Appendix F

Ridership Forecast Technical Memorandum

Ridership Forecast

Transit Concept and Alternatives Review (TCAR)

U^{2}C/Skyway System Expansion- Scenarios

March 2020

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Introduction

The purpose of this report is to document the modeling process used to estimate the ridership for the U²C scenarios as part of the Transit Concept and Alternatives Review (TCAR) process[1]. The STOPS model was previously calibrated and used for the U²C Brooklyn extension TCAR study. For consistency reasons, the same calibration is used in this U²C study. Following is a description of the calibration process that was previously used.

STOPS Introduction

Ridership forecasts for the U²C project were prepared using an advanced copy of v2.01 of the Federal Transit Administration's (FTA) Simplified Trips-On-Project Software (STOPS). Key elements of STOPS include:

1- Estimates of total origin-to-destination travel derived from Census Journey-to-Work data.

2- Representations of transit levels-of-service derived directly from published timetable information.

3- Self-calibration to match current ridership count data for individual geographic subareas within the region.

For the U²C project, the model was calibrated against 2015 schedules and ridership count data. Forecasts of U²C project ridership are prepared for the base year (2015), 2020, 2030 and a long-range horizon year of 2040.

Key input information for the U²C project implementation of STOPS includes:

- Northeast Florida Regional Planning Model (NERPMAB1) forecasts of population and employment by Traffic Analysis Zone (TAZ) for 2010 and 2040 (and interpolated for 2015).
- 2006-2010 American Community Survey data provides home and work locations for all persons using all modes of transportation.
- Highway travel times and costs obtained from the Year 2010 NERPMAB1 regional forecasting model.
- Transit schedule data provided by the Jacksonville Transportation Authority (JTA) in General Transit Feed Specification (GTFS) format.
- Year 2006-2010 transit mode shares from the Census Journey-to-Work.
- Automated Passenger Count ridership data for 2015 provides transit boardings by station, stop, and route for the Jacksonville area.

STOPS uses this information to:

[1] http://www.fdot.gov/transit/Pages/TCARGuidanceFinalNov2016.pdf

1- Estimate the calibration year, opening year, and horizon year all-mode person travel by factoring the 2006-2010 Census Transportation Planning Products (CTPP) using -zone-level estimates of population and employment.

2- Estimate zone-to-zone travel times by reading each transit schedule and finding the best origin-to-destination path for each of the following conditions:

   a. Access mode: walk access, kiss-n-ride access, and Park-n-Ride access

   b. Path type: fixed guideway (e.g., Light Rail Transit [LRT] or Bus Rapid Transit [BRT]) only, bus-only, and fixed guideway and bus together on the same trip

   c. Time of day: AM, peak, and midday

   d. Scenario: calibration year, no-build, and build

   e. Year: 2015, 2020, 2030, and 2040

3- Estimate Year 2015 mode shares and transit ridership by station and route and then adjust the model parameters to match both CTPP mode shares and current year counts.

4- Estimate scenario ridership for 2015, 2020, 2030, and 2040 using the model calibrated in the previous steps and transit travel times for each scenario and each year.

The next section describes how the model was implemented for Jacksonville.

STOPS Model Application

This section describes the key assumptions that were used to configure STOPS to forecast ridership for the U^{2}C project.

Geographic Scope of Analysis

STOPS is designed to make use of pre-existing data sources on transportation supply and demand for nearly all aspects of the ridership forecasting process. The FTA STOPS website includes copies of the Year 2000 CTPP data which is used by STOPS. For this study, an advanced copy of STOPS v2.01 and the 2006-2010 ACS data was obtained from FTA for use in this project.

The modeling scope for this project was set to match the six-county area of the NERPMAB1. The six counties include Baker, Clay, Duval, Nassau, Putnam, and St. Johns counties and are shown in Figure 1. The NERPMAB1 model covers a larger area than the service area of the JTA, which is primarily Duval County and the Orange Park area in northern Clay County.

The modeling area was subdivided into 30 districts to support the calibration and reporting of transit service. These districts are designed to represent different transit markets in the region and the downtown area in particular and account for differences among areas such as:

- Density
- Socioeconomic characteristics
- Walk-ability and other non-service impacts on transit demand

- Geographic barriers (highways, waterways, or other features) that separate neighborhoods from one another

The 30 districts used in this analysis are listed in Table 1, and depicted in Figure 2. The table is subdivided into Study Area Districts and Region Districts. The study area was subdivided into many smaller districts, as shown on Figure 3, to accommodate the calibration of the U^{2}C mode.

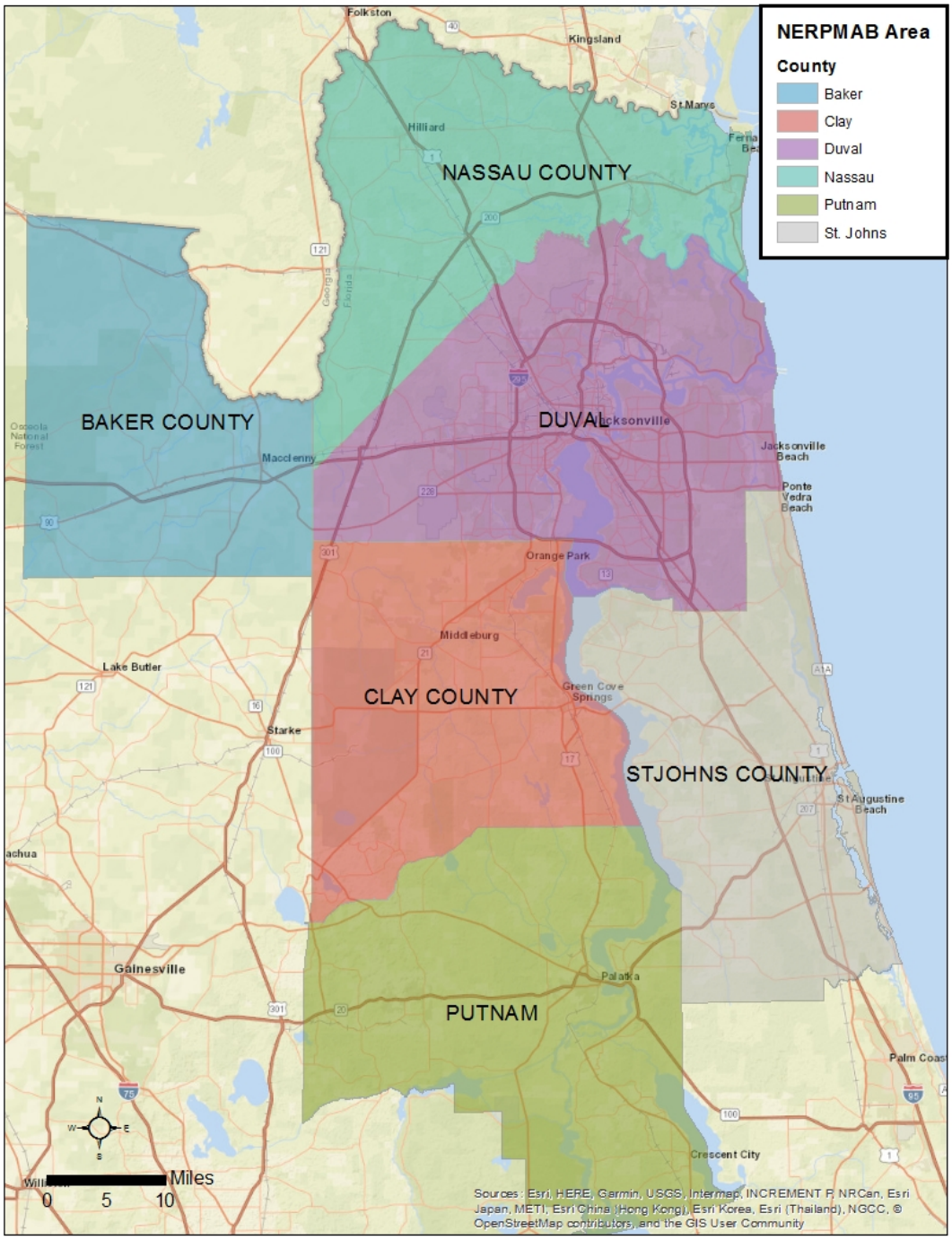

Figure 1 Northeast Florida Regional Planning Model (NERPM) Study Area

Table 1 District Numbers and Names

STOPS District	
Number	**Name**
Study Area	
1	CBD West
2	CBD Central South
3	CBD Central North
4	CBD East
5	Sports Complex
6	San Marco
7	Southbank
8	Brooklyn
9	Riverside
10	Five Points
11	Shands
12	Southbank Central
13	Jackson Square
Region	
14	US 1
15	Belfort
16	Beaches
17	Mandarin
18	Far South
19	Southwest
20	NAS
21	Orange Park
22	Edgewood
23	Lem Turner Moncrief
24	Northside
25	Springfield
26	Westconnett
27	Arlington
28	Empire Point
29	Wonderwood
30	San Jose

There are 30 districts in the STOPS model. Thirteen districts in the study area and 17 in the region area.

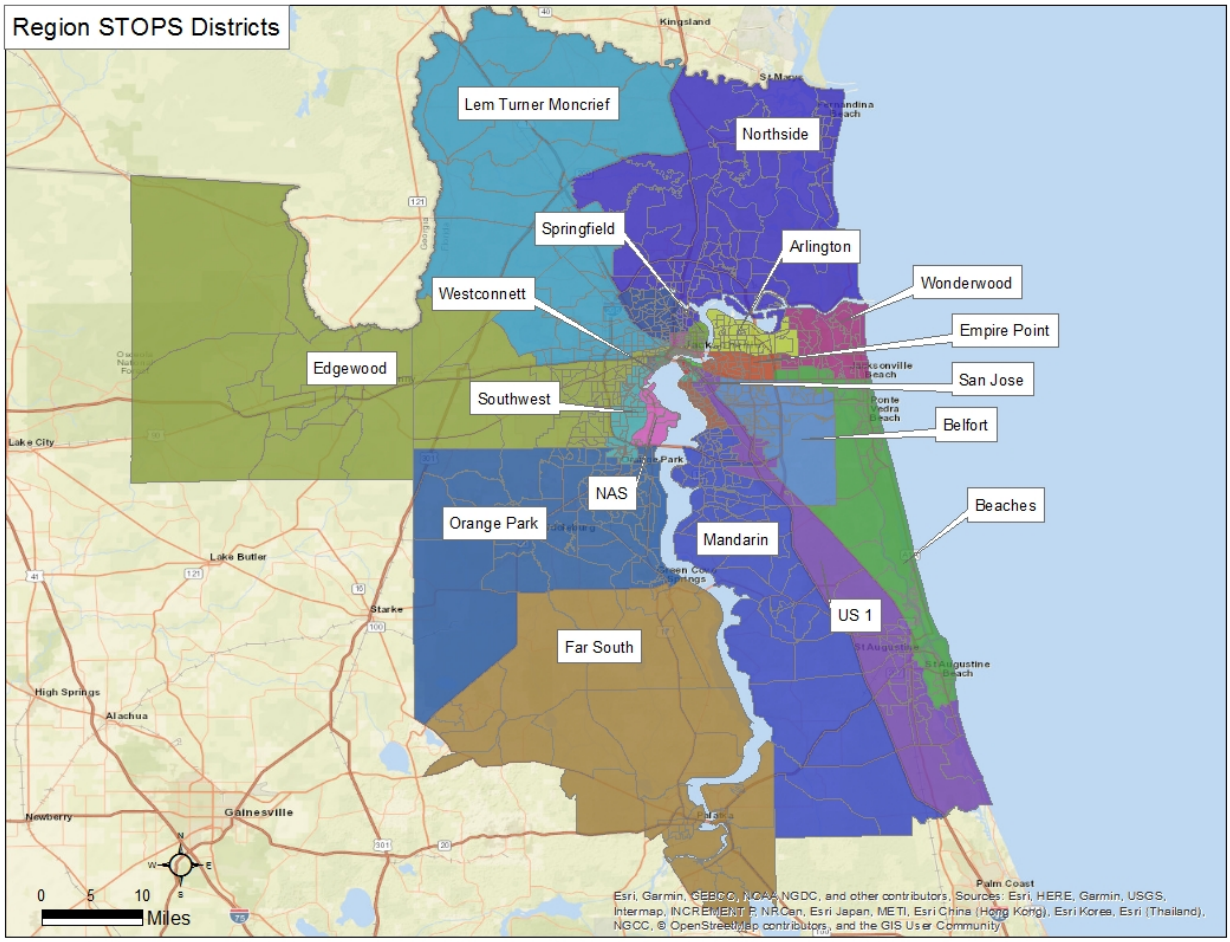

Figure 2 STOPS Districts in Region

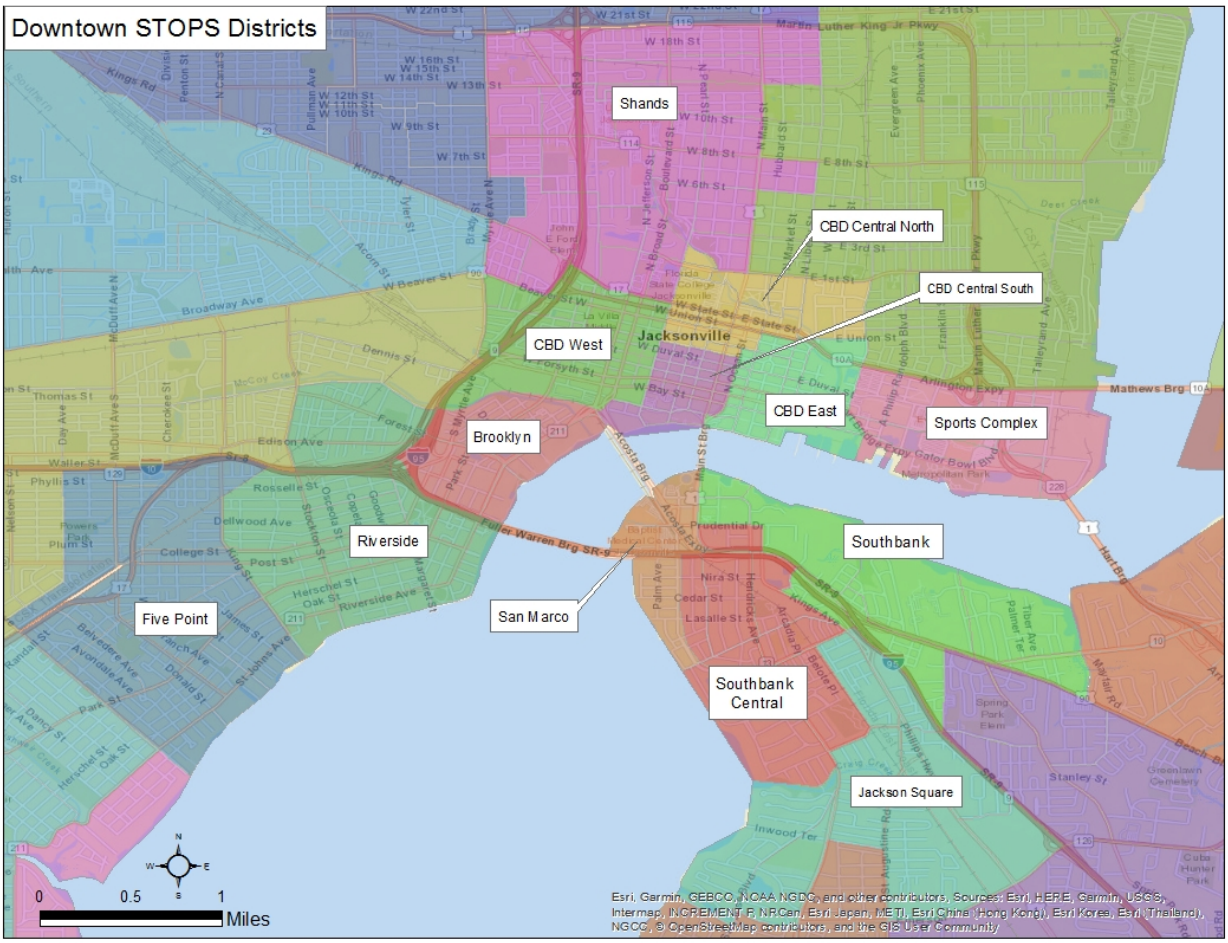

Figure 3 STOPS Districts in Downtown

Year 2015 Transit System Represented in STOPS

In 2015, the JTA operated 35 fixed routes. Six of these routes were express routes. Also, in operation were nine community shuttles, two trolley routes and the U^2C. The frequent routes ran every 15 to 20 minutes, while the local routes ran every 30 to 60 minutes.

The average weekday bus ridership for 2015 is based on APC data collected during the time period from December 2014 through April 2015. During this time period the average weekday bus ridership based on the APC data was 48,789. Following discussions with JTA staff, this number was adjusted to the number that was reported to the FTA and listed in the National Transit Database (NTD) to 42,638. Due to different underlying assumptions in the calculations, it is not uncommon for these average weekday ridership numbers to be different. However, for the purpose of this analysis it was decided that the NTD numbers were a more appropriate data source to use. Therefore, the total average daily boardings was adjusted to the NTD ridership number, while the same proportional relationship for each route to the total average daily boardings was maintained.

The average weekday U^{2}C ridership number during the same time period used in this study was 4,945. There is no ridership fee associated with the U^{2}C. The fare elimination went into effect on January 30, 2012.

Calibration to Year 2015 Ridership Data

As shown in Table 6, the year 2015 average weekday transit boardings based on APC and NTD data shows a total ridership number of 42,638, while the STOPS estimate 43,099 average weekday ridership. This is a difference of one percent or -461 riders.

Also listed in Table 2 are the U^{2}C riders. Based on the data collected at the turnstiles, the ridership was 4,945 and the STOPS estimate was 4,366. The difference being - 579 riders or 12 percent. These results look very reasonable based on the amount of data available and the size of the system.

Table 3 takes a closer look at the U^{2}C boardings. The only data available for the U^{2}C was collected at the turnstiles. As such, no information is available on the access mode (walk, kiss and ride, Park-n-Ride, and/or transfer) nor on the destination of the trip. Additional pertinent information associated with the U^{2}C ridership are the locations of the Park-n-Ride lots and the interactions between the U^{2}C and the other transit services. The stations with a Park-n-Ride lot are the Convention Center, Kings Ave, River Place and San Marco. The station where most transfers to the other transit services takes place, is the Rosa Parks Station.

It is important to note, that the current ridership markets of the U^{2}C system can be divided into three groups. These are the transit riders that transfer to the U^{2}C, the Park-n-Ride users that transfer to the U^{2}C and the riders that use it as a downtown circulation system. As such, refinements were made to the STOPS model to capture these three markets.

These refinements were made through the use of time penalties. In the STOPS model, costs associated with the Park-n-Ride lots were added in time (minutes). The cost to park in the lot is between $21.00 and $24.00 a month which was set to a “cost” of 2 minutes. In order to “inform” STOPS that the U^{2}C is free, and to differentiate that cost between this particular mode and all other modes (Local Bus and BRT) a cost of 2.8 minutes was added to all other modes. No other adjustments were made to the model.

As can be seen in Table 7, the stations with the closer validation in boardings are Jefferson (2%) and Rosa Parks (6%) stations. As stated before, based on the available data, the overall patterns and the estimates of the total number of average daily ridership are within an acceptable range.

Table 2 Year 2015 APC Data and Average Weekday Boardings Comparison

Route Name	Year 2015 APC	STOPS Estimate Year 2015 Average Weekday - Existing	Existing minus APC	Percent Difference APC vs. Existing
H - Skyway Convention Kings		303	303	
D - Skyway Rosa Parks Kings		890	890	
A - Skyway Rosa Parks Convention Center		3,173	3,173	
Total Skyway	**4,945**	**4,366**	**-579**	**-12%**
1 - North Main	2,816	3,123	307	11%
2 - Lem Turner	2,082	2,962	880	42%
3 - Moncrief	2,676	1,841	-835	-31%
4 - Kings	1,494	2,714	1,220	82%
5 - Park/Blanding	2,729	2,481	-248	-9%
7 - Philips	2,318	2,074	-244	-11%
8 - Beach/Town Center	2,277	1,915	-362	-16%
9 - Arlington/Beach	3,186	4,786	1,600	50%
10 - Atlantic	1,213	2,371	1,158	95%
11 - A Philip Randolph	654	686	32	5%
12 - Myrtle/Lem Turner	898	229	-669	-74%
13 - Commonwealth/Lane	1,506	2,005	499	33%
14 - Edison	828	749	-79	-10%
15 - Post/Normandy	1,396	830	-566	-41%
16 - Riverside/Wilson	762	587	-175	-23%
17 - St. Augustine/San Jose	993	1,385	392	39%
18 - Atlantic/Mounment	1,148	1,159	11	1%
19 - Arlington	2,026	1,356	-670	-33%
22 - Avenue B	619	559	-60	-10%
23 - Townsend/Southside/Anenue	734	519	-215	-29%
24 - Mayport	265	152	-113	-43%
25 - San Jose	499	281	-218	-44%
30 - Cecil/Cassat	146	252	106	73%
31 - Talleyrand	91	78	-13	-14%
32 - McDuff	142	72	-70	-49%
33 - Spring Park/Philips	146	67	-79	-54%
34 - Blanding/Edgewood	113	123	10	9%
50 - University	1,526	1,144	-382	-25%
51 - Edgewood	1,549	1,599	50	3%
200 - Mandarin Express	73	209	136	186%

Route Name	Year 2015 APC	STOPS Estimate Year 2015 Average Weekday - Existing	Existing minus APC	Percent Difference APC vs. Existing
201 - Clay Regional Express	79	62	-17	-22%
202 - Mayport Express	85	75	-10	-12%
203 - NAS	23	14	-9	-39%
204 - Dinsmore Shuttle	83	1	-82	-99%
205 - Beaches Express	31	70	39	126%
300 - Dunn/Pritchard Community Shuttle	73	0	-73	-100%
301 - Oakleaf Community Shuttle	92	60	-32	-35%
302 - Southeast Community Shuttle	64	35	-29	-45%
303 - Beaches Community Shuttle	53	42	-11	-21%
304 - Mandarin Community Shuttle	38	12	-26	-68%
305 - Highlands Community Shuttle	51	2	-49	-96%
306 - Heckscher Community Shuttle	18	0	-18	-100%
307 - Northside Community Shuttle	55	28	-27	-49%
308 - Arlington Community Shuttle	44	24	-20	-45%
Total Local Bus (No BRT/Skyway)	**37,693**	**38,733**	**1,040**	**3%**
Grand Total	**42,638**	**43,099**	**461**	**1%**

Table 3 Year 2015 U²C Station Boardings Estimates

Station Name	STOPS Estimate Year 2015 Average Weekday - Existing					Turnstile Data Year 2015	STOPS minus Turnstile	Percent Difference STOPS vs. Turnstile
	WLK	KNR	PNR	XFR	ALL			
Central	1,218	8	0	71	1,297	888	409	46%
Convention Center	65	59	103	5	232	466	-234	-50%
Hemming Plaza	471	2	0	4	476	1,098	-622	-57%
Jefferson	23	0	0	62	85	87	-2	-2%
Kings Ave	142	22	25	97	286	337	-51	-15%
RiverPlace	80	1	2	28	111	161	-50	-31%
Rosa Parks	1,428	15	0	323	1,766	1,672	94	6%
San Marco	42	23	47	1	113	239	-126	-53%
Total	**3,469**	**130**	**177**	**591**	**4,366**	**4,948**	**-582**	**-12%**

First Coast Flyer Adjustments

The STOPS model was used to analyze the SW First Coast Flyer BRT line. As part of the validating process for the STOPS model, North First Coast Flyer route, which opened in late 2015, was added to the Year 2015 model. The automated passenger count (APC) data from August through December 2016 was used to validate the model. As shown in Table 4, the ridership on the North First Coast Flyer was 2,082 on an average weekday in 2016.

Table 4 Average Daily Boardings – First Coast Flyer BRT Routes

BRT Routes	APC Counts Aug-Dec, 2016	STOPS Estimates Year 2015 Average Weekday	
		2015 No Build	2015 Build
North First Coast Flyer	2,082	1,908	1,866
Southwest First Coast Flyer			1,814
Southeast First Coast Flyer		1,876	1,828
East First Coast Flyer			
Total BRT	**2,082**	**3,784**	**5,508**

In the Year 2015 scenarios, both the North and Southeast First Coast Flyer were added to the GTFS file for the Year 2015 No Build scenario. In the Build scenario, the Southwest First Coast Flyer was added.

The East First Coast Flyer was not included in the Southwest First Cost Flyer 2015 Build scenario. The North and Southeast Flyers both stop at the Rosa Parks Station while the Southwest and East Flyer will stop at the JTRC Station.

The results are shown in Table 4. Based on these results, the "visibility factor" for the BRT routes was not changed. Setting the route type to 0 with a visibility factor of 0, has a similar effect as to coding BRT services with route type to 3, which is the type for a local bus[2].

The BRT routes in Jacksonville will be operating in mixed traffic, will be branded, and will operate with signal optimization. However, as can be seen Table 4, with a route type 0 and a visibility factor of 0, the STOPS model simulates the ridership numbers in an acceptable range.

Operating Speed Assumptions

TAZ-to-TAZ estimates of travel time and distance were obtained from the Year 2010 NERPMAB1 model and were used as zone-to-zone highway travel times. The STOPS implementation for Jacksonville uses 2010 distances and travel times which represents the 2015 calibration year well, as well as the forecast years.

The travel time for the U^{2}C project was coded and based on actual station to station travel time. The GTFS files for the U^{2}C were developed by the JTA and used as input into the STOPS model.

[2] https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/STOPS_1.50_user_documentation_v5.pdf

Scenario Development

Several updates were made to the STOPS input files, these updates were made to the socioeconomic data files, the GTFS files, and several input variables. The following sections discuss the changes to the input files.

Population and Employment Updates

Estimates of population and employment for the modeling region were obtained from the North Florida Transportation Planning Organization (NFTPO) for the year 2015 and 2045 for each traffic analysis zone (TAZ) in the modeling area. This area includes the six counties as shown in Figure 1, which contains 2,526 TAZs. Table 5 shows the population and employment projections as developed by the NFTPO for the different counties within the NERPM model area for the Year 2045 Long Range Transportation Plan (LRTP).

The focus of this study is Duval County and in particular, the downtown area. In Table 5, Duval County's population has a projected growth rate of 44% and an employment growth rate of 42% between the time period of 2015 and 2045. This constitutes a low annual growth rate of 1.5% and 1.4%, respectively.

Table 5 NFTPO Year 2015 and 2045 Population Estimates by County

County	Total Population					Total Employment				
	Population			Growth Rate 2015 - 2045	Annual Growth	Employment			Growth Rate 2015 - 2045	Annual Growth
	2015	2045	Diff.			2015	2045	Diff.		
Nassau	76,672	116,024	39,352	51%	1.7%	28,480	55,848	27,368	96%	3.2%
Duval	854,757	1,231,564	376,807	44%	1.5%	496,394	703,449	207,055	42%	1.4%
St. Johns	202,375	412,811	210,436	104%	3.5%	66,355	181,653	115,298	174%	5.8%
Clay	189,600	321,984	132,384	70%	2.3%	46,539	105,169	58,630	126%	4.2%
Baker	23,138	37,723	14,585	63%	2.1%	8,909	18,522	9,613	108%	3.6%
Putnam	71,687	84,790	13,103	18%	0.6%	21,521	36,210	14,689	68%	2.3%
Grand Total	**1,418,229**	**2,204,896**	**786,667**	**55%**	**1.8%**	**668,198**	**1,100,851**	**432,653**	**65%**	**2.2%**

New developments were identified in the downtown area and added to the year 2022. Several assumptions had to be made to convert the development data into the population and employment numbers needed as input into the STOPS model. The development data is typically presented as the number of dwelling units on the residential side and in square feet on the commercial side.

In order to estimate the population, an average household size of 2.33 per persons per dwelling occupied unit was used for Duval County. The average household size for Duval County for the

four-year period between 2011 and 2015 was 2.57 [3] However, according to the 2010 Census, which was used to develop the NFTPO data, the person per household varied in Duval County from 2.08 to 2.57 depending on the geographical location within the County. Since the household size by variable geographic location is not known at this time, the average of 2.33 was assumed for all new household units.

The employment types added were service, commercial and industrial. For "mixed used" development it was assumed that 40% would be retail/commercial and 60% office/service. The employee calculations were primarily based on the square feet information associated with the development. For retail/commercial two employees per 1,000 square feet was used, while for office/service five employees per 1,000 square feet was used. For the employment associated with projected hotel development, the employment was based on the number of rooms (0.9 employees per room). The assumed relationships were based on information listed in the Institute of Transportation Engineers (ITE) Trip Generation manual as well as the ratios used in the development of the original NFTPO data forecasts. It should be noted that the numbers of employee per square feet can vary wildly, depending on the type and size of the development. It is therefore recommended to refine these calculations as more detailed information becomes available.

Table 6 lists the final population and employment estimates by district while Tables 7 and 8 show the growth patterns between the different years.

[3] http://www.census.gov/quickfacts/table/PST045215/12031

Table 6 Population and Employment Data Estimates for the Years 2015, 2022, 2035, and 2045

STOPS District	Population				Employment			
	2015 *	2022	2035	2045	2015	2022	2035	2045
Study Area								
1-CBD West	144	1,384	1,900	2,295	3,427	4,446	4,746	4,975
2-CBD Central South	259	562	562	562	12,420	15,929	16,763	17,403
3-CBD Central North	1,037	1,203	1,400	1,551	5,916	6,269	6,877	7,343
4-CBD East	768	3,119	7,468	10,812	10,881	12,154	13,762	15,001
5-Sport Complex	13	1,403	1,401	1,401	4,594	10,476	10,731	10,927
San Marco	764	1,519	1,754	1,933	9,704	9,822	10,041	10,208
Southbank District	2,415	5,223	5,368	5,481	7,372	8,951	9,469	9,868
8-Brooklyn	45	1,786	1,794	1,802	5,771	6,702	7,491	8,097
9-Riverside	5,683	6,368	7,637	8,616	13,171	13,829	15,046	15,985
10-Five Points	7,106	7,709	8,832	9,695	1,591	1,671	1,822	1,936
11-UF Medical Center	6,013	6,475	7,335	7,997	11,963	12,388	13,172	13,780
12-Southbank Central	2,736	2,910	3,232	3,478	2,380	3,204	3,511	3,747
13-Jackson Square	3,691	3,886	4,243	4,519	1,842	1,979	2,228	2,421
Study Area Sub-Total	**30,674**	**43,547**	**52,926**	**60,142**	**91,032**	**107,820**	**115,659**	**121,691**
Region								
14-US1	88,544	106,011	138,432	163,375	81,941	95,780	121,468	141,234
15-Belfort	85,980	95,073	111,940	124,920	86,289	98,116	120,067	136,955
16-Beaches	114,018	130,684	161,631	185,437	44,175	54,760	74,426	89,548
17-Mandarin	147,741	172,403	218,206	253,441	36,740	48,937	71,569	88,981
18-Far South	50,276	55,219	64,387	71,448	19,225	23,104	30,304	35,844
19-Southwest	58,530	62,252	69,156	74,467	24,199	25,812	28,804	31,113
20-NAS	20,310	22,136	25,528	28,137	27,765	28,587	30,112	31,287
21-Orange Park	160,008	186,758	236,431	274,637	33,186	44,639	65,899	82,259
22-EdgeWood	57,278	65,769	81,558	93,702	34,246	41,657	55,414	66,002
23-LemTurner Moncrief	52,955	57,696	66,504	73,278	12,116	13,231	15,294	16,884
24-Northside	137,242	151,974	179,329	200,370	52,957	63,971	84,432	100,171
25-Springfield	8,374	9,350	11,162	12,555	6,638	7,367	8,726	9,775
26-WestConnett	142,981	157,053	183,168	203,261	40,199	47,094	59,903	69,749
27-Arlington	66,374	70,823	79,084	85,446	17,765	19,083	21,535	23,421
28-Empire Point	41,131	44,115	49,650	53,907	16,576	17,803	20,077	21,834
29-Wonderwood	92,362	99,506	112,766	122,969	28,970	30,767	34,109	36,680
30-San Jose	24,428	25,972	28,842	31,048	8,179	8,773	9,872	10,721
Region Sub-Total	**1,348,532**	**1,512,794**	**1,817,774**	**2,052,398**	**571,166**	**669,481**	**852,011**	**992,458**
Grand Total	**1,379,206**	**1,556,341**	**1,870,700**	**2,112,540**	**662,198**	**777,301**	**967,670**	**1,114,149**

* The 2015 numbers might not match the NF TPO year 2015 estimates because of adjustments made by STOPS based on Census data and geography.

Table 7 Population Growth Patterns between the Years 2015 and 2045

STOPS District	Population					
	2022-2015		2035 - 2022		2045 - 2035	
	Number	Percent	Number	Percent	Number	Percent
Study Area						
1-CBD West	1,240	861%	516	37%	395	21%
2-CBD Central South	303	117%	0	0%	0	0%
3-CBD Central North	166	16%	197	16%	151	11%
4-CBD East	2,351	306%	4,349	139%	3,344	45%
5-Sport Complex	1,390	10692%	-2	0%	0	0%
San Marco	755	99%	235	15%	179	10%
Southbank District	2,808	116%	145	3%	113	2%
8-Brooklyn	1,741	3869%	8	0%	8	0%
9-Riverside	685	12%	1,269	20%	979	13%
10-Five Points	603	8%	1,123	15%	863	10%
11-UF Medical Center	462	8%	860	13%	662	9%
12-Southbank Central	174	6%	322	11%	246	8%
13-Jackson Square	195	5%	357	9%	276	7%
Study Area Sub-Total	**12,873**	**42%**	**9,379**	**22%**	**7,216**	**14%**
Region						
14-US1	17,467	20%	32,421	31%	24,943	18%
15-Belfort	9,093	11%	16,867	18%	12,980	12%
16-Beaches	16,666	15%	30,947	24%	23,806	15%
17-Mandarin	24,662	17%	45,803	27%	35,235	16%
18-Far South	4,943	10%	9,168	17%	7,061	11%
19-Southwest	3,722	6%	6,904	11%	5,311	8%
20-NAS	1,826	9%	3,392	15%	2,609	10%
21-Orange Park	26,750	17%	49,673	27%	38,206	16%
22-EdgeWood	8,491	15%	15,789	24%	12,144	15%
23-LemTurner Moncrief	4,741	9%	8,808	15%	6,774	10%
24-Northside	14,732	11%	27,355	18%	21,041	12%
25-Springfield	976	12%	1,812	19%	1,393	12%
26-WestConnett	14,072	10%	26,115	17%	20,093	11%
27-Arlington	4,449	7%	8,261	12%	6,362	8%
28-Empire Point	2,984	7%	5,535	13%	4,257	9%
29-Wonderwood	7,144	8%	13,260	13%	10,203	9%
30-San Jose	1,544	6%	2,870	11%	2,206	8%
Region Sub-Total	**164,262**	**12%**	**304,980**	**20%**	**234,624**	**13%**
Grand Total	**177,135**	**13%**	**314,359**	**20%**	**241,840**	**13%**

Table 8 Employment Growth Patterns between 2015 and 2045

STOPS District	Employment					
	2022-2015		2035 - 2022		2045 - 2035	
	Number	Percent	Number	Percent	Number	Percent
Study Area						
1-CBD West	1,019	30%	300	7%	229	5%
2-CBD Central South	3,509	28%	834	5%	640	4%
3-CBD Central North	353	6%	608	10%	466	7%
4-CBD East	1,273	12%	1,608	13%	1,239	9%
5-Sport Complex	5,882	128%	255	2%	196	2%
San Marco	118	1%	219	2%	167	2%
Southbank District	1,579	21%	518	6%	399	4%
8-Brooklyn	931	16%	789	12%	606	8%
9-Riverside	658	5%	1,217	9%	939	6%
10-Five Points	80	5%	151	9%	114	6%
11-UF Medical Center	425	4%	784	6%	608	5%
12-Southbank Central	824	35%	307	10%	236	7%
13-Jackson Square	137	7%	249	13%	193	9%
Study Area Sub-Total	**16,788**	**18%**	**7,839**	**7%**	**6,032**	**5%**
Region						
14-US1	13,839	17%	25,688	27%	19,766	16%
15-Belfort	11,827	14%	21,951	22%	16,888	14%
16-Beaches	10,585	24%	19,666	36%	15,122	20%
17-Mandarin	12,197	33%	22,632	46%	17,412	24%
18-Far South	3,879	20%	7,200	31%	5,540	18%
19-Southwest	1,613	7%	2,992	12%	2,309	8%
20-NAS	822	3%	1,525	5%	1,175	4%
21-Orange Park	11,453	35%	21,260	48%	16,360	25%
22-EdgeWood	7,411	22%	13,757	33%	10,588	19%
23-LemTurner Moncrief	1,115	9%	2,063	16%	1,590	10%
24-Northside	11,014	21%	20,461	32%	15,739	19%
25-Springfield	729	11%	1,359	18%	1,049	12%
26-WestConnett	6,895	17%	12,809	27%	9,846	16%
27-Arlington	1,318	7%	2,452	13%	1,886	9%
28-Empire Point	1,227	7%	2,274	13%	1,757	9%
29-Wonderwood	1,797	6%	3,342	11%	2,571	8%
30-San Jose	594	7%	1,099	13%	849	9%
Region Sub-Total	**98,315**	**17%**	**182,530**	**27%**	**140,447**	**16%**
Grand Total	**115,103**	**17%**	**190,369**	**24%**	**146,479**	**15%**

As reflected in these two tables, the Brooklyn and Sports Complex areas have added a significant number of residential units within the last several years. In total, the residential population growth between 2015 and 2045 within the study area is projected to be 29,468. This represents a 96% increase in population within the study area. The employment within the study area is expected to increase by 30,659 which is a 34% increase during that same time period.

Route File Updates

The GTFS files for the bus and BRT were obtained from the JTA. These files reflected the service during the months of August through December 2019. In addition, the GTFS files were included for the East BRT line. The GTFS files for the different U^2C scenario were created based on the revised operational plans which are documented in the *TCAR Report, JTA Skyway Modernization Program, TCAR 2: Skyway System Expansion*.

Three different scenarios were developed which were run with two different operational characteristics. The scenarios were run as an elevated system with three- and five-minute headways and in mixed traffic with three- and five- minute headways. The operational hours analyzed are between 6:30 AM till 9:30 PM.

STOPS Updates

The differences between the elevated and mixed traffic scenarios are the travel times between stations, as well as mode type, and station type. The elevated system is run with a mode type 1, which represents a fixed guideway system. In the mixed traffic scenarios, the system is run with a mode type 3. In addition, the STOPS program allows for the classification of stations. The different classifications are to determine if the station is at grade or elevated. If elevated, the program adds the travel time to travel from the street level to the platform level.

Scenario Ridership Estimates

In total 12 scenario were analyzed. The ridership estimates associated with these runs is the discussed in the following paragraphs.

Scenario 1 Extension Scenarios

1A – Elevated

In scenario 1A, the existing two lines are run from the Jacksonville Regional Transportation Center (JRTC) to Kings Ave and from the JRTC to Rosa Park. These lines are elevated and remain elevated in all scenarios. In addition to the two existing lines, the Brooklyn to JRTC line is elevated in all of the scenarios as well. The following extensions were added in the elevated mode:

- Rosa Parks – UF Health

- Central – Sports Complex
- Kings Ave – San Marco
- Brooklyn – Five Point
- San Marco – Medical Complex (Southbank)

Scenario 1A was analyzed with a three-minute headway and a five-minute headway. Table 9 shows the average daily boardings of the 1A scenario with a three-minute headway, while Table 10 lists the average daily boardings with a five-minute frequency. Table 11 shows the difference between the two frequencies.

1B – Mixed Traffic

In scenario 1B, the existing two lines are run from the Jacksonville Regional Transportation Center (JRTC) to Kings Ave and from the JRTC to Rosa Park. These lines are elevated and remain elevated in all scenarios. In addition to the two existing lines, the Brooklyn to JRTC line is elevated in all of the scenarios as well. Like scenario 1A, the following extensions were added in mixed traffic mode:

- Rosa Parks – UF Health
- Central – Sports Complex
- Kings Ave – San Marco
- Brooklyn – Five Point
- San Marco – Medical Complex (Southbank)

Scenario 1B was analyzed with a three-minute headway and a five-minute headway. Table 12 shows the average daily boardings of the 1B scenario with a three-minute headway, while Table 13 lists the average daily boardings with a five-minute frequency. Table 14 shows the difference in the average daily boardings between the two frequencies.

Table 9 Scenario 1A – Three-Minute Frequency – Average Daily Boardings

1A 3 min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	2,223	3,357	4,554	5,959	1,134	1,197	1,405	51%	34%	31%
401	JRTC to Kings Ave	1,207	1,905	2,664	3,236	698	759	572	58%	37%	21%
402	JRTC to Brooklyn	189	242	305	354	53	63	49	28%	22%	16%
407	Rosa Parks to UF Health	5,194	6,049	7,015	7,798	855	966	783	16%	14%	11%
409	Central to Sports Complex	668	1,554	2,233	2,743	886	679	510	133%	57%	23%
411	Kings Ave to San Marco East	125	133	136	139	8	3	3	6%	6%	2%
413	Five Points to Brooklyn	182	237	268	290	55	31	22	30%	23%	8%
415	San Marco to Medical Centrum	76	116	183	237	40	67	54	53%	34%	30%
	Total	**9,864**	**13,593**	**17,358**	**20,756**	**3,729**	**3,765**	**3,398**	**38%**	**27%**	**20%**
Total All Modes		52,465	61,522	72,487	81,488	9,057	10,965	9,001	17%	15%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 10 Scenario 1A – Five-Minute Frequency – Average Daily Boarding

1A 5Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	1,814	2,833	4,082	5,629	1,019	1,249	1,547	56%	36%	38%
401	JRTC to Kings Ave	1,066	1,491	1,707	1,859	425	216	152	40%	29%	9%
402	JRTC to Brooklyn	155	197	226	246	42	29	20	27%	21%	9%
407	Rosa Parks to UF Health	4,872	5,621	6,478	7,091	749	857	613	15%	13%	9%
409	Central to Sports Complex	687	1,546	2,194	2,679	859	648	485	125%	56%	22%
411	Kings Ave to San Marco East	115	120	122	124	5	2	2	4%	4%	2%
413	Five Points to Brooklyn	115	135	155	170	20	20	15	17%	15%	10%
415	San Marco to Medical Centrum	74	83	95	104	9	12	9	12%	11%	9%
	Total	**8,898**	**12,026**	**15,059**	**17,902**	**8,490**	**10,243**	**8,447**	**17%**	**14%**	**12%**
Total All Modes		51,271	59,761	70,004	78,451	8,490	10,243	8,447	17%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 11 Difference Scenario 1A– Three-Minutes and Five-Minute Frequency Average Daily Boardings

3 Min minus 5 Min		**2015**	**2022**	**2035**	**2045**
400	JRTC to Rosa Parks	409	524	472	330
401	JRTC to Kings Ave	141	414	957	1377
402	JRTC to Brooklyn	34	45	79	108
407	Rosa Parks to UF Health	322	428	537	707
409	Central to Sports Complex	-19	8	39	64
411	Kings Ave to San Marco East	10	13	14	15
413	Five Points to Brooklyn	67	102	113	120
415	San Marco to Medical Centrum	2	33	88	133
	Total	**966**	**1567**	**2299**	**2854**

Referring to Table 11, the ridership is higher in the three-minute scenario versus the five-minute scenario for all lines in all years except for the Central to Sports Complex line in the base year. The difference in number (-19) is relatively small and is caused by a change in the growth pattern associated with the shipyard and sport complex area as well as the timing of the transfers in the system.

Table 12 Scenario 1B – Three-Minute Frequency – Average Daily Boardings

1B 3 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	4,574	6,072	7,755	9,562	1,498	1,683	1,807	33%	25%	23%
401	JRTC to Kings Ave	1,339	2,187	3,146	3,868	848	959	722	63%	39%	23%
402	JRTC to Brooklyn	208	282	323	352	74	41	29	36%	26%	9%
408	Rosa Parks to UF Health	1,902	2,371	2,829	3,171	469	458	342	25%	20%	12%
410	Central to Sports Complex	303	1,048	1,652	2,106	745	604	454	246%	71%	27%
412	Kings Ave to San Marco East	29	31	32	32	2	1	0	7%	6%	0%
414	Five Points to Brooklyn	42	72	78	82	30	6	4	71%	42%	5%
416	San Marco to Medical Centrum	60	87	130	165	27	43	35	45%	31%	27%
	Total	**8,457**	**12,150**	**15,945**	**19,338**	**3,693**	**3,795**	**3,393**	**44%**	**30%**	**21%**
Total All Modes		49,777	58,391	68,924	77,553	8,614	10,533	8,629	17%	15%	13%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 13 Scenario 1B – Five-Minute Frequency – Average Daily Boardings

1B 5Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	4,063	5,660	7,741	9,894	1,597	2,081	2,153	39%	28%	28%
401	JRTC to Kings Ave	1,198	1,693	1,933	2,104	495	240	171	41%	29%	9%
402	JRTC to Brooklyn	174	222	253	275	48	31	22	28%	22%	9%
408	Rosa Parks to UF Health	1,363	1,801	2,163	2,421	438	362	258	32%	24%	12%
410	Central to Sports Complex	238	755	1,027	1,226	517	272	199	217%	68%	19%
412	Kings Ave to San Marco East	21	23	24	24	2	1	0	10%	9%	0%
414	Five Points to Brooklyn	32	56	61	65	24	5	4	75%	43%	7%
416	San Marco to Medical Centrum	50	68	98	122	18	30	24	36%	26%	24%
	Total	**7,139**	**10,278**	**13,300**	**16,131**	**3,139**	**3,022**	**2,831**	**44%**	**31%**	**21%**
Total All Modes		48,605	56,715	66,587	74,747	8,110	9,872	8,160	17%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 14 Difference Scenario 1B– Three-Minute and Five-Minute Frequency Average Daily Boardings

3 Min minus 5 Min		**2015**	**2022**	**2035**	**2045**
400	JRTC to Rosa Parks	511	412	14	-332
401	JRTC to Kings Ave	141	494	1,213	1,764
402	JRTC to Brooklyn	34	60	70	77
408	Rosa Parks to UF Health	539	570	666	750
410	Central to Sports Complex	65	293	625	880
412	Kings Ave to San Marco East	8	8	8	8
414	Five Points to Brooklyn	10	16	17	17
416	San Marco to Medical Centrum	10	19	32	43
	Total	**1,318**	**1,872**	**2,645**	**3,207**

In the mixed traffic scenario, the change in average daily ridership in comparing the five-minute frequency with the three-minute frequency is even more significant. The increase in travel time has resulted in different travel patterns affecting the JRTC to Rosa Parks and the Rosa Parks to UF Health lines.

Scenario 2 Intermediate Scenarios

2A – Elevated

In scenario 2A, the existing two lines are run from the Jacksonville Regional Transportation Center (JRTC) to Kings Ave and from the JRTC to the Rosa Parks station. These lines are elevated and remain elevated in all scenarios. In addition to the two existing lines, the Brooklyn to JRTC line is elevated in all of the scenarios as well. The following extensions were added in the elevated mode:

- Kings Ave – San Marco
- Five Point – Sports Complex
- Medical Complex (Southbank) – UF Health

Scenario 2A was analyzed with a three-minute headway and a five-minute headway. Table 15 shows the average daily boardings of the 2A scenario with a three-minute headway, while Table 16 lists the average daily boardings with a five-minute frequency. Table 17 shows the difference in average daily boardings between the three minute and five minutes frequency scenarios.

2B – Mixed Traffic

In scenario 2B, the existing two lines are run from the Jacksonville Regional Transportation Center (JRTC) to Kings Ave and from the JRTC to the Rosa Parks station. These lines are elevated and remain elevated in all scenarios. In addition to the two existing lines, the Brooklyn to JRTC line is elevated in all of the scenarios as well. Like scenario 2A, the following extensions were added in mixed traffic mode:

- Kings Ave – San Marco
- Five Point – Sports Complex
- Medical Complex (Southbank) – UF Health

Scenario 2B was analyzed with a three-minute headway and a five-minute headway. Table 18 shows the average daily boardings of the 2B scenario with a three-minute headway, while Table 19 lists the average daily boardings with a five-minute frequency. Table 20 shows the difference in average daily boardings between the three minute and five minutes frequency scenarios.

Table 15 Scenario 2A – Three-Minute Frequency – Average Daily Boardings

2A 3 min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	1,149	1,660	1,788	1,877	511	128	89	44%	31%	5%
401	JRTC to Kings Ave	813	1,179	1,288	1,361	366	109	73	45%	31%	6%
402	JRTC to Brooklyn	91	121	146	166	30	25	20	33%	25%	14%
403	Five Points to Sports Complex	1,063	2,318	3,504	4,391	1,255	1,186	887	118%	54%	25%
405	Medical Center to UF Health	8,868	10,618	12,996	15,375	1,750	2,378	2,379	20%	16%	18%
411	Kings Ave to San Marco East	98	106	109	113	8	3	4	8%	8%	4%
	Total	**12,082**	**16,002**	**19,831**	**23,283**	**3,920**	**3,829**	**3,452**	**32%**	**24%**	**17%**
Total All Modes		54,656	63,841	74,845	83,878	9,185	11,004	9,033	17%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 16 Scenario 2A – Five-Minute Frequency – Average Daily Boardings

2A 5 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	3,839	5,318	7,625	10,264	1,479	2,307	2,639	39%	28%	35%
401	JRTC to Kings Ave	1,267	1,770	2,019	2,191	503	249	172	40%	28%	9%
402	JRTC to Brooklyn	203	270	313	345	67	43	32	33%	25%	10%
403	Five Points to Sports Complex	466	1,458	2,836	4,377	992	1,378	1,541	213%	68%	54%
405	Medical Center to UF Health	4,909	5,978	7,053	7,892	1,069	1,075	839	22%	18%	12%
411	Kings Ave to San Marco East	119	129	131	133	10	2	2	8%	8%	2%
	Total	**10,803**	**14,923**	**19,977**	**25,202**	**4,120**	**5,054**	**5,225**	**38%**	**28%**	**26%**
Total All Modes		51,087	59,717	71053	81060	8,630	11,336	10,007	17%	14%	14%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 17 Difference Scenario 2A– Three-Minute and Five-Minute Frequency Average Daily Boardings

3 Min minus 5 Min		2015	2022	2035	2045
400	JRTC to Rosa Parks	-2,690	-3,658	-5,837	-8,387
401	JRTC to Kings Ave	-454	-591	-731	-830
402	JRTC to Brooklyn	-112	-149	-167	-179
403	Five Points to Sports Complex	597	860	668	14
405	Medical Center to UF Health	3,959	4,640	5,943	7,483
411	Kings Ave to San Marco East	-21	-23	-22	-20
	Total	**1,279**	**1,079**	**-146**	**-1,919**

In this scenario several significant changes take place in the travel patterns between the elevated three-minute and five-minute frequencies. It appears that in the five-minute scenario, the travel path on the JRTC to Rosa Parks line is less attractive than competing modes in the systems. This directly affects the average boardings on the Medical Center to UF Health line as well.

Table 18 Scenario 2B – Three-Minute Frequency – Average Daily Boardings

2B 3 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	3,742	4,977	6,517	8,239	1,235	1,540	1,722	33%	25%	26%
401	JRTC to Kings Ave	1,355	2,212	3,068	3,704	857	856	636	63%	39%	21%
402	JRTC to Brooklyn	211	297	339	371	86	42	32	41%	29%	9%
404	Five Points to Sports Complex	449	1,530	2,492	3,208	1,081	962	716	241%	71%	29%
406	Medical Center to UF Health	4,488	5,559	6,645	7,535	1,071	1,086	890	24%	19%	13%
412	Kings Ave to San Marco East	26	28	28	28	2	0	0	8%	7%	0%
	Total	**10,271**	**14,603**	**19,089**	**23,085**	**4,332**	**4,486**	**3,996**	**42%**	**30%**	**21%**
Total All Modes		50,824	59,654	70,444	79,240	8,830	10,790	8,796	17%	15%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 19 Scenario 2B – Five-Minute Frequency – Average Daily Boardings

2B 5 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
400	JRTC to Rosa Parks	3,618	4,871	6,799	8,853	1,253	1,928	2,054	35%	26%	30%
401	JRTC to Kings Ave	1,253	1,760	2,001	2,166	507	241	165	40%	29%	8%
402	JRTC to Brooklyn	159	218	247	268	59	29	21	37%	27%	9%
404	Five Points to Sports Complex	381	1,192	1,912	2,448	811	720	536	213%	68%	28%
406	Medical Center to UF Health	4,314	5,338	6,381	7,230	1,024	1,043	849	24%	19%	13%
412	Kings Ave to San Marco East	18	19	20	20	1	1	0	6%	5%	0%
	Total	**9,743**	**13,398**	**17,360**	**20,985**	**3,655**	**3,962**	**3,625**	**38%**	**27%**	**21%**
Total All Modes		50,293	58,504	68792	77236	8,211	10,288	8,444	16%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 20 Difference Scenario 2B– Three-Minutes and Five-Minute Frequency Average Daily Boardings

3 Min minus 5 Min		2015	2022	2035	2045
400	JRTC to Rosa Parks	124	106	-282	-614
401	JRTC to Kings Ave	102	452	1,067	1,538
402	JRTC to Brooklyn	52	79	92	103
404	Five Points to Sports Complex	68	338	580	760
406	Medical Center to UF Health	174	221	264	305
412	Kings Ave to San Marco East	8	9	8	8
	Total	**528**	**1,205**	**1,729**	**2,100**

In the 2B mixed traffic scenario, the average daily boardings are higher in the system with three-minute frequencies compared with the five-minute frequency. The only exception is the JRTC to Rosa Parks line.

Scenario 3 Full System Scenarios

3A – Elevated

In scenario 3A, only one existing line is run. This is the line from the JRTC to Kings Ave. The following extensions were added in the elevated mode:

- Kings Ave – San Marco East
- Five Point – Sports Complex
- Medical Complex (Southbank) – UF Health

Scenario 3A was analyzed with a three-minute headway and a five-minute headway. Table 21 shows the average daily boardings of the 3A scenario with a three-minute headway, while Table 22 lists the average daily boardings with a five-minute frequency. Table 23 shows the difference in average daily boardings between the two scenarios.

3B – Mixed Traffic

In scenario 3B, only one existing line is run. This is the line from the JRTC to Kings Ave. The following extensions were added in the mixed traffic mode:

- JRTC to Kings Ave – San Marco East
- Five Point – Sports Complex
- Medical Complex (Southbank) – UF Health

Scenario 3B was analyzed with a three-minute headway and a five-minute headway. Table 24 shows the average daily boardings of the 3B scenario with a three-minute headway, while Table 25 lists the average daily boardings with a five-minute frequency. Table 26 shows the difference in average daily boardings between the three minute and five minutes frequency scenarios

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Table 21 Scenario 3A – Three -Frequency – Average Daily Boardings

3A 3 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
401	JRTC to Kings Ave	1,088	1,583	1,738	1,843	495	155	105	45%	31%	6%
403	Five Points to Sports Complex	1,125	2,501	3,727	4,643	1,376	1,226	916	122%	55%	25%
405	Medical Center to UF Health	9,392	11,343	13,808	16,237	1,951	2,465	2,429	21%	17%	18%
411	Kings Ave to San Marco East	99	106	110	114	7	4	4	7%	7%	4%
	Total	**11,704**	**15,533**	**19,383**	**22,837**	**3,829**	**3,850**	**3,454**	**33%**	**25%**	**18%**
Total All Modes		54,108	63,180	74,191	83,218	9,072	11,011	9,027	17%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 22 Scenario 3A – Five-Minute Frequency – Average Daily Boardings

3A 5 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
401	JRTC to Kings Ave	918	1,204	1,322	1,404	286	118	82	31%	24%	6%
403	Five Points to Sports Complex	933	2,147	3,242	4,059	1,214	1,095	817	130%	57%	25%
405	Medical Center to UF Health	9,201	11,103	13,572	15,988	1,902	2,469	2,416	21%	17%	18%
411	Kings Ave to San Marco East	93	98	100	103	5	2	3	5%	5%	3%
	Total	**11,145**	**14,552**	**18,236**	**21,554**	**3,407**	**3,684**	**63,602**	**31%**	**23%**	**18%**
Total All Modes		53,425	62,106	72,950	81,838	8,681	10,844	8,888	16%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 23 Difference Scenario 3A– Three-Minute and Five-Minute Frequency Average Daily Boardings

3 Min minus 5 Min		2015	2022	2035	2045
401	JRTC to Kings Ave	170	379	416	439
403	Five Points to Sports Complex	192	354	485	584
405	Medical Center to UF Health	191	240	236	249
411	Kings Ave to San Marco East	6	8	10	11
	Total	**559**	**981**	**1,147**	**1,283**

In the scenario 3A there is a logical increase resulting in a greater number of boardings in the scenario with the three-minute frequency, as well as an increase in boardings over the different time periods.

Table 24 Scenario 3B – Three-Minute Frequency – Average Daily Boardings

3B 3 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
401	JRTC to Kings Ave	1,879	3,052	4,383	5,488	1,173	1,331	1,105	62%	38%	25%
404	Five Points to Sports Complex	395	1,402	2,374	3,097	1,007	972	723	255%	72%	30%
406	Medical Center to UF Health	5,447	6,734	8,148	9,414	1,287	1,414	1,266	24%	19%	16%
412	Kings Ave to San Marco East	26	28	28	29	2	0	1	8%	7%	4%
	Total	**7,747**	**11,216**	**14,933**	**18,028**	**3,469**	**3,717**	**3,095**	**45%**	**31%**	**21%**
Total All Modes		47,912	55,834	65,803	73,665	7,922	9,969	7,862	17%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 25 Scenario 3B– Five-Minute Frequency – Average Daily Boardings

3B 5 Min		2015	2022	2035	2045	2022-2015	2035-2022	2045-2035	2022-2015	2035-2022	2045-2035
401	JRTC to Kings Ave	1,715	2,735	3,884	4,819	1,020	1,149	935	59%	37%	24%
404	Five Points to Sports Complex	354	1,177	1,887	2,415	823	710	528	232%	70%	28%
406	Medical Center to UF Health	5,030	6,274	7,750	9,072	1,244	1,476	1,322	25%	20%	17%
412	Kings Ave to San Marco East	18	19	20	20	1	1	0	6%	5%	0%
	Total	**7,117**	**10,205**	**13,541**	**16,326**	**3,088**	**3,336**	**2,785**	**43%**	**30%**	**21%**
Total All Modes		47,473	55,141	64,778	72,362	7,668	9,637	7,584	16%	14%	12%

highest average daily boardings
2nd highest average daily boardings
3rd highest average daily boardings

Table 26 Difference Scenario 3B– Three-Minutes and Five-Minute Frequency Average Daily Boardings

3 Min minus 5 Min		2015	2022	2035	2045
401	JRTC to Kings Ave	164	317	499	669
404	Five Points to Sports Complex	41	225	487	682
406	Medical Center to UF Health	417	460	398	342
412	Kings Ave to San Marco East	8	9	8	9
	Total	**630**	**1,011**	**1,392**	**1,702**

In the scenario 3B there is a logical increase resulting in a greater number of boardings in the scenario with the three-minute frequency, as well as an increase in boardings over time.

Comparison between Scenarios

The following figures show the comparisons between the elevated and the mixed traffic scenarios by headways and for the different time periods. As indicated in the graphs, the elevated scenarios outperform the mixed traffic scenarios in both the three-minute and the five-minute scenario.

Elevated versus Mixed Traffic – Three-Minute Frequency

Figure 4 compares the results of the elevated and mixed traffic scenarios with a three-minute frequency. Scenario 2A draws the largest number of daily boardings. The average daily boardings on 2A is between 12% and 23% higher than scenario 1A, and 2% to 3% higher than scenario 3A, depending on the year. For all scenarios the average daily boardings are higher on the elevated system compared with the mixed traffic system.

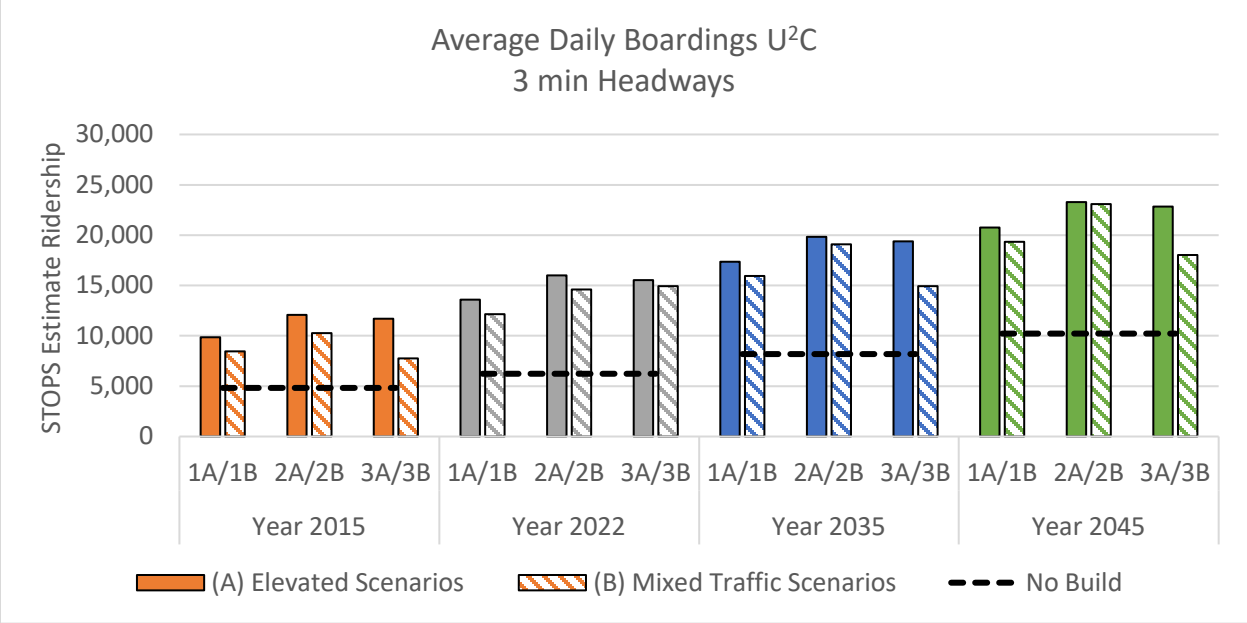


Figure 4 Average Daily Boardings Elevated vs Mixed Traffic Scenarios Three-Minute Frequency

Elevated versus Mixed Traffic – Five-Minute Frequency

Figure 5 compares the results of the elevated and mixed traffic scenarios with a five-minute frequency. Scenario 2A draws the largest number of daily boardings, except in the year 2015 where scenario 3A outperforms scenario 2A by 3%. The average daily boardings on 2A is between 21% and 41% higher than scenario 1A, depending on the year, and -3% to 14% higher than scenario 3A. For all scenarios the average daily boardings are higher on the elevated system compared with the mixed traffic system.

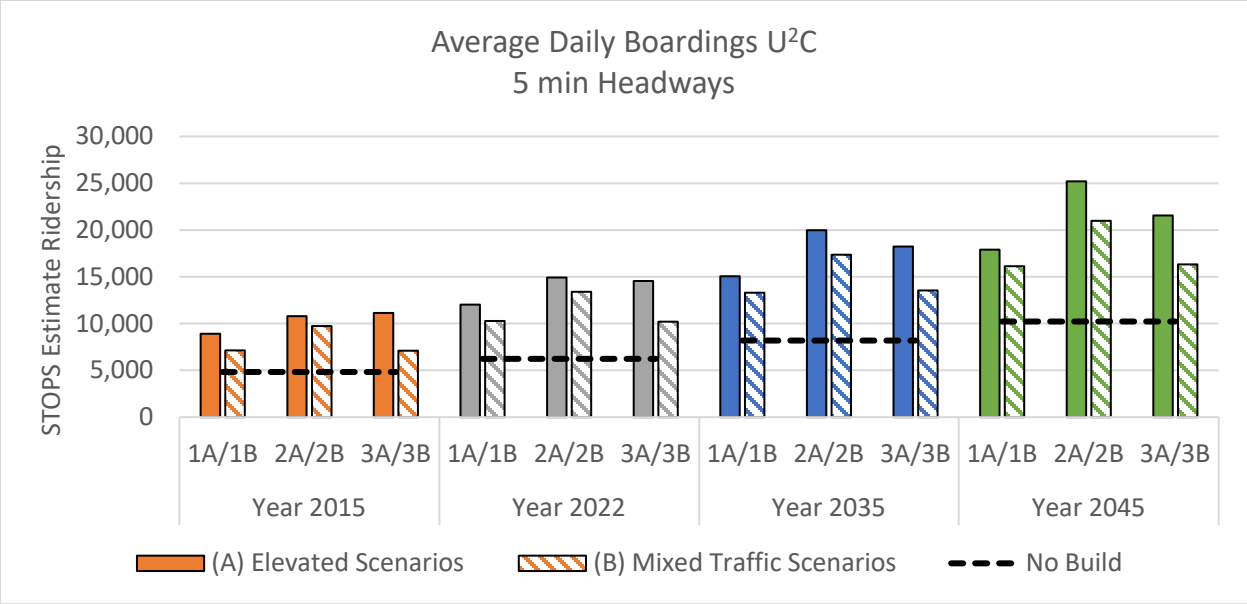


Figure 5 Average Daily Boardings Elevated vs Mixed Traffic Scenarios Five-Minute Frequency

Conclusion

The forecasts presented in this report are the results of the service plan being coded in GTFS format and analyzed with FTA's Simplified Trips-on-Project Software (STOPS). As part of its original development, STOPS was calibrated to match the actual ridership response associated with past BRT, LRT, and other fixed guideway transit projects constructed throughout the United States over the past 10 to 15 years.

The goal for the forecasts presented in this report is to analyze set of predictions of how the U^2C transit ridership in Jacksonville would respond to new U^2C transit investments. Even though these forecasts may be plausible, as always, there are uncertainties associated with ridership forecasts. The main factors influencing the ridership predictions as documented are:

- Uncertainty of population and employment forecasts. STOPS forecasts of future year ridership are based on the Northeast Florida TPO estimates of population and employment in the Jacksonville area. Additionally, development data was obtained from the City of Jacksonville and the DIA. These forecasts depend on the region achieving the forecasted levels of development.

- Uncertainty of service plan. The project definition described in this report present the expected transit level-of-service. As projects move through the development process from plans to design to implementation, events can occur which may cause significant changes to the project definition.

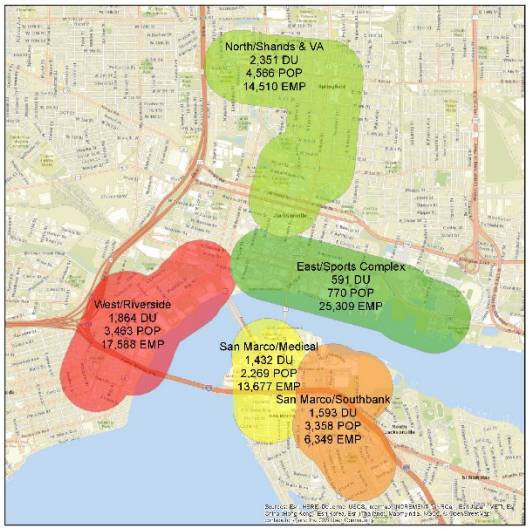
- Other Sources of Uncertainty. The forecasts presented in this report were prepared following FTA requirements that transportation policies are consistent among the runs. This means that key assumptions such as land uses, fare policies, and costs for competing modes

be consistent for all scenarios to allow for a meaningful comparison of transit alternatives. FTA also requires project sponsors to use forecasting methods that have been validated to match existing transit market characteristics. Key parameters such as trip rates, auto operating costs, and mode-specific parameters must be the same for model calibration and analysis of each alternative. Experience has shown that adherence to these requirements results in a fair analysis of alternatives and a good chance that the forecasted results will be achieved when projects are implemented.

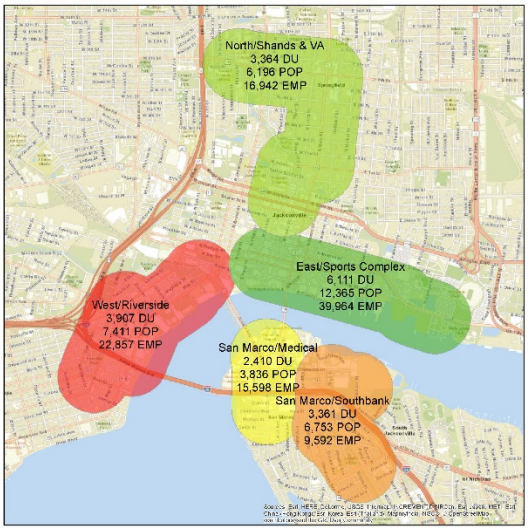
Nevertheless, it is possible that changes in the nature of commuting (e.g., tele-working), costs of transit or competing modes, nature of land development, or overall levels of transit service can occur over time. These changes can affect the magnitude of the projected demand for transit which are not reflected in the results presented in this report.

DU, Population, and Employment for Year 2015 and Year 2045

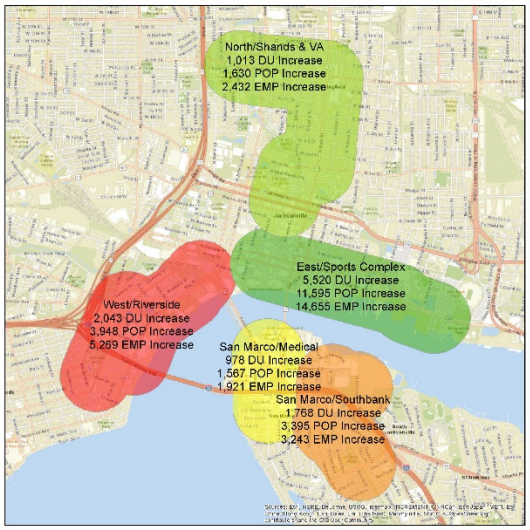
Year 2015



Year 2045



Year 2015 to 2045 Total Increase



Year 2015 to 2045 Annual Growth