,574
Hammond	444	229	279
Garner	932	249	287
Auburn	2,551	1,638	1,749
East Clayton	0	0	0
Total	12,336	7,258	7,773

Table 140: 2018 Weekday Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Full and IOS Options)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Home-Based Work							
0-car	6,384	6,664	6,664	6,664	6,608	6,468	6,494
1-car	7,359	7,992	7,998	7,998	7,856	7,578	7,923
2+cars	6,740	8,442	8,391	8,387	8,048	7,270	7,940
Total	20,483	23,097	23,053	23,049	22,512	21,315	22,356
Home-Based Other							
0-car	20,535	20,808	20,807	20,969	20,967	20,625	20,730
1-car	19,493	19,824	19,828	19,934	19,934	19,719	19,930
2+cars	15,633	16,279	16,254	16,398	16,399	16,047	16,430
Total	55,661	56,912	56,889	57,301	57,300	56,391	57,090
Non-Home-Based							
0-car	5,710	5,771	5,772	5,847	5,847	5,751	5,776
1-car	4,736	4,786	4,788	4,811	4,810	4,767	4,844
2+cars	6,378	6,536	6,525	6,531	6,532	6,480	6,565
Total	16,824	17,093	17,084	17,190	17,189	16,999	17,185
All Trip Purposes							
0-car	32,629	33,243	33,243	33,480	33,422	32,844	33,000
1-car	31,588	32,602	32,614	32,743	32,601	32,064	32,698
2+cars	28,751	31,257	31,170	31,316	30,979	29,796	30,934
Total	92,968	97,102	97,027	97,540	97,002	94,705	96,632

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 141: 2018 Weekday Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (Raleigh-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	7,278	7,049	6,468
1-car	8,721	8,082	7,578
2+cars	8,195	7,617	7,270
Total	24,194	22,748	21,315
Home-Based Other			
0-car	22,359	22,023	20,625
1-car	21,327	20,910	19,719
2+cars	17,210	16,758	16,047
Total	60,896	59,690	56,391
Non-Home-Based			
0-car	6,200	6,088	5,751
1-car	5,109	5,012	4,767
2+cars	6,807	6,709	6,480
Total	18,116	17,810	16,999
All Trip Purposes			
0-car	35,837	35,161	32,844
1-car	35,156	34,004	32,064
2+cars	32,212	31,084	29,796
Total	103,206	100,248	94,705

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 142: 2018 Weekday Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (RTP-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	7,316	7,073	6,494
1-car	9,199	8,433	7,923
2+cars	9,132	8,282	7,940
Total	25,646	23,787	22,356
Home-Based Other			
0-car	22,501	22,127	20,730
1-car	21,620	21,116	19,930
2+cars	17,749	17,145	16,430
Total	61,870	60,388	57,090
Non-Home-Based			
0-car	6,231	6,113	5,776
1-car	5,218	5,089	4,844
2+cars	6,928	6,795	6,565
Total	18,377	17,997	17,185
All Trip Purposes			
0-car	36,048	35,313	33,000
1-car	36,036	34,638	32,698
2+cars	33,809	32,222	30,934
Total	105,893	102,172	96,632

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 143: 2040 Weekday Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Full and IOS Options)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Home-Based Work							
0-car	10,941	11,573	11,574	11,574	11,454	11,091	11,153
1-car	11,753	13,545	13,557	13,556	13,139	12,332	13,184
2+cars	11,084	16,079	16,020	16,013	15,113	12,890	14,241
Total	33,778	41,198	41,151	41,142	39,706	36,314	38,578
Home-Based Other							
0-car	32,938	33,556	33,553	33,970	33,962	33,098	33,343
1-car	28,563	29,457	29,472	29,744	29,754	29,205	29,695
2+cars	23,505	25,473	25,537	25,914	25,931	25,085	25,869
Total	85,005	88,486	88,562	89,628	89,646	87,389	88,906
Non-Home-Based							
0-car	9,142	9,295	9,297	9,583	9,583	9,213	9,276
1-car	7,073	7,171	7,174	7,241	7,239	7,120	7,268
2+cars	9,105	9,549	9,567	9,578	9,580	9,463	9,627
Total	25,319	26,015	26,038	26,402	26,401	25,796	26,172
All Trip Purposes							
0-car	53,021	54,425	54,424	55,126	54,999	53,401	53,772
1-car	47,389	50,173	50,203	50,542	50,132	48,658	50,147
2+cars	43,693	51,101	51,124	51,505	50,624	47,439	49,737
Total	144,103	155,699	155,751	157,172	155,754	149,498	153,656

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 144: 2040 Weekday Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (Raleigh-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	12,563	12,172	11,091
1-car	14,715	13,221	12,332
2+cars	14,878	13,587	12,890
Total	42,156	38,980	36,314
Home-Based Other			
0-car	36,212	35,613	33,098
1-car	31,974	31,136	29,205
2+cars	27,506	26,450	25,085
Total	95,691	93,199	87,389
Non-Home-Based			
0-car	10,068	9,840	9,213
1-car	7,722	7,559	7,120
2+cars	10,127	9,902	9,463
Total	27,917	27,301	25,796
All Trip Purposes			
0-car	58,843	57,625	53,401
1-car	54,411	51,916	48,658
2+cars	52,511	49,939	47,439
Total	165,765	159,480	149,498

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 145: 2040 Weekday Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (RTP-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	12,651	12,229	11,153
1-car	15,877	14,075	13,184
2+cars	16,756	14,921	14,241
Total	45,284	41,225	38,578
Home-Based Other			
0-car	36,531	35,851	33,343
1-car	32,647	31,609	29,695
2+cars	28,615	27,232	25,869
Total	97,794	94,692	88,906
Non-Home-Based			
0-car	10,148	9,903	9,276
1-car	7,932	7,707	7,268
2+cars	10,366	10,065	9,627
Total	28,446	27,675	26,172
All Trip Purposes			
0-car	59,330	57,983	53,772
1-car	56,456	53,391	50,147
2+cars	55,737	52,217	49,737
Total	171,524	163,591	153,656

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 146: 2018 Weekday Incremental Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Full and IOS Options)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Home-Based Work							
0-car	0	280	280	280	224	84	110
1-car	0	633	639	639	497	219	564
2+cars	0	1,702	1,651	1,647	1,308	530	1,200
Total	0	2,614	2,570	2,566	2,029	832	1,873
Home-Based Other							
0-car	0	273	272	434	432	90	195
1-car	0	331	335	441	441	226	437
2+cars	0	646	621	765	766	414	797
Total	0	1,251	1,228	1,640	1,639	730	1,429
Non-Home-Based							
0-car	0	61	62	137	137	41	66
1-car	0	50	52	75	74	31	108
2+cars	0	158	147	153	154	102	187
Total	0	269	260	366	365	175	361
All Trip Purposes							
0-car	0	614	614	851	793	215	371
1-car	0	1,014	1,026	1,155	1,013	476	1,110
2+cars	0	2,506	2,419	2,565	2,228	1,045	2,183
Total	0	4,134	4,059	4,572	4,034	1,737	3,664

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 147: 2018 Weekday Incremental Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (Raleigh-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	100	93	84
1-car	478	243	219
2+cars	710	555	530
Total	1,288	891	832
Home-Based Other			
0-car	108	90	90
1-car	306	228	226
2+cars	598	443	414
Total	1,012	759	730
Non-Home-Based			
0-car	46	39	41
1-car	45	36	31
2+cars	151	118	102
Total	242	195	175
All Trip Purposes			
0-car	254	223	215
1-car	827	507	476
2+cars	1,459	1,116	1,045
Total	2,541	1,845	1,737

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 148: 2018 Weekday Incremental Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (RTP-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	138	117	110
1-car	956	594	564
2+cars	1,647	1,220	1,200
Total	2,740	1,930	1,873
Home-Based Other			
0-car	250	194	195
1-car	599	434	437
2+cars	1,137	830	797
Total	1,986	1,457	1,429
Non-Home-Based			
0-car	77	64	66
1-car	154	113	108
2+cars	272	204	187
Total	503	382	361
All Trip Purposes			
0-car	465	375	371
1-car	1,707	1,141	1,110
2+cars	3,056	2,254	2,183
Total	5,228	3,769	3,664

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 149: 2040 Weekday Incremental Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Full and IOS Options)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Home-Based Work							
0-car	0	632	633	633	513	150	212
1-car	0	1,792	1,804	1,803	1,386	579	1,431
2+cars	0	4,995	4,936	4,929	4,029	1,806	3,157
Total	0	7,420	7,373	7,364	5,928	2,536	4,800
Home-Based Other							
0-car	0	618	615	1,032	1,024	160	405
1-car	0	894	909	1,181	1,191	642	1,132
2+cars	0	1,968	2,032	2,409	2,426	1,580	2,364
Total	0	3,481	3,557	4,623	4,641	2,384	3,901
Non-Home-Based							
0-car	0	153	155	441	441	71	134
1-car	0	98	101	168	166	47	195
2+cars	0	444	462	473	475	358	522
Total	0	696	719	1,083	1,082	477	853
All Trip Purposes							
0-car	0	1,404	1,403	2,105	1,978	380	751
1-car	0	2,784	2,814	3,153	2,743	1,269	2,758
2+cars	0	7,408	7,431	7,812	6,931	3,746	6,044
Total	0	11,596	11,648	13,069	11,651	5,395	9,553

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 150: 2040 Weekday Incremental Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (Raleigh-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	185	164	150
1-car	1,434	601	579
2+cars	2,388	1,841	1,806
Total	4,007	2,607	2,536
Home-Based Other			
0-car	199	163	160
1-car	886	607	642
2+cars	2,205	1,663	1,580
Total	3,289	2,433	2,384
Non-Home-Based			
0-car	81	68	71
1-car	68	54	47
2+cars	512	392	358
Total	661	514	477
All Trip Purposes			
0-car	464	395	380
1-car	2,388	1,263	1,269
2+cars	5,104	3,896	3,746
Total	7,957	5,554	5,395

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 151: 2040 Weekday Incremental Linked Transit Trips by Purpose, Auto Ownership, and Fare Alternative (RTP-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	273	221	212
1-car	2,596	1,455	1,431
2+cars	4,266	3,175	3,157
Total	7,135	4,852	4,800
Home-Based Other			
0-car	518	401	405
1-car	1,559	1,080	1,132
2+cars	3,314	2,445	2,364
Total	5,392	3,926	3,901
Non-Home-Based			
0-car	161	131	134
1-car	278	202	195
2+cars	751	555	522
Total	1,190	888	853
All Trip Purposes			
0-car	951	753	751
1-car	4,433	2,738	2,758
2+cars	8,330	6,174	6,044
Total	13,716	9,665	9,553

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 152: 2018 Weekday Linked Transit Trips on Project by Purpose and Auto Ownership (C: Regional Fare, Full and IOS Options)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Home-Based Work							
0-car	0	375	376	375	284	11	58
1-car	0	690	697	696	518	74	437
2+cars	0	1,872	1,824	1,819	1,425	249	792
Total	0	2,937	2,897	2,891	2,227	333	1,287
Home-Based Other							
0-car	0	320	316	629	623	6	161
1-car	0	185	194	372	375	102	269
2+cars	0	426	429	660	663	285	506
Total	0	931	938	1,661	1,661	393	936
Non-Home-Based							
0-car	0	57	58	177	177	2	35
1-car	0	30	31	68	67	4	43
2+cars	0	114	112	130	131	67	118
Total	0	201	201	374	375	74	197
All Trip Purposes							
0-car	0	752	749	1,181	1,083	18	255
1-car	0	905	922	1,136	960	180	750
2+cars	0	2,413	2,365	2,609	2,218	601	1,415
Total	0	4,069	4,036	4,926	4,262	799	2,420

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 153: 2018 Weekday Linked Transit Trips on Project by Purpose, Auto Ownership, and Fare Alternative (Raleigh-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	16	9	11
1-car	322	65	74
2+cars	391	229	249
Total	729	304	333
Home-Based Other			
0-car	10	5	6
1-car	167	79	102
2+cars	484	268	285
Total	660	352	393
Non-Home-Based			
0-car	3	2	2
1-car	11	4	4
2+cars	107	63	67
Total	121	69	74
All Trip Purposes			
0-car	28	16	18
1-car	499	148	180
2+cars	983	560	601
Total	1,510	724	799

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 154: 2018 Weekday Linked Transit Trips on Project by Purpose, Auto Ownership, and Fare Alternative (RTP-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	95	50	58
1-car	839	423	437
2+cars	1,191	738	792
Total	2,125	1,211	1,287
Home-Based Other			
0-car	239	153	161
1-car	406	235	269
2+cars	814	480	506
Total	1,459	868	936
Non-Home-Based			
0-car	48	34	35
1-car	70	42	43
2+cars	185	111	118
Total	303	188	197
All Trip Purposes			
0-car	382	237	255
1-car	1,316	701	750
2+cars	2,190	1,329	1,415
Total	3,887	2,267	2,420

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 155: 2040 Weekday Linked Transit Trips on Project by Purpose and Auto Ownership (C: Regional Fare, Full and IOS Options)

Trip Purpose and Household Autos Owned	No-Build	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Home-Based Work							
0-car	0	849	852	851	671	25	144
1-car	0	1,981	1,994	1,992	1,486	311	1,252
2+cars	0	5,446	5,402	5,394	4,295	1,222	2,575
Total	0	8,276	8,248	8,236	6,452	1,558	3,971
Home-Based Other							
0-car	0	788	772	1,536	1,522	16	401
1-car	0	690	718	1,143	1,165	433	898
2+cars	0	1,594	1,740	2,231	2,267	1,302	1,869
Total	0	3,073	3,229	4,911	4,954	1,751	3,168
Non-Home-Based							
0-car	0	221	221	604	604	5	99
1-car	0	86	89	188	186	11	125
2+cars	0	363	402	435	437	283	410
Total	0	670	713	1,226	1,227	299	634
All Trip Purposes							
0-car	0	1,858	1,845	2,991	2,797	45	645
1-car	0	2,757	2,801	3,323	2,837	754	2,274
2+cars	0	7,403	7,544	8,060	6,999	2,807	4,854
Total	0	12,019	12,190	14,373	12,633	3,607	7,773

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 156: 2040 Weekday Linked Transit Trips on Project by Purpose, Auto Ownership, and Fare Alternative (Raleigh-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	37	22	25
1-car	1,210	266	311
2+cars	1,818	1,127	1,222
Total	3,064	1,415	1,558
Home-Based Other			
0-car	27	14	16
1-car	692	337	433
2+cars	2,076	1,242	1,302
Total	2,796	1,593	1,751
Non-Home-Based			
0-car	8	4	5
1-car	26	10	11
2+cars	436	268	283
Total	470	283	299
All Trip Purposes			
0-car	71	40	45
1-car	1,928	613	754
2+cars	4,330	2,638	2,807
Total	6,330	3,291	3,607

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 157: 2040 Weekday Linked Transit Trips on Project by Purpose, Auto Ownership, and Fare Alternative (RTP-Auburn 60/60)

Trip Purpose and Household Autos Owned	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Home-Based Work			
0-car	228	128	144
1-car	2,525	1,196	1,252
2+cars	3,772	2,393	2,575
Total	6,524	3,717	3,971
Home-Based Other			
0-car	564	382	401
1-car	1,354	770	898
2+cars	2,921	1,781	1,869
Total	4,839	2,933	3,168
Non-Home-Based			
0-car	139	97	99
1-car	204	122	125
2+cars	631	388	410
Total	974	607	634
All Trip Purposes			
0-car	931	608	645
1-car	4,082	2,088	2,274
2+cars	7,323	4,561	4,854
Total	12,337	7,257	7,773

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 158: 2018 Weekday Impacts on Automobile Travel (C: Regional Fare, Full and IOS Options)

Measure	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Change in Person-Miles vs. No-Build	-60,893	-55,942	-65,424	-55,700	-19,006	-40,034
Change in Vehicle-Miles	-55,357	-50,856	-59,476	-50,636	-17,278	-36,395

Table 159: 2018 Weekday Impacts on Automobile Travel by Fare Alternative (Raleigh-Auburn 8-2-8-2)

Measure	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Change in Person-Miles vs. No-Build	-26,262	-19,535	-19,006
Change in Vehicle-Miles	-23,875	-17,759	-17,278

Table 160: 2018 Weekday Impacts on Automobile Travel by Fare Alternative (RTP-Auburn 8-2-8-2)

Measure	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Change in Person-Miles vs. No-Build	-54,955	-40,397	-40,034
Change in Vehicle-Miles	-49,959	-36,725	-36,395

Table 161: 2040 Weekday Impacts on Automobile Travel (C: Regional Fare, Full and IOS Options)

Measure	W. Durham-Auburn 8282 w/ 313 extension to Clayton	W. Durham-Auburn 8282	W. Durham-Auburn 30/60	W. Durham-Auburn 60/60	Raleigh-Auburn 60/60	Research Triangle Park-Auburn 60/60
Change in Person-Miles vs. No-Build	-188,640	-169,641	-198,512	-172,811	-60,115	-111,840
Change in Vehicle-Miles	-171,491	-154,219	-180,465	-157,101	-54,650	-101,673

Table 162: 2040 Weekday Impacts on Automobile Travel by Fare Alternative (Raleigh-Auburn 8-2-8-2)

Measure	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Change in Person-Miles vs. No-Build	-82,791	-60,650	-60,115
Change in Vehicle-Miles	-75,265	-55,136	-54,650

Table 163: 2040 Weekday Impacts on Automobile Travel by Fare Alternative (RTP-Auburn 8-2-8-2)

Measure	A: All Free Fare	A2: Local Free Fare	C: Regional Fare
Change in Person-Miles vs. No-Build	-152,386	-111,827	-111,840
Change in Vehicle-Miles	-138,533	-101,661	-101,673

Table 164: 2018 Weekday Production-Attraction Station Flows for Raleigh-Auburn 60/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ELI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DCA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RAL	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
HAM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0	29
GAR	0	0	0	0	0	0	0	0	0	0	95	2	0	2	0	99
AUB	0	0	0	0	0	0	0	0	0	0	592	41	28	0	0	661
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	716	43	38	2	0	799

Key to Stations

WDU – West Durham
DDU – Downtown Durham
EDU – East Durham
ELI – Ellis Road
RTP – Research Triangle Park
MOR – Morrisville
DCA – Downtown Cary
CCD – Corp. Center Dr.
BRR – Blue Ridge Pkwy
NCS – NC State University
RAL – Downtown Raleigh
HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 165: 2018 Weekday Production-Attraction Station Flows for RTP-Auburn 60/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ELI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RTP	0	0	0	0	0	4	62	3	13	449	635	12	1	1	0	1,180
MOR	0	0	0	0	4	0	2	0	1	12	11	1	8	0	0	39
DCA	0	0	0	0	31	2	0	2	1	26	24	4	2	0	0	92
CCD	0	0	0	0	0	0	5	0	1	12	2	0	0	0	0	20
BRR	0	0	0	0	2	0	1	1	0	18	9	10	0	0	0	41
NCS	0	0	0	0	23	0	0	0	1	0	0	2	0	0	0	26
RAL	0	0	0	0	13	0	6	0	10	0	0	0	5	0	0	34
HAM	0	0	0	0	0	0	0	0	18	27	23	0	0	0	0	68
GAR	0	0	0	0	5	0	10	2	9	60	81	2	0	2	0	171
AUB	0	0	0	0	30	5	20	9	36	31	551	40	26	0	0	748
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	108	11	106	17	90	635	1,336	71	42	3	0	2,419

Key to Stations

WDU – West Durham
DDU – Downtown Durham
EDU – East Durham
ELI – Ellis Road
RTP – Research Triangle Park
MOR – Morrisville
DCA – Downtown Cary
CCD – Corp. Center Dr.
BRR – Blue Ridge Pkwy
NCS – NC State University
RAL – Downtown Raleigh
HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 166: 2040 Weekday Production-Attraction Station Flows for Raleigh-Auburn 60/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ELI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DCA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RAL	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20
HAM	0	0	0	0	0	0	0	0	0	0	116	0	1	0	0	117
GAR	0	0	0	0	0	0	0	0	0	0	290	6	0	10	0	306
AUB	0	0	0	0	0	0	0	0	0	0	2,901	199	63	0	0	3,163
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	3,307	205	84	10	0	3,606

Key to Stations

WDU – West Durham
DDU – Downtown Durham
EDU – East Durham
ELI – Ellis Road
RTP – Research Triangle Park
MOR – Morrisville
DCA – Downtown Cary
CCD – Corp. Center Dr.
BRR – Blue Ridge Pkwy
NCS – NC State University
RAL – Downtown Raleigh
HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

Table 167: 2040 Weekday Production-Attraction Station Flows for RTP-Auburn 60/60 (C: Regional Fare)

Production (home-end) Station	Attraction (non-home trip end) Station															
	WDU	DDU	EDU	ELI	RTP	MOR	DCA	CCD	BRR	NCS	RAL	HAM	GAR	AUB	ECL	Total
WDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EDU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ELI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RTP	0	0	0	0	0	6	171	8	58	813	1,856	46	2	3	0	2,963
MOR	0	0	0	0	6	0	3	0	3	18	33	3	15	0	0	81
DCA	0	0	0	0	64	4	0	6	3	39	61	11	4	0	0	192
CCD	0	0	0	0	0	0	14	0	3	22	20	0	0	0	0	59
BRR	0	0	0	0	2	0	2	2	0	60	24	32	0	1	0	123
NCS	0	0	0	0	32	0	0	0	2	0	1	8	0	0	0	43
RAL	0	0	0	0	27	0	10	0	37	0	0	0	11	0	0	85
HAM	0	0	0	0	1	0	1	0	96	79	82	0	0	0	0	259
GAR	0	0	0	0	9	0	22	5	34	156	240	6	0	9	0	481
AUB	0	0	0	0	82	13	61	33	184	115	2,744	194	59	0	0	3,485
ECL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	223	23	284	54	420	1,302	5,061	300	91	13	0	7,771

Key to Stations

WDU – West Durham
DDU – Downtown Durham
EDU – East Durham
ELI – Ellis Road
RTP – Research Triangle Park
MOR – Morrisville
DCA – Downtown Cary
CCD – Corp. Center Dr.
BRR – Blue Ridge Pkwy
NCS – NC State University
RAL – Downtown Raleigh
HAM - Hammond
GAR – Garner
AUB – Auburn
ECL – East Clayton

7. Supplemental Ridership Forecasts for Hillsborough Street West Station Options

This section presents supplemental forecasts of the ridership for optional station locations in the segment between downtown Cary and Raleigh Union Station:

- Replace the Corporate Center Drive Station and Blue Ridge Road Station with a single station between these two locations at 5600 Hillsborough Street in Raleigh (Hillsborough Street West)
- Replace the Blue Ridge Road Station with a station at Hillsborough Street West

These station options are tested for both the West Durham-Auburn 8282 and 30/60 service options and results are presented for these alternatives in the tables that follow.

Table 168: 2018 Weekday Boardings by Corridor Route and By System (C: Regional Fare, Hillsborough Street Options)

Service	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Commuter Rail and Parallel Regional Routes					
Greater Triangle Commuter Rail	**4,036**	**3,994**	**3,996**	**4,926**	**4,917**
100-Raleigh-Airport-RTC	0	0	0	0	0
105-Raleigh-RTC	0	0	0	0	0
700-Durham-RTC	0	0	0	0	0
DRX-Durham-Raleigh Express	0	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	988	959	969	742	735
102-Raleigh-Garner	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	274	275	275	284	285
20-CW-FY24 Garner Clockwise	337	338	338	333	334
7-South Saunders	108	107	107	107	106
SBRT-Southern BRT	1,742	1,738	1,737	1,732	1,729
SBRT-Southern BRT + Rapid Bus	473	474	474	468	469
301-Cary-Raleigh	0	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0	0
WBRT-Western BRT	1,583	1,724	1,719	1,543	1,702
WBRT-Western BRT + Rapid Bus	232	263	263	252	292
Subtotal	9,773	9,872	9,878	10,387	10,569
Other Transit					
Other GoTriangle	4,034	4,035	4,035	4,065	4,063
GoRaleigh	25,593	25,546	25,545	25,654	25,652
GoDurham	23,000	22,986	22,984	22,903	22,891
Chapel Hill Transit	24,379	24,379	24,379	24,388	24,387
GoCary	736	735	735	772	769
Wolf Line	20,906	20,886	20,885	20,872	20,851
Duke University Transit	13,223	13,223	13,223	13,208	13,208
Total	121,644	121,662	121,664	122,249	122,390

*Ridership for base alternative as presented in Chapter 4

Table 169: 2040 Weekday Boardings by Corridor Route and By System (C: Regional Fare, Hillsborough Street Options)

Service	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Commuter Rail and Parallel Regional Routes					
Greater Triangle Commuter Rail	**12,190**	**11,944**	**11,974**	**14,373**	**14,214**
100-Raleigh-Airport-RTC	0	0	0	0	0
105-Raleigh-RTC	0	0	0	0	0
700-Durham-RTC	0	0	0	0	0
DRX-Durham-Raleigh Express	0	0	0	0	0
600-Raleigh - RTC - DTCC - Durham	1,766	1,744	1,761	1,275	1,299
102-Raleigh-Garner	0	0	0	0	0
20-CCW-FY24 Garner Counter-Clockwise	538	537	537	549	549
20-CW-FY24 Garner Clockwise	888	889	889	875	876
7-South Saunders	214	213	213	213	211
SBRT-Southern BRT	5,017	5,017	5,015	5,042	5,047
SBRT-Southern BRT + Rapid Bus	1,267	1,269	1,269	1,328	1,329
301-Cary-Raleigh	0	0	0	0	0
300-RTC-Cary-Raleigh	0	0	0	0	0
WBRT-Western BRT	4,322	4,761	4,740	4,211	4,709
WBRT-Western BRT + Rapid Bus	403	454	454	463	534
Subtotal	26,605	26,828	26,852	28,329	28,768
Other Transit					
Other GoTriangle	6,459	6,452	6,457	6,542	6,556
GoRaleigh	45,816	45,757	45,748	45,973	46,028
GoDurham	36,343	36,337	36,331	36,161	36,148
Chapel Hill Transit	35,103	35,104	35,103	35,121	35,120
GoCary	1,328	1,323	1,323	1,432	1,427
Wolf Line	28,537	28,516	28,514	28,485	28,461
Duke University Transit	16,964	16,964	16,964	16,930	16,929
Total	197,155	197,281	197,292	198,973	199,437

*Ridership for base alternative as presented in Chapter 4

Table 170: 2018 Weekday Walk Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	472	475	476	519	522
Downtown Durham	295	298	298	454	461
East Durham	109	111	111	163	165
Ellis Road	70	70	70	57	57
RTP	53	54	54	91	93
Morrisville	10	10	10	15	15
Downtown Cary	115	115	115	118	119
Corp Center Dr	10	0	10	15	0
Hillsborough St West	0	22	21	0	25
Blue Ridge Road	27	0	0	39	0
NCSU	368	360	358	475	467
Raleigh	662	659	652	750	733
Hammond	50	48	48	62	56
Garner	90	92	92	86	88
Auburn	0	0	0	1	1
East Clayton	0	0	0	0	0
Total	2,331	2,314	2,315	2,845	2,802

*Ridership for base alternative as presented in Chapter 4

Table 171: 2040 Weekday Walk Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	1,167	1,178	1,180	1,265	1,274
Downtown Durham	906	916	916	1,366	1,388
East Durham	268	273	273	411	417
Ellis Road	131	130	130	111	109
RTP	93	95	94	152	154
Morrisville	17	18	17	24	24
Downtown Cary	293	292	292	298	300
Corp Center Dr	31	0	30	40	0
Hillsborough St West	0	81	80	0	92
Blue Ridge Road	142	0	0	198	0
NCSU	778	757	753	1,061	1,046
Raleigh	2,621	2,592	2,579	2,815	2,741
Hammond	200	181	179	250	211
Garner	225	229	229	222	227
Auburn	2	2	2	5	5
East Clayton	0	0	0	0	0
Total	6,874	6,744	6,754	8,218	7,988

*Ridership for base alternative as presented in Chapter 4

Table 172: 2018 Weekday Kiss-Ride Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	4	4	4	5	5
Downtown Durham	5	6	6	11	12
East Durham	2	2	2	4	4
Ellis Road	14	14	14	23	25
RTP	6	7	7	13	14
Morrisville	2	2	2	7	7
Downtown Cary	10	11	10	14	17
Corp Center Dr	5	0	5	8	0
Hillsborough St West	0	12	10	0	20
Blue Ridge Road	12	0	0	23	0
NCSU	0	0	0	0	0
Raleigh	1	1	1	1	1
Hammond	11	8	8	11	9
Garner	12	10	11	14	12
Auburn	72	67	69	84	78
East Clayton	0	0	0	0	0
Total	156	144	149	218	204

*Ridership for base alternative as presented in Chapter 4

Table 173: 2040 Weekday Kiss-Ride Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	9	9	9	11	11
Downtown Durham	12	12	12	21	22
East Durham	5	5	5	11	11
Ellis Road	27	27	27	47	51
RTP	14	16	15	31	31
Morrisville	4	4	4	12	13
Downtown Cary	20	24	19	29	37
Corp Center Dr	16	0	15	23	0
Hillsborough St West	0	32	24	0	54
Blue Ridge Road	31	0	0	59	0
NCSU	0	0	0	0	0
Raleigh	2	1	1	2	1
Hammond	34	23	25	32	26
Garner	34	26	27	38	30
Auburn	263	237	245	299	271
East Clayton	0	0	0	0	0
Total	471	416	428	615	558

*Ridership for base alternative as presented in Chapter 4

Table 174: 2018 Weekday Park-Ride Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	29	29	29	29	29
Downtown Durham	28	48	48	61	62
East Durham	107	88	86	89	91
Ellis Road	136	136	136	150	150
RTP	122	131	122	166	170
Morrisville	12	9	9	15	12
Downtown Cary	74	85	69	81	90
Corp Center Dr	68	0	79	72	0
Hillsborough St West	0	98	43	0	110
Blue Ridge Road	79	0	0	88	0
NCSU	0	0	0	0	0
Raleigh	0	0	0	0	0
Hammond	80	93	92	91	108
Garner	44	43	44	49	48
Auburn	394	391	393	382	379
East Clayton	0	0	0	0	0
Total	1,173	1,151	1,150	1,273	1,249

*Ridership for base alternative as presented in Chapter 4

Table 175: 2040 Weekday Park-Ride Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	77	78	77	78	79
Downtown Durham	97	98	97	130	132
East Durham	257	263	258	270	277
Ellis Road	361	361	360	395	397
RTP	281	300	281	371	379
Morrisville	23	15	14	29	22
Downtown Cary	172	225	164	185	237
Corp Center Dr	202	0	232	227	0
Hillsborough St West	0	248	105	0	299
Blue Ridge Road	231	0	0	256	0
NCSU	0	0	0	0	0
Raleigh	0	0	0	0	0
Hammond	206	253	249	242	303
Garner	112	107	108	126	121
Auburn	1,912	1,894	1,901	1,822	1,803
East Clayton	0	0	0	0	0
Total	3,931	3,842	3,846	4,131	4,049

*Ridership for base alternative as presented in Chapter 4

Table 176: 2018 Weekday Transfer Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	82	82	82	97	97
Downtown Durham	60	60	60	119	144
East Durham	1	1	1	1	1
Ellis Road	0	0	0	0	0
RTP	71	66	65	130	130
Morrisville	4	21	21	32	51
Downtown Cary	45	43	43	59	57
Corp Center Dr	1	0	0	2	0
Hillsborough St West	0	15	15	0	22
Blue Ridge Road	17	0	0	22	0
NCSU	9	9	9	22	23
Raleigh	78	80	83	101	135
Hammond	0	0	0	1	1
Garner	3	3	3	3	3
Auburn	1	1	1	2	2
East Clayton	0	0	0	0	0
Total	372	381	383	591	666

*Ridership for base alternative as presented in Chapter 4

Table 177: 2040 Weekday Transfer Access Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	199	199	199	226	226
Downtown Durham	106	107	107	230	295
East Durham	2	2	2	2	2
Ellis Road	0	0	0	0	0
RTP	142	135	132	265	285
Morrisville	8	44	44	75	114
Downtown Cary	89	84	84	122	117
Corp Center Dr	4	0	0	4	0
Hillsborough St West	0	32	30	0	46
Blue Ridge Road	32	0	0	42	0
NCSU	35	38	38	66	72
Raleigh	281	290	295	358	440
Hammond	2	2	2	4	4
Garner	7	7	7	9	9
Auburn	6	6	6	8	8
East Clayton	0	0	0	0	0
Total	913	946	946	1,411	1,618

*Ridership for base alternative as presented in Chapter 4

Table 178: 2018 Weekday Total (All Access) Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	587	591	591	650	653
Downtown Durham	388	412	411	645	679
East Durham	219	202	200	256	260
Ellis Road	220	220	220	230	232
RTP	252	259	248	401	406
Morrisville	29	43	42	69	85
Downtown Cary	244	253	237	272	282
Corp Center Dr	85	0	94	97	0
Hillsborough St West	0	147	89	0	177
Blue Ridge Road	135	0	0	172	0
NCSU	377	369	367	497	490
Raleigh	741	740	736	852	869
Hammond	142	150	149	166	174
Garner	149	148	149	152	151
Auburn	468	459	464	469	460
East Clayton	0	0	0	0	0
Total	4,036	3,993	3,997	4,928	4,918

*Ridership for base alternative as presented in Chapter 4

Table 179: 2040 Weekday Total (All Access) Boardings by Station (C: Regional Fare, Hillsborough Street Options)

Station	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
West Durham	1,452	1,463	1,465	1,579	1,589
Downtown Durham	1,121	1,134	1,131	1,748	1,837
East Durham	533	543	537	694	706
Ellis Road	519	518	517	553	558
RTP	531	546	523	819	849
Morrisville	52	81	79	140	173
Downtown Cary	574	625	560	635	691
Corp Center Dr	253	0	277	294	0
Hillsborough St West	0	392	240	0	490
Blue Ridge Road	436	0	0	554	0
NCSU	814	795	791	1,127	1,119
Raleigh	2,904	2,882	2,875	3,174	3,183
Hammond	441	458	455	527	544
Garner	378	368	371	395	388
Auburn	2,183	2,138	2,153	2,135	2,087
East Clayton	0	0	0	0	0
Total	12,191	11,943	11,974	14,374	14,214

*Ridership for base alternative as presented in Chapter 4

Table 180: 2018 Weekday Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Hillsborough Street Options)

Trip Purpose and Household Autos Owned	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Home-Based Work					
0-car	6,664	6,664	6,666	6,664	6,664
1-car	7,998	8,009	8,009	7,998	8,008
2+cars	8,391	8,425	8,433	8,387	8,423
Total	23,053	23,098	23,107	23,049	23,095
Home-Based Other					
0-car	20,807	20,810	20,810	20,969	20,976
1-car	19,828	19,838	19,830	19,934	19,955
2+cars	16,254	16,246	16,249	16,398	16,398
Total	56,889	56,893	56,889	57,301	57,329
Non-Home-Based					
0-car	5,772	5,774	5,774	5,847	5,852
1-car	4,788	4,789	4,790	4,811	4,811
2+cars	6,525	6,524	6,526	6,531	6,530
Total	17,084	17,087	17,089	17,190	17,193
All Trip Purposes					
0-car	33,243	33,247	33,249	33,480	33,491
1-car	32,614	32,636	32,629	32,743	32,775
2+cars	31,170	31,195	31,208	31,316	31,351
Total	97,027	97,078	97,085	97,540	97,617

*Ridership for base alternative as presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 181: 2040 Weekday Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Hillsborough Street Options)

Trip Purpose and Household Autos Owned	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Home-Based Work					
0-car	11,574	11,573	11,578	11,574	11,572
1-car	13,557	13,601	13,601	13,556	13,600
2+cars	16,020	16,100	16,119	16,013	16,093
Total	41,151	41,274	41,298	41,142	41,266
Home-Based Other					
0-car	33,553	33,561	33,560	33,970	33,984
1-car	29,472	29,510	29,494	29,744	29,815
2+cars	25,537	25,501	25,512	25,914	25,910
Total	88,562	88,572	88,566	89,628	89,709
Non-Home-Based					
0-car	9,297	9,303	9,301	9,583	9,598
1-car	7,174	7,175	7,175	7,241	7,240
2+cars	9,567	9,554	9,561	9,578	9,563
Total	26,038	26,031	26,037	26,402	26,401
All Trip Purposes					
0-car	54,424	54,436	54,440	55,126	55,155
1-car	50,203	50,286	50,270	50,542	50,655
2+cars	51,124	51,155	51,192	51,505	51,567
Total	155,751	155,878	155,901	157,172	157,376

*Ridership for base alternative as presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 182: 2018 Weekday Incremental Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Hillsborough St Options)

Trip Purpose and Household Autos Owned	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Home-Based Work					
0-car	280	280	282	280	280
1-car	639	650	650	639	649
2+cars	1,651	1,685	1,693	1,647	1,683
Total	2,570	2,615	2,624	2,566	2,612
Home-Based Other					
0-car	272	275	275	434	441
1-car	335	345	337	441	462
2+cars	621	613	616	765	765
Total	1,228	1,232	1,228	1,640	1,668
Non-Home-Based					
0-car	62	64	64	137	142
1-car	52	53	54	75	75
2+cars	147	146	148	153	152
Total	260	263	265	366	369
All Trip Purposes					
0-car	614	618	620	851	862
1-car	1,026	1,048	1,041	1,155	1,187
2+cars	2,419	2,444	2,457	2,565	2,600
Total	4,059	4,110	4,117	4,572	4,649

*Ridership for base alternative as presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 183: 2040 Weekday Incremental Linked Transit Trips by Purpose and Auto Ownership (C: Regional Fare, Hillsborough Street Options)

Trip Purpose and Household Autos Owned	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Home-Based Work					
0-car	633	632	637	633	631
1-car	1,804	1,848	1,848	1,803	1,847
2+cars	4,936	5,016	5,035	4,929	5,009
Total	7,373	7,496	7,520	7,364	7,488
Home-Based Other					
0-car	615	623	622	1,032	1,046
1-car	909	947	931	1,181	1,252
2+cars	2,032	1,996	2,007	2,409	2,405
Total	3,557	3,567	3,561	4,623	4,704
Non-Home-Based					
0-car	155	161	159	441	456
1-car	101	102	102	168	167
2+cars	462	449	456	473	458
Total	719	712	718	1,083	1,082
All Trip Purposes					
0-car	1,403	1,415	1,419	2,105	2,134
1-car	2,814	2,897	2,881	3,153	3,266
2+cars	7,431	7,462	7,499	7,812	7,874
Total	11,648	11,775	11,798	13,069	13,273

*Ridership for base alternative as presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 184: 2018 Weekday Linked Transit Trips on Project by Purpose and Auto Ownership (C: Regional Fare, Hillsborough Street IOS Options)

Trip Purpose and Household Autos Owned	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Home-Based Work					
0-car	376	370	374	375	370
1-car	697	691	690	696	689
2+cars	1,824	1,815	1,825	1,819	1,813
Total	2,897	2,876	2,889	2,891	2,872
Home-Based Other					
0-car	316	313	314	629	632
1-car	194	203	186	372	400
2+cars	429	412	416	660	652
Total	938	928	916	1,661	1,684
Non-Home-Based					
0-car	58	58	57	177	179
1-car	31	29	29	68	61
2+cars	112	104	106	130	121
Total	201	190	192	374	361
All Trip Purposes					
0-car	749	741	745	1,181	1,181
1-car	922	922	904	1,136	1,151
2+cars	2,365	2,331	2,347	2,609	2,585
Total	4,036	3,994	3,996	4,926	4,917

*Ridership for base alternative as presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 185: 2040 Weekday Linked Transit Trips on Project by Purpose and Auto Ownership (C: Regional Fare, Hillsborough Street Options)

Trip Purpose and Household Autos Owned	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Home-Based Work					
0-car	852	839	849	851	838
1-car	1,994	1,939	1,938	1,992	1,936
2+cars	5,402	5,358	5,393	5,394	5,350
Total	8,248	8,136	8,180	8,236	8,125
Home-Based Other					
0-car	772	766	767	1,536	1,528
1-car	718	696	662	1,143	1,167
2+cars	1,740	1,670	1,684	2,231	2,205
Total	3,229	3,132	3,112	4,911	4,900
Non-Home-Based					
0-car	221	222	220	604	612
1-car	89	80	81	188	173
2+cars	402	373	382	435	404
Total	713	676	682	1,226	1,189
All Trip Purposes					
0-car	1,845	1,827	1,836	2,991	2,978
1-car	2,801	2,715	2,680	3,323	3,277
2+cars	7,544	7,401	7,458	8,060	7,959
Total	12,190	11,944	11,974	14,373	14,214

*Ridership for base alternative as presented in Chapter 4

Note: Trip purposes in this table refer to the definition of each purpose in the GTCR implementation of STOPS. Home-Based Work trips are more precisely defined as Home-Based Trips traveling to and from home in the AM or Peak Period. Home-Based Other trips are any other home-based trips, including some that travel to or from work during off-peak periods.

Table 186: 2018 Weekday Impacts on Automobile Travel (C: Regional Fare, Hillsborough Street Options)

Measure	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Change in Person-Miles vs. No-Build	-55,942	-56,495	-56,462	-65,424	-66,982
Change in Vehicle-Miles	-50,856	-51,359	-51,329	-59,476	-60,893

*Ridership for base alternative as presented in Chapter 4

Table 187: 2040 Weekday Impacts on Automobile Travel (C: Regional Fare, Hillsborough Street Options)

Measure	W. Durham-Auburn 8282-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn 8282-Hillsborough St. Sta.	W. Durham-Auburn 8282-Hillsborough St and Corp. Center Dr Stations	W. Durham-Auburn 30/60-Blue Ridge Rd and Corp Center Dr Stations*	W. Durham-Auburn30/60-Hillsborough St Sta
Change in Person-Miles vs. No-Build	-169,641	-170,250	-170,194	-198,512	-202,176
Change in Vehicle-Miles	-154,219	-154,773	-154,722	-180,465	-183,796

*Ridership for base alternative as presented in Chapter 4