Project Final Paper: Jacksonville and the SDGs

Thea Baker

University of South Florida

IDS 6216-201: Implementing the UN SDG's

Dr. Brooke Hansen

November 26, 2020

Table of Contents

Introduction

The United Nations has developed 17 Sustainable Development Goals (SDGs) that aim to make the Earth a more sustainable place to live by 2030. Each goal has several Targets (169 in total), and at least one Indicator per Target. The goals are a commitment made by 193 nations, including the United States. Although the country as a whole has adopted the goals, the purpose of this project is to determine if the city of Jacksonville is taking action towards the SDGs and if they should follow in the footsteps of the many other U.S. cities, such as Los Angeles and New York City, that have already adopted the SDGs. Jacksonville, FL is the largest city by land area in the continental U.S., however it is only the 12th largest city by population (911,507 residents as of July 1, 2019) (US Census Bureau, 2020). With an average population growth of 1% annually, Jacksonville is on track to have over 1 million residents by the year 2029. Not only is Jacksonville, FL a coastal city, it also has 1,100 miles of navigable water, giving it more shoreline than any other city in the U.S. (Visit Jacksonville).

The City of Jacksonville (COJ) formed the Special Committee on Resiliency in 2019 to assess the resilience and health of the city by reviewing environmental, land use and infrastructure policies affecting vulnerable areas and the health and safety of the citizens. The committee has three subcommittees: the Subcommittee on Education, Protection of Local Neighborhoods, and Community Outreach; the Subcommittee on Environmental Planning; and the Subcommittee on Infrastructure, and Continuity of Operations for Essential Services. Joshua Gellers, PhD, is a member on the first subcommittee and is also an Associate Professor in the Department of Political Science and Public Administration at the University of North Florida, LEED Green Associate, Research Fellow of the Earth System Governance Project, and Core Team Member of the Global Network for Human Rights and the Environment. To Geller's knowledge, no government or institution in Jacksonville has made any formal statements in regards to adopting the SDGs.

Without a formal acknowledgement, it is not initially clear whether Jacksonville is on track to meet any of the UN SDGs, but it is clear how the SDGs can be mapped to coincide with many of the other city goals. To complete this project, data was collected across a broad spectrum of sources and compiled to track how Jacksonville is measuring up to the goals. First, all Goals, Targets, and Indicators were plotted in table form for ease of review. Then, Indicators were sifted through to determine which ones were quantitative enough to provide trackable information. Finally, initiatives and organizations that currently exist to help the city achieve the goals, whether directly or indirectly, were described and analyzed. The long-term goal of this

Project was to analyze all 17 goals, however only Goals 1 through 8 and 12 received an analysis due to time constraints. Because oftentimes data is more prevalent on a county-basis than on a city-basis, much of the data found was on Duval County and shall constitute a direct correlation to the city of Jacksonville.

Goal 1: No Poverty – End poverty in all its forms everywhere.
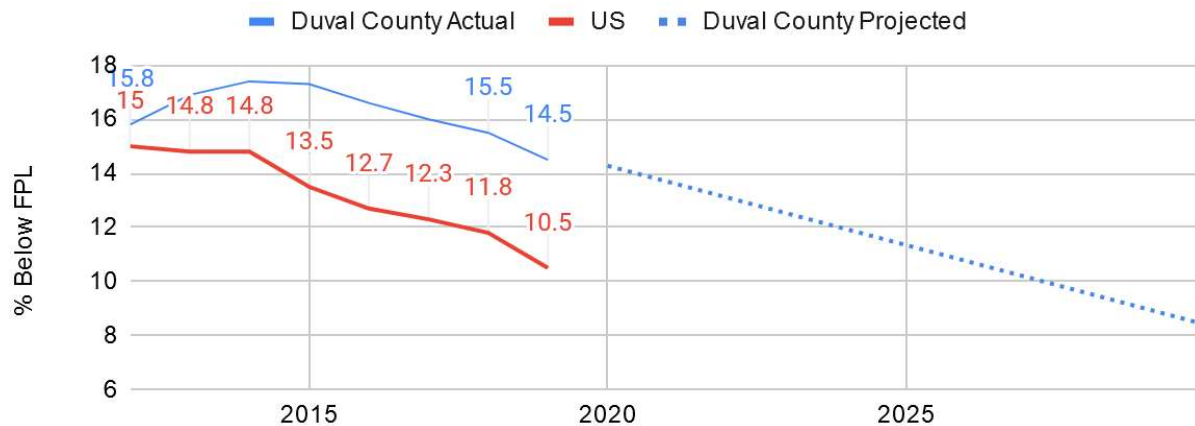
Target 1.2 is: "By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions". In order to track this, Indicator 1.2.1 uses the "proportion of population living below the national poverty line, by sex and age". In the United States, the Federal Poverty Line (FPL) is at $12,760/year for a 1-person household, $17,240/year for a 2-person household and increases by household size from there (ASPE, 2020). Data was gathered to assemble Graph 1.2.1 below. In Duval County, 14.5% are living below the FPL, which has decreased from 17.3% in 2015, when the SDGs were established. For Duval County to reach Goal 1, only 8.65% of the population shall be living below the FPL by 2030. At the current rate of decline (between 2014 and 2019), Duval County is on track to have 8.42% of the population below the FPL in 2030. However, data was not found on the lowest percentage of Duval County residents to ever live below the poverty line, so it is unclear if 8.42% is an attainable rate without institutional change. Further, as can be seen in Graph 1.2.1, Duval County consistently ranks below the national average of percent of people living in poverty.

Graph 1.2.1 - Percent of Population Living Below Poverty Line

Duval Data: https://fred.stlouisfed.org/series/S1701ACS012031 National Data: https://www.census.gov/content/dam/Cens...

To display the disparity between men and women in poverty, Graph 1.2.1b was created below. The graph shows that across the board, more women live in poverty than in men. In 2018, the difference was 4% for males and females Duval County, 3% in Florida, and 2% in the United States.
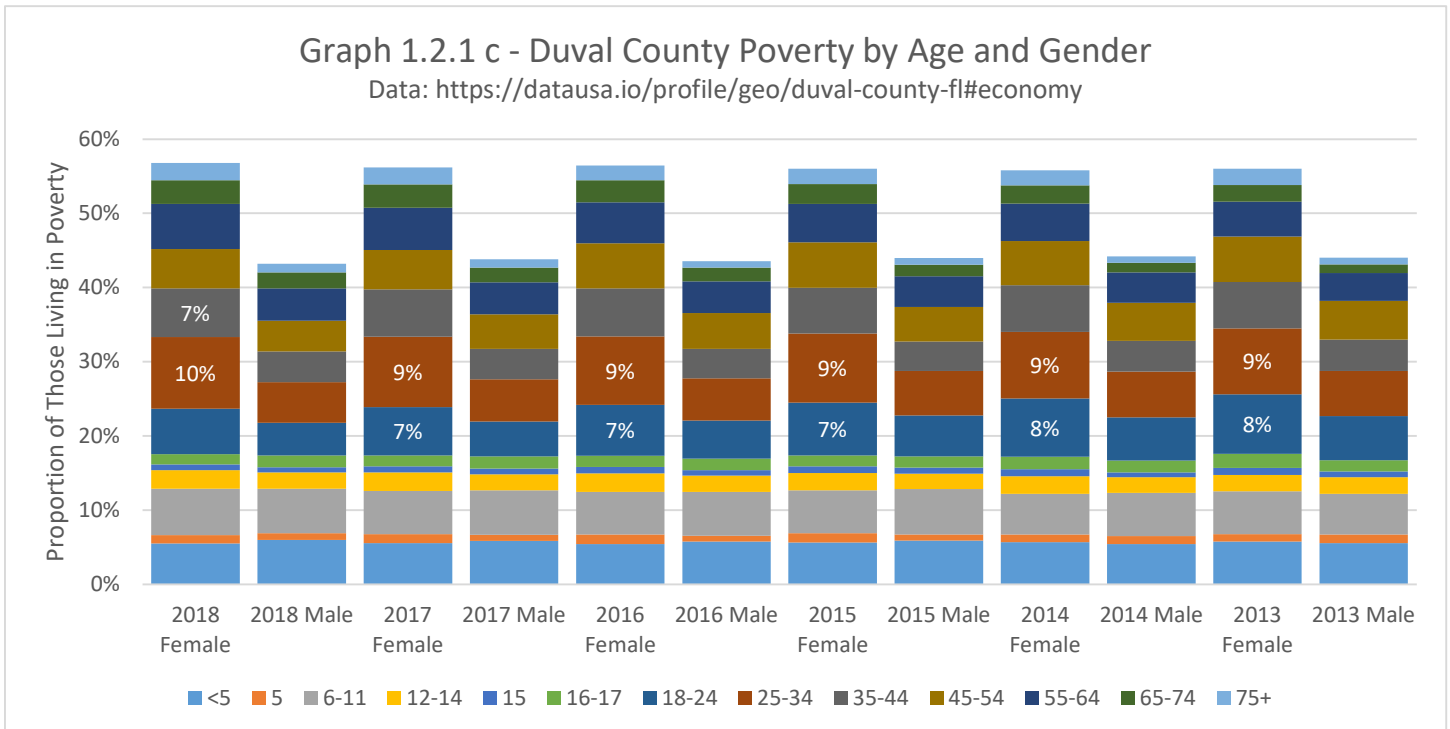
Graph 1.2.1b - Poverty Rate by Gender 2018
Data: https://datacommons.org/place/geoId/12031?topic=Equity

Legend: Female, Male

Duval County, FL: Female 17%, Male 13%
Florida: Female 16%, Male 13%
United States of America: Female 15%, Male 13%
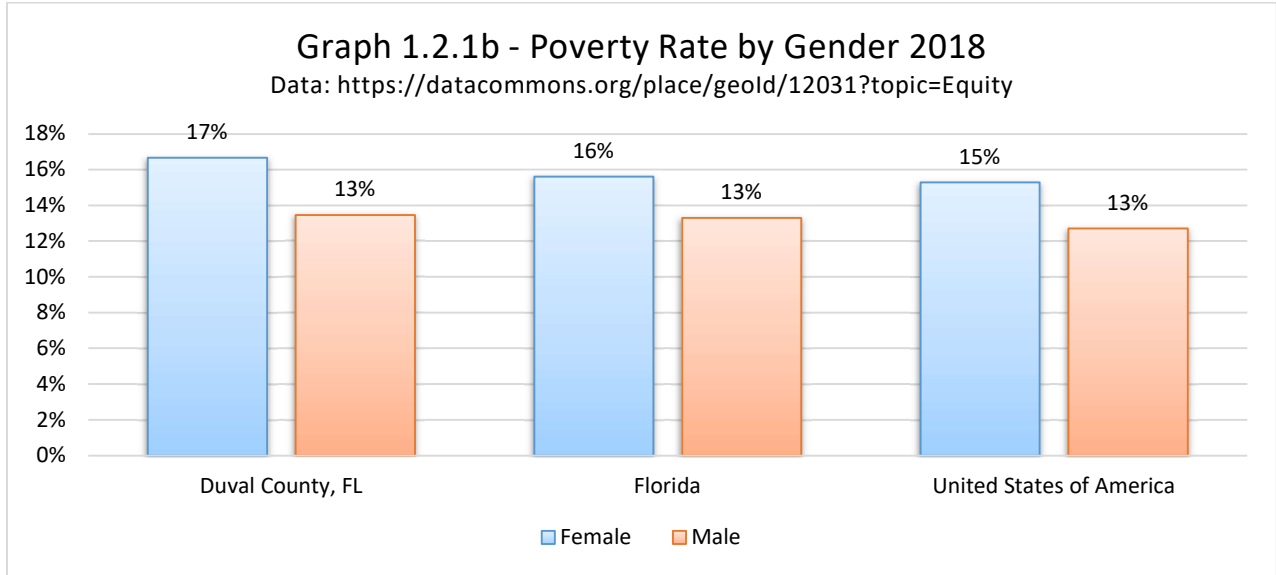
To take it a step further, the proportion of those in Duval County living in poverty was broken out into age groups by gender. Graph 1.2.1c was created below. This shows that each year between 2013 and 2018, of people in poverty, 56% were female and 44% male. The most represented age group of those in poverty was females aged 25-34 (between 9-10% of those

Graph 1.2.1 c - Duval County Poverty by Age and Gender
Data: https://datausa.io/profile/geo/duval-county-fl#economy

Y-axis: Proportion of Those Living in Poverty

Legend: <5, 5, 6-11, 12-14, 15, 16-17, 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+

Selected labels:
2018 Female: 25-34 = 10%, 35-44 = 7%
2017 Female: 25-34 = 9%, 18-24 = 7%
2016 Female: 25-34 = 9%, 18-24 = 7%
2015 Female: 25-34 = 9%, 18-24 = 7%
2014 Female: 25-34 = 9%, 18-24 = 8%
2013 Female: 25-34 = 9%, 18-24 = 8%

X-axis categories: 2018 Female, 2018 Male, 2017 Female, 2017 Male, 2016 Female, 2016 Male, 2015 Female, 2015 Male, 2014 Female, 2014 Male, 2013 Female, 2013 Male

living in poverty each year) and the second most represented group for years 2013 through 2017 was females aged 18-24 (7-8% of those living in poverty each year)

Target 1.4 is: "By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance." In order to track this, Indicator 1.4.2 uses the "proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure". Data was gathered to determine the trend in percent of owner-occupied households, as that is comparable to proportion of adult population with secure tenure rights to land. Data from the US Department of Housing and Urban Development (HUD) shows that the percent of households in Duval County that are owner-occupied has decreased from 63.1% in 2000 to 56.5% in 2016 (U.S. Department of Housing and Urban Development, 2016). Although in the United States, everybody already has the right to buy property, not everyone can afford to. That being said, just because someone can afford to, doesn't mean they necessarily would choose to buy instead of rent.
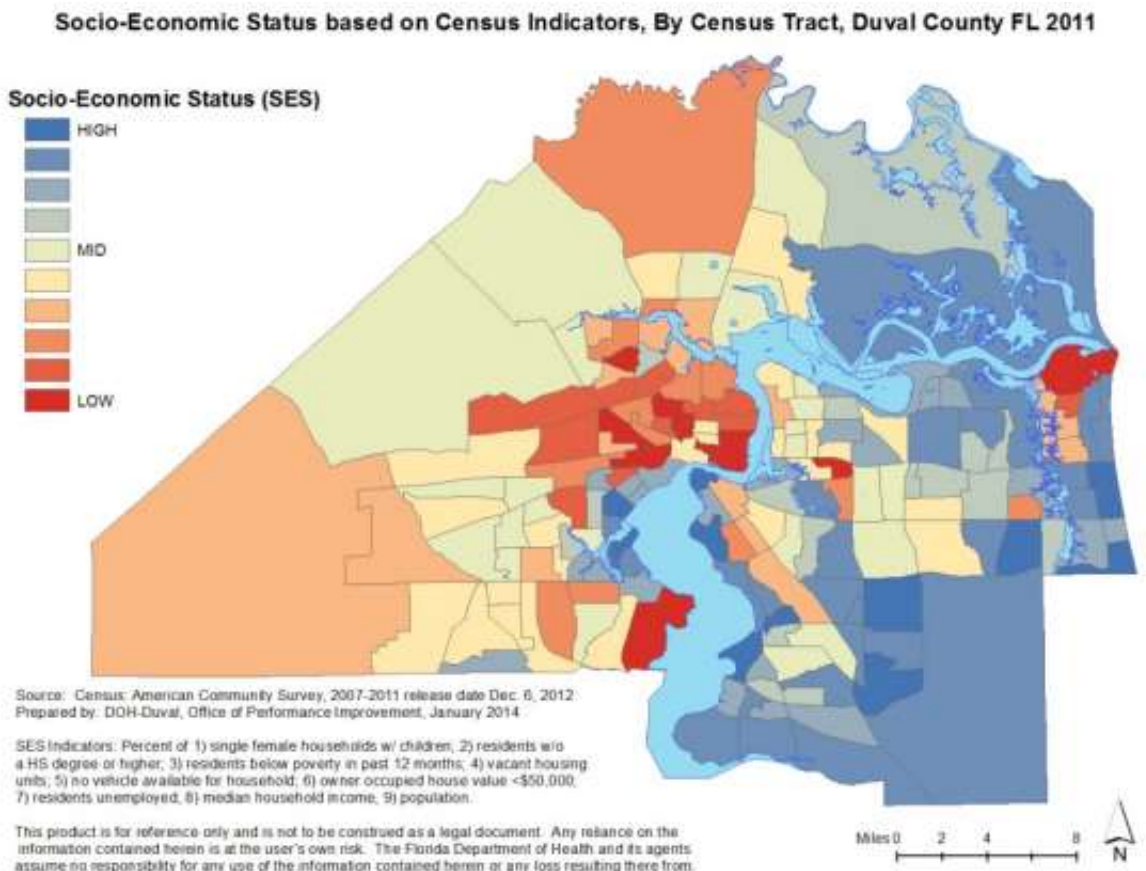
Target 1.5 is: "By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters." No quantitative data was found for Indicator 1.5.1 (Number of deaths, missing persons and persons affected by disaster per 100,000 people) or 1.5.2 (Direct disaster economic loss in relation to GDP). However, recent hurricanes have caused record level flooding and subsequent destruction to much of Jacksonville, with poorer residents being more susceptible. Melody Taylor wrote in Jacksonville Magazine that Hurricane Irma cost the city of Jacksonville $85 million, causing major damage to 171 structures with 15 homes completely destroyed. A survey by World Renew estimated total recovery costs for residential households to be $4,000,000 due to the 2017 storm (Taylor, 2018).

Flooding issues are most prevalent and damaging in the poor, mostly black neighborhoods of Jacksonville including the neighborhoods of McCoys, Hogans, and Moncrief on the north side of the St. Johns River. Populations in these areas are the most vulnerable, economically, and have the highest probability of struggling to recover after a major disaster. These areas see flooding even in light rainstorms. Despite efforts of some councilmembers, city official pushback has almost always overpowered requests for flood mitigation projects in these poorer areas. Jacksonville historically prioritizes top-down economic development projects including: "$105

million to repave streets; $95 million for a new library; $211 million for a new courthouse… $60 million on the Everbank Field NFL stadium,… $34 million for a stadium for the minor league baseball team… [and] $10 million in bonds on a rare cat exhibit at the local zoo" (Dawson, Johnson, & Bedi, 2017). Further, the deepening of the St. Johns River, a project estimated to be worth well over $1 billion, is expected to have benefits for large corporations, and not for the local economy. This dredging project, in addition to costing taxpayer money to help big business, is expected to increase the risk of flooding in Jacksonville's low lying areas (Orth, 2017).

Below is a map of Jacksonville mapping the difference in socioeconomic status of all the census tracts in Jacksonville. Some census tracts in Jacksonville contain up to 55.5% of residents living in poverty, while others only contain 1.5% living in poverty. In addition to poverty status, factors contributing to a lower socioeconomic status include households with single mothers, empty housing units, lack of vehicle ownership, household value less than $50,000, residents of household unemployed, and residents with no high school degree. The darkest red areas of the map show the areas of the lowest economic status, with a high prevalence in northwest Jacksonville. As will be discussed later, these areas are also more likely to have more residents with health problems and more areas of food insecurity. In a paper written on the Economic and Health Disparities in Jacksonville, Katryne Bull noted that "Inequalities in economic status often follow inequities in

Socio-Economic Status based on Census Indicators, By Census Tract, Duval County FL 2011

Socio-Economic Status (SES)

HIGH

MID

LOW

Source: Census: American Community Survey, 2007-2011 release date Dec. 6, 2012
Prepared by: DOH-Duval, Office of Performance Improvement, January 2014

SES Indicators: Percent of 1) single female households w/ children; 2) residents w/o a HS degree or higher; 3) residents below poverty in past 12 months; 4) vacant housing units; 5) no vehicle available for household; 6) owner occupied house value <$50,000; 7) residents unemployed; 8) median household income; 9) population.

This product is for reference only and is not to be construed as a legal document. Any reliance on the information contained herein is at the user's own risk. The Florida Department of Health and its agents assume no responsibility for any use of the information contained herein or any loss resulting there from.

Miles 0   2   4   8   N

health, which are prevalent in Duval County" (Bull, 2014). In this way, you can see that this SDG is linked closely with SDG 2, Zero Hunger and SDG 3, Good Health and Well Being.

My overall assessment of how Jacksonville is doing compared to SDG 1 is poor. For Target 1.2 which was to reduce poverty rates by half, Jacksonville is on track, however there is still a gap between male and female poverty rates that needs improvement, and Jacksonville poverty rates lie above state and national poverty rates, which could use improvement. For Target 1.4, the right to own land, the negative trend in property ownership needs improvement. And for Target 1.5, the resilience of the poorer part of the population needs major work.

Goal 2: Zero Hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Target 2.1 is "by 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round." The indicators for this target include the "prevalence of undernourishment" and the "prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)".

Data was found from 2014 for 17 northeast Florida counties, determining that approximately 322,300 people per year in Northeast Florida rely on food pantries and meal service programs due to hunger. Of the people fed, 29% are children under 18. Around 13,300 households are provided food in a given week; and of the serviced households, 14% have no income, and 69% have incomes that fall below the FPL (*Hunger in America FNEFL Study* 2019). It is clear that in order to tackle hunger, poverty (Goal 1) needs to be addressed first or simultaneously.

There are several public and private programs in the United States implemented to combat food insecurity. The main federal (public) programs include the Supplemental Nutrition Assistance Program (SNAP), the National School Lunch Program, and Women, Infants, and Children (WIC). Private programs include food pantries, soup kitchens, and community gardens (Waite, Johns, & Dinkins). There are currently several food pantries in Jacksonville, FL, with 20 listed on the Food Pantries website. There are, however, many problems that exist in this system. For one, most of the clients of the food pantries are repeat clientele. The knowledge of the existence of the food pantries is not well-spread and is only advertised by word of mouth. Due to this, many hungry residents do not even know about the food pantries, and a lot of perishable items go to waste. There are hungry people, and there is food available, however they are not

connecting. Another problem is that much of the food handed out by food pantries provides calories without nutrition. In order to combat this, community gardens and food recovery programs can be used to provide quality food to the hungry.

Community Gardens: As of 2015, there were at least 29 existing community gardens within Duval County (Reynolds, 2015). However in many of them, citizens must rent a plot, which isn't an expense everyone can afford. That being said, there are several community gardens working with local food banks giving some or all of their fresh produce to feed the hungry. The Urban Gardening Program determined that 32,291 people in Duval County were fed from community gardens in 2014 (Reynolds, 2015). University of North Florida (UNF) has a community garden, the Ogier Gardens, located on an acre of land producing organic herbs, vegetables, fruits, sprouts, and mushrooms. Most of the produce is distributed to UNF's own food pantry, Lend-A-Wing, which provides food for underprivileged UNF students. Though not in the city of Jacksonville, in northeast Florida, the St. Augustine Beach Community Garden (SABCG) started its Feed the Hungry (FTH) program in November, 2019. SABCG provides soil, seeds and water through funds from business, organization, and individual donations and volunteers deliver the produce to partners including St. Francis House Outreach program which creates meals from the produce (The Record, 2020).

In northwest Jacksonville, White Harvest Farms is a 10.5 acre regenerative farm that grows fresh produce for an extensive food desert community, which they provide through their on-site farmer's market and through their own soup kitchen. The farm is adjacent to an area that the U.S. Department of Agriculture identified as a food desert, with 59% of its residents lacking access to fresh and healthy food due to economic challenges and lack of available transportation to mainstream grocery stores. The food sources within this area are fast-food restaurants, convenience stores and gas stations. The White Harvest soup kitchen serves up to 400 people daily (Clara White Missions, 2020). Also in northwest Jacksonville lies a neighborhood called New Town, where some residents have to drive 20 minutes to get to the nearest grocery store. New Town Success Zone (NTSZ) is an organization that works to provide childcare and prenatal resources, college preparation resources, and has teamed up with Edward Waters College to start a quarter-acre community garden that provides year-long produce to this food-insecure neighborhood (Urban Farmacy).

The Beaches Emergency Assistance Ministry (BEAM) is a community-based organization serving low income residents in the beaches area of Jacksonville. In 2013, the BEAM Grace Garden opened which is a 7,200 sq ft production farm with 59 raised beds, 8 fruit trees, a

shitake mushroom farm and an herb and butterfly garden. In one year, the BEAM Grace Garden was able to provide more than 6,000 pounds of fresh produce to the BEAM food pantry (BEAM, 2020). Upon volunteering there, it was found to be a very well-oiled organization. There was a manager with routine weekly volunteers on Mondays and Fridays. The volunteers had a list of tasks to perform upon arrival and garden beds were planned for yearly. In addition to the raised beds there was a greenhouse for starting seeds and a set of six aquaponics towers all thriving with lettuces. The lumber for the beds was donated by The Home Depot and the aquaponics towers were donated by Atlantic Beach Urban Farms. Only organic methods are used in the garden for pest control including herbs and flowers for pest control and each year "sweating the pests out" by covering the beds in mid-summer with plastic wrap. Appendix 1 contains photos from the BEAM Grace Garden.

There is also Arlington Community Garden (ACG), which according to its website, has 35 plots dedicated to growing food for the food pantry at Arlington Community Services. It was created in 2010 through a United Way "Champion Zone Project" grant. Tree Hill Nature Center provides the land and water and Unitarian Universalist Church of Jacksonville provides the funding (Reynolds, 2015). Upon volunteering there, it was found that there are only 12 plots at ACG. Also, funding appears limited for the gardens. The funds that are available go to the garden manager and towards supplies such as soil and seeds. When problems arose, including a leak in an irrigation line and a broken pump, they could not be addressed because a professional could not be afforded. Most of the work at the garden is done by the garden manager, with the help of a few scattered volunteers. Appendix 2 contains photos from ACG.

There are plenty of people out there who know how to fix a broken pipe, and also who would gladly give their time for a good cause. The problem, similar to the problem of plenty of food and plenty of hungry people, is that they need to be connected. One opportunity would be for the city or county to hire a Food Systems Program Coordinator, similar to a role that Hillsborough County recently introduced, who would be responsible for connecting the dots. While many private organizations exist in Jacksonville to attempt to solve the problem of hunger, COJ needs to prioritize it as well. In December 2019, funding through Ordinance 2019-812 was approved by COJ to launch the "Door to Store" year-long pilot program that provides complimentary rides to grocery stores for residents of a Northside neighborhood that is in a food desert. The program was launched by Jacksonville Transport Authority (JTA) and funded through the city's Northwest Economic Development Fund. Jacksonville Mayor Lenny Curry stated, "I am grateful for the JTA's efforts and excited to see this wonderful program take flight. There are still other areas in

our community that lack easy access to the healthy foods, so my team and I will continue to look for solutions to meet these important community needs." (JTA, City of Jacksonville Launch Door to Store Program 2020). Hopefully this means similar programs will follow so that no more residents of the largest city in the country live in a food desert.

Food Recovery Programs: Excess food from the UNF Cafe is collected, packaged, and delivered to community non-profit organizations through the Food Fighter program. This program has delivered over 20,000 meals in 2 years to underprivileged community members through organizations including Northeast Florida AIDS Network, Sulzbacher Center, Lutheran Social Services, UNF Lend-A-Wing Food Pantry and Mission House. Meals on Wheels America is a great program that addresses hunger in seniors. However, in Duval County, over 1,000 seniors who are eligible for Meals on Wheels, are on a waitlist because of funding shortages. To compensate for this problem, UNF created the Meals on Wings program to divert food waste from Baptist Medical Center. In 1 year alone, over 5,000 meals were delivered to seniors on the waitlist for Meals on Wheels (*UNF Department of Nutrition & Dietetics Center for Nutrition and Food Security*). By diverting food waste from landfills and subsequently reducing greenhouse gas (methane) production, many SDGs are addressed including SDG 2, as discussed here, SDG 12: Responsible Consumption and Production, and SDG 13: Climate Action.

In order to give an accurate assessment of how Jacksonville measures up to SDG 2, more data is required. Although there are many programs available that attempt to distribute more food to the hungry, the fact that so many people are hungry in northeast Florida is a problem that needs addressing. The public and private food insecurity programs are a great band aid to the problem, however the root cause of the problem needs to be solved.
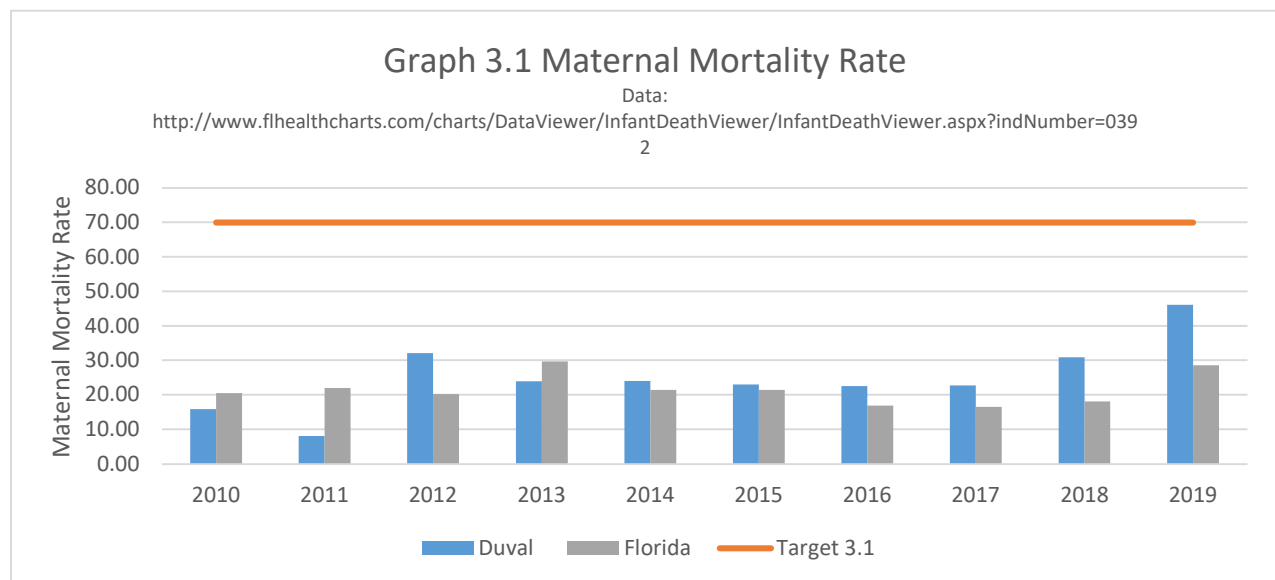
Goal 3: Health and Well-Being – Ensure healthy lives and promote well-being for all at all ages.

Target 3.1 is "by 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births." Maternal mortality rates for Duval County and the state of Florida were gathered. The rates for both lie far below the Target 3.1 threshold, however both show an upward trend in the last 3 years. Further the maternal mortality rates for Duval County between 2014 and 2019 have been consistently higher than the state's rates. It is important to keep in mind that the UN Sustainable Development Goals are global goals, and should be a minimum threshold. In the United States, the maternal mortality
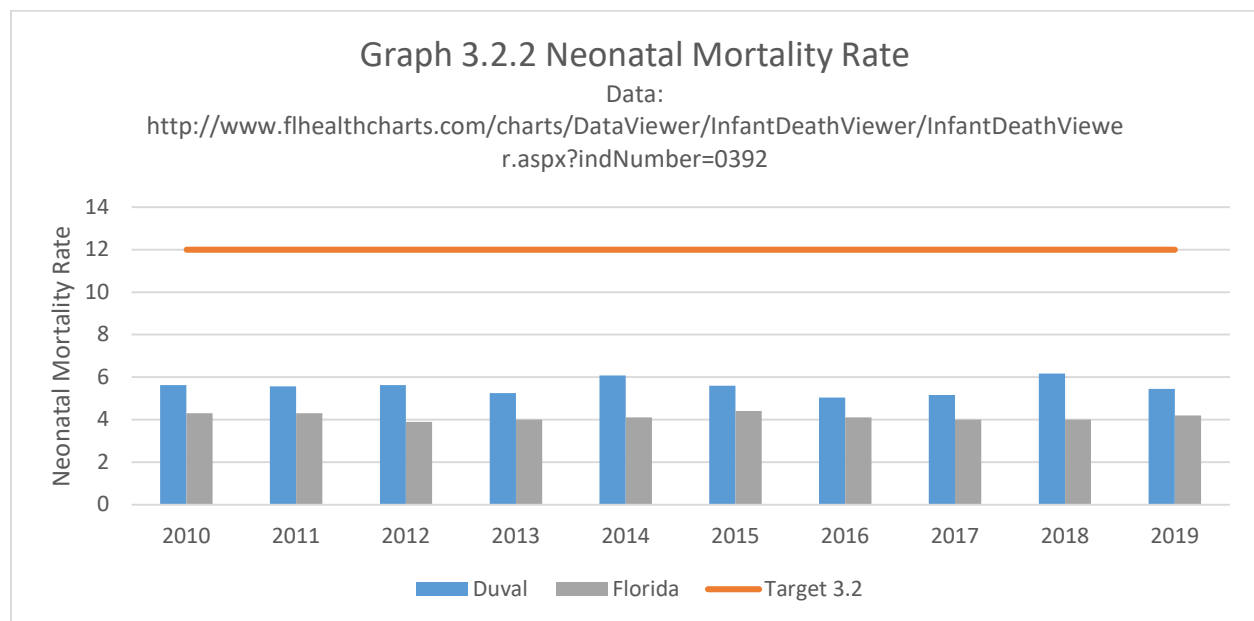
rate target for SDG 3 should be much lower. Looking at Duval County trends, the increase in maternal mortality rate is concerning. To address pregnancy-related deaths in Florida, the Florida Department of Health established the Pregnancy-Associated Mortality Review (PAMR) process in 1996. The goal of the program is to identify gaps in care and delivery issues and make recommendations for improvements in overall care (Florida Health, 2020).

PAMR has issued many informational documents in regards to maternal mortality and has found that in 2017, the leading cause of death to mothers during pregnancy or within one year afterwards is drug-use. The number of women with Opioid Use Disorder (OUD) who give birth in Florida has increased from 0.5 per 1,000 births in 1999 to 6.6 in 2014. PAMR has provided recommendations to healthcare workers for prenatal care and screening for such conditions. Other PAMR findings include that between 1999 and 2017, 10.4% of pregnancy-related deaths in Florida were due to cardiomyopathy. Of those deaths, 80.6% were of women who were either overweight or obese and 62.8% were of non-Hispanic black women. PAMR materials emphasize the importance of early diagnosis and provide recommendations. However, none of the recommendations address the women's diets. According to Florida Health, 55.3% of maternal deaths in 2015 were preventable and 80% of preventable deaths were due to lack of healthcare standardized policies and procedures, 25% were due to delay of treatment, 20% were due to lack of diagnosis and 10% were due to a delay in diagnosis (Florida Health, 2020).

Graph 3.1 Maternal Mortality Rate
Data: http://www.flhealthcharts.com/charts/DataViewer/InfantDeathViewer/InfantDeathViewer.aspx?indNumber=0392

Target 3.2 is "by 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live

births and under-5 mortality to at least as low as 25 per 1,000 live births." Indicator 3.2.1 is under-five mortality rate and 3.2.2 is neonatal mortality rate (death of a live-born baby within the first 28 days of life). Neonatal mortality rate data was gathered and it was determined that similar to the maternal mortality rate, rates in Duval County are lower than Target 3.2 requires. However, Duval County neonatal mortality rates are consistently much higher than state rates. In 2017, nearly half of all infant deaths were due to prematurity/ low birth weight or SIDS.

Graph 3.2.2 Neonatal Mortality Rate

Data:
http://www.flhealthcharts.com/charts/DataViewer/InfantDeathViewer/InfantDeathViewer.aspx?indNumber=0392
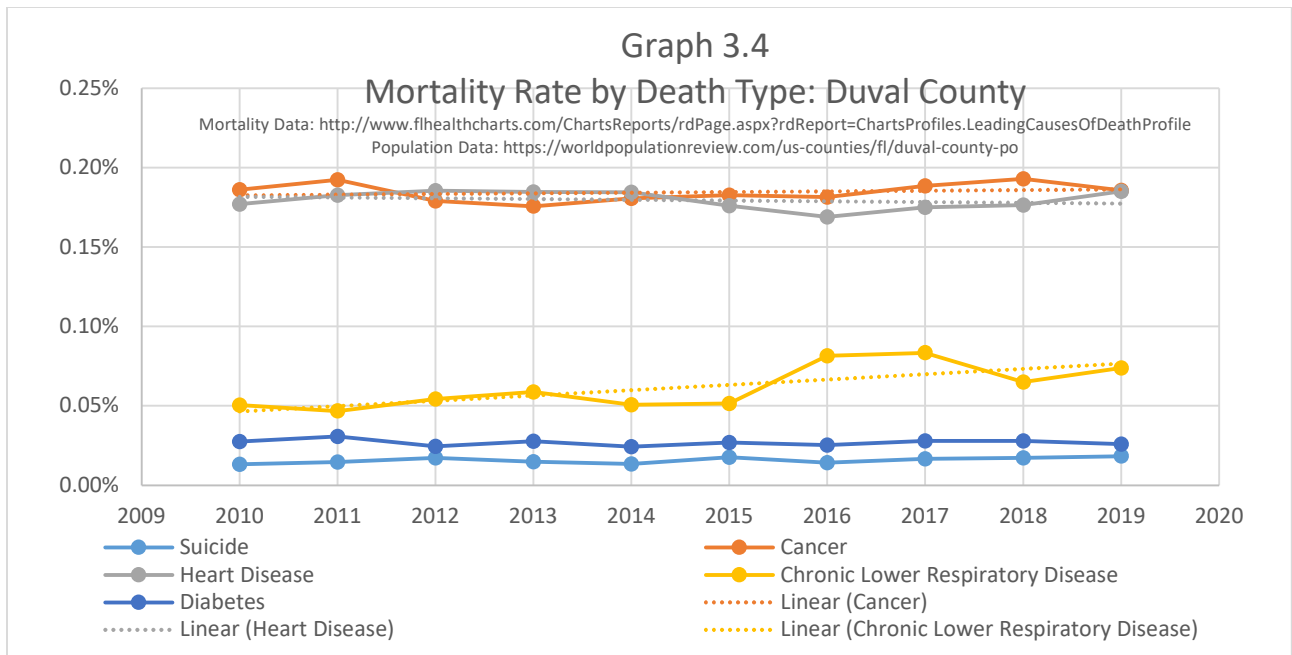

The Northeast Florida Healthy Start Coalition was started in 1995 in an effort to reduce infant mortality and improve the health of children, childbearing women and their families in Northeast Florida. According to Kenneth Scarborough, the Chairman of the coalition, black babies are affected the most and social factors contribute to the problem. The coalition currently reviews 28 infant deaths every year, a number that will increase now that a partnership with UF Health, Baptist Health/ Wolfson's Children's Hospital and Florida Blue has been formed. Scarborough hopes the data collected will be able to reduce infant mortality rates and improve communities overall (Cole, 2018).

The map below shows disparities in life expectancy throughout different geographic areas of Jacksonville. Similar to the map showing socioeconomic status, northwest Jacksonville (Health Zone 1) has the lowest life expectancy, with a life expectancy of 4-9 years shorter than all other zones. Overall life expectancy increased by 2.3 years from 2000 to 2010 in Duval County, however this health improvement has not been equally distributed. Most of the increase was in Health Zones 5 and 6 which include Jacksonville Beaches and the north and west outskirts of
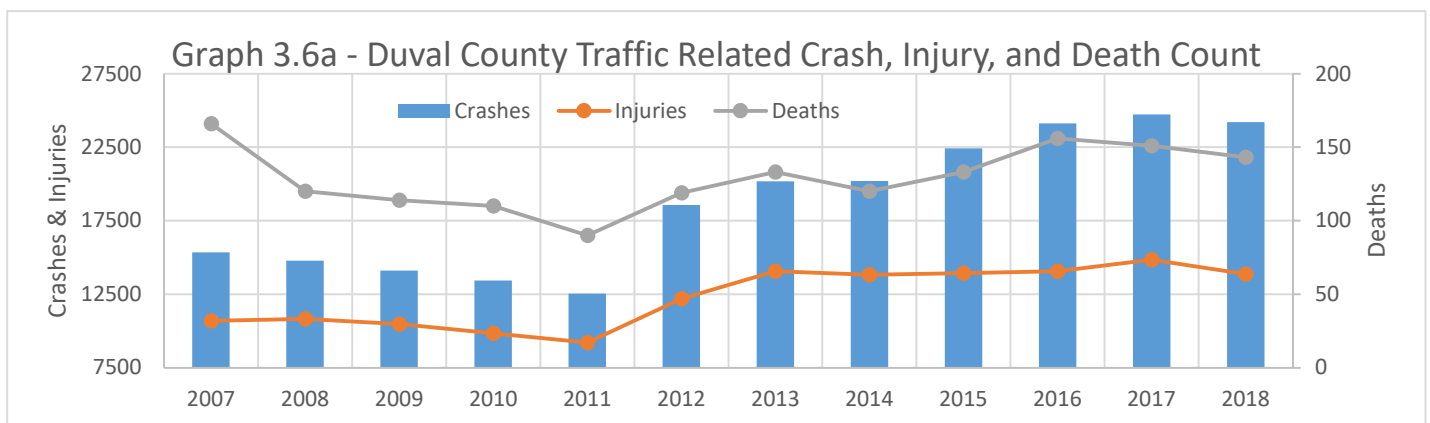
Jacksonville. Health Zone 1 has only seen an increase of 6 months in the same decade. Another quote from Katryne Bull is "Life expectancy is closely correlated to wealth/poverty and education. Overall, education is a strong predictor of life expectancy with the more educated the population of an area the fewer deaths predicted for each age group, yielding a longer life expectancy" (Bull, 2014). It is clear that Goal 3 goes hand in hand with both Goal 1, End Poverty, and Goal 4, Quality Education.
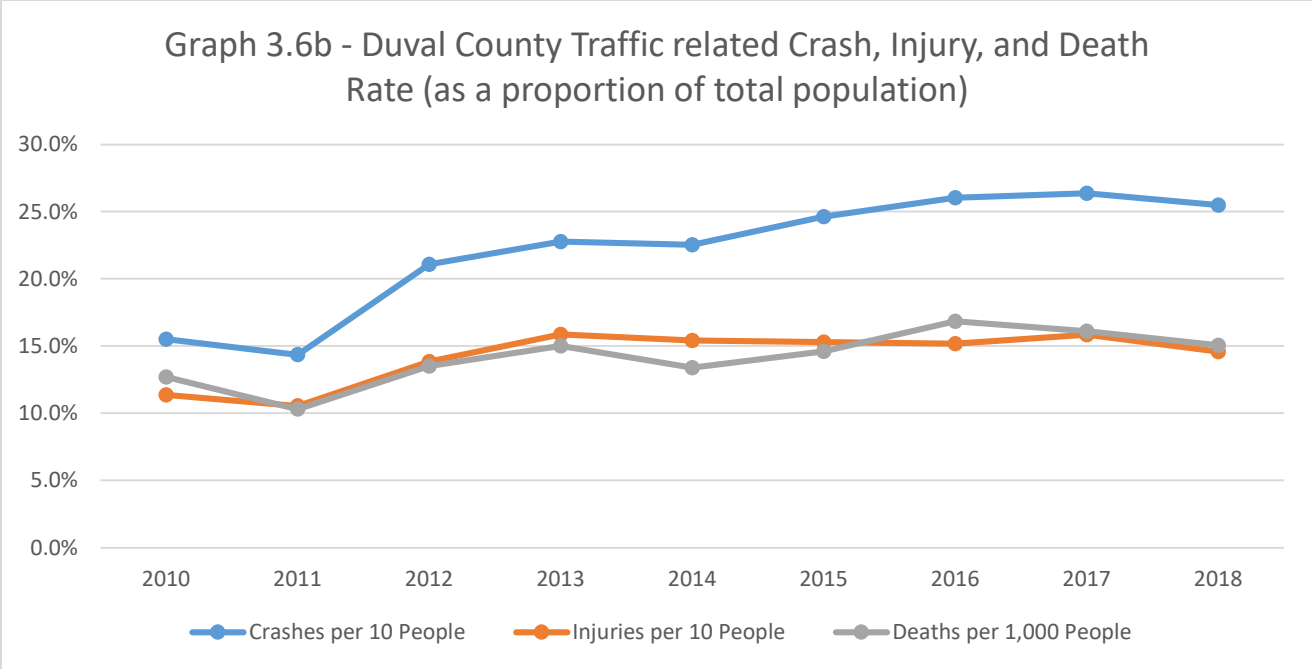

Life Expectancy for an Infant
by Health Zone Duval County, Florida, 2010
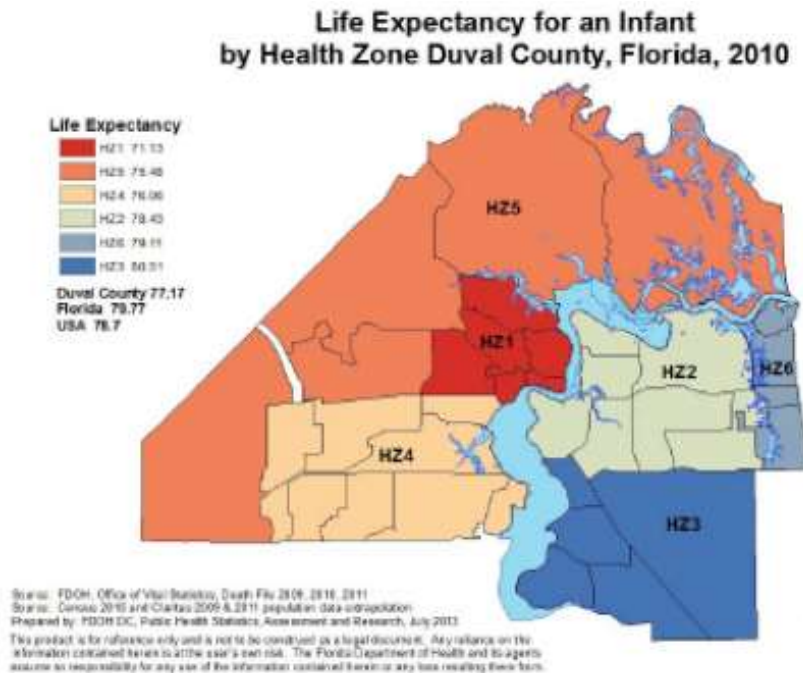
Target 3.4 is "by 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being." In order to track this, Indicator 3.4.1 uses the "mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease" and Indicator 3.4.2 uses the "suicide mortality rate". Data was gathered on mortality rates in Duval County and Graph 3.4 was created below. Mortality rates in this instance mean the number of deaths by type divided by total population. Mortality rate was calculated by using the number of deaths divided by the total population count. Each year, cancer and heart disease rank #1 and #2 leading causes of death in Duval County. Between 2010 and 2019, there doesn't seem to be a trend upward or downward in mortality rate for either cause of death. Chronic Lower Respiratory Disease consistently ranks third in Duval County causes of death and the mortality rate has been increasing since 2010. Diabetes ranks as the sixth leading cause of death and suicide ranks as the 11th leading cause of death in Duval County every year. Since 2010, the mortality rate for each appears stagnant. This data shows that Jacksonville is not on track to meet Target 3.2 for SDG 3.
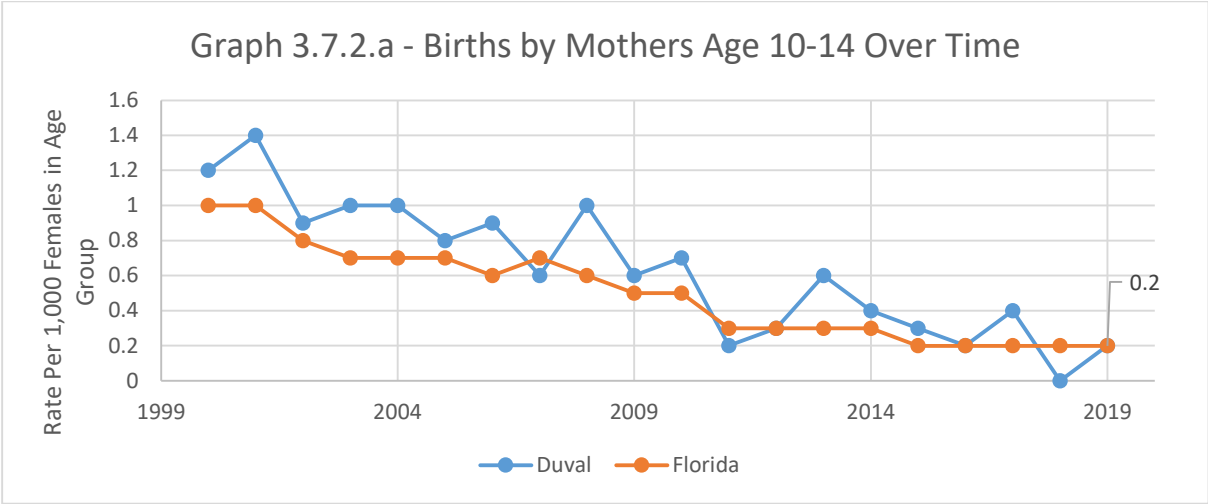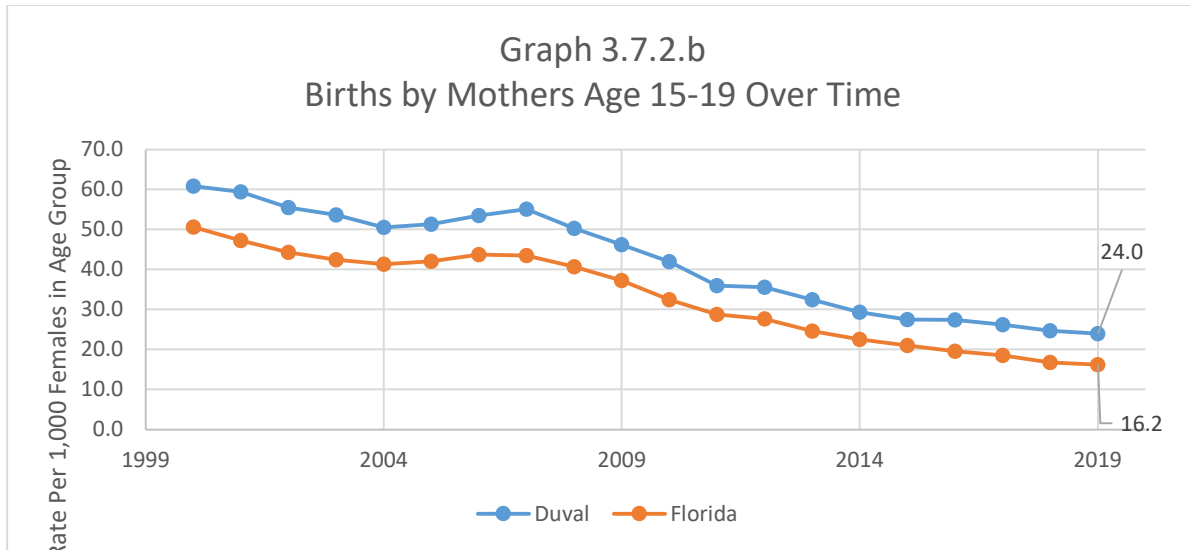
Graph 3.4
Mortality Rate by Death Type: Duval County

Mortality Data: http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=ChartsProfiles.LeadingCausesOfDeathProfile
Population Data: https://worldpopulationreview.com/us-counties/fl/duval-county-po

Legend: Suicide, Cancer, Heart Disease, Chronic Lower Respiratory Disease, Diabetes, Linear (Cancer), Linear (Heart Disease), Linear (Chronic Lower Respiratory Disease)

Target 3.6 is: "by 2020, halve the number of global deaths and injuries from road traffic accidents". Data was gathered from the Florida Highway Safety and Motor Vehicles (FLHSMV) annual report titled *Traffic Crash Facts*. Statistics for total crashes, total fatalities, and total injuries for Duval County were found in each annual report (FLHSMV, 2019). Graph 3.6a was created and it was found that deaths due to traffic accidents declined in Duval County from 166 in 2007 to 90 in 2011, then increased to 143 by 2018. Total accidents have been on the rise since 2011. However, as population has increased steadily over the same time period, traffic-related accidents, injuries, and deaths as a proportion of total Duval County population was analyzed in Graph 3.6b. It was found that although the overall rates have increased between 2010 and 2018, they have mostly leveled off and even decreased slightly between 2017 and 2018. Still, with Target 3.6 of SDG 3 being to halve the number of road traffic injuries and deaths, Duval County is nowhere near being on track.

Graph 3.6a - Duval County Traffic Related Crash, Injury, and Death Count

Graph 3.6b - Duval County Traffic related Crash, Injury, and Death Rate (as a proportion of total population)

Target 3.7 is "by 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes". Indicator 3.7.1 seemed hard to quantify so data for Indicator 3.7.2 (adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group) was gathered and is presented in Graph 3.7.2.a and 3.7.2.b below. As can be seen, for both age groups birth rates for teenagers in Duval County and Florida have gone down over time. While Florida birth rates have leveled out at a rate of 0.2 births per 1,000 females aged 10-14 since 2015, birth rates for females aged 15 to 19 continue to decrease.

Graph 3.7.2.a - Births by Mothers Age 10-14 Over Time

Graph 3.7.2.b
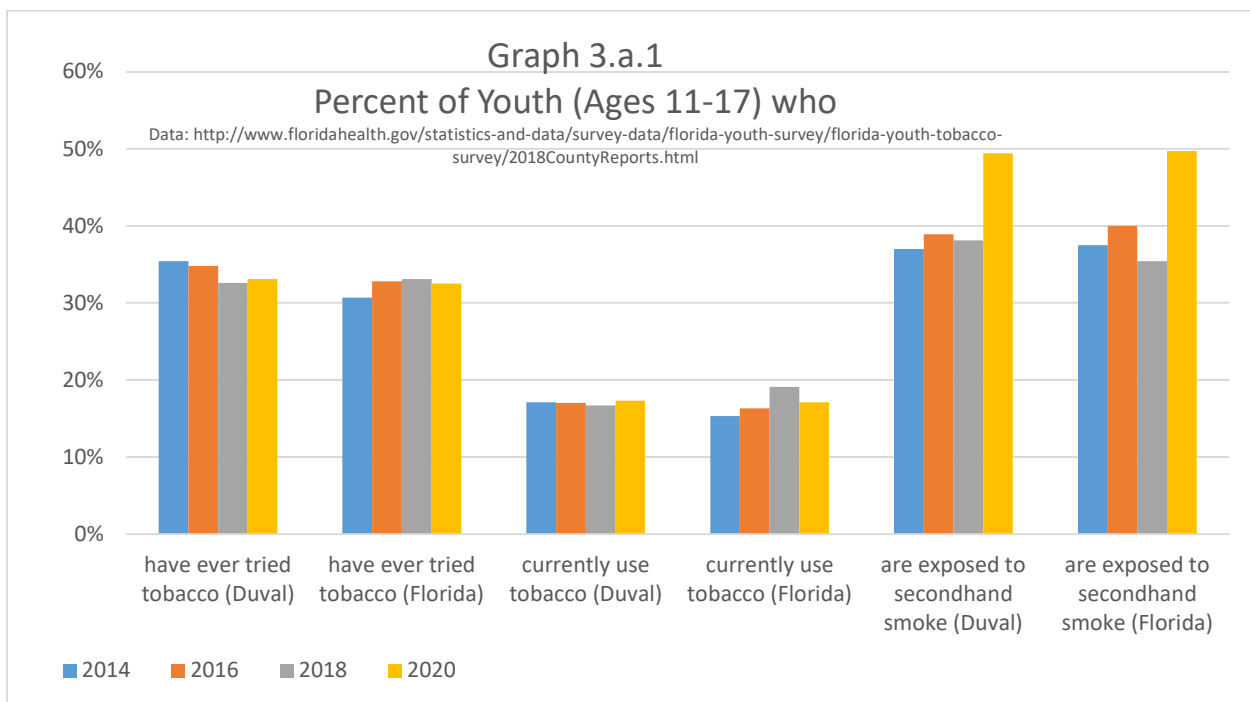## Births by Mothers Age 15-19 Over Time

It should be noted, however, that the birth rate does not reflect the actual number of teenagers who become pregnant. The Guttmacher Institute estimates that only 55% of all pregnancies to women aged 15 to 19 years old end in births, with the rest ending in miscarriage or abortion. It should also be noted that teenage pregnancies have poor health and socioeconomic outcomes. "Teenage mothers and their babies are consistently linked with poor health and socioeconomic outcomes. Babies born to teenage mothers are more likely to be born premature and have low birth weight. These mothers are least likely of all maternal age groups to receive prenatal care and are at a higher risk for pregnancy complications, less likely to graduate high school and more likely to live in poverty." (Northeast Florida Teen Pregnancy Task Force, p. 6). Due to this, it is apparent that this indicator can also be linked to Goal 1: End Poverty and Goal 10: Reduced Inequalities.

In 2010, the Northeast Florida Teen Pregnancy Task Force was formed to address the high rate of teenage pregnancy in Northeast Florida and determine methods of prevention. The task force acknowledges that although teenage birth rates are on the decline, teen pregnancy remains a problem, especially considering regional teenage birth rates are higher than statewide and nationwide rates. Their focus is on five specific areas: engaging parents, community-based teen pregnancy prevention, access to adolescent health services, repeat teen pregnancies and public policy changes. One large problem in Florida is that state statutes mandate abstinence-only sex education in lieu of comprehensive education. Florida schools are providing little, if any, information about birth control or sexually transmitted diseases (STDs) (Northeast Florida Teen Pregnancy Task Force). The Youth Risk Behavior Surveillance System (YRBSS) is a

system of surveys that monitors sexual behaviors, among other things. The YRBSS found that 23.5% of high school students in Duval County are sexually active, but of them, 21% used no method of birth control during their last sexual intercourse and 86% had never been tested for any STD (CDC, 2019). It is clear that one productive first step to address teenage pregnancy would be to start with fixing state legislation.

Target 3.a is "strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate." To track this, Indicator 3.a.1 uses "age-standardized prevalence of current tobacco use among persons aged 15 years and older". For Duval County, data was found on percent of youth over time who are exposed to tobacco and Graph 3.a.1 was created. Overall, the data appears stagnant between years 2014 and 2020, indicating no positive or negative trend in tobacco use for youth. However, for secondhand smoke exposure in Duval County and all of Florida, there was a huge spike in 2020. Tobacco-Free Jacksonville Coalition is a community partnership working towards the prevention of youth tobacco use and exposure to secondhand smoke. The coalition provides resources for public education and supports legislative actions against tobacco (*Tobacco Free Jacksonville*).

Graph 3.a.1
Percent of Youth (Ages 11-17) who
Data: http://www.floridahealth.gov/statistics-and-data/survey-data/florida-youth-survey/florida-youth-tobacco-survey/2018CountyReports.html

My overall assessment of how Jacksonville is doing compared to Goal 3 is poor. For Targets 3.1 and 3.2, which looks at maternal mortality and neonatal mortality compared to a global target, Jacksonville is beating the global targets. However, the upward historical trend in maternal
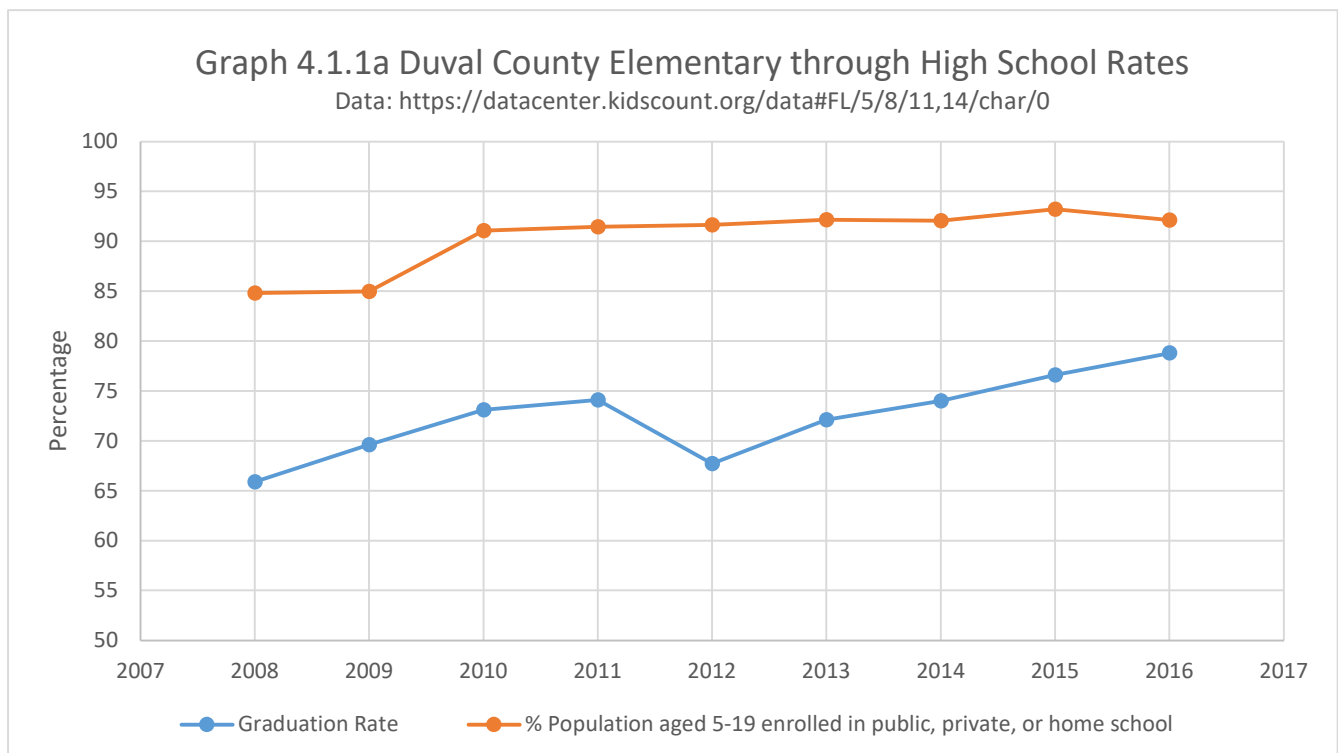
mortality is concerning. Further, when compared to Florida rates for both metrics, Jacksonville needs improvement. For Target 3.4, which is to reduce mortality from all non-communicable diseases by one third, and Target 3.6, which is to halve injuries and deaths due to traffic incidents, Jacksonville is doing poorly because of no historical trend. For Target 3.7, which measures adolescent births, Jacksonville measures poorly compared to Florida, but births are decreasing over time, which is good.

Goal 4: Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
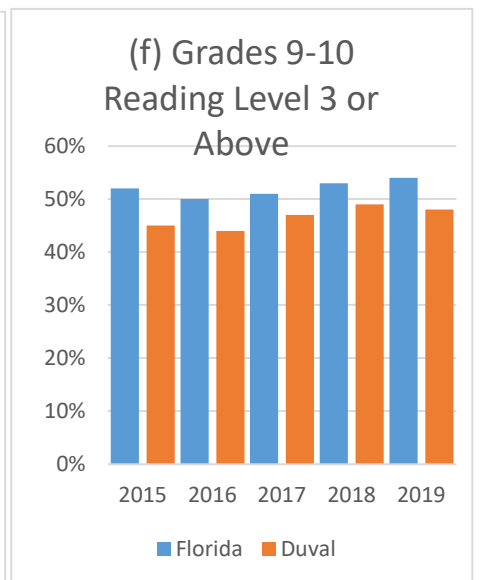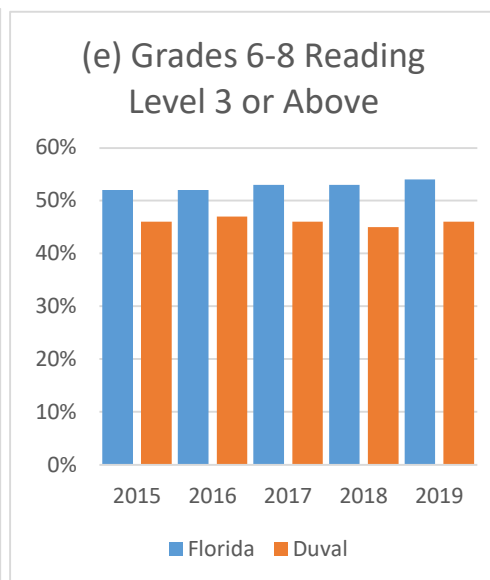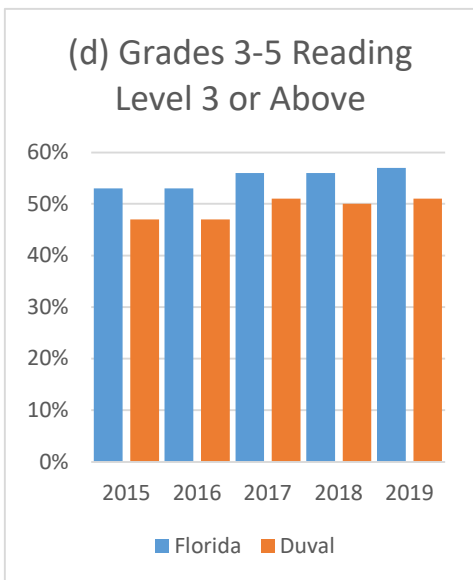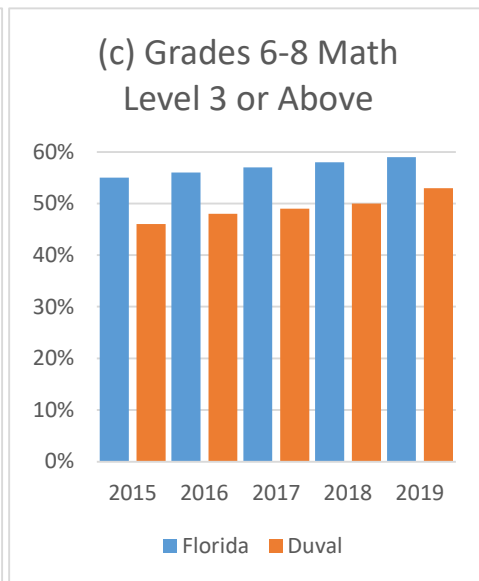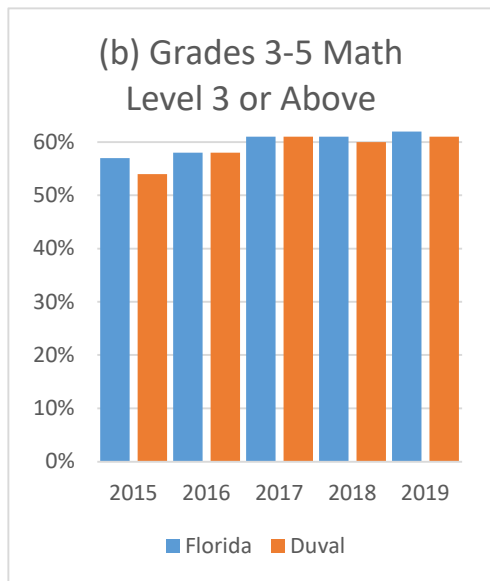
Target 4.1 is "by 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes". Indicator 4.1.1 measures the "proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex".

For Duval County, data was not found on the proportion of children proficient in reading and writing, nor on the proportion of female versus male school enrollment. However, there was data on total school enrollment for years 2008 through 2016 for all children. This included private school, public school, and home school. Graph 4.1.1 (below) was created which shows over

Graph 4.1.1a Duval County Elementary through High School Rates
Data: https://datacenter.kidscount.org/data#FL/5/8/11,14/char/0

90% child enrollment in school since 2010 and an increase in graduation rate of more than 2% each year since 2012.

Florida Standard Assessments were also looked at to analyze progress for Duval County Mathematics and English comprehension and compare to state rates. Graphs 4.1.1b through f are displayed below. These graphs show that for Duval County, there is an overall slight upward trend between 2015 and 2019 scores for Grades 6-8 Math and a plateau of scores for Grades 3-5 Math and Grades 3-10 English between 2017 and 2019. Also, for all subjects besides Grades 3-5 Math, Duval County has scored significantly lower than state levels since 2015.

(b) Grades 3-5 Math Level 3 or Above

(c) Grades 6-8 Math Level 3 or Above

(d) Grades 3-5 Reading Level 3 or Above

(e) Grades 6-8 Reading Level 3 or Above

(f) Grades 9-10 Reading Level 3 or Above

One problem in the Duval County school system is the achievement gap between ethnicities. In 2016, only 31% of African-American students passed the state's reading assessments in grades 3-10. That same year, only 41% of Hispanic students passed, while 62% of white students and 68% of Asian-American students passed the reading assessments (Amos, 2016). There are currently many programs in Jacksonville that provide assistance in mathematics and reading. For example, Duval Reads has helped more than 8,000 students achieve reading goals since 1999 by providing small group literacy tutoring for students in elementary school (Communities in School - Jacksonville). My assessment of how Jacksonville is doing compared to SDG 4 is fair. The upward trend in graduation rates is good, however the fact that Duval County reading and mathematics levels consistently fall short of Florida rates needs improvement.

Goal 5: Gender Equality – Achieve gender equality and empower all women and girls.

Target 5.2 is "eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation". To track this, Indicators 5.2.1 (proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age) and 5.2.2 (proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence) are used. Upon initial search, 2019 data was gathered from YRBSS surveys on these indicators for Duval County high school students and is presented in the Table 5.2 below (CDC, 2019). The data found that both men and women experienced physical dating violence at the same rate, but that women suffered from sexual violence almost twice as much as men.

Table 5.2

Percent of Duval County high school students who have experienced:	Female	Male
sexual violence by anyone	17.2%	9.9%
sexual dating violence	10.4%	5.0%
physical dating violence	10.6%	11.0%

Not enough data was found to accurately assess how well Jacksonville is measuring up to SDG 5.

Goal 6: Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all.

Target 6.3 is "by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally". To track this Indicator 6.3.1 uses the "proportion of wastewater safely treated". The proportion of wastewater treated was not found, however it was found that JEA's sewer collection system handles more than 80 million gallons of wastewater every day. It is not clear how much, if any, wastewater goes untreated. Further, Indicator 6.3.2 uses the "proportion of bodies of water with good ambient water quality". The COJ Environmental Protection Board works with UNF to prepare yearly river reports for the "State of the Lower St. Johns River Basin". According to the 2020 report, although arsenic, cadmium lead, nickel, and silver levels in the saltwater reach of the St. Johns River are below Florida ambient water quality standards, concentrations for all have increased during 2016-2019. Other water quality items of concern include continual wetland loss, a rise in non-native species from 87 to 90, continual unsatisfactory salinity, and a decline in submerged aquatic vegetation (Pinto et al., 2019).

The St. Johns River is plagued with an excess of the nutrients nitrogen and phosphorous, which cause algal blooms. The algal blooms can have impacts to human liver, skin, and nerve cells, making water sports in the St. Johns River hazardous to human health (Orth, 2017b). This nutrient pollution can be attributed to human activities, including residential and agricultural fertilizer and pesticide use, leaking septic tanks, storm water runoff due to development, and wastewater treatment plants. Further, commercial land use causes PAH, PCB, mercury, and nitrate pollution in the river basin due to shipping and maritime activities, power plants, oil spills, and accidental release of locomotive waste into drainage ditches (Pinto et al., 2019). Due to the decrease in water quality of the St. John's River and excessive levels of pollution, my assessment of how Jacksonville is doing in regards to SDG 6 is poor. However, more data would aid in this assessment.

Goal 7: Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable and modern energy for all.

Target 7.2 is "by 2030, increase substantially the share of renewable energy in the global energy mix" and to track this, Indicator 7.2.1 looks at the "renewable energy share in the total final energy consumption". Jacksonville's electric company, JEA, has adopted its own goal that by 2030, 30% of JEA's power will be provided by carbon-neutral sources including solar, wind, biomass, and methane gas. In 1999, JEA installed solar panels on more than 25 public and private locations. In 2004, through the Clean Power Program Action Plan, JEA set a goal of achieving 7.5% clean power by 2015 and this goal was met. In 2017, JEA contracted with eight new solar installations to increase solar energy offers by 350% and launched the JEA SolarSmart program which allows customers to choose to have some or all of their power come from solar energy. In 2019, JEA added its first utility-scale battery system to the grid to allow power storage during periods of no sun (JEA, 2020b).

JEA is also able to supply electricity to approximately 4,550 homes using landfill gas-to-energy facilities using an agreement with Landfill Energy Systems. Although COJ does not currently allow for biomass energy production, JEA has a facility to do this once it gets approved. JEA sells a portion of the renewable electricity generated in the form of Renewable Energy Certificates (RECs). Revenue from sold RECs is put towards further renewable energy generation (JEA, 2020a). My assessment of how Jacksonville is doing compared to SDG 7 is fair.
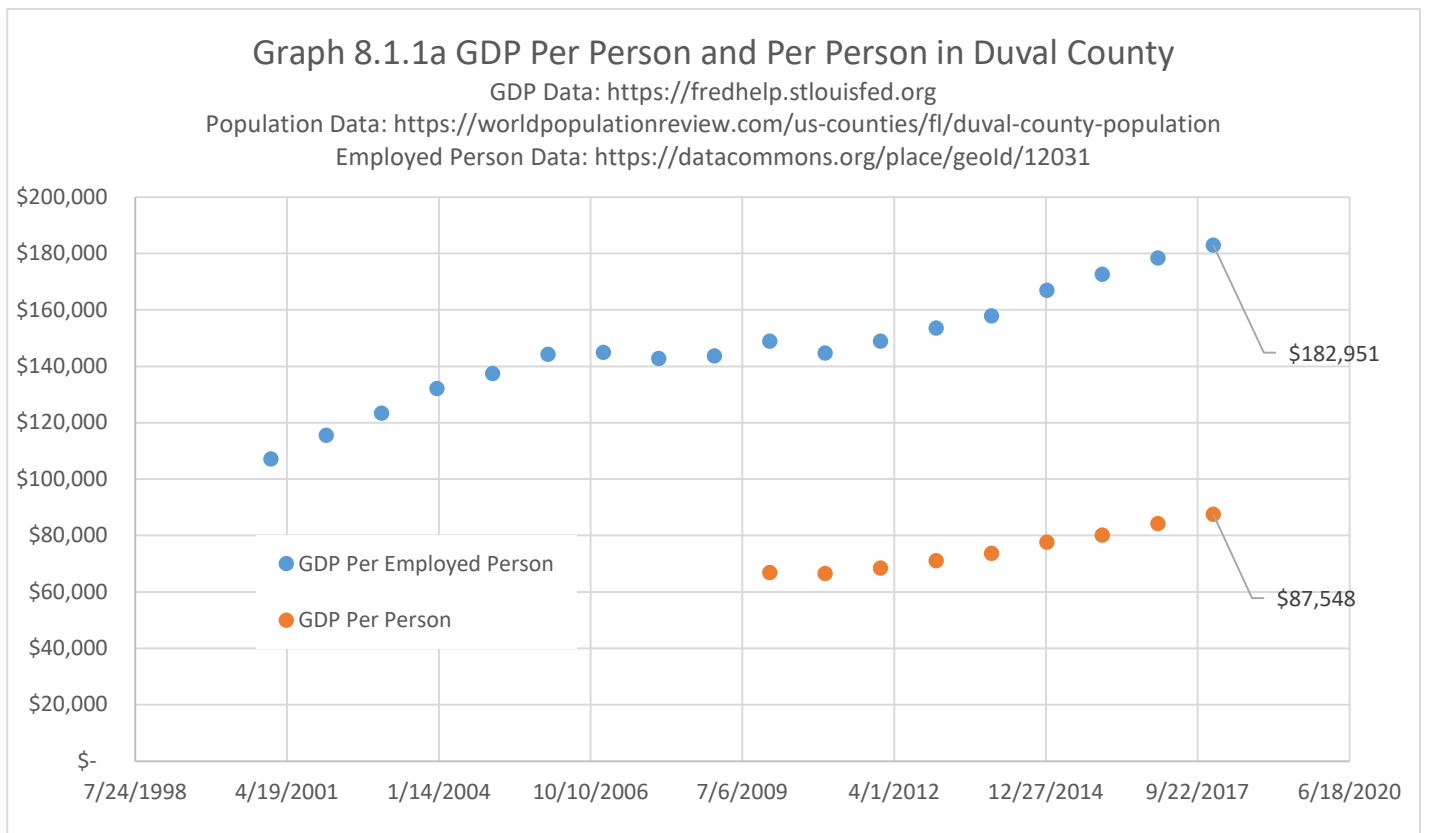
Goal 8: Decent work and economic growth – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
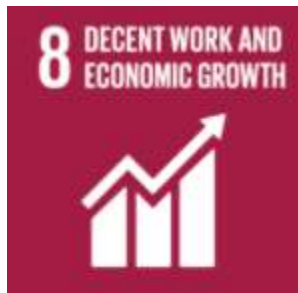
Target 8.1 is to "sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7% gross domestic product (GDP) growth per annum in the least developed countries". Since Jacksonville lies in a developed country, the 7% goal may not be relevant. The indicator for this, Indicator 8.1.1 measures "Annual growth rate of real GDP per capita". **Target 8.2** is "Achieve higher levels of economic productivity through diversification, technological upgrading and
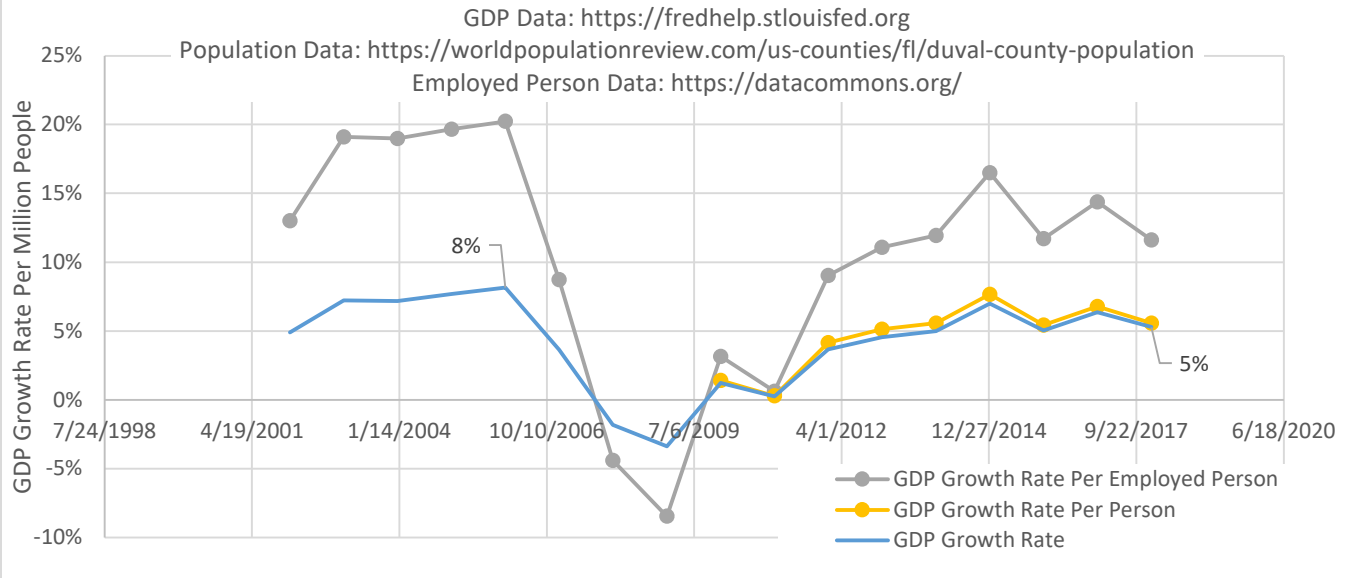
innovation, including through a focus on high-value added and labor-intensive sectors". This target is similar to the first target for goal 8 except it is focused on not just overall value, but value added per job. The indicator for this, Indicator 8.2.1 measures "annual growth rate of real GDP per employed person."

Data was gathered for Indicators 8.1.1 and 8.2.1 and assembled on the graphs below. Graph 8.1.1a shows Duval County GDP (not seasonally-adjusted) as a proportion of total population (red) and as a proportion of total employed people (blue) plotted over time. Increases were seen over time for both, with a slightly steeper slope for GDP as a proportion of employed people, indicating overall positive economic growth and decent value added per job.

Graph 8.1.1a GDP Per Person and Per Person in Duval County
GDP Data: https://fredhelp.stlouisfed.org
Population Data: https://worldpopulationreview.com/us-counties/fl/duval-county-population
Employed Person Data: https://datacommons.org/place/geoId/12031

Since the actual Indicators 8.1.1 and 8.2.1 measure GDP growth and not GDP, annual GDP growth was also plotted over time for Duval in Graph 8.1.1b below. This line is shown in blue and shows a drop in GDP growth from 2006 to 2009, an increase in growth through 2015, then a slight decline until 2018. On this same graph GDP growth per capita was plotted in yellow, which matches closely with overall GDP growth trends. Also on the same graph GDP growth per employed person was plotted in gray, showing more volatile rates between 2002 and 2018.

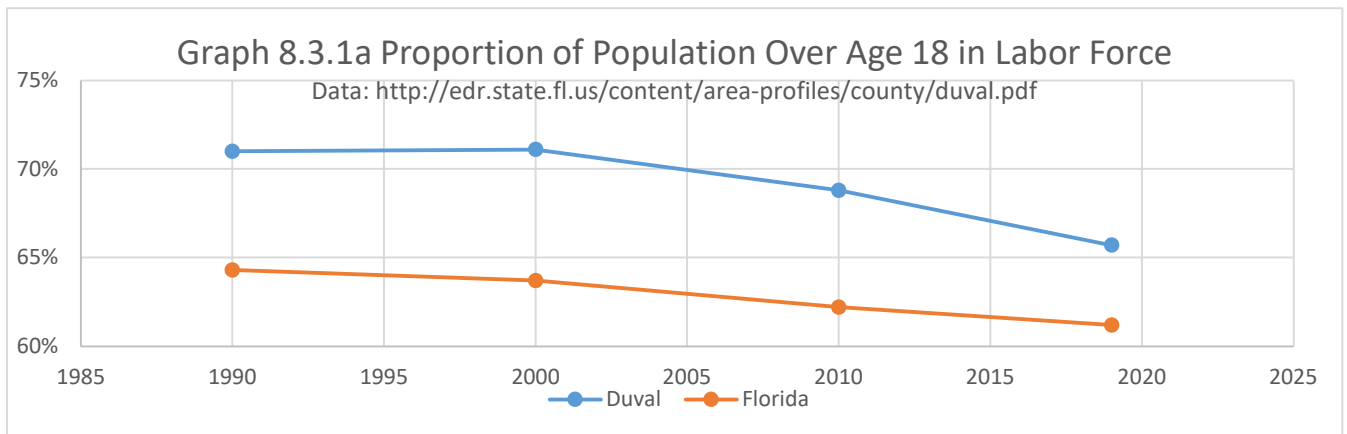Graph 8.1.1b GDP Growth Rate Per Person and Per Employed Person in Duval County
GDP Data: https://fredhelp.stlouisfed.org
Population Data: https://worldpopulationreview.com/us-counties/fl/duval-county-population
Employed Person Data: https://datacommons.org/

Lastly for these indicators, Graph 8.1.1c was created. It seemed slightly misleading that GDP per person in Duval was ~$183,000 in 2018, and GDP per employed person was $87,500. To be more reflective of what employed persons are actually making, personal income per capita was plotted in 8.1.1c. Personal income was found to be between 71 and 74% of GDP in Duval County. This was plotted for Duval County and Florida over time between 2010 and 2018. Both areas show an increase, however Duval County consistently falls below Florida rates.


Graph 8.1.1c Personal Income Per Capita
Data:http://edr.state.fl.us/content/area-profiles/county/duval.pdf
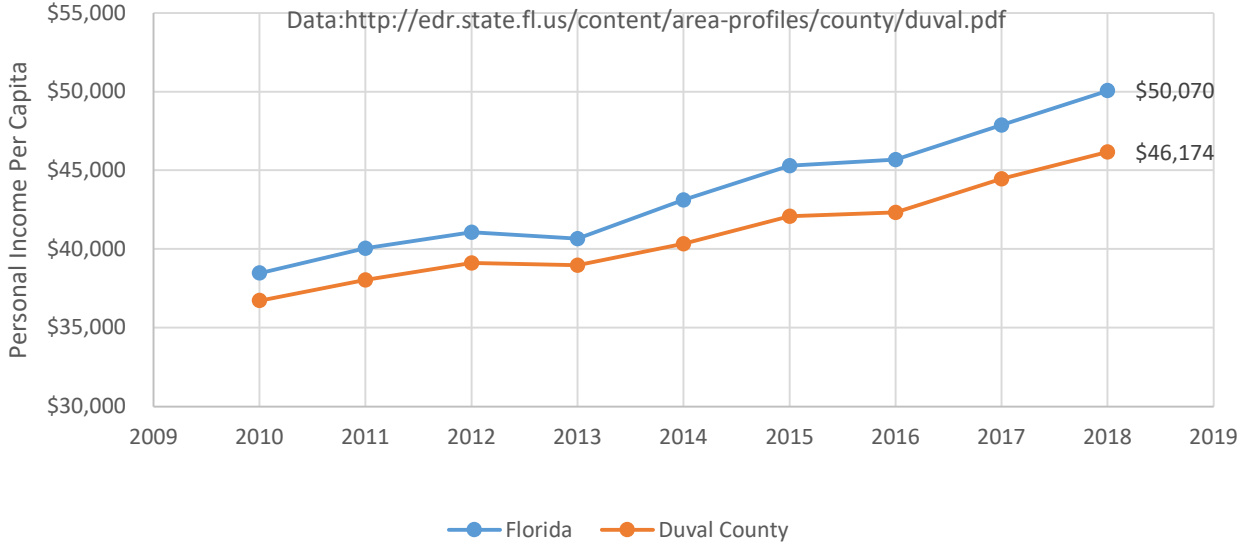
Target 8.3 is to "promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services". In 2019, Jacksonville added more than 22,000 jobs to the private-sector (Bortzfield , 2019). Further, Indicator 8.3.1 measures the "proportion of informal employment in non-agriculture employment, by sex." Data was gathered on employment distribution in Duval County. Below is a graph showing a gradual decline in proportion of eligible persons in the total workforce in Duval County. It should be noted that Duval County ranks higher than the state for this indicator.

Graph 8.3.1a Proportion of Population Over Age 18 in Labor Force
Data: http://edr.state.fl.us/content/area-profiles/county/duval.pdf

In the Jacksonville area, less than 1% of the workforce work in agriculture, so Indicator 8.3.1 is not as applicable to this area than other areas of the world. See Chart 8.3.1b below showing the distribution of jobs across all sectors in Duval County in 2019. The highest proportion of the workforce is in Trade, Transportation and

CHART 8.3.1B
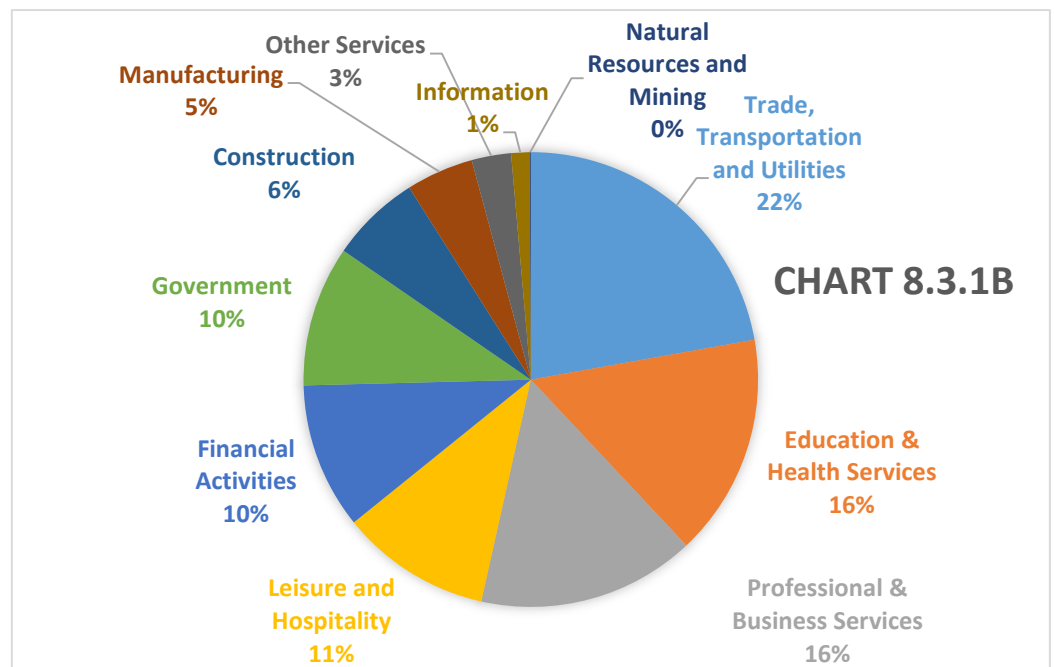
Utilities Jobs (22%) and Education and Health Service Jobs (16%). The lowest proportion is in Natural Resources and Mining Jobs (assumed to include agriculture - 0.1%) and Information
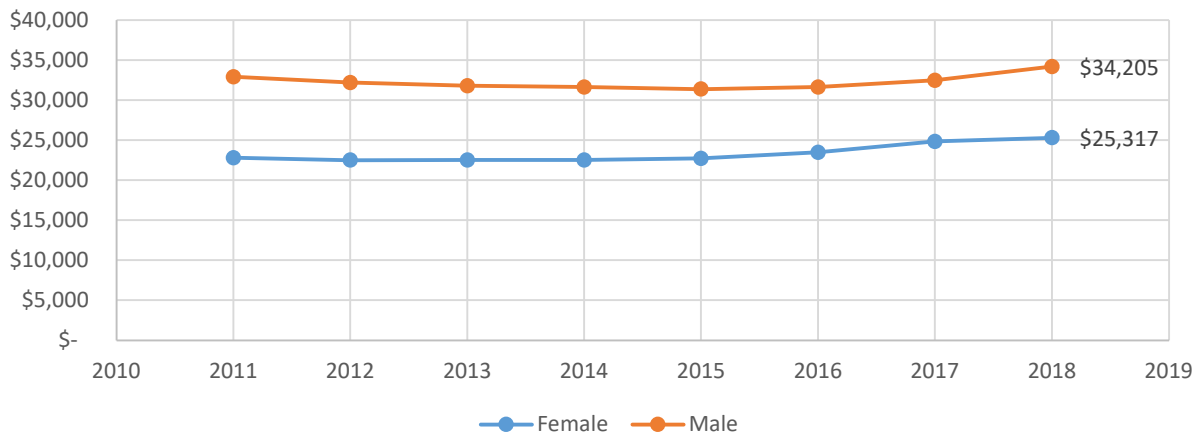
(1%). Also, Table 8.3.1 shows the average annual salary for each sector, with Information ranking first and Leisure and Hospitality ranking last.

Table 8.3.1 - 2019 Average Annual Wage Per Industry - Duval County	
Information	$115,616
Financial Activities	$76,680
Manufacturing	$66,166
Professional & Business Services	$64,101
Government	$59,334
3Education & Health Services	$56,581
Construction	$56,069
Natural Resources and Mining	$48,278
Trade, Transportation and Utilities	$45,237
Other Services	$41,095
Leisure and Hospitality	$24,900

Target 8.5 is "by 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value" and Indicator 8.5.1 measures the "average hourly earnings of female and male employees, by occupation, age and persons with disabilities". Data on the earnings of female and male employees separated by occupation for Duval County was not found. However, data on the overall median male and female yearly earnings for Duval County was found and was plotted over time in Graph 8.5.1a. Between 2015 and 2018, median salary increased for both men and women. Further, the data shows that overall, males consistently make almost $10,000 per year more than their female counterparts in Duval. However, this does not account for the fact that men may be working occupations that pay higher and does not necessarily indicate gender inequality. To account for this, data was found on male/female earnings for the same occupations for the entire state of Florida and was plotted in Graph 8.5.1b. This bar graph shows a wage gap between men and women for the top 5 most common occupations in 2018, with the highest gap being for "Other Managers" and then for "Retail Salespersons". Lastly, to analyze this wage gap between male and female earnings over time, Graph 8.5.1c was created. Overall, there does not seem to be an upward or downward trend in wage discrimination, indicating no progress between 2014 and 2018.
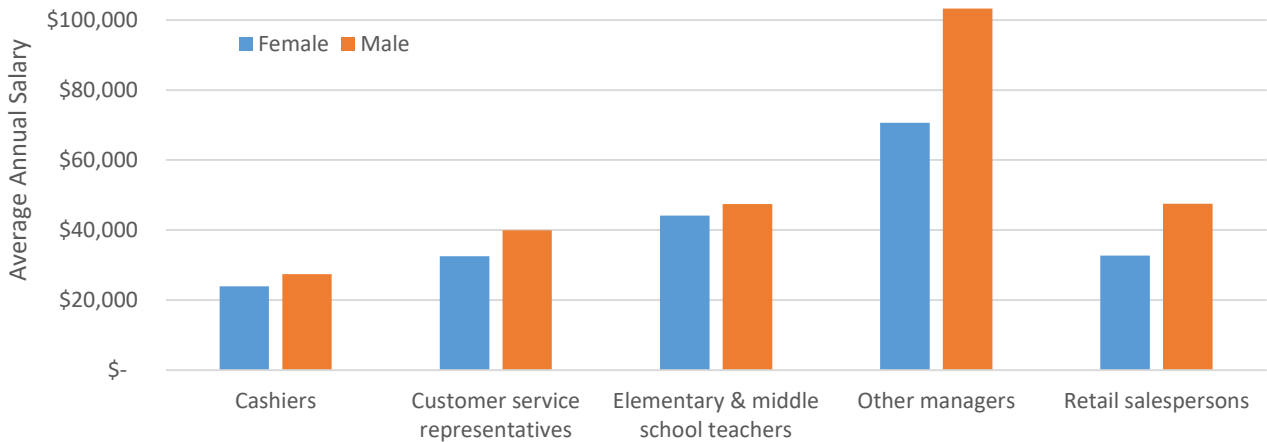
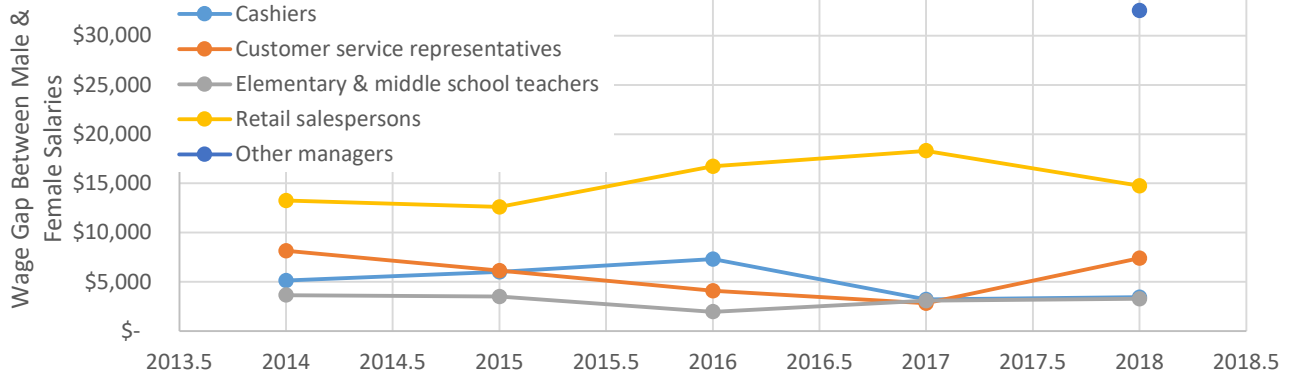**Graph 8.5.1a Median Annual Income in Duval County**
Data: https://datacommons.org/place/geoId/12031

$34,205

$25,317

— Female   — Male

Graph 8.5.1b Wage Discrimination in Florida by Profession - 2018
Data: https://datausa.io/profile/geo/duval-county-fl

Average Annual Salary

■ Female ■ Male

Cashiers | Customer service representatives | Elementary & middle school teachers | Other managers | Retail salespersons

Graph 8.5.1c - Florida Male/Female Wage Gaps By Occupation Type
Data: https://datausa.io/profile/geo/duval-county-fl

Wage Gap Between Male & Female Salaries

— Cashiers
— Customer service representatives
— Elementary & middle school teachers
— Retail salespersons
— Other managers

Indicator 8.5.2 measures the "unemployment rate, by sex, age and persons with disabilities". Unemployment rate for Duval County was plotted against Florida for the period of 1990 through 2018 in Graph 8.5.2 below and it was found that county unemployment rates are almost perfectly in line with state unemployment rates.

Graph 8.5.2 Unemployment Rate
Data: https://datacommons.org/place/geoId/12031
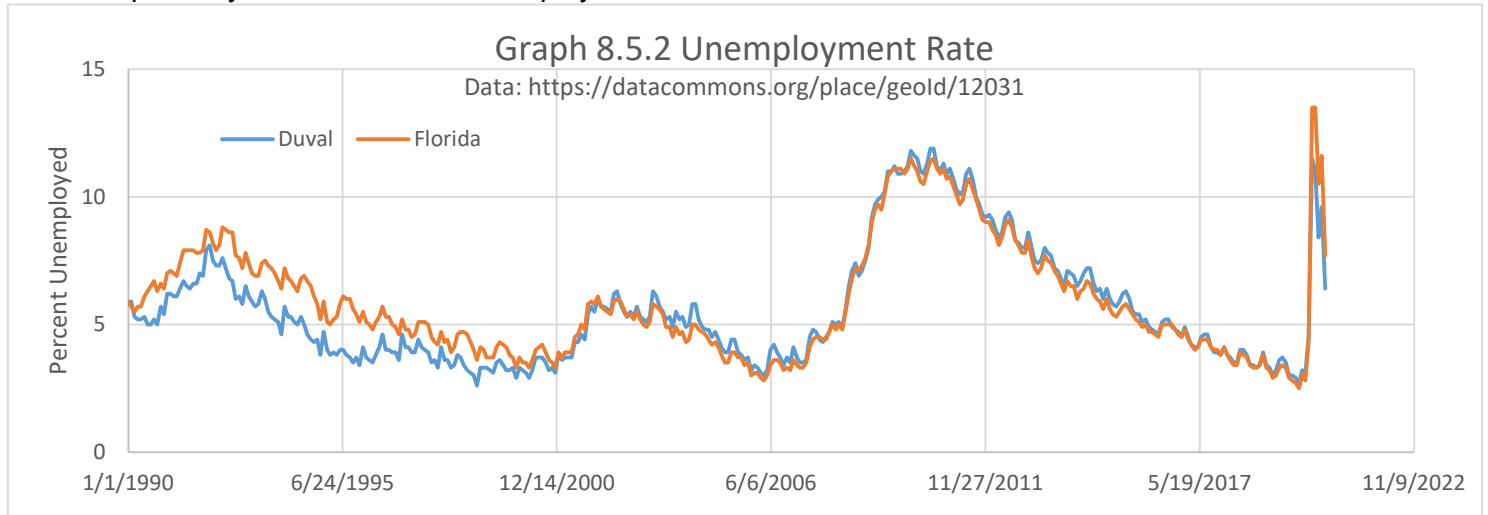
The City of Jacksonville (COJ) has a Commission on the Status of Women. This commission was established in 1972 and serves "as a catalyst for moving all women forward". Their goals include education and advocacy for women's issues and celebrating women and their accomplishments. The commission meets once a month and discusses women's issues as well as interdisciplinary issues such as substance abuse, mental illness, and racial injustice. On March 26th, 2019, Mayor Curry signed Equal Pay Day for April 2nd into effect in an attempt to highlight that in Duval County women working full time earned 86% of what men earned in 2017 (*Commission on the Status of Women* 2020).

Target 8.9 is "by 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products". The indicators for this target are Indicator 8.9.1: "tourism direct GDP as a proportion of total GDP and in growth rate" and 8.9.2: "Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex". It should be first noted that the COVID-19 pandemic in 2020 had serious consequences on the tourism industry across the world, and especially in Jacksonville. However, assuming rates resume to normal at some point, Jacksonville's tourism industry has seen impressive rates, higher than the state level. A tourism report from February 2017 showed the previous year saw more occupancy and tourism revenue than ever before in Jacksonville. This was even more than when the Superbowl was hosted in 2005. The tourism data confirms that Jacksonville is

becoming a popular destination. According to Visit Jacksonville's CEO, "the impressive success for the Destination is a combination of many things, but primarily it is due to growing awareness of what makes Jacksonville so unique. Our great waterways, our natural wonders and eco adventures, our young and vibrant arts and culture scene, and the big sporting events we host" (Skepple, 2017).

Overall, my assessment of how well Jacksonville is performing on Goal 8 is fair. Of all the goals, economic growth seems to be the one Jacksonville has already made a priority. Although GDP per person in Duval is poor compared to Florida's rates, the proportion of population employed in Duval is better than state rates. Lastly, wage discrimination does not seem to have a positive or negative trend, and needs improvement.

Goal 12: Responsible Consumption and Production – Ensure sustainable consumption and production patterns
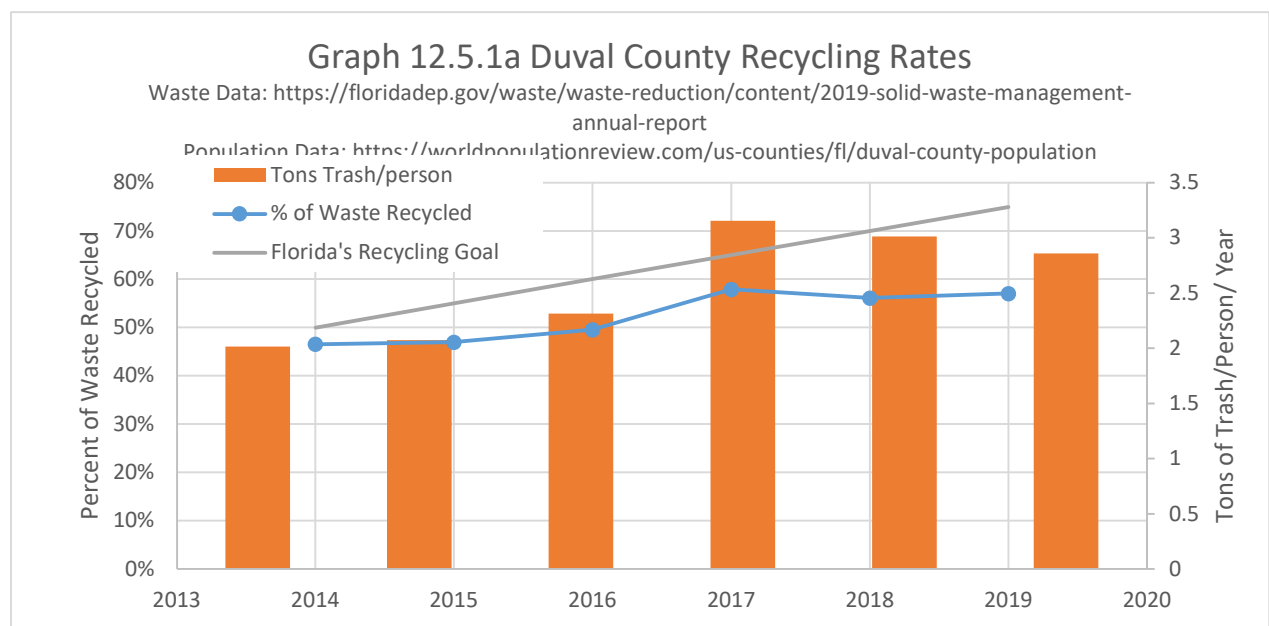

Target 12.3 is "by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses". Indicator 12.3.1 looks at the Global Food Loss Index. In 2018, organics accounted for 33% of the 47 million tons of solid waste created in Florida. FDEP has recognized this as a problem and has taken steps towards reducing and recycling organic waste including creating a Food Recovery Group that meets monthly via teleconference and creating the Florida Organics Recycling Center for Excellence (FORCE) website (Florida and the 2020 75% Recycling Goal: 2019 Status Report 2019a). There are several ways to combat food waste, including community gardens, food recovery programs and school gardens. Community gardens and food recovery programs in Duval County are discussed in detail with Goal 2: Zero Hunger, because that goal and Target 12.3 go hand in hand. As for school gardens, Duval County has the largest number of school gardens of any Florida county, with over 51 school gardens (Fried, 2020).
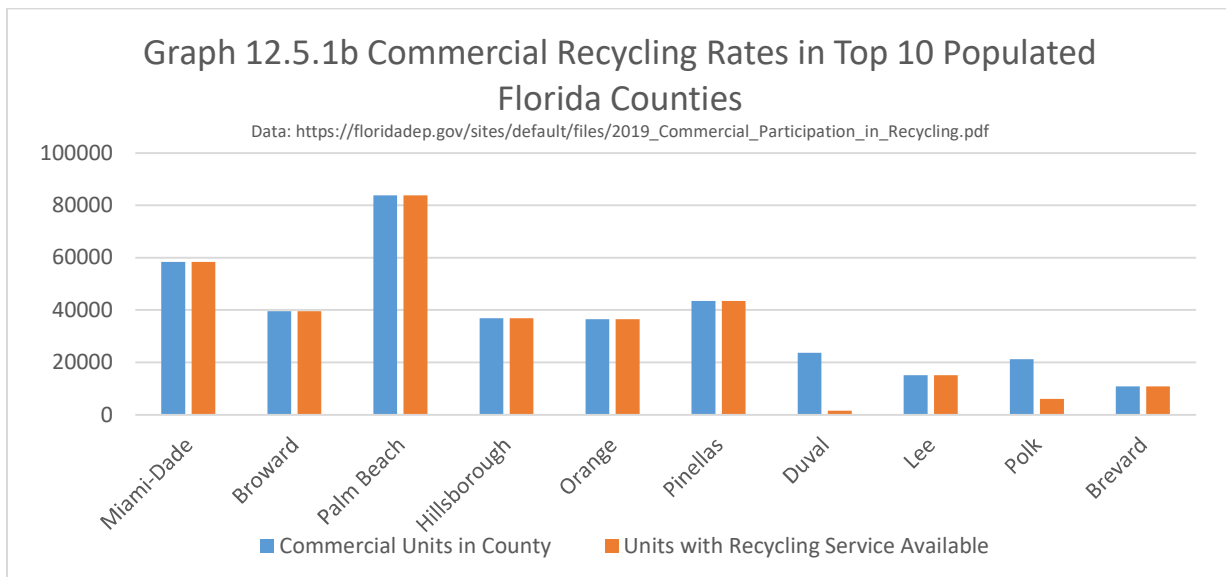
Target 12.5 is "by 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse". Indicator 12.5.1 looks at the "recycling rate, tons of material recycled". Jacksonville's recycling materials get sent to Republic Services' recycling facility in Northwest Jacksonville, which opened in May, 2012. As of 2013, there was a 17% increase in residential recycling and the facility recycled 36,000 tons of material yearly. In June 2012, 70,000 Jacksonville residents (those in Northside, Mayport and Arlington) received 96 gallon recycling

bins. In September of the same year, residents in Mandarin and Southside also received the 96 gallon recycling bins. At that time, residents in other Jacksonville areas, including the Westside, were still using the 14-18 gallon bins (Monroe, 2013). Today, every Jacksonville / Duval County resident has a 96 gallon recycling bin (COJ). According to Republic Services, when the June 2012 set of larger recycling bins were handed out, recycling rates for those areas doubled (Monroe, 2013). However, although 100% of single family homes in Duval County have recycling service available, only 60% of residents use this service (FDEP, 2020).

Duval County waste collection and recycling data between 2014 and 2019 was gathered and Graph 12.5.1a below was created. The graph shows a 150% increase of total tons of waste created per person between 2014 (2 T/person) and 2017 (3 T/person), then a slight decrease to 2.85 T/person in 2019. It also shows a peak recycling rate of 58% waste materials recycled in 2017 with a slight decline through 2019. While the UN did not set a numeric goal for recycling rates, Florida's legislature did. Senator Lee Constantine included an ambitious 75% recycling goal in Florida's 2008 Energy Act. Although, in 2010 an amendment to the act stated that all garbage burned to produce electricity would be considered "recycled", which isn't true (Fairbanks, Wunderlich, & Meindl, 2013). Graph 12.5.1a below does not consider combusted waste as recycled. Duval County is not alone in not reaching the steep 75% goal. Florida as a whole has only hit a 43% recycling rate as of 2019 (51% if you include incineration) (FDEP, 2020).

Graph 12.5.1a Duval County Recycling Rates
Waste Data: https://floridadep.gov/waste/waste-reduction/content/2019-solid-waste-management-annual-report
Population Data: https://worldpopulationreview.com/us-counties/fl/duval-county-population

When analyzing recycling rates further, it was found that a huge obstacle Jacksonville seems to face is the lack of recycling commercially. According to the Duval County Recycling Plan, created in September 2019 by COJ, the commercial sector is responsible for 80% of the debris created in Duval County, but only responsible for 66% of the recycled debris (Florida and the 2020 75% Recycling Goal: 2019 Status Report 2019b). In 2015, the EverBank Field had a mere 3% recycling rate. Although this number is debated, there was still no formal plan to increase recycling rates at the stadium as of 2015 (Bauerlein, 2015). Data was gathered for the top 10 most populated Florida counties, and it was found that Duval County is lightyears behind all other counties when it comes to commercial recycling (see Graph 12.5.1b below). In 2019, of the 23,681 commercial units in Duval County, only 6% use a recycling service. Of the other 9 counties, 8 recycle at 100% of their commercial facilities and 1 recycles at 29% of the commercial facilities (FDEP, 2020).

Graph 12.5.1b Commercial Recycling Rates in Top 10 Populated Florida Counties
Data: https://floridadep.gov/sites/default/files/2019_Commercial_Participation_in_Recycling.pdf

Overall, my assessment of how Jacksonville is doing compared to SDG 12 is poor. The large amount of waste produced per capita is of concern, even with a slight decline in the past 3 years. The fact that all single family homes are required to participate in recycling is great, since COJ has finally given all residents large recycling bins. However, the slight decline in recycling rates in the past few years needs improvement. Also, the lack of requirement for commercial facilities to recycle in Duval County, in contrast to all other top counties in the state, is a problem.

Conclusion

Although Jacksonville has not formally adopted the UN SDGs, that does not mean that the city is not working to improve prosperity. Overall, it was found that Jacksonville poverty rates are decreasing, but are below average, and the resiliency of the poor needs major improvement. Also, the health of Jacksonville residents appears to be declining or stagnating, with deaths due to childbirth increasing, infant deaths remaining constant, and deaths due to noncommunicable diseases remaining constant. The only goal that Jacksonville has seemed to prioritize is economic prosperity, with a huge focus on bringing jobs and economic growth to the city. However, Jacksonville is still not perfect and needs to work on gender wage discrimination. Although data was found for Goals 1 through 8 and 12, tons of data was either hard to find, or is not out there. It would be beneficial for the city of Jacksonville to make a public commitment to the goals, so that more resources can be put in place to track them and provide assistance to the areas of highest concern.

References:

Affordable Housing & Revitalization. (n.d.). Retrieved October 26, 2020, from
https://northflorida.uli.org/get-involved/affordable-housing-revitalization/

Amos, D. (2016, August 08). Literacy gap still a problem in Duval schools. Retrieved November
17, 2020, from https://www.jacksonville.com/news/metro/2016-08-07/story/literacy-gap-
still-problem-duval-schools

ASPE. (2020, January 21). 2020 Poverty Guidelines. Retrieved November 1, 2020, from
https://aspe.hhs.gov/2020-poverty-guidelines

Bauerlein, D. (2015, October 16). City, Jaguars pledge to improve stadium recycling rate.
Retrieved November 16, 2020, from
https://www.jacksonville.com/article/20151016/NEWS/801255265

BEAM. (2020). Grace Garden. Retrieved October 20, 2020, from
https://www.jaxbeam.org/grace-garden

Bortzfield, B. (2019, December 20). More Than 22,000 New Jobs Created In Jax In 2019; State
Unemployment Dips To 3.1%. Retrieved November 17, 2020, from
https://news.wjct.org/post/more-22000-new-jobs-created-jax-2019-state-unemployment-
dips-31

Bull, K. (2014). Economic and Health Disparities in Jacksonville, Florida (Rep.). Florida
Department of Health Duval. https://community-wealth.org/sites/clone.community-
wealth.org/files/Health-Disparities.pdf

Clara White Missions. (2020). WHITE HARVEST FARMS. Retrieved October 20, 2020, from
https://clarawhitemission.org/what-we-do/white-harvest-farms/

CDC. (2019). Duval County, FL, High School Youth Risk Behavior Survey, 2019. Retrieved
October 20, 2020, from https://nccd.cdc.gov/youthonline/App/Results.aspx?LID=DU

Cole, C. (2018, October 26). Infant mortality rates in Duval higher than state, national rates.
Retrieved October 12, 2020, from https://www.actionnewsjax.com/news/local/infant-
mortality-rates-in-duval-higher-than-state-national-rates/859818671/

COJ. (n.d.). Automated Services. Retrieved November 16, 2020, from
https://www.coj.net/departments/public-works/solid-waste/automated-services

Commission on the Status of Women. (2020). Retrieved October 20, 2020, from
https://www.coj.net/departments/boards-and-commissions/commission-on-the-status-of-
women.aspx

Communities in School - Jacksonville. (n.d.). LITERACY. Retrieved November 17, 2020, from
https://cisjax.org/literacy/

Dawson, A., Johnson, C. G., & Bedi, N. (2017, October 6). The city that never drains. Retrieved
   September 13, 2020, from
   https://projects.tampabay.com/projects/2017/investigations/jacksonville-never-drains-
   hurricane/

DSIRE. (2019, December 2). Program Overview. Retrieved November 17, 2020, from
   https://programs.dsireusa.org/system/program/detail/5894Fairbanks, A., Wunderlich, J.,
   & Meindl, C. (2013). Talking Trash: A short history of solid waste management in
   Florida. The Florida Historical Quarterly, 91(4), 526-557. Retrieved November 9, 2020,
   from http://www.jstor.org/stable/43487531

FDEP. (2020, August 4). 2019 Solid Waste Management Annual Report. Retrieved November
   16, 2020, from https://floridadep.gov/waste/waste-reduction/content/2019-solid-waste-
   management-annual-report

FLHSMV. (2019, June 14). Crash and Citation Reports & Statistics. Retrieved October 12,
   2020, from https://www.flhsmv.gov/resources/crash-citation-reports/?utm_medium=email

Florida and the 2020 75% Recycling Goal: 2019 Status Report (Vol. 1, Rep.). (2019a). Florida
   Department of Environmental Protection.
   https://floridadep.gov/sites/default/files/Final%20Strategic_Plan_2019%2012-13-
   2019_1.pdf

Florida and the 2020 75% Recycling Goal: 2019 Status Report (Vol. 2, Rep.). (2019b). Florida
   Department of Environmental Protection.
   https://floridadep.gov/sites/default/files/Final%20Appendix%20Strategic%20Plan%2012-
   13-2019_for_upload_test.pdf

Florida Health. (2020, September 17). Pregnancy-Associated Mortality Review (PAMR).
   Retrieved October 20, 2020, from http://www.floridahealth.gov/statistics-and-
   data/PAMR/index.html

Fried, N. (2020). School Garden Census 2019-2020 (Rep.). Florida Department of Agriculture
   and Consumer Services: Division of Food, Nutrition and Wellness.
   https://www.fdacs.gov/content/download/91554/file/SchoolGardenCensus_Infographic_1
   9-20.pdf

Hunger in America FNEFL Study. (2019, November 27). Retrieved October 25, 2020, from
   https://www.feedingnefl.org/hunger-in-america-fnefl-study/

Jacksonville Transport Authority. (2020, January 25). JTA, City of Jacksonville Launch Door to
   Store Program [Press release]. Retrieved November 17, 2020, from

https://www.jtafla.com/media-center/press-releases/jta-city-of-jacksonville-launch-door-to-store-program/

JaxUSA Partnership. (2020, July 07). About. Retrieved October 26, 2020, from https://jaxusa.org/about/

JEA. (2020)a. Alternative Energy. Retrieved October 20, 2020, from https://www.jea.com/About/Electric_Systems/Generation_Strategy/Alternative_Energy/

JEA. (2020)b. Taking Initiative in the Solar Energy Landscape. Retrieved October 20, 2020, from https://www.jea.com/About/Electric_Systems/Electric_Facilities/Solar_Farms/

Monroe, N. (2013, December 12). City sees more recycling, revenue. Retrieved November 16, 2020, from https://www.jacksonville.com/article/20131231/NEWS/801240382

Northeast Florida Teen Pregnancy Task Force. (n.d.). Teen Pregnancy in Northeast Florida (Rep.). Northeast Florida Healthy Start Coalition. http://nefhealthystart.org/new-site/wp-content/uploads/2011/02/TPTF-Action-Plan-Opt-PDF.pdf.

Orth, J. (2017a, June 01). Get the Facts About Dredging Proposal. Retrieved September 13, 2020, from https://www.stjohnsriverkeeper.org/get-the-facts-about-dredging-proposal/

Orth, J. (2017b, May 23). Avoid Algal Blooms. Retrieved September 13, 2020, from https://www.stjohnsriverkeeper.org/stay-away-from-algal-blooms/

Pinto, G., Closmann, C., Pyati, R., Zoellner, B., Le, A., Ouellette, A., & Bielmyer-Fraser, G. (2019). 2019 State of the River Report for the Lower St. Johns River Basin, Florida (Rep.) (S. Niki, Ed.). Jacksonville, FL: University of North Florida. https://sjrreport.com

Reality Check First Coast. (n.d.). Retrieved October 26, 2020, from http://www.realitycheckfirstcoast.com/

Reynolds, T. (2015, May 05). Community gardens take root in Northeast Florida. Retrieved October 25, 2020, from https://www.jacksonville.com/article/20150505/NEWS/801244654

Skepple, J. (2017, April 3). Jacksonville tops the state in tourism growth. Retrieved November 15, 2020, from https://www.bizjournals.com/jacksonville/news/2017/04/03/jacksonville-tops-the-state-in-tourism-growth.html

Taylor, M. (2018, June 26). A look back-and forward-from Hurricane Irma. Retrieved October 25, 2020, from https://www.jacksonvillemag.com/2018/06/29/a-look-back-and-forward-from-hurricane-irma/

The Record. (2020, February 23). St. Augustine Beach Community Garden 'Feeds the Hungry'. Retrieved October 25, 2020, from https://www.staugustine.com/lifestyle/20200223/st-augustine-beach-community-garden-feeds-hungry

Tobacco Free Jacksonville. (n.d.). Retrieved October 20, 2020, from
  https://www.tobaccofreejacksonville.org/

UNF Department of Nutrition & Dietetics Center for Nutrition and Food Security. (n.d.).
  Retrieved October 25, 2020, from
  https://www.unf.edu/brooks/Center_for_Nutrition_and_Food_Security/

Urban Farmacy. (n.d.). Retrieved November 17, 2020, from http://ntszjax.org/farmacy/

US Census Bureau (Ed.). (2020, May 07). City and Town Population Totals: 2010-2019.
  Retrieved September 13, 2020, from https://www.census.gov/data/tables/time-
  series/demo/popest/2010s-total-cities-and-towns.html

Visit Jacksonville (Ed.). (n.d.). Jacksonville Florida Beaches & Waterways. Retrieved September
  13, 2020, from https://www.visitjacksonville.com/things-to-do/beaches-water

U.S. Department of Housing and Urban Development. (2016). Comprehensive Housing Market
  Analysis: Jacksonville, Florida (Rep.). Office of Policy Development and Research.

Waite, B., Johns, T., & Dinkins, D. (n.d.). An Examination of Northeast Florida Food Desert
  Areas: Geographic & Demographic Descriptors, SNAP Expenditures, &
  Purchasing Behaviors (Rep.). RCINEF.

Appendix 1: Photos from BEAM Grace Community Garden

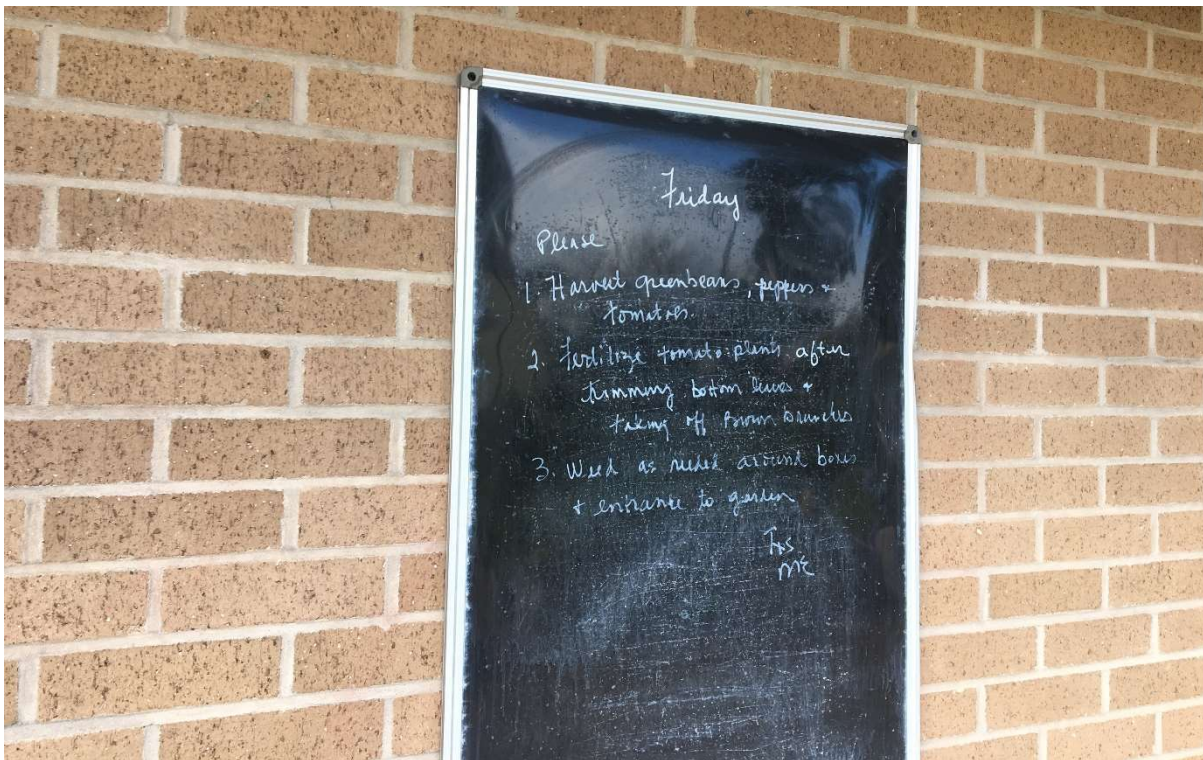Figure 1.1 – Aquaponics towers connected on a closed loop.

Figure 1.2 – Directions for Volunteers

Figure 1.3 – Garden Plan for the year.

Figure 1.4 – Signs for each crop in the garden beds

Figure 1.5 – Raised Garden beds with fall crops

Figure 1.6 – Raised garden beds with fall crops

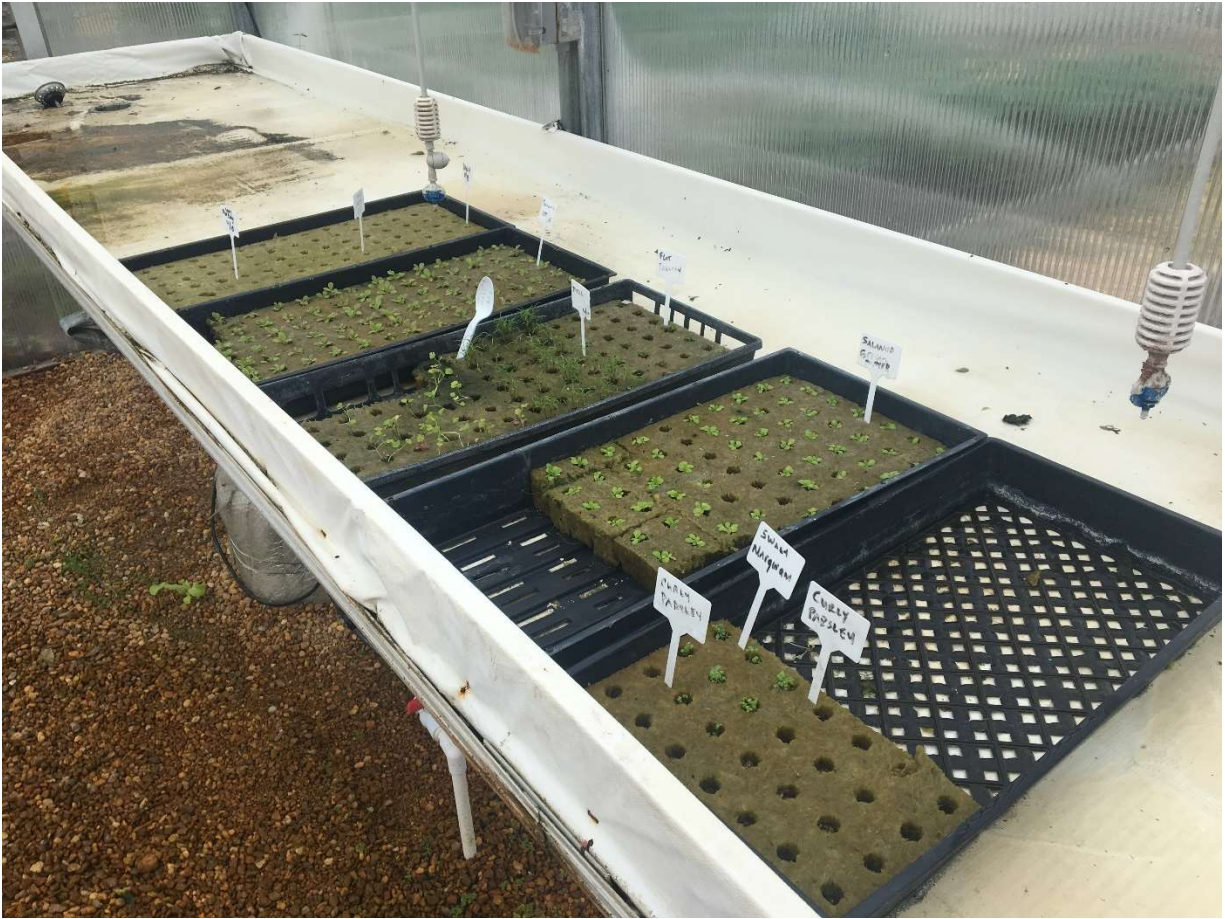Figure 1.7 – Raised beds and greenhouse in the background

Figure 1.8 – Seeds started in the greenhouse

Appendix 2 – Photos from Arlington Community Garden

Figure 2.1 – Raised garden beds with few crops growing

Figure 2.2 – Raised harden beds with no crops and a faulty rain barrel system

Figure 2.3 – Harvested crops

Figure 2.4 – Lack of adequate signs to help volunteers know what is planted where

Figure 2.5 – Makeshift cauliflower sign