

City of Winston-Salem

# Sustainability Summary Report 2020

Office of Sustainability

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### **City-Wide Highlights**

- Internal Sustainability Action Plan Updates
- ACEEE Reporting Platform
- Resolution #20-0499
- Decrease in local government operations greenhouse gas emissions due to COVID-19

## **Executive Summary**

In calendar year 2020, the City of Winston-Salem continued many efforts towards creating a more sustainable community while adjusting to new conditions brought on by the COVID-19 pandemic. While the Office of Sustainability operations were minimally impacted by the pandemic and teleworking, there were some changes that resulted due to increased safety measures. Keep Winston-Salem Beautiful cancelled or postponed several events. The Great American Cleanup event, Clean & Green judging and the Volunteer and Sponsor celebration were all cancelled for 2020. The Community Roots Day and Big Sweep events were modified to increase participants' safety.

The Community Sustainability Program Committee (CSPC) continued to hold meetings virtually after a brief hiatus from March to May due to COVID-19. Even virtually, the CSPC assisted in editing and successfully passing a resolution creating goals for the city to improve energy efficiency and increase use of renewable energy for operations.

The Office of Sustainability maintained reporting efforts through various online platforms, including the CDP and a new platform for our city, the American Council for an Energy-Efficient Economy (ACEEE). These reporting tools help us measure our environmental impact in the community on an annual basis.

Additionally, the office continued to track municipal greenhouse gas emissions. This year, however, the office was also provided with information about the renewable energy that Duke Energy is using to power city operations to add to the inventory. The data presented in this report uses a baseline year of 2008 and are calculated for the following sources:

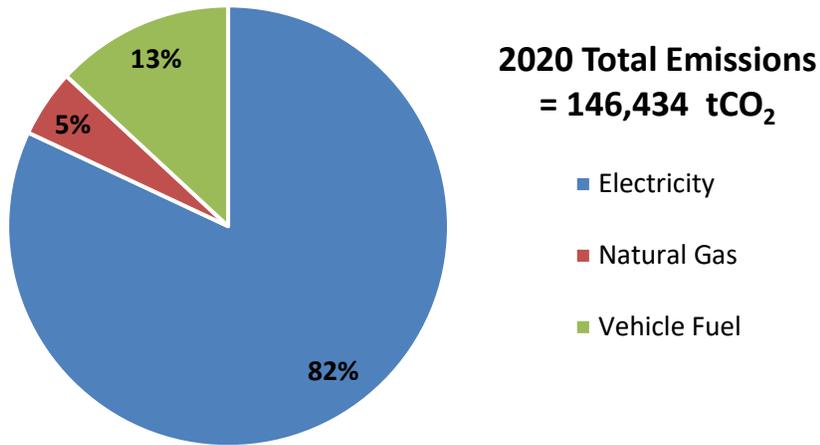
- Electricity (kWh) used by select facilities of municipal government operations
- Fuel (gallons) used by city-owned or leased vehicles
- Natural gas (therms) used by select facilities of municipal government operations
- Carbon dioxide per square foot (CO<sub>2</sub>/ft<sup>2</sup>) in municipal facilities
- Overall renewable energy use in city facilities (Duke Energy report)

In 2020, because of the shift in local government operations with many employees teleworking, emissions and each contributing sector saw overall decreases. It is important to note that while these decreases are notable, they are unlikely to sustain current levels or see reductions in the upcoming years as operations return to normal and employees begin to come back to offices.

Total emissions from local government operations were 146,434 tons of CO<sub>2</sub>. This is a 5.7% reduction from 2019 due to the safer at home orders from Governor Cooper and Mayor Allen Joines, and a 5.2% reduction from the 2008 baseline. The biggest reduction by sector was in

electricity use, with a 6.3% reduction from 2019. There was also a 5.3% reduction in natural gas use and a 4.7% reduction in vehicle fuel use. Because this reduction in overall emissions is largely due to reduced use of city facilities in the pandemic, as staff and residents return to normal work schedules, emissions in the coming years are likely to increase closer to previous years' emissions.

**Figure 1.** *Total City of Winston-Salem greenhouse gas emissions*



## 1. Keep Winston-Salem Beautiful

Keep Winston-Salem Beautiful division organizes and runs many programs annually that involve litter prevention and community beautification. Below in Table 1 is a summary of the participation of each of these events and programs that were held in 2020.

**Table 1. KWSB event details**

<b>EVENT/PROGRAM</b>	<b>ATTENDANCE</b>	<b>DETAILS</b>
<b>Great American Cleanup</b>	N/A	Cancelled due to COVID-19
<b>Big Sweep</b>	216	6,475 lbs of litter collected
<b>Community Roots Day</b>	N/A	Cancelled due to COVID-19
<b>Flower Bulbs</b>	10	600,000 bulbs provided and planted
<b>Flower Bed Program</b>	200	20,000 plants/shrubs/flowers/bulbs planted in 50 beds
<b>Clean and Green</b>	N/A	Cancelled due to COVID-19
<b>Adopt-A-Street</b>	200	5,000 lbs of litter collected in 50 miles of roadway
<b>Adopt-A-Stream</b>	50	1,000 lbs of litter collected in 10 miles of streams
<b>Adopt-A-Park</b>	200	2,500 lbs of litter collected in 200 acres

While certain programs were cancelled in 2020, signups to participate in the adoption programs increased significantly. From the start of the pandemic through December of 2020, 36 new adoption groups signed up to adopt a street, park, or section of a stream, bringing the number of adopted locations within the city to over 150 locations.

## 2. Recycling

The Recycle Today program is the division of the City of Winston Salem responsible for recycling services. Recycle Today is in the ninth year of single stream recycling after switching from dual stream in 2012. For collection services, the city contracts with Waste Management. Table 2 shows the totals for recycle collections in the 2020 calendar year.

**Table 2. 2020 Recycling Tonnage**

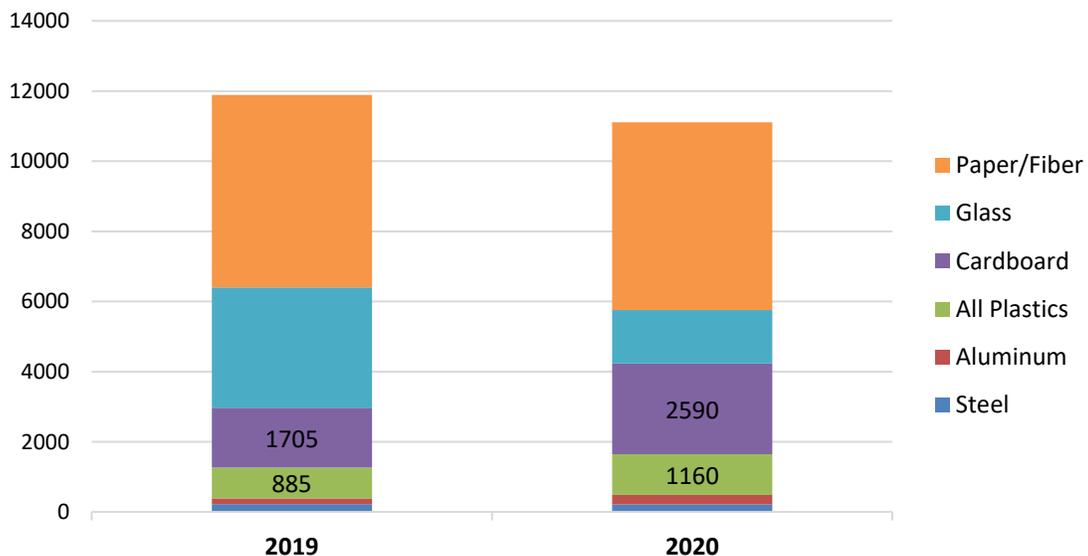
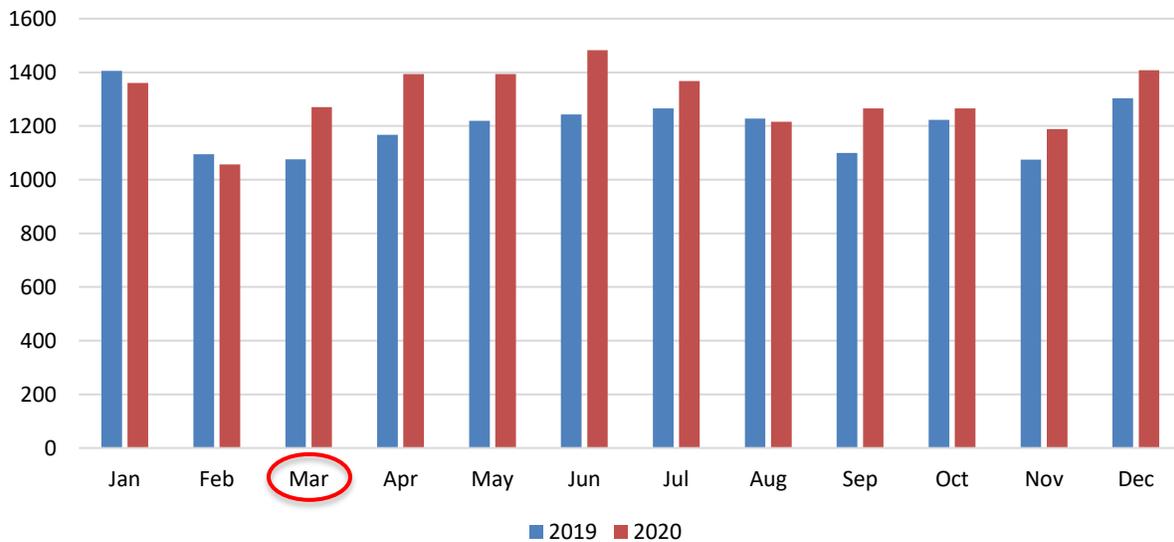
<b>MONTH</b>	<b>TONS COLLECTED</b>	<b>MARKETABLE TONS</b>
<b>January</b>	1361	925
<b>February</b>	1057	718
<b>March</b>	1270	863
<b>April</b>	1394	947
<b>May</b>	1394	947
<b>June</b>	1483	1008
<b>July</b>	1368	1011
<b>August</b>	1216	898
<b>September</b>	1266	936
<b>October</b>	1265	935
<b>November</b>	1188	878
<b>December</b>	1408	1041
<b>TOTAL</b>	<b>15,607</b>	<b>11,107</b>

Marketable tons collected is the measure of the material that is marketed, and therefore does not include contamination. The estimated percentage of contamination used by Waste Management for 2020 was 26.11%.

The biggest impact from COVID-19 on the recycling program were reflected in the monthly tonnage reports. With more people staying home, it appears that there were more recycled materials in the months while most people were at home, beginning in March 2020, circled in red in Figure 2. There may be other factors contributing to these increases, however it does appear to be correlated.

The biggest increases in specific materials was seen in cardboard and plastics collected from 2019 to 2020. Those changes are noted in Figure 3.

**Figure 2. Recycling tonnage by month**



**Figure 3. Total recycling tonnage broken down by material**

### 3. Sustainability Initiatives

#### 3.1 Internal Sustainability Action Plan

In November 2020, the Office of Sustainability completed an Internal Sustainability Action Plan to lay out the goals of the office for the next five years. The goals and objectives are internally focused and cover topics including transportation, energy use, green space, and waste reduction. By implementing the goals from the plan, the municipal greenhouse gas emissions and energy use can be reduced by an estimated 15% when compared to 2008 levels.

Through the end of FY 20-21, the goals from Objective 3 in the Energy section of the plan have all been accomplished. Table 3 shows the objective and related strategies and actions identified to fulfill the goals.

**Table 3.** *Internal Sustainability Action Plan Updates*

	DESCRIPTION OF GOAL	HOW GOAL WAS MET
<b>OBJECTIVE</b>	Explore renewable energy generation options	See below.
<b>STRATEGY</b>	Identify potential locations for solar panels on city facilities	An informal study was completed by the Office of Sustainability energy manager which identified a couple of fire stations and utility facilities as viable options. These options were named in the CIP process mentioned in Action 3.
<b>ACTION 1</b>	Identify opportunities to participate and support growth in Duke Energy’s renewable energy efforts	Locations for a Duke Energy EV Pilot were discussed, and details were explored through the Cities Initiative efforts with various other North Carolina municipalities.
<b>ACTION 2</b>	Research options for acquiring solar PV systems as a local government entity	Financing options have been discussed and staff have been able to rule out third-party leasing options; staff also researched Green Source Advantage program, but this option is also unlikely
<b>ACTION 3</b>	Invest in the installation of solar panels on city facilities	Solar PV installation projects were submitted in the Capital Improvement Plan process in December 2020.

#### 3.2 Reporting and Disclosure Tools

The Office of Sustainability consistently utilizes online reporting tools to track progress of certain sustainability metrics. The city has reported data to the CDP, formerly the Carbon Disclosure Project, since 2015.

In 2020, CDP began a partnership with the American Council for an Energy-Efficient Economy (ACEEE) to help on data collection for the ACEEE City Clean Energy Scorecard. The partnership

was created to help standardize the data collection around how cities are advancing clean energy efforts. This scorecard compiles data from the 100 largest American metropolitan areas. Even though ACEEE uses the CDP online portal, scores are given from both reporting platforms.

### 3.2.1 CDP

The Office of Sustainability has been reporting greenhouse gas and climate adaptation and mitigation efforts to CDP since 2015, with our data becoming public in 2016. This reporting system is a global disclosure system that enables companies, cities, states, and regions to measure and manage their environmental impacts.

The most recent data input earned the City of Winston-Salem a score of C on a scale ranging from D- to A. This score puts us in the 'Awareness' band. The score remained the same from the previous year, however the questionnaire only applied to 2019 data. With the progress made by the city in 2020, the Office of Sustainability expects this score to increase for 2021. Appendix A shows a graphic representation of our score.

### 3.2.2 ACEEE

As stated earlier, ACEEE began a partnership with CDP in 2020 for data collection. This was also the first year that ACEEE expanded the number of cities included in their scorecard from 75 to 100. With that expansion, the City of Winston-Salem became part of that report for the first time. The ACEEE City Clean Energy Scorecard measures progress of city policies and programs in areas including energy savings, renewable energy efforts, greenhouse gas emissions reductions, and water utility information, among others.

In the first year of participation, the City of Winston-Salem ranked 83 with a total score of 12 points out of a possible 100 points. The median score out of all 100 cities was 26 points. With this ranking, the city tied with Akron, Ohio. Winston-Salem was ranked slightly ahead of Greensboro (89; 9 points), but behind Charlotte (65; 22 points) and Raleigh (55; 25 points). The full list of rankings and a breakdown of the points Winston-Salem earned in each category is found in Appendix B.

### 3.2.3 LEED for Cities

The LEED for Cities and Communities certification is organized by the US Green Building Council to help cities assess their efforts in categories including Natural Systems & Ecology, Transportation & Land Use, Water Efficiency, Energy & Greenhouse Gas Emissions, Materials & Resources, and Quality of Life.

The LEED for Cities certification process began in 2020. While it was originally expected to be completed by the end of the year, the process was slowed down somewhat due to changes in operations because of COVID-19 as well as changes in the framework from the USGBC organization. These changes will include updates to four credits in the LEED for Cities framework that could result in more points earned for the city. Because of this, sustainability staff decided to delay the process until those updated credits are released.

## 4. Community Sustainability Program Committee

Due to the pandemic, Community Sustainability Program Committee (CSPC) meetings were moved to an online format in May 2020 and continue to be virtual until further notice.

The CSPC was tasked with reviewing, editing, and submitting for City Council approval Resolution #20-0499 Approving a Goal of 100% Clean Renewable Energy By 2050 and Creation of Green Jobs. City Council officially approved the resolution on November 16, 2020. This resolution also includes goals for 40% energy reduction by 2025, developing programs for energy savings in vulnerable communities and promotion of green job training and opportunities.

The CSPC created several ad-hoc subcommittees to allow for more involvement from all members and to further research multiple topics at once. Members of the CSPC joined subcommittees based on personal interest. Those subcommittees are as follows:

1. Recycling
2. Transportation
3. Green Jobs & Equity
4. Tree Canopy

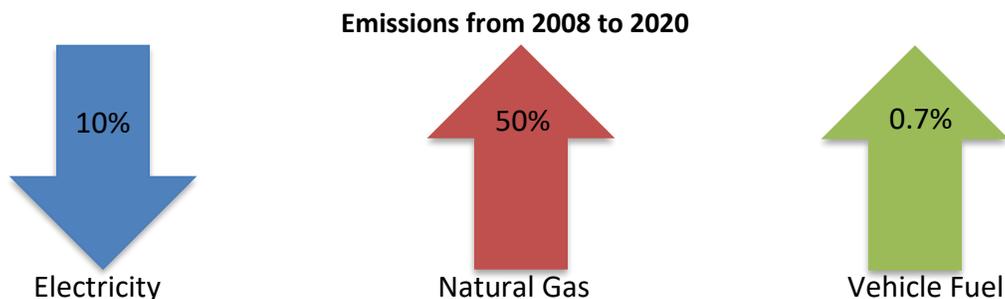
As the members of these subcommittees meet, outcomes or goals will be reported in the committee's annual report or included in their annual work plan.

### 4.1 Update on Resolution #20-0499

In December 2020, the Office of Sustainability submitted new project requests for LED lighting upgrades and solar PV systems to be included in the 2022-2027 Capital Improvement Plan. If funded, the LED lighting project would move the city closer to achieving a 40% reduction of energy use and greenhouse gas emissions from buildings by 2025. The solar projects would move the city toward the goals to utilize 50% renewable energy for building by 2030 and 100% renewable energy by 2050. See section 5.4 for a more detailed breakdown of current renewable energy use in city operations.

## 5. Municipal Greenhouse Gas Emissions Inventory

### 5.1 TOTAL CO2 EMISSIONS



Total greenhouse gas emission from the baseline year 2008 to 2020 shows a notable overall reduction of 5.24%, the biggest reduction from the baseline year since 2017. When broken down by emissions source, there were still increases from the baseline year in natural gas and vehicle fuel use. From 2019 to 2020, total GHG emissions decreased by 5.7% from 155,282 tons in 2019 to 146,434 tons in 2020. This decrease was expected as many operations were impacted by COVID-19 closures. Significant decreases were seen in several city departments that are impacted by the reduction in public occupancy, such as Winston-Salem/Forsyth County Utilities, Recreation and Parks, Winston-Salem Transit Authority (WSTA), and Police and Fire.

To maintain consistency with previous reports, calculations assume 2.1 pounds of CO<sub>2</sub> emitted for each kWh consumed. The original 2008 GHG report used this multiplier under the assumption that additional coal was burned to produce each additional kWh (per ICLEI recommendations). Duke Energy’s published multiplier in 2005 was 1.29 lbs/kWh, and it dropped to 0.96 lbs/kWh in 2017 as Duke Energy’s generation replaced coal with natural gas. Duke Energy expects the multiplier in 2030 to be reduced to 0.71 lbs/kWh as natural gas continues to replace coal-fired generation. Utilizing their current multiplier would decrease total GHG emissions over 80,000 tons. When comparing Winston-Salem’s data to another city’s data, then the same multipliers must be used by all cities.

**Table 4.** CO<sub>2</sub> emissions from city operations by sector

<b>YEAR</b>	<b>ELECTRICITY</b>	<b>NATURAL GAS</b>	<b>VEHICLE FUEL</b>	<b>TOTAL EMISSIONS (TCO<sub>2</sub>)</b>
<b>2008</b>	131,897	3,625	19,015	<b>154,537</b>
<b>2009</b>	126,850	8,050	18,294	<b>153,194</b>
<b>2010</b>	122,560	7,300	20,532	<b>150,392</b>
<b>2011</b>	121,291	6,800	20,507	<b>148,598</b>
<b>2012</b>	122,000	6,980	20,853	<b>149,833</b>
<b>2013<sup>1</sup></b>	114,786	6,065	19,075	<b>139,926</b>
<b>2014</b>	116,032	6,392	19,409	<b>141,833</b>
<b>2015</b>	118,902	5,775	19,010	<b>143,687</b>
<b>2016</b>	118,727	6,312	19,717	<b>144,756</b>
<b>2017</b>	114,911	6,969	19,800	<b>141,680</b>
<b>2018</b>	125,832	7,721	19,320	<b>152,873</b>
<b>2019</b>	127,604	7,626	20,052	<b>155,282</b>
<b>2020</b>	120,038	7,240	19,156	<b>146,434</b>

## 5.2 CO<sub>2</sub> PER SQUARE FOOT

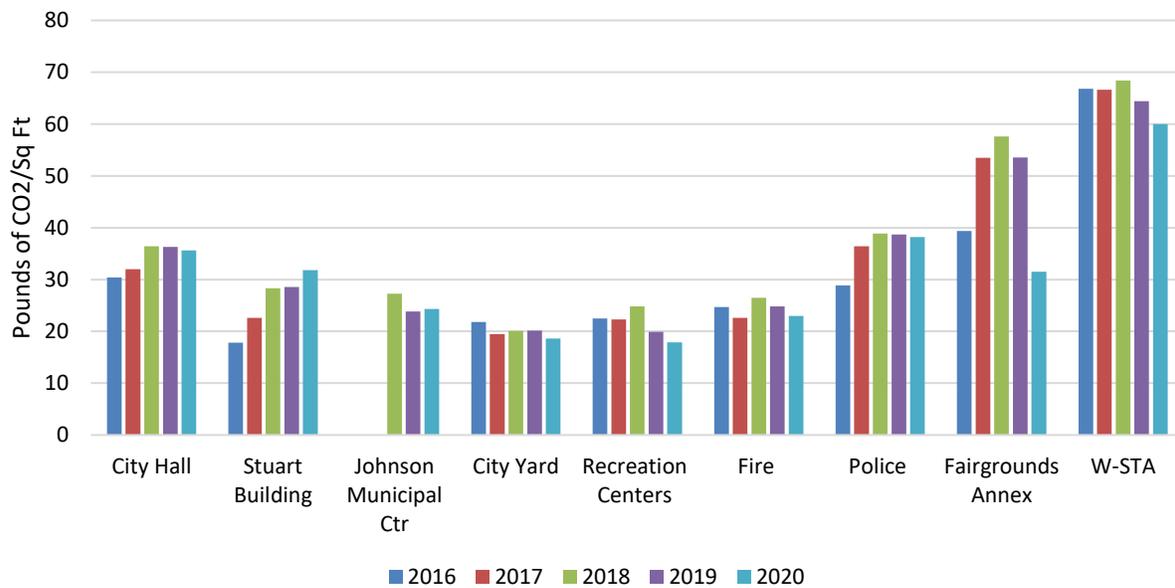
Analyzing our city operations, City/County Utilities and WSDOT contribute over 80% of total GHG emissions, however several contributing factors include water/pumping, street lighting, and traffic signals, where there is no relationship to square footage. Entertainment areas such as the annex and fairgrounds are dominated by electric energy that is not utilized within buildings.

<sup>1</sup> 2013 is the year the LJV Coliseum was sold to Wake Forest University, leaving the city no longer responsible for the emissions of the coliseum. This accounts for a portion of the decrease in emissions in 2013.

The total CO<sub>2</sub> per square foot can be broken down among several department categories with specific buildings that are summarized in Table 5 below. The average CO<sub>2</sub> per square foot for the city’s buildings is approximately 29 lbs/square foot, decreased from 31.5 lbs/square foot in 2019. Figure 3 shows how each facility’s CO<sub>2</sub> per square foot has changed over five years. Note that the Joycelyn V. Johnson Municipal Services Center only has three years’ worth of data as it was not a city-owned facility prior to 2018.

**Table 5. Total pounds of CO<sub>2</sub> per square foot in select facilities**

	TONS OF CO <sub>2</sub> EMISSIONS	SQ FT	POUNDS OF CO <sub>2</sub> /FT <sup>2</sup>
<b>CITY HALL</b>	1,266	71,125	35.6
<b>STUART BUILDING</b>	2,419	152,315	31.8
<b>JOHNSON MUNICIPAL</b>	815	67,000	24.3
<b>CITY YARD</b>	1,454	156,350	18.6
<b>REC CENTERS</b>	2,038	227,362	17.9
<b>FIRE</b>	1,361	118,343	23.0
<b>POLICE</b>	5,092	266,363	38.2
<b>FAIRGROUNDS ANNEX</b>	1,713	108,847	31.5
<b>W-ST A</b>	1,349	44,970	60.0
<b>TOTAL</b>	<b>17,506</b>	<b>1,212,675</b>	<b>28.9</b>



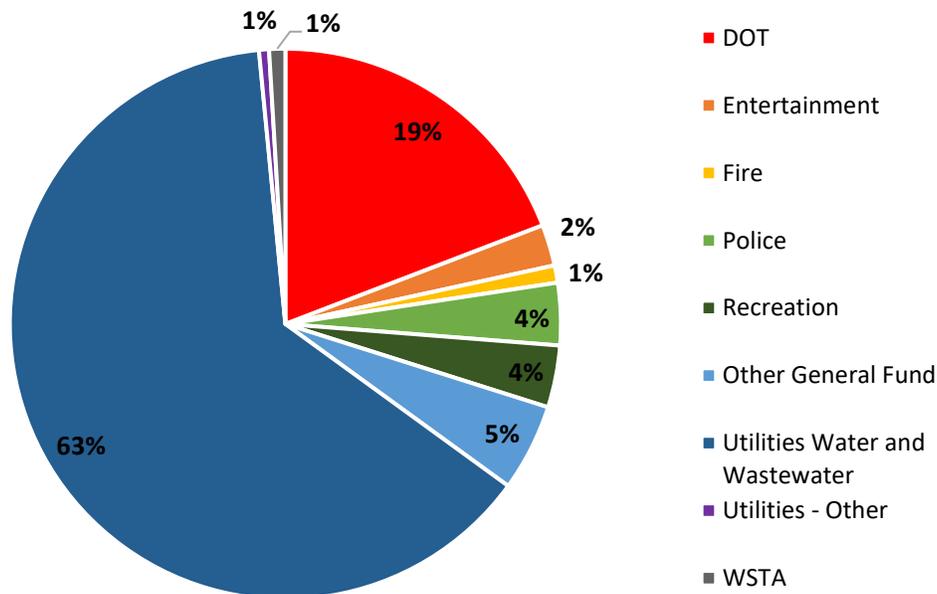
**Figure 4. Five-year facility trends of CO<sub>2</sub> per square foot**

### 5.3 ELECTRIC ENERGY USE<sup>2</sup>

Electricity use for city operations decreased in 2020 by 7.2 million kilowatt hours (kWh) compared to 2019 primarily due to reduced use of a number of city facilities, along with lighting upgrades to LEDs in certain facilities discussed further in section 5.3.1.

The facilities that had the largest electricity-related decreases at 43% are the entertainment facilities at the Fairgrounds and Bowman Gray Stadium, due to the number of community events that were cancelled because of the pandemic. Additionally, the other departments that were most impacted by COVID-19 related closures and occupancy reductions were Recreation at 15%, WSTA at 7%, Police at 8% and Fire at 5%. Finally, the last notable reduction in electricity use was from the Winston-Salem/Forsyth County Utilities water distribution and wastewater treatment facilities, which had 3% and 7% reductions, respectively, likely due to the many business closures during the pandemic.

While many facilities had reduced electricity use, the Bryce Stuart Municipal building and Union Station had increases in electricity use. Union Station's increase of 43% happened once the Winston-Salem Department of Transportation (WSDOT) moved into the facility. It is important to note that while many employees were teleworking, the city facilities where those employees had offices were running various systems normally. This and perhaps the construction occurring at the Bryce Stuart building contributed to the 11% increase in the building's electricity use. Both buildings' increases are reflected in the 'Other General Fund' increase.



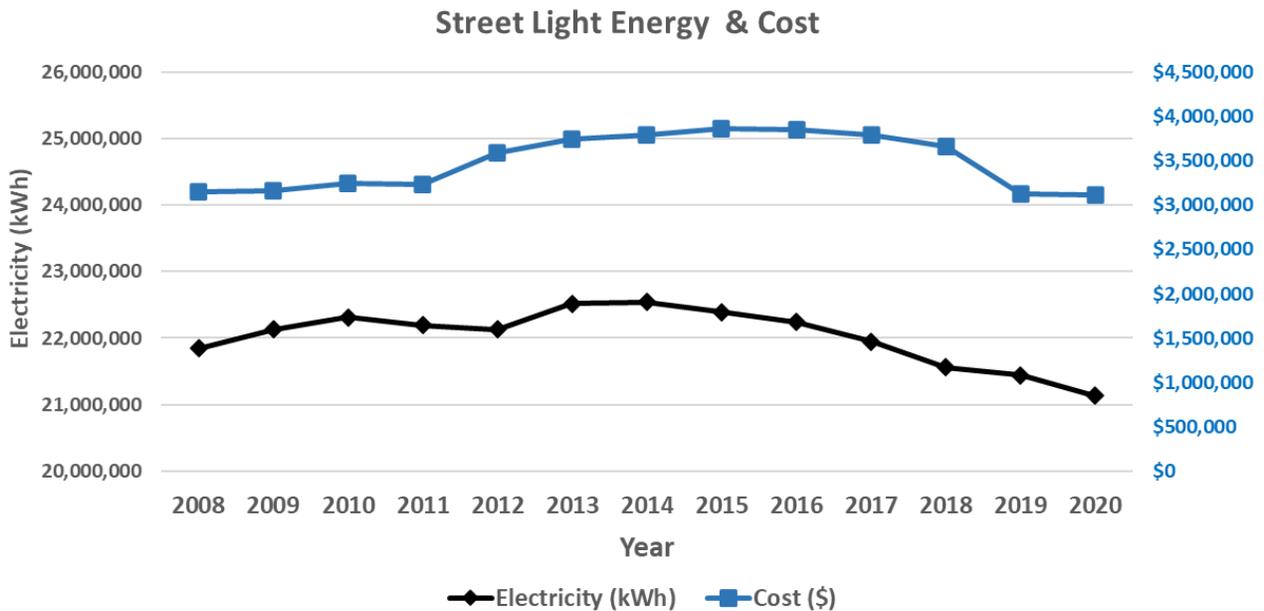
**Figure 5.** Electricity use from city operations by sector

<sup>2</sup> The data used for electricity analysis is directly from Duke Energy's annual data downloads.

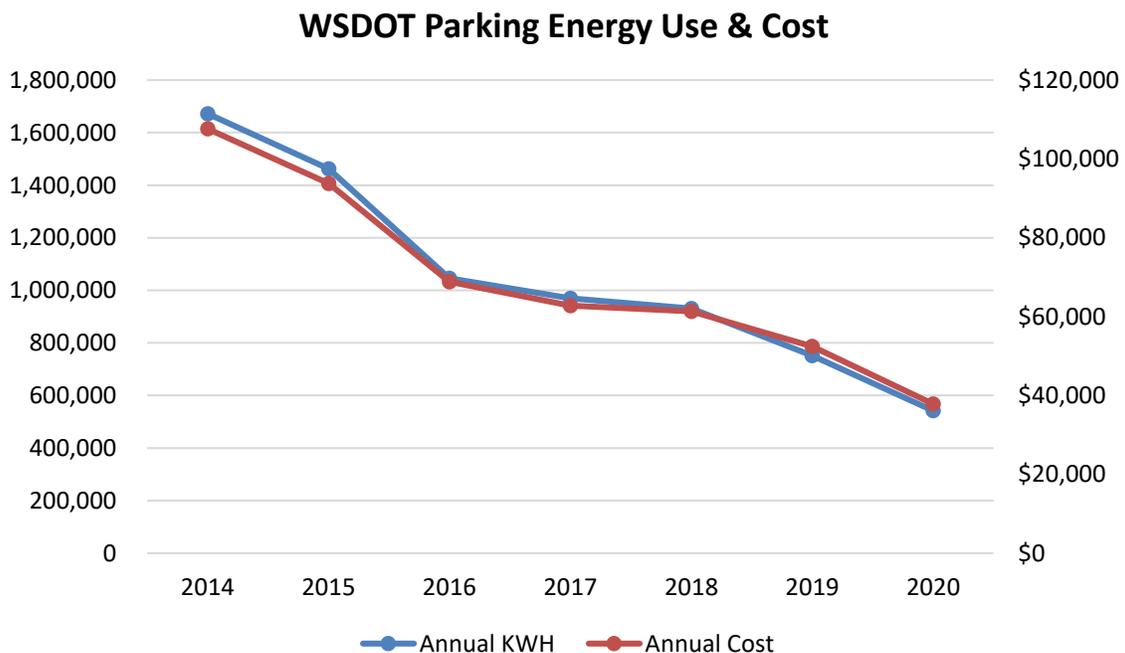
### 5.3.1 LED Upgrades

The city saw decreases in kilowatt hours used by facilities where LED lights were installed. Street lighting consumption decreased 1.4% due to Duke Energy's steady upgrades to LED street lights. There was also a significant decrease in WSDOT parking electricity use and cost largely due to the LED lighting upgrade at the 6<sup>th</sup>/Cherry/Trade parking deck in January 2020.

**Figure 6. Street light energy and cost trends**



**Figure 7. WSDOT parking deck energy and cost trends**

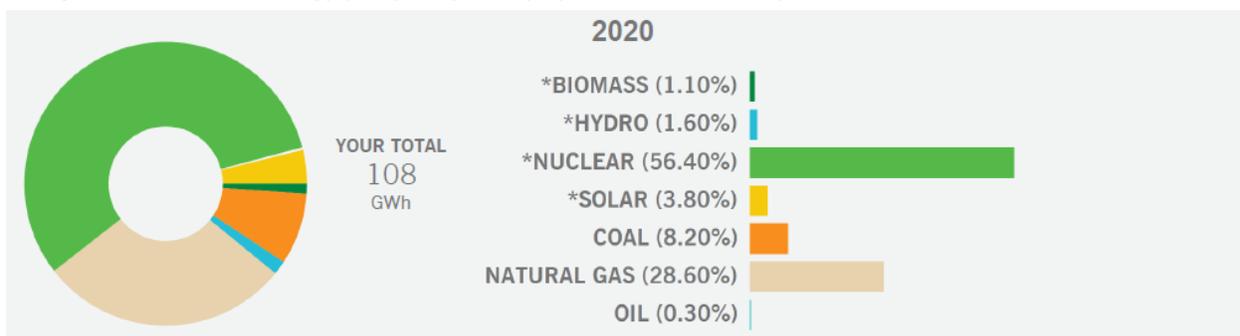


## 5.4 RENEWABLE ENERGY

Duke Energy provided the Office of Sustainability with a breakdown of the energy generation mix municipal operations utilizes. Image 1 below shows the Duke Energy estimates for each energy source. For 2020, about 63% of city energy use comes from carbon free sources. However, as nuclear accounts for an estimate 56.4% of that total, only 6.5% of the city’s energy use is considered renewable energy.

When considered in the context of Resolution #20-0499, the city, with the help of Duke Energy, would need to increase clean renewable energy use for city operations by 43.5% in the next nine years to meet the nearest term goals in the resolution. As a note, any solar PV systems installed at City facilities will offset one ton of GHG emissions/year per kilowatt installed.

**Image 1.** Renewable Energy portfolio for City of Winston-Salem operations

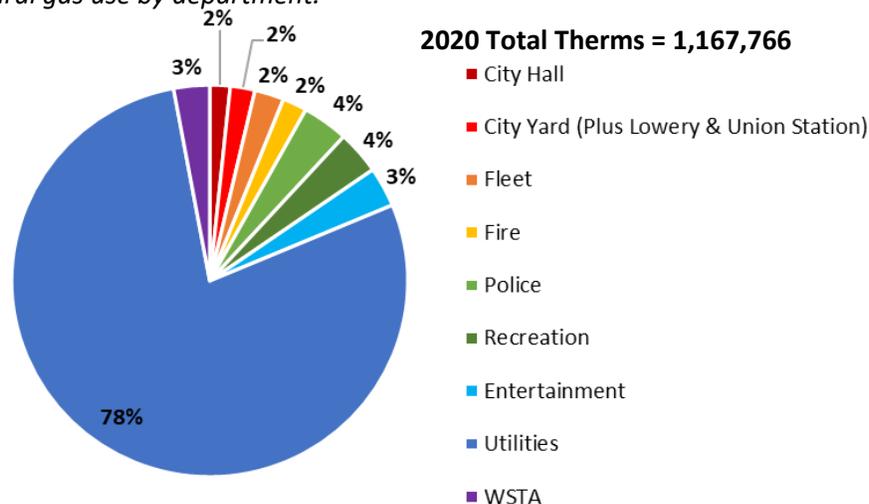


\*Indicates Carbon-free sources. Carbon-free sources are not necessarily considered renewable, in the case of nuclear.

## 5.5 NATURAL GAS USE<sup>3</sup>

The city’s total natural gas use, as seen in figure 8, can be attributed largely to City/County Utilities operations through their wastewater treatment plant facilities. Because almost 80% of total natural gas use comes from that department, the use from Utilities and other uses will be discussed separately.

**Figure 8.** Natural gas use by department.



<sup>3</sup> Data used for analysis of natural gas use is directly from Piedmont Natural Gas’ monthly billing information.

### 5.5.1 City/County Utilities Natural Gas Use

In 2020, the Muddy Creek Wastewater Treatment Plant’s combined heat and power generator began operations. The generator consumed 135,000 therms of natural gas, offsetting a large percentage of the city reductions.

The biosolids dryer at the Archie Elledge Wastewater Treatment Plant consumed around 12% fewer therms in 2020 compared to 2019. While there was this reduction, the biosolids dryer still consumed 62% of all the natural gas used by the city, and 79% used by Utilities.

### 5.5.2 Other City Natural Gas Use

When looking at the natural gas used by non-Utilities facilities, total natural gas consumption for city operations was reduced by about 22% in 2020. As with reductions from electricity use, the reductions occurred in all city facilities and were directly related to the COVID-related facility closures.

## 5.6 DEGREE DAYS

A tracking tool often used to evaluate the performance of either new equipment or major upgrades to heating and cooling systems within the City of Winston-Salem is known as degree-days. The two primary uses for degree-days in buildings are:

- To estimate energy consumption and carbon dioxide emissions due to space heating and cooling for new build and major renovations
- For ongoing energy monitoring and analysis of existing buildings based on historical data

Simply translated, degree-days are the difference between a reference base temperature and the average temperature of the day. When we are below that base, energy is being generated for heating (a heating degree-day). When we are above a base temperature of 60 degrees, we are producing energy for cooling (a cooling degree-day).

Both cooling and heating degree days decreased in 2020 compared to 2019. See Figure 9 below for the summary of heating and cooling degree days since the baseline year of 2008.

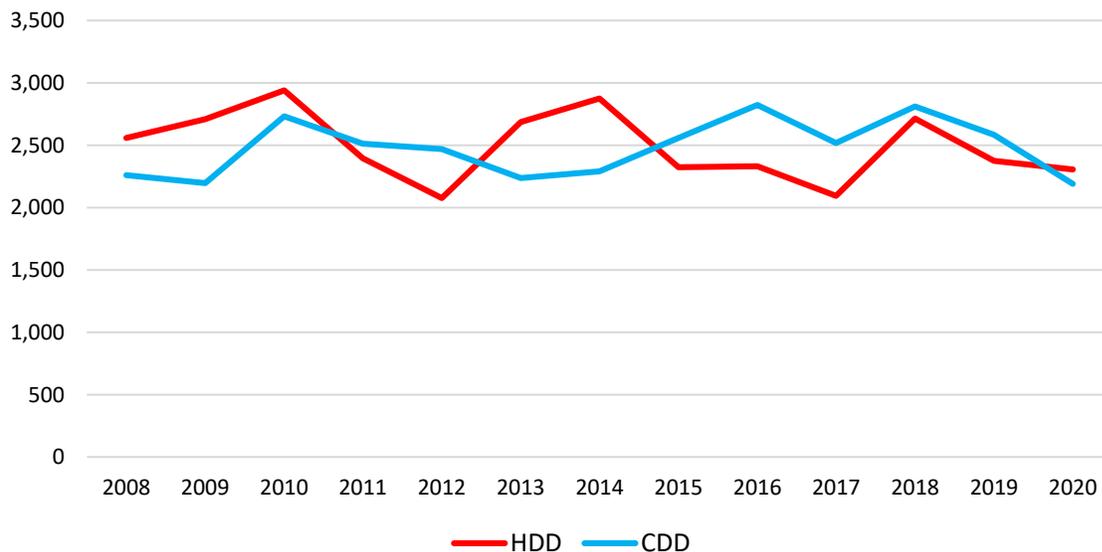


Figure 9. Heating Degree and Cooling Degree days

# APPENDIX A

CDP Score

## CDP SNAPSHOT REPORT - CITIES 2020

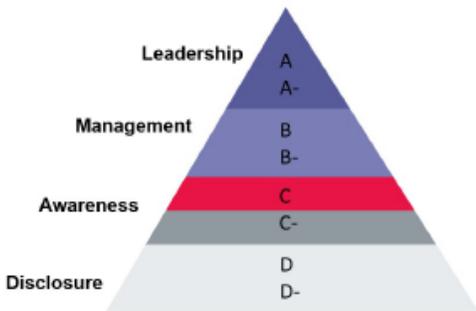


### City of Winston-Salem

**Region** North America  
**Country** United States of America  
**Final score** C

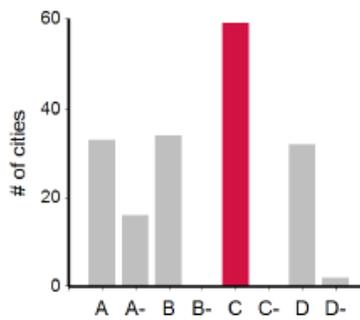
*This snapshot report presents the score that City of Winston-Salem received for its response to CDP's 2020 questionnaire. CDP uses the scoring methodology to incentivize cities to measure and manage environmental impacts. This report can be used as a tool for gaining an overview of environmental performance and how the city's response can be improved in the future. Responses are scored using the [2020 CDP Cities Scoring Methodology](#). Scores are private to cities, although CDP will recognize and reward the highest scoring cities.*

#### YOUR CDP FINAL SCORE



Click [here](#) for a detailed explanation of your score, along with recommendations and resources for cities who receive an Awareness band score

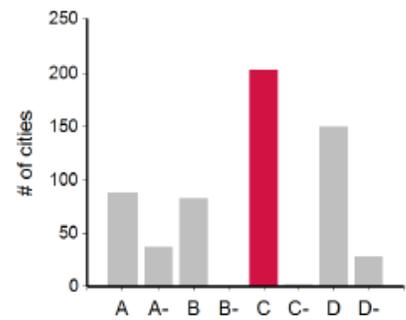
#### REGIONAL DISTRIBUTION



The bar chart above shows the count of scores achieved by cities in North America.

The score for City of Winston-Salem is shown in red.

#### GLOBAL DISTRIBUTION



The bar chart above shows the count of scores achieved by cities globally.

The score for City of Winston-Salem is shown in red.

## APPENDIX B

Table 6 shows the rankings of the 100 largest metropolitan areas in America in the 2020 ACEEE Cities Clean Energy Scorecard. North Carolina cities are highlighted in green, and Winston-Salem is highlighted in yellow. Tables 7-11 show the breakdown of points in each category for Winston-Salem and the other North Carolina cities included in the study.

Rank	City	State	Local Government Operations (10 pts)	Community-wide initiatives (15 pts)	Building Policies (30 pts)	Energy and water utilities (15 pts)	Transportation Policies (30 pts)	Total (100 pts)
1	New York	NY	6.5	8	28.5	10.5	24	77.5
2	Boston	MA	8	8.5	20.5	13.5	22.5	73
2	Seattle	WA	6.5	9.5	22.5	11.5	23	73
4	Minneapolis	MN	7	11	78.5	13.5	22.5	72.5
4	San Francisco	CA	7.5	7.5	19.5	12.5	25.5	72.5
6	Washington	DC	7.5	11.5	19	9.5	24.5	72
7	Denver	CO	7	11	18.5	12	17.5	66
8	Los Angeles	CA	6	11	17.5	13	18	65.5
9	San Jose	CA	4.5	9	17.5	13	21	65
10	Oakland	CA	7	9.5	16	11.5	19.5	63.45
11	Portland	OR	7.5	9	12.5	10	24	63
12	Austin	TX	8	9.5	17.5	9	15.5	59.5
13	Chicago	IL	2.5	8	20	11.5	15	57
14	Atlanta	GA	6	10	12.5	8	18	54.5
15	Philadelphia	PA	5	7.5	14.5	7.8	17	51.5
16	St. Paul	MN	3.5	6.5	13	12.5	15.5	51
17	Sacramento	CA	5.5	7.5	12.5	10.5	14	50
18	San Diego	CA	4	6	12	13.5	14	49.5
19	Phoenix	AZ	6.5	9.5	10.5	8.5	14	49
19	Pittsburgh	PA	4.5	8.5	10	6	20	49
21	Orlando	FL	7	8.5	11	6	15	47.5
22	Chula Vista	CA	4	3	16	13.5	9	45.5
23	Hartford	CT	3	5.5	11.5	9.5	14.5	44
23	Providence	RI	7	6	3.5	11.5	16	44
25	Kansas City	MO	3.5	7.5	13.5	7	12	43.5
26	Long Beach	CA	4.5	5.5	13.5	7	12.5	43
27	Salt Lake City	UT	6	6	8	9	13.5	42.5
28	St. Louis	MO	2.5	7.5	17.5	5.5	9	42
29	Cleveland	OH	4.5	10	6.5	6.5	13.5	41

29	Columbus	OH	3.5	8.5	7.5	9.5	12	41
31	San Antonio	TX	4.5	7.5	11	4.5	10	37.5
32	Baltimore	MD	3	6	7	6.5	13.5	36
33	Grand Rapids	MI	4	2	8.5	10.5	10	35
34	Houston	TX	4	4	8.5	4.5	13.5	34.5
34	Riverside	CA	2.5	4	11.5	9	7.5	34.5
36	Cincinnati	OH	4.5	5.5	6.5	5.5	9	31
36	Las Vegas	NV	6	2	9	4	10	31
36	Milwaukee	WI	2	5	7.5	8	8.5	31
36	New Haven	CT	2.5	4.5	6	6.5	11.5	31
40	Albuquerque	NM	6	2	4	8.5	10	30.5
41	Honolulu	HI	2.5	4	1.5	75	13.5	29
42	Boise	ID	5.5	3.5	7.5	6.5	5	28
43	Aurora	CO	0.5	3.5	7.5	8.5	7.5	27.5
43	Buffalo	NY	3.5	1.5	7	6.5	9	27.5
43	Richmond	VA	2	3.5	7	3.5	11.5	27.5
43	Rochester	NY	2	0	8.5	6	11	27.5
43	Springfield	MA	0	4.5	8	7	8	27.5
48	Dallas	TX	3.5	3	8.5	5	7	27
48	Louisville	KY	2	6.5	5.5	1.5	11.5	27
50	Worcester	MA	4.5	1	7	9.5	4.5	26.5
51	Knoxville	TN	5	2	4.5	3	11	25.5
51	Miami	FL	2	4	7	1.5	11	25.5
51	New Orleans	LA	3	5.5	6.5	2	8.5	25.5
51	St. Petersburg	FL	3.5	5.5	5.5	2	9	25.5
55	Detroit	MI	1	3.5	7	5.5	8	25
55	Oxnard	CA	0.5	2	10	9	3.5	25
55	Raleigh	NC	4	2	5.5	5	8.5	25
58	Nashville	TN	5.5	2	5.5	3	8	24
58	Reno	NV	2	2.5	12.5	1.5	5.5	24
60	Bakersfield	CA	1	0	11	8.5	3	23.5
60	Fresno	CA	0	0	12	8.5	3	23.5
62	Des Moines	IA	0	3	9.5	5.5	5	23
62	Indianapolis	IN	2	5.5	1.5	4.5	9.5	23
64	Madison	WI	2.5	2.5	2.5	65	8.5	22.5
65	Charlotte	NC	3	1.5	5	6	6.5	22
66	Fort Worth	TX	1.5	1	5.5	6	7.5	21.5
66	Stockton	CA	0	0.5	9	7.5	4.5	21.5
68	Bridgeport	CT	3.5	2.5	4	4	7	21
68	Tuscon	AZ	3	1	8.5	3	5.5	21
70	Memphis	TN	1	1.5	7	3	8	20.5

70	Syracuse	NY	2	1.5	5	5	7	20.5
72	Colorado Springs	CO	1.5	3.5	9	3	2.5	19.5
72	Virginia Beach	VA	3	2	7.5	2	5	19.5
74	Jacksonville	FL	0.5	3	6	3	6	18.5
75	Tampa	FL	0.5	2	5.5	3	6.5	17.5
76	Mesa	AZ	0.5	1.5	6	4.5	4.5	17
76	Newark	NJ	0.5	1	7	2	6.5	17
78	Omaha	NE	0	2.5	1	2.5	10	16
79	Toledo	OH	1	3	3.5	4.5	3	15
80	El Paso	TX	1.5	0.5	4.5	3.5	4	14
81	Dayton	OH	0	0	4	3.5	6	13.5
82	Lakeland	FL	0	1.5	5	1	5	12.5
83	Akron	OH	0	1.5	3.5	2	5	12
83	Winston-Salem	NC	1	0	3	3.5	4.5	12
85	Tulsa	OK	1	0.5	0	4.5	5.5	11.5
86	Allentown	PA	0.5	0	5	2.5	2.5	10.5
86	Henderson	NV	0	0	7	1.5	2	10.5
88	Birmingham	AL	2	0.5	2.5	1	4	10
89	Charleston	SC	1.5	0	2	0	5.5	9
89	Greensboro	NC	0	0	3	2	4	9
91	Columbia	SC	0	2	1	0	5.5	8.5
91	Little Rock	AR	0	0.5	1	1	6	8.5
93	Cape Coral	FL	0	0	4.5	0.5	2.5	7.5
93	Provo	UT	0	2	2.5	1.5	1.5	7.5
95	McAllen	TX	0	0	5	1	1	7
96	San Juan	PR	0	0	6	0	0.5	6.5
97	Baton Rouge	LA	0	0	2	0	4	6
97	Oklahoma City	OK	0.5	0	1	2.5	2	6
99	Wichita	KS	0	0	0	2	3	5
100	Augusta	GA	0	0	1	2	1.5	4.5
	<b>Median</b>		<b>2.5</b>	<b>3</b>	<b>7</b>	<b>5.5</b>	<b>8.5</b>	<b>26</b>

	Climate and Energy Goals (4 pts)	Procurement and Construction policies (3.5)	Asset Management (2.5 pts)	Total (10 pts)
Winston-Salem	0	1	0	1
Raleigh	0	2	2	4
Charlotte	0	0.5	2.5	3
Greensboro	0	0	0	0

<b>Table 8. Community-wide Initiatives Scores</b>						
	Climate and Energy Goals (8 pts)	Energy Data Reporting (1 pt)	Equity-driven Planning (1.5 pts)	Distributed Energy Systems (3 pts)	Urban Heat Island Mitigation (1.5 pts)	Total (15 pts)
Winston-Salem	0	0	0	0	0	0
Raleigh	1	0	0	0	1	2
Charlotte	0	0	0	1	0.5	1.5
Greensboro	0	0	0	0	0	0

<b>Table 9. Building Policies Scores</b>					
	Building Energy Code Adoption (9 pts)	Code Compliance and Enforcement (4 pts)	Existing Buildings (15 pts)	Workforce Development (2 pts)	Total Points (30 pts)
Winston-Salem	2	1	0	0	3
Raleigh	1.5	3	0	1	5.5
Charlotte	2	2	1	0	5
Greensboro	1	2	0	0	3

<b>Table 10. Energy and Water Utilities Scores</b>				
	Efficiency Efforts (8 pts)	Renewable Efforts (3 pts)	Water Services (4 pts)	Total (15 pts)
Winston-Salem	2	0.5	1	3.5
Raleigh	2.5	0.5	2	5
Charlotte	2	2	2	6
Greensboro	1.5	0.5	0	2

<b>Table 11. Transportation Policies Scores</b>									
	Sustainable Transpo (4 pts)	Location Efficiency (6 pts)	Mode Shift (7 pts)	Public Transit (4 pts)	Efficient Vehicles (4 pts)	Freight (2 pts)	Equitable Transpo (3 pts)	Congestion Pricing (1 pt-bonus)	Total (30 pts)
Winston-Salem	1	1.5	0.5	0.5	0	0	1	0	4.5
Raleigh	0	3	2.5	0.5	0.5	0	2	0	8.5
Charlotte	1	2	0.5	1.5	0.5	0	1	0	6.5
Greensboro	0.5	1.5	1.5	0.5	0	0	0	0	4