

Exercise 5: An Introduction to Community Analyst

Objective: A group of researchers are preparing a proposal to collaborate with public high schools in the WS/FC School System to promote the integration of data science throughout existing curricula. To better understand the demographics in each area the researchers want to generate a demographic profile at 5, 10, and 15-minute driving distances for each high school. These data will help the researchers better understand the similarities and differences of the high school service areas.

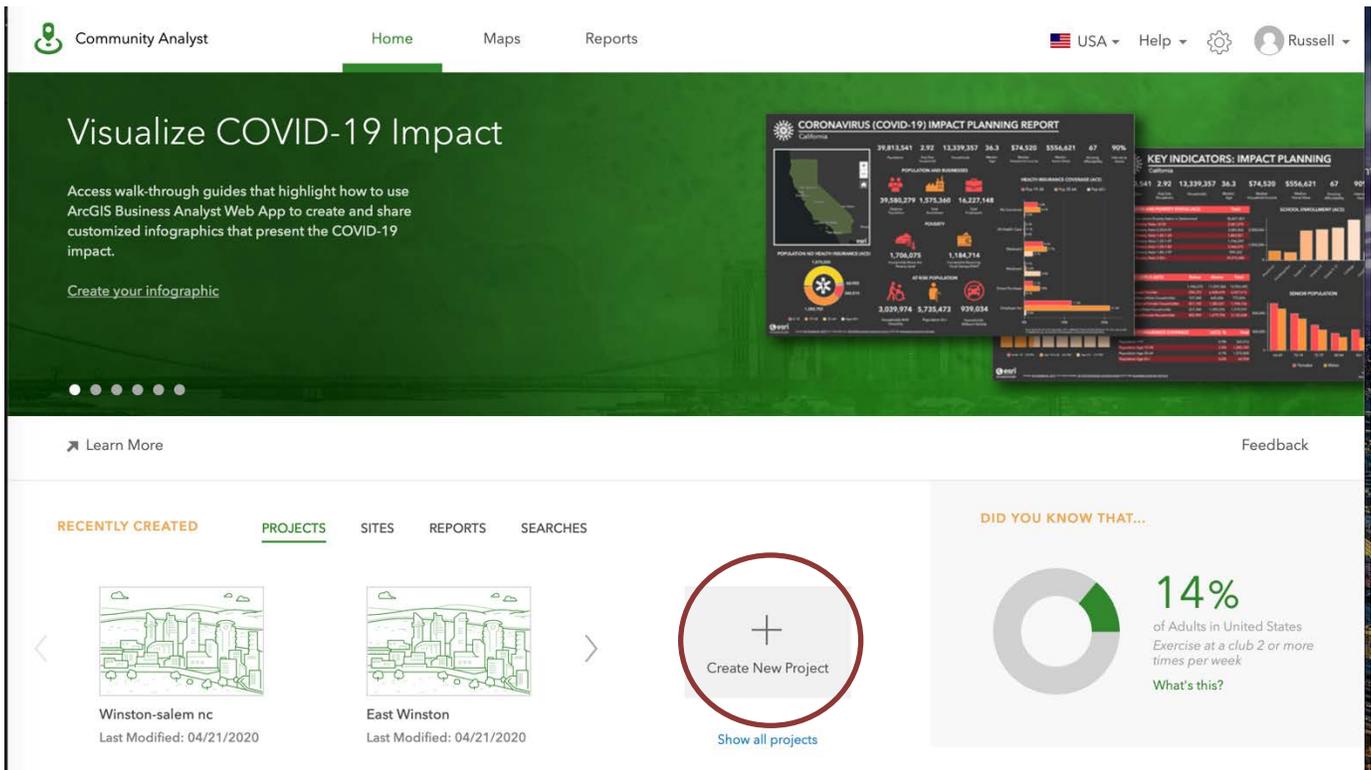
Technical Requirements: An ArcGIS Online (AGOL) user account that has been licensed with *Community Analyst* and has *Publisher* rights. An internet connection, a computer (with mouse and keyboard) with internet browser(s) installed.

Get Started!

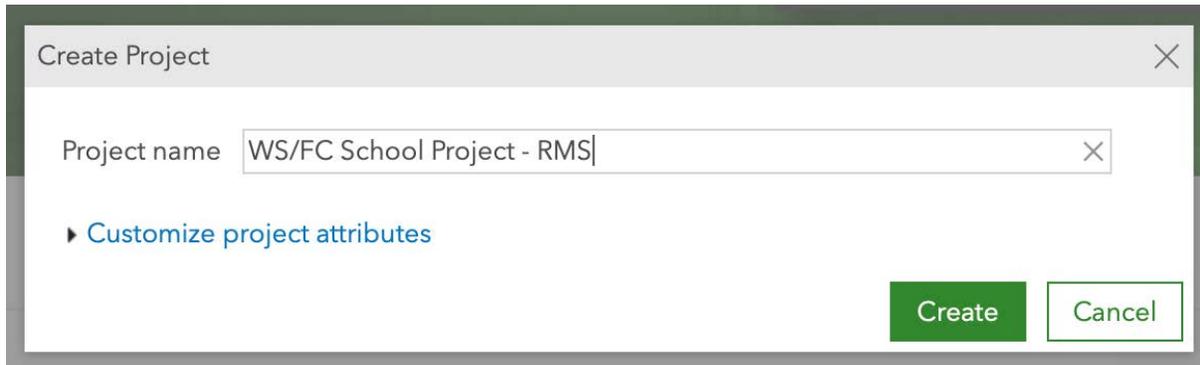
1. Go to <https://communityanalyst.arcgis.com>

Scroll down and click the large, green **Sign In** button.

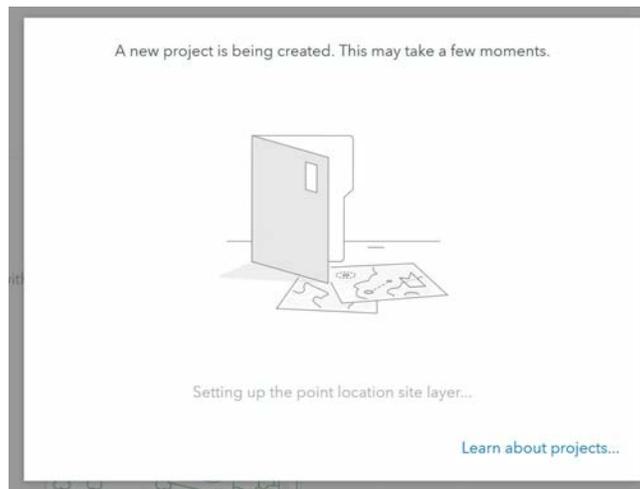
2. From the **Projects Page**, click the **Create Project** button.



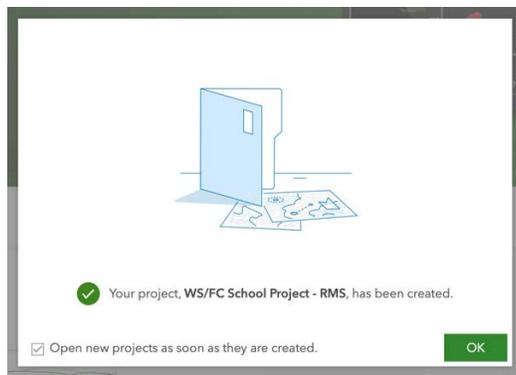
3. On the Create Project dialog box, **enter a name for your project, followed by your initials.** Click the **Create** button.



While the project is being created the below message box will appear.

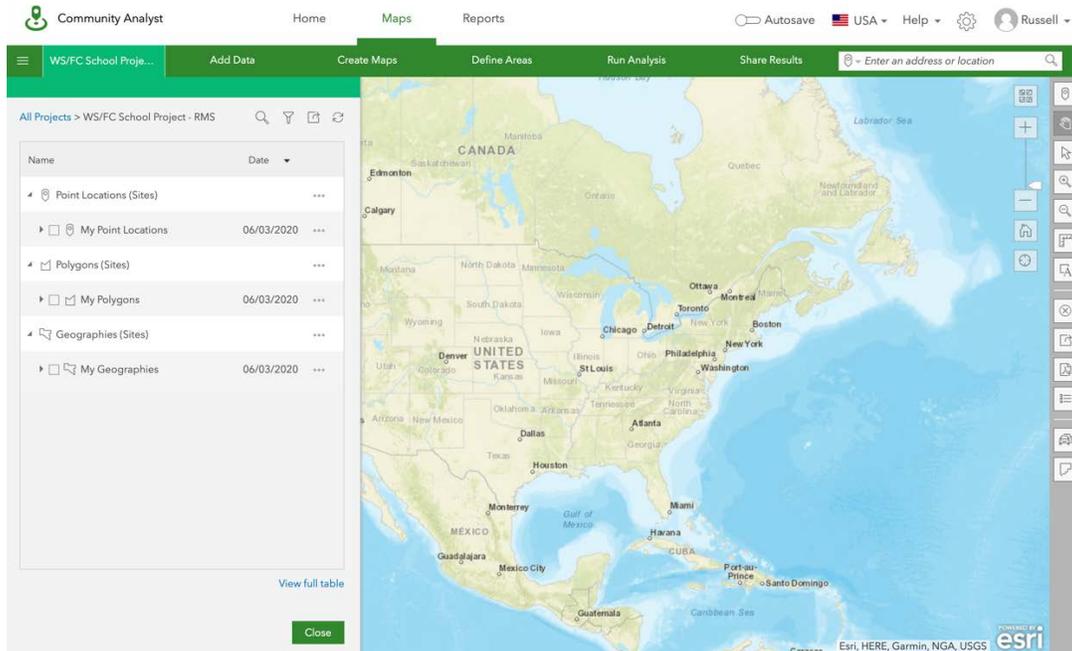


When the project is ready, a message box will confirm that has completed. Click the **Ok** button. Your project will open.



- When your project opens it will look like the image below.

If you see an Orange Box, close the Step-by-Step Guided Tour (Orange Box with Try it now buttons).



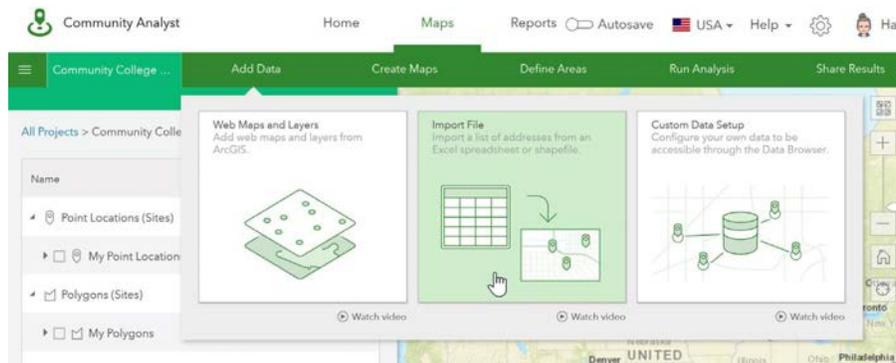
- To get started we will import the locations of all the WS/FC High Schools. We downloaded a list of these locations from the NC ONE MAP Public schools database. Some data cleanup was performed on the table to ready it for use in this project.

The screenshot shows an Excel spreadsheet with the following data:

SCHOOL	ADDRESS	CITY	ZIP	SCHOOL_PHONE	SCHOOL_WEB	SCH_LATE
MT TABOR HIGH	342 PETREE RD	WINSTON-SALEM	27106	336-703-6700	https://www.wsfcs.k12.nc.us/Domain/763	High 36.1
EAST FORSYTH HIGH	2500 WEST MOUNTAIN ST	KERNERSVILLE	27284	336-703-6735	https://www.wsfcs.k12.nc.us/Domain/348	High 36.1
REYNOLDS HIGH	301 N HAWTHORNE RD	WINSTON-SALEM	27104	336-703-4145	https://www.wsfcs.k12.nc.us/Domain/1315	High 36.1
WEST FORSYTH HIGH	1735 LEWISVILLE-CLEMMONS RD	CLEMMONS	27012	336-712-4400	https://www.wsfcs.k12.nc.us/Domain/1441	High 36.0
NORTH FORSYTH HIGH	5705 SHATTALON DR	WINSTON-SALEM	27105	336-661-4880	https://www.wsfcs.k12.nc.us/Domain/904	High 36.1
PARKLAND HIGH	1600 BREWER RD	WINSTON-SALEM	27127	336-771-4700	https://www.wsfcs.k12.nc.us/Domain/1012	High 36.0
CARVER HIGH	3545 CARVER SCHOOL RD	WINSTON-SALEM	27105	336-727-2987	https://www.wsfcs.k12.nc.us/Domain/227	High 36.1
GLENN HIGH	1600 UNION CROSS RD	KERNERSVILLE	27284	336-771-4500	https://www.wsfcs.k12.nc.us/Domain/547	High 36.0
ATKINS ACADEMIC & TECH HIGH	3605 OLD GREENSBORO RD	WINSTON-SALEM	27101	336-703-6754	https://www.wsfcs.k12.nc.us/Domain/3056	High 36.1
CARTER HIGH	851 HIGHLAND CT	WINSTON-SALEM	27101	336-703-4119	https://www.wsfcs.k12.nc.us/Domain/188	High 36.1
JOHN F KENNEDY HIGH	890 E 11TH ST	WINSTON-SALEM	27101	336-703-4143	https://www.wsfcs.k12.nc.us/Domain/2172	High 36.1
REAGAN HIGH	3750 TRANSOU RD	PPAFFTOWN	27040	336-703-6776	https://www.wsfcs.k12.nc.us/Domain/1153	High 36.1
KINGSWOOD SCHOOL	1001 REYNOLDA RD	WINSTON-SALEM	27104	336-703-4128	https://www.wsfcs.k12.nc.us/Domain/3154	High 36.1
WALKERTOWN HIGH	5240 SULLIVAN RD	WALKERTOWN	27051	336-703-4151	https://www.wsfcs.k12.nc.us/Domain/6575	High 36.1

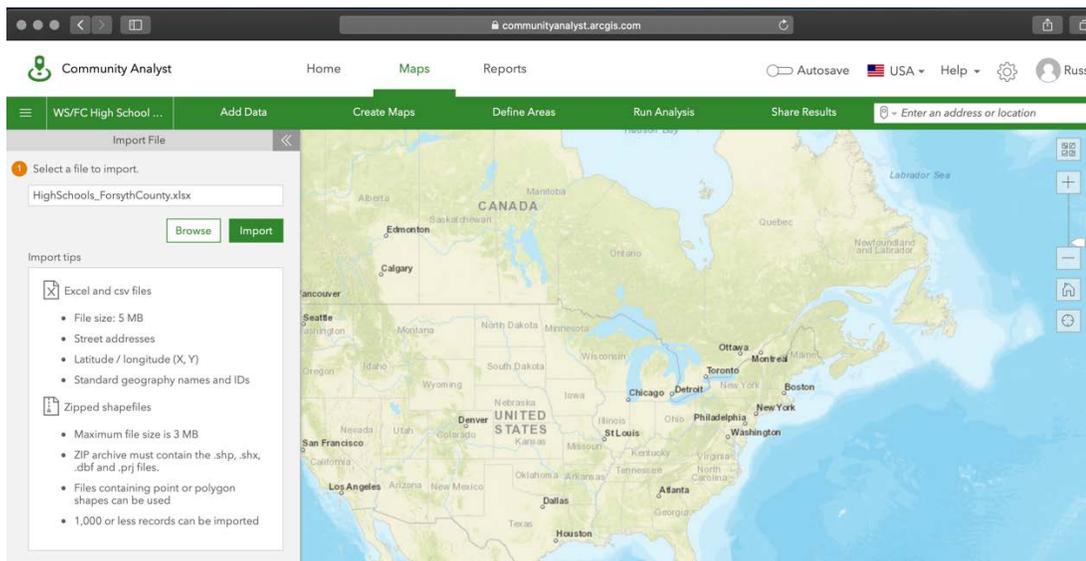
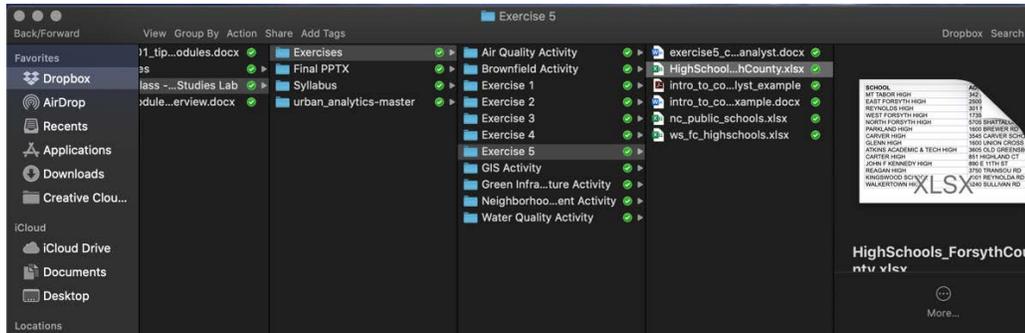
Click the **Add Data** button located in the green ribbon above the map.

Select **Import File** from the options.

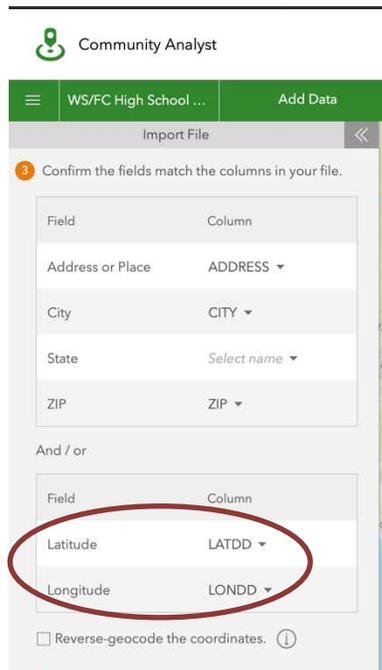


- Import File – Step 1: Click the **Browse** button; Navigate to the location where the excel file is stored that contains the data downloaded from NC ONEMAP (HighSchools_ForsythCounty.xlsx); Click the **Open** button to return to the Community Analyst screen.

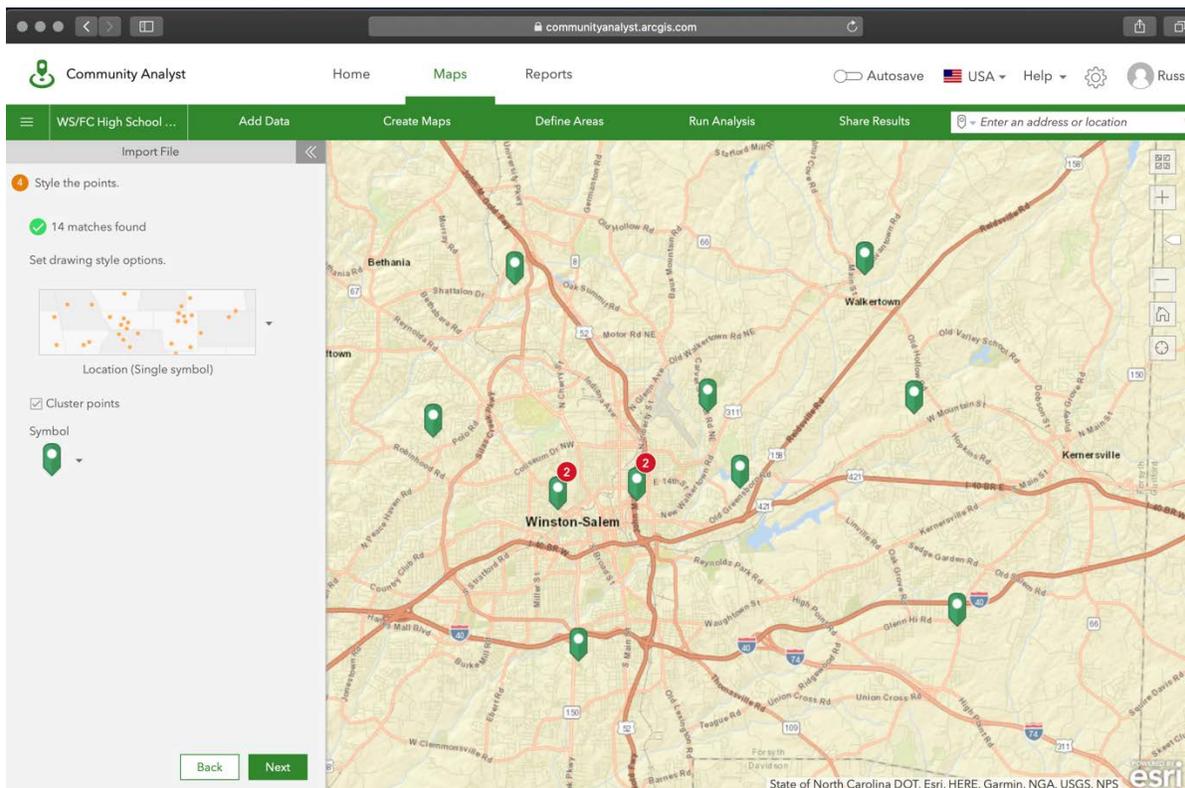
Click the **Import** button.



- Import File – Step 2: Select the radio button for **Points** and click the **Next** button.
- Import File – Step 3: In the second section (see below), use the drop-down to select the field from the uploaded file that provides the **Latitude and Longitude**. In the HighSchools_ForsythCounty.xlsx file the name of that field is **LATDD and LONGDD**. Make your screen match the one below and then click the **Next** button.



Import File – Step 4: The locations have now been added to the map. No changes are necessary on this step, click the **Next** button.



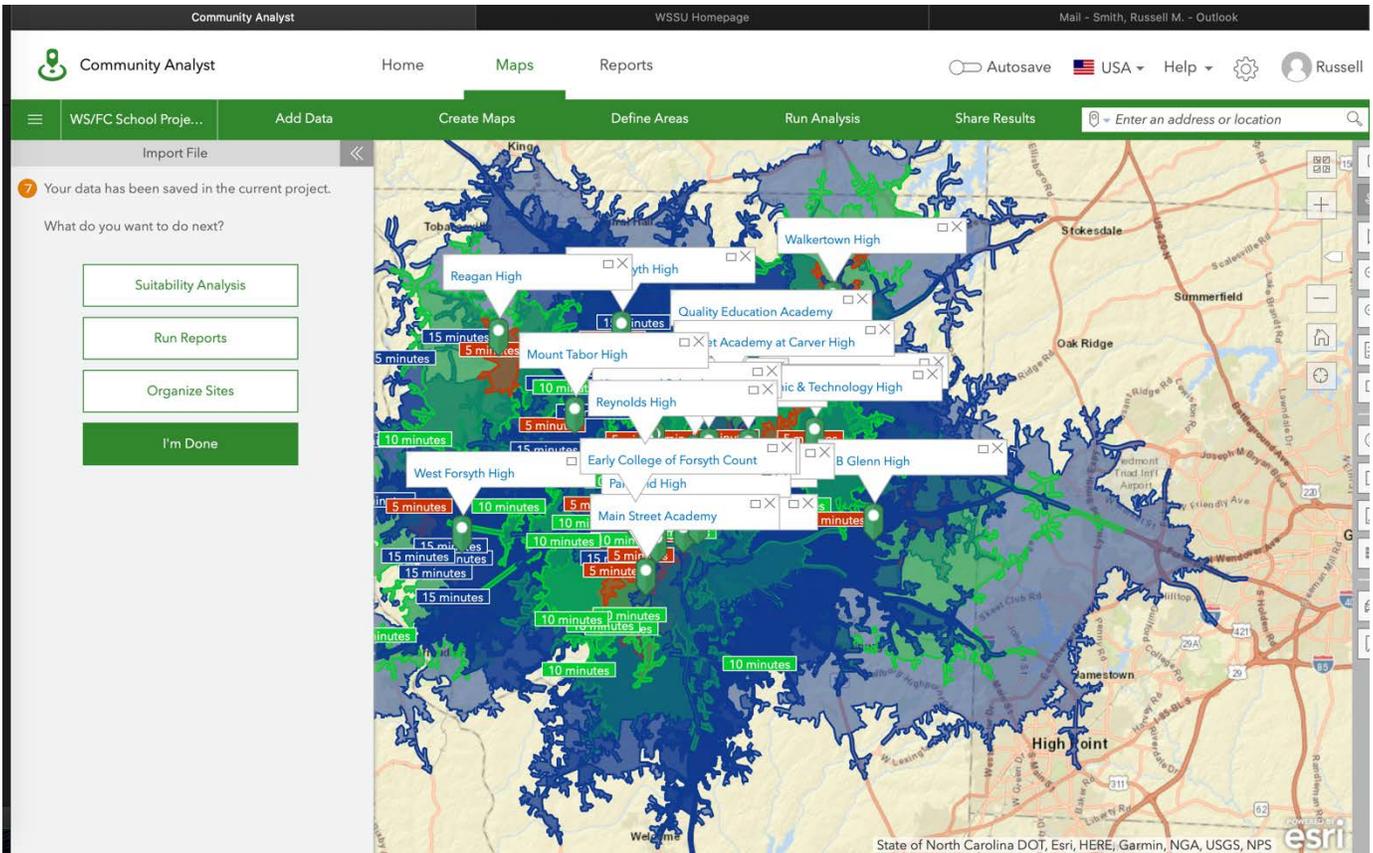
9. Import File – Step 5: Select the radio button for **Create and save sites for all points**;

Click on **Drive time** to enter times for distances in driving minutes. Enter **5, 10, and 15** into the boxes below. The unit of measure will remain minutes.

Enter a new layer name: **ForsythCountyHS_locations**; the column to be used for the site name will be **School_Name**. Finally, **Check the box** for Open all labels for imported data. Click the **Save** button.

10. Import File – Step 6: The resulting map appears and will look like the one below.

Click on the button for **Run Reports**.



11. First, the team wants to review the demographics of each area.

Click on the **Comparison Reports** button in the green ribbon at the top.



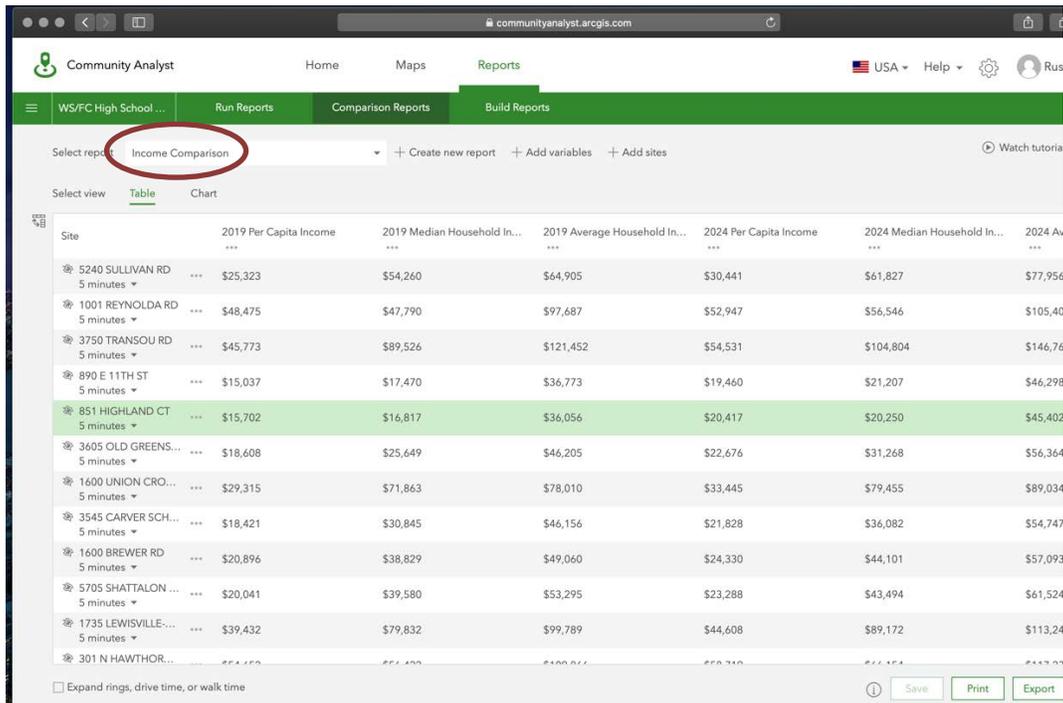
12. The comparison report will appear as a table. We can easily see that within the 5-minute drive time area the populations in each service area vary quite a bit.

The screenshot shows the 'Community Analyst' web application interface. The 'Reports' tab is active, and a dropdown menu is open over the table, highlighting the 'Population Comparison' report type. The table displays population data for various service areas, with columns for '2019 Family Population', '2024 Total Population', and '2024 Household Population'. The 'Population Comparison' report type is circled in red in the dropdown menu.

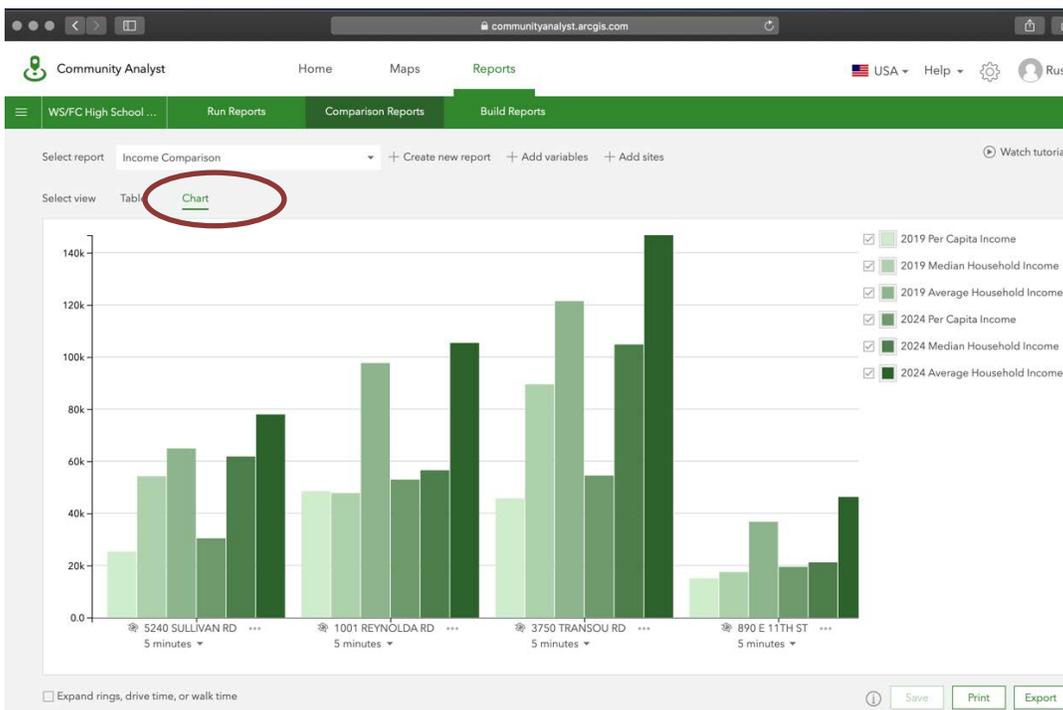
Site	2019 Family Population	2024 Total Population	2024 Household Population
5240 SUL 5 minutes	2,419	3,033	3,018
1001 REY 5 minutes	4,708	8,586	7,987
3750 TRA 5 minutes	177	217	217
890 E 11T 5 minutes	10,213	18,444	15,675
851 HIGH 5 minutes	8,453	14,861	13,201
3605 OLD GREENS... 5 minutes	9,151	9,133	7,102
1600 UNION CRO... 5 minutes	3,389	3,385	2,973
3545 CARVER SCH... 5 minutes	10,416	10,368	8,225
1600 BREWER RD 5 minutes	7,474	7,468	5,508
5705 SHATTALON ... 5 minutes	877	742	504
1735 LEWISVILLE-... 5 minutes	3,109	3,066	2,633
301 N HAWTHOR... 5 minutes	7,400	7,400	5,700

13. From this screen we can do several things.

- 1) Change view other types of comparisons, such as the **Income Comparison**.



- 2) Swap to a **Chart** view of the data. Note the ability to make variable visible by checking the boxes in the legend.



- 3) Change the data selection from 5-minute drive time service area to 10-minute, or 15-

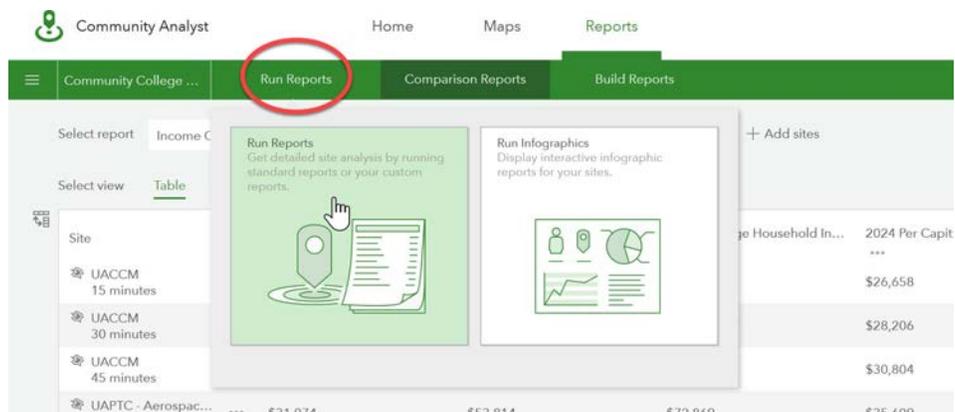
mintue; or Expand all drive time service areas by checking the **Expand rings, drive time, or walk time** box in the lower left.

4) Data can also be exported to an Excel spreadsheet using the **Export** button.

Site	2019 Per Capita Income	2019 Median Household Income	2019 Average Household Income	2024 Per Capita Income	2024 Median Household Income	2024 Average Household Income
Paisley IB Magnet (5 minutes)	\$24,393	\$28,359	\$57,219	\$29,052	\$35,812	\$67,296
Paisley IB Magnet (10 minutes)	\$27,043	\$34,260	\$65,055	\$31,030	\$40,281	\$74,346
Paisley IB Magnet (15 minutes)	\$27,593	\$41,125	\$67,493	\$31,642	\$47,847	\$77,408
North Forsyth High (5 minutes)	\$20,037	\$37,428	\$53,868	\$23,563	\$42,511	\$63,068
North Forsyth High (10 minutes)	\$20,657	\$35,089	\$49,670	\$24,098	\$40,706	\$58,246
North Forsyth High (15 minutes)	\$29,198	\$43,521	\$71,213	\$33,539	\$51,153	\$81,802
Atkins Academic & Technology High (5 minutes)	\$18,494	\$25,800	\$45,867	\$22,484	\$31,410	\$55,816
Atkins Academic & Technology High (10 minutes)	\$19,650	\$35,015	\$51,519	\$23,922	\$40,557	\$62,003
Atkins Academic & Technology High (15 minutes)	\$24,118	\$40,981	\$60,990	\$28,058	\$47,835	\$70,786
Kingswood School (5 minutes)	\$16,514	\$22,581	\$36,754	\$19,376	\$27,336	\$43,399
Kingswood School (10 minutes)	\$27,721	\$29,307	\$63,630	\$32,175	\$36,707	\$72,811
Kingswood School (15 minutes)	\$26,702	\$36,178	\$64,934	\$30,587	\$42,015	\$74,223
Walkertown High (5 minutes)	\$22,752	\$49,094	\$57,614	\$26,852	\$54,266	\$67,877
Walkertown High (10 minutes)	\$24,549	\$52,041	\$63,742	\$29,305	\$59,432	\$76,155
Walkertown High (15 minutes)	\$23,939	\$44,329	\$61,413	\$28,204	\$52,118	\$72,427
Carter G Woodson School (5 minutes)	\$13,432	\$25,748	\$38,960	\$15,938	\$28,899	\$46,312
Carter G Woodson School (10 minutes)	\$18,948	\$32,281	\$48,395	\$22,619	\$37,768	\$57,389
Carter G Woodson School (15 minutes)	\$27,560	\$46,082	\$68,033	\$31,780	\$52,973	\$78,479
Carter High School (5 minutes)	\$16,546	\$30,773	\$45,986	\$19,520	\$35,592	\$54,251
Carter High School (10 minutes)	\$20,601	\$35,473	\$51,527	\$24,386	\$40,572	\$60,602
Carter High School (15 minutes)	\$27,509	\$46,038	\$68,008	\$31,762	\$52,975	\$78,445
Carver High (5 minutes)	\$18,427	\$31,849	\$46,652	\$21,882	\$36,807	\$55,489
Carver High (10 minutes)	\$17,591	\$30,603	\$45,992	\$21,371	\$36,701	\$55,282
Carver High (15 minutes)	\$22,544	\$37,160	\$57,576	\$26,328	\$43,035	\$67,233
Early College of Forsyth Count (5 minutes)	\$26,193	\$42,309	\$58,605	\$30,377	\$49,956	\$68,172
Early College of Forsyth Count (10 minutes)	\$29,690	\$43,778	\$70,613	\$34,147	\$51,295	\$80,802
Early College of Forsyth Count (15 minutes)	\$30,185	\$48,049	\$73,478	\$34,660	\$55,078	\$84,409
East Forsyth High (5 minutes)	\$27,281	\$53,943	\$69,463	\$32,052	\$60,622	\$81,873
East Forsyth High (10 minutes)	\$29,675	\$58,365	\$75,506	\$34,205	\$68,000	\$87,267
East Forsyth High (15 minutes)	\$23,540	\$41,970	\$60,234	\$27,865	\$49,422	\$70,907
Hospital/Homebound Ed Center (5 minutes)	\$24,441	\$48,128	\$58,733	\$28,266	\$53,784	\$68,097
Hospital/Homebound Ed Center (10 minutes)	\$24,512	\$44,668	\$60,606	\$28,665	\$51,957	\$70,892
Hospital/Homebound Ed Center (15 minutes)	\$27,793	\$46,281	\$68,207	\$32,148	\$53,364	\$78,774
J. F. Kennedy High (5 minutes)	\$14,790	\$18,271	\$37,543	\$19,056	\$22,311	\$47,214
J. F. Kennedy High (10 minutes)	\$20,981	\$31,035	\$54,025	\$24,459	\$36,719	\$62,667
J. F. Kennedy High (15 minutes)	\$26,276	\$43,105	\$64,482	\$30,401	\$50,469	\$74,657
Jacket Academy at Carver High (5 minutes)	\$18,427	\$31,849	\$46,652	\$21,882	\$36,807	\$55,489
Jacket Academy at Carver High (10 minutes)	\$17,591	\$30,603	\$45,992	\$21,371	\$36,701	\$55,282
Jacket Academy at Carver High (15 minutes)	\$22,544	\$37,160	\$57,576	\$26,328	\$43,035	\$67,233
Main Street Academy (5 minutes)	\$24,441	\$48,128	\$58,733	\$28,266	\$53,784	\$68,097
Main Street Academy (10 minutes)	\$24,512	\$44,668	\$60,606	\$28,665	\$51,957	\$70,892
Main Street Academy (15 minutes)	\$27,793	\$46,281	\$68,207	\$32,148	\$53,364	\$78,774

14. Next, we will generate some infographics for each location and service area to create market profile summaries for each High School.

Click on the **Run Reports** button in the green ribbon and click on **Run Classic Reports**.

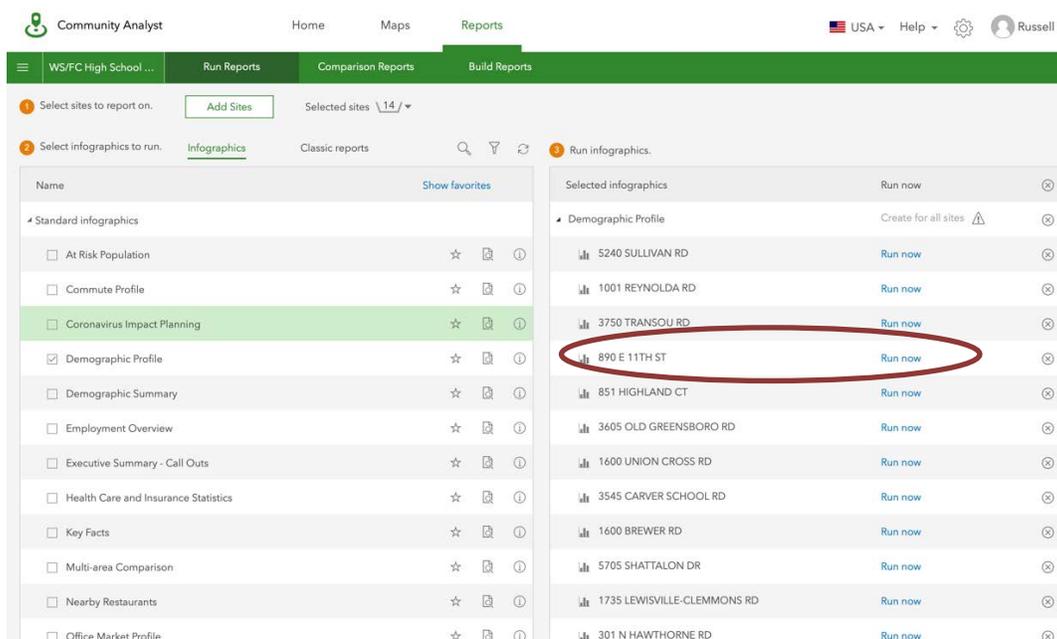


15. The steps for Run Classic Reports are denoted by orange circles with numbers in them.

Run Reports – Step 1: Will select all sites that you have imported to report on. No changes are necessary if this information is correct. Also, note that the select all defaults to a maximum of 20 schools. This is fine.

Run Reports – Step 2: Change from the Classic reports option to the **Infographics** option. Scroll through the table of Esri infographics and check the box for **Demographic Profile**.

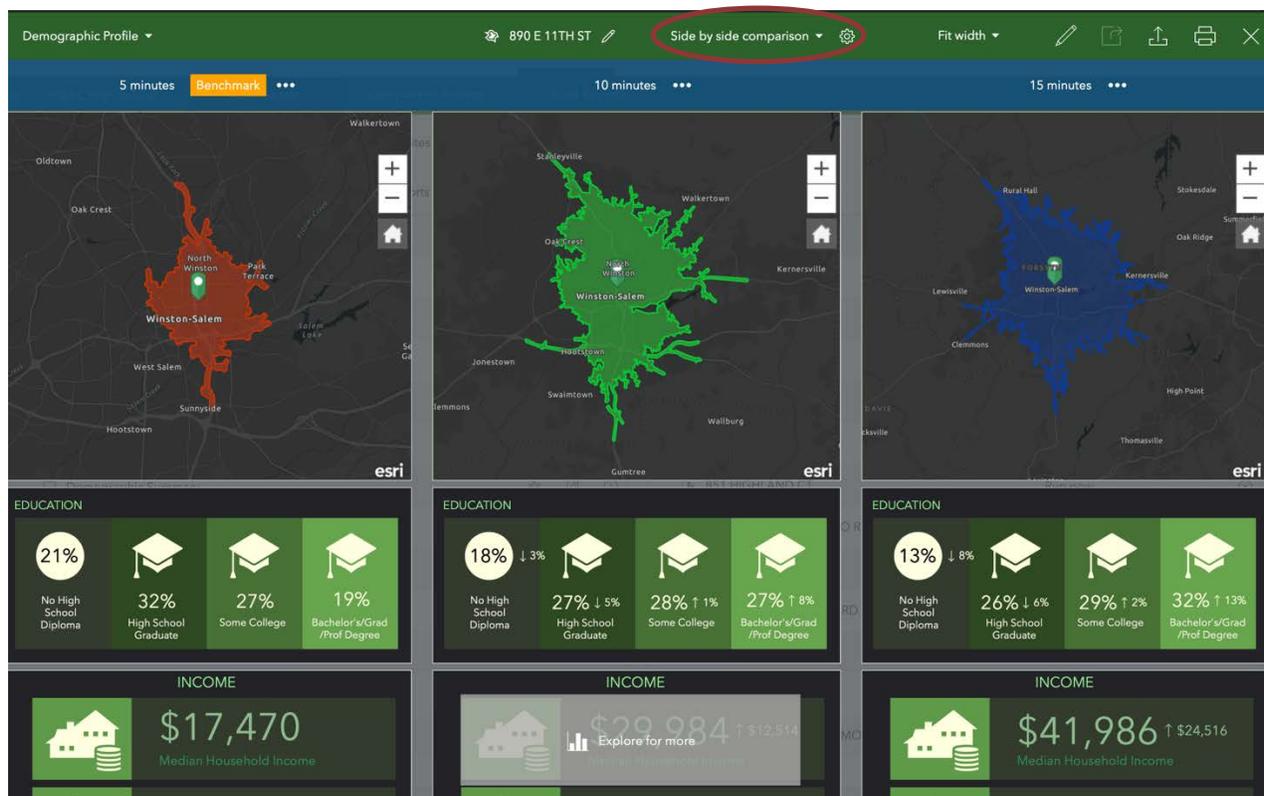
Run Reports – Step 3: When the box for Demographic Profile is checked a separate Demographic Profile is added for each high school. **Find 890 East 11th Street (J.F. Kennedy High) and click the Run now text.**



16. After a moment, the infographic for the J.F. Kennedy High, 5-minute drive time service area is generated. The researchers find this information helpful but would like to see a side-by-side comparison of the 3 drive time service areas.



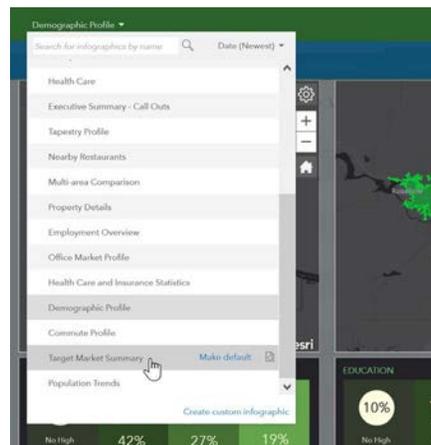
17. In the green ribbon across the top, click the drop-down arrow next to the text “15 minutes” and click the toggle for Side by side comparison to turn it on.



18. Scroll down through the infographic comparison to the section for **Key Facts**. Take note of the difference in population between the 5-minute drive service area and the 15-minute drive time service area.



19. In the green ribbon across the top, click the drop-down arrow next to the text “Demographic Profile” and **click on Target Market Summary** in the drop-down menu.

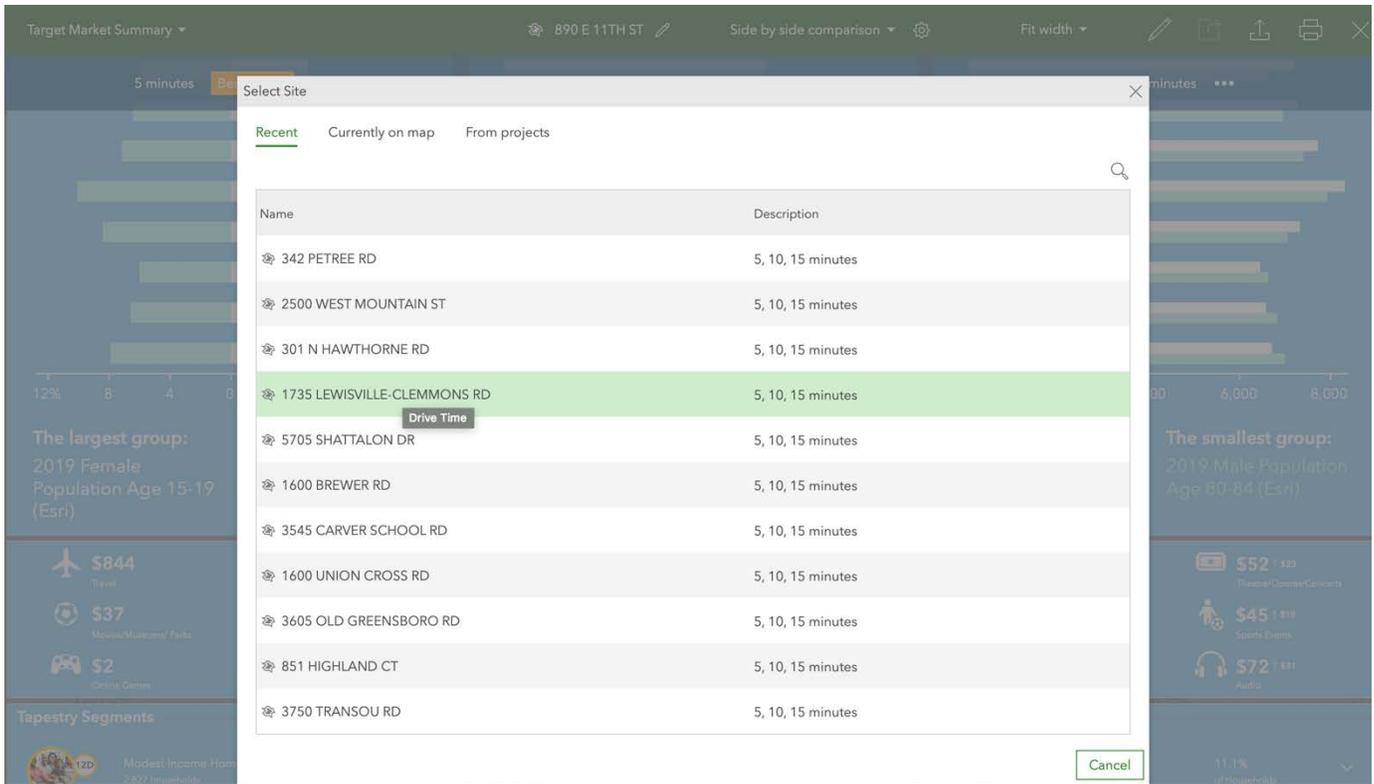


Scroll down and review the population by age largest groups and consumer spending sections.



20. In the green ribbon across the top, click on the pencil icon next to the text “890 E 11th St”.

The **Select Site** dialog box will appear. Click on **(1735 Lewisville-Clemmons Rd, West Forsyth HS)**.



21. Compare the population by age largest groups and consumer spending sections to those from J.F. Kennedy High (screenshot on previous page).

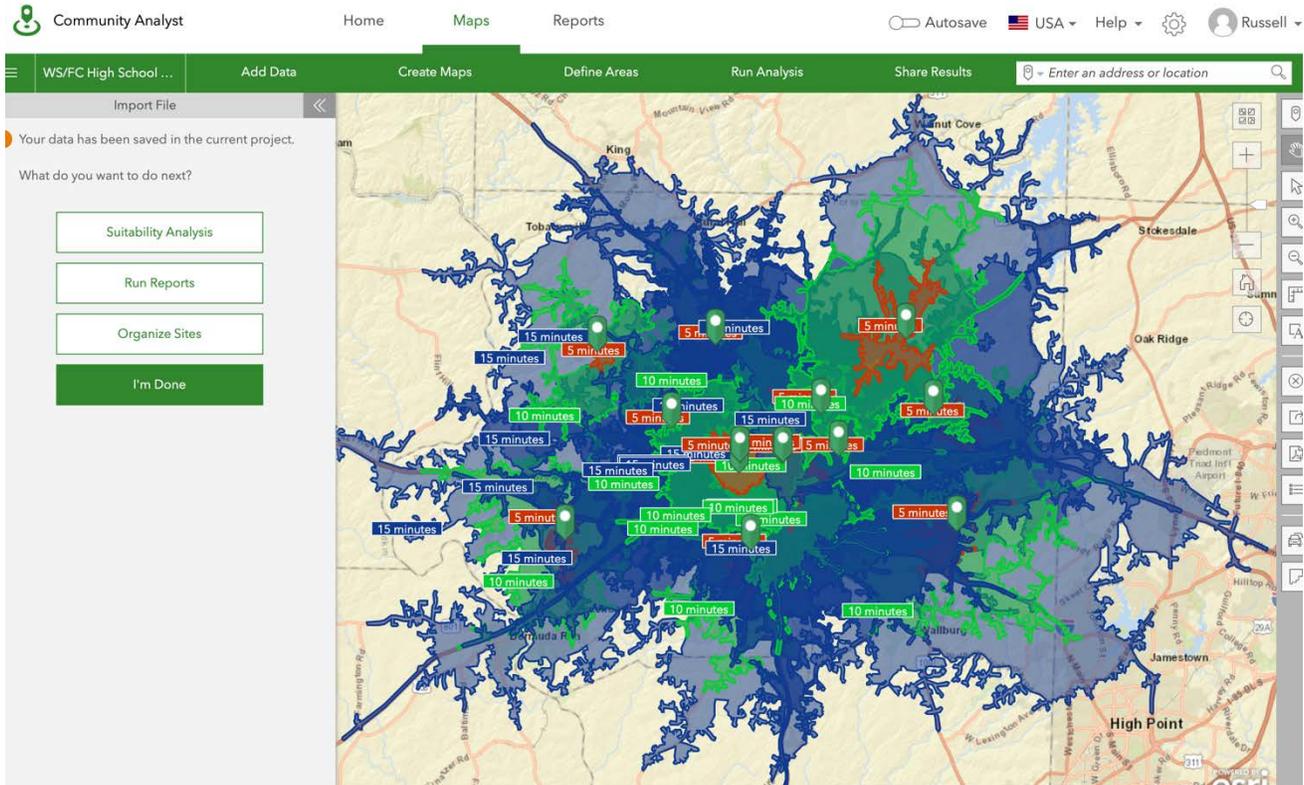


22. Infographics may be **Exported** or printed using the tools in the green ribbon along the top. Infographics may be exported as PDFs.

Custom Infographics can also be generated that compare Consumer Spending habitats of specific interest. Additional comparison views can be done among multiple sites, instead of or in addition to distance-based service areas.

23. In the green ribbon across the top, click the green X in the upper-right corner to close the Reports/Infographics screen.

At the top of the page click on **Maps** to return to the map view.



With these data the researchers can feel confident that they will identify key similarities and differences among these institutions that will help them to form their research objectives.

Follow Up Assignment:

Now pick another High School and create an infographic that highlights the Demographic Profile between the a 5, 10 and 15 minute drive for that high school. Export the infographic and submit it through canvas for credit on this assignment (100 point)!