

# **SUSTAINABILITY AND RESILIENCE IN NASHVILLE**

**Economic Council of Panama City Beach**

**April 8, 2022**



# ABOUT ME

- Nashvillian since 1988
- Lover of learning; academic background in sociology, economics, environmental policy and management, and business
- Always loved the outdoors and had appreciation for the environment
- Professional exposure to sustainability via internship at Vanderbilt Environmental Health and Safety
- Sustainability Professional for Vanderbilt University and Medical Center
- Office of Policy and Planning, Office of Sustainable Practices at Tennessee Department of Environment and Conservation
- Sustainability and resilience with City of Nashville/Davidson County

# WHAT DOES A CHIEF SUSTAINABILITY AND RESILIENCE OFFICER DO?

- Advocate for and amplify departmental environmental, sustainability, and resilience projects
- Facilitate communication and leveraging of resources across departments on potential cross-cutting environmental, sustainability, and resilience projects
- Lead new administration environmental, sustainability, and resilience initiatives or those requiring centralized leadership across departments
- Set strategy for Metro environmental, sustainability and resilience priorities
- Build relationships with external partners to further sustainability and resilience throughout the community
- Represent Metro in major community conversations or projects relating to the environment, sustainability, and resilience
- Serve as a spokesperson for Metro Nashville/Davidson county on environmental, sustainability, and resilience issues
- Anything else that comes up in a day!



Mayor's Climate Protection Agreement

Compact of Mayors



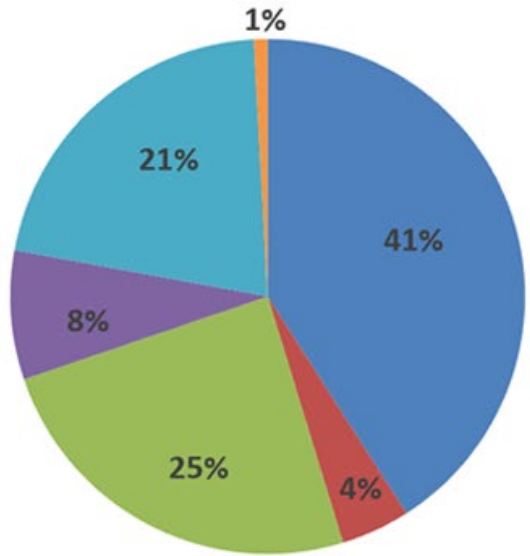
Global Covenant of Mayors



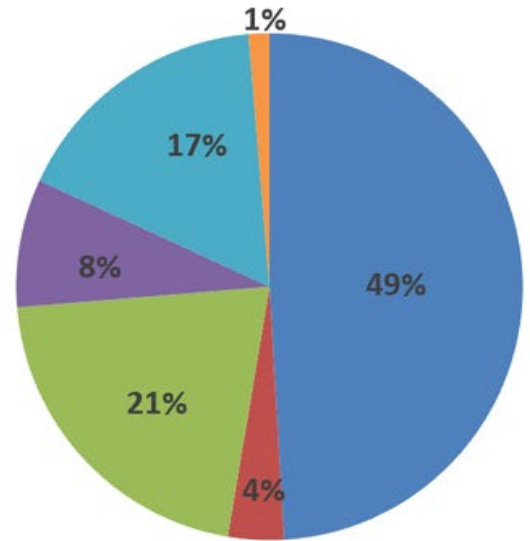
Nashville has a history of strong sustainability planning and commitments...  
and now it is time to execute.

# UNDERSTANDING EMISSIONS REDUCTION OPPORTUNITIES IN NASHVILLE

### Nashville 2014 Emissions



### Nashville 2017 Emissions



■ Transportation ■ Solid Waste ■ Commercial ■ Industrial ■ Residential ■ Fugitive Emissions

# UNDERSTANDING EMISSIONS REDUCTION OPPORTUNITIES IN NASHVILLE (CONTINUED)






CO2e Emissions Comparisons of 2005, 2011, 2014 & 2017 Community GHG Inventories				
Community Inventories				
Sectors	2005	2011	2014	2017
<i>Transportation &amp; Mobile Sources</i>	4,673,831	4,489,677	5,015,806	5,610,743
<i>Solid Waste</i>	722,897	342,791	530,723	406,068
<i>Commercial Energy</i>	3,969,299	3,723,787	3,003,329	2,407,955
<i>Industrial Energy</i>	1,599,172	1,365,688	992,843	934,431
<i>Residential Energy</i>	3,425,508	3,323,045	2,604,297	1,919,763
<i>Process &amp; Fugitive Emissions</i>	-	-	105,427	151,791
<b>Total CO2e Emissions (metric tons)</b>	<b>14,390,707</b>	<b>13,244,988</b>	<b>12,252,425</b>	<b>11,430,751</b>
<b>Community emissions per person</b>	<b>26.17</b>	<b>20.84</b>	<b>18.33</b>	<b>16.54</b>

CO2e Emissions Comparisons of 2005, 2011, 2014 & 2017 Municipal GHG Inventories				
Municipal Inventories				
Sectors	2005	2011	2014	2017
<i>Buildings &amp; Facilities</i>	282,436	253,846	334,030	259,455
<i>Street Lights &amp; Traffic Signals</i>	3,306	80,332	28,313	21,723
<i>Vehicle Fleet</i>	75,805	51,382	41,088	34,835
<i>Transit Fleet</i>	-	-	34,096	34,060
<i>Employee Commute</i>	99,227	54,663	20,731	57,432
<i>Solid Waste Facilities</i>	100,507	90,859	81,224	48,590
<i>Water &amp; Wastewater Treatment Facilities</i>	139,403	143,072	114,819	95,723
<i>Process &amp; Fugitive Emissions</i>	48	1,422	5,979	8,299
<b>Total CO2e Emissions (metric tons)</b>	<b>700,732</b>	<b>675,576</b>	<b>660,280</b>	<b>560,117</b>

# MAYOR'S SUSTAINABILITY ADVISORY COMMITTEE

- Formed in late 2019
- Draws on best practices
- Synthesizes and prioritizes the good work that already has been done to develop and implement sustainability actions for the City
- Advises and supports the City's commitment pursuant to the Global Covenant of Mayors to develop a Climate Action Plan for Nashville
- Provides advice on a range of sustainability issues and reviews active proposals as they are being implemented
- Comprised of civic leaders, elected officials, higher education, non-profits, foundations, businesses, Metro staff

# SAC PROPOSED ACTIONS

- 294 individual strategies across 6 topics
  - Energy 
  - Green buildings 
  - Mobility 
  - Natural resources 
  - Waste reduction 
  - Adaptation
- Consolidated into 40 narrative, bulleted policy focus and priority actions intended to highlight actions that will produce greatest carbon reductions
- Highlighted targets, equity, leadership initiatives, and lock-in effects to avoid for each subcommittee category
- Presented to Mayor Cooper in January 2021
- Since then, identification and planned implementation of 10-12 priority climate action plan recommendations

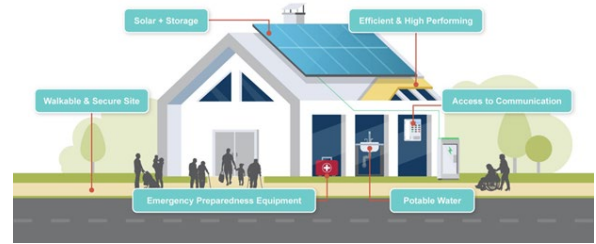
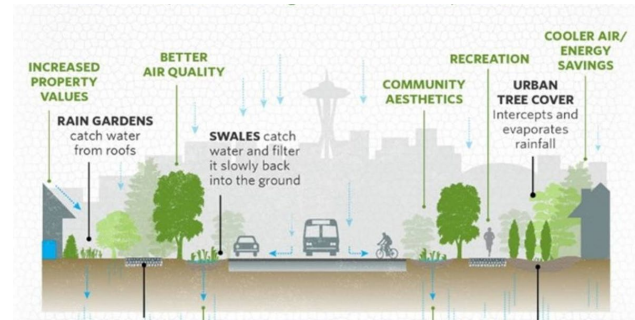


# WHAT'S ALREADY ACCOMPLISHED?

- Renewable energy standard for Metro Government – 100% renewable energy by 2041
- Solar installations (more detail later)
- Adoption of updated, more efficient building codes (2018 IECC)
- Metro buildings lead by example with LEED certifications
  - General Services construction of 28 LEED certified buildings since 2010
  - \$1.5 million in energy costs and 22 million gallons of water saved
- Establishment of an “Energy Savings Program” and “Energy Savings Revolving Fund” for Metro facilities
- Protections for trees on public property
- Creation of a dedicated revenue stream to support tree canopy restoration and maintenance on private properties
- Two NES board appointments with environmental backgrounds
- Waste management plans from commercial and multi-family residential projects valued at \$50,000+
- All events receiving a Special Event Permit are required to provide recycling
- Food waste drop-off containers at convenience centers
- Increased recycling education and the deployment of an online widget and app focused on contamination reduction
- **NEW February 2022** – Formal adoption of a Metro government and community-wide target for greenhouse gas emissions reductions and regular progress tracking
- **NEW February 2022** – Nashville joins Trust for Public Land’s 10-Minute Walk Campaign

# WHAT'S IN THE WORKS?

- **Kicked Off February 2022** – 2019 Greenhouse Gas Emissions Inventory Update
- **Kicked Off February 2022** – 600-site solar feasibility assessment on Metro properties
- **Kicked Off February 2022** – Energy benchmarking across Metro facilities
- **March-May 2022** – Climate Action Plan survey and engagement
- **Coming April 2022** – Environmental indicators dashboard
- EV infrastructure and electrification of Metro fleets; other alternative fuels where well suited
- Strategizing around EV infrastructure across the community
- Innovative and robust stormwater management and low-impact development strategies
- Resilience hubs
- Development of a resiliency plan, including adaptation plan and environmental equity and inclusion strategy
- A conservation finance initiative for acquisition and maintenance of green space
- Piloting residential compost collection
- Expansion of Nashville's monthly curbside recycling program
- Regional solid waste management and diversion strategies



# DEEPER DIVE INTO ENERGY

Energy use is largest contributor to Nashville's greenhouse gas emissions. Energy can be a high cost associated with operating facilities.

## Renewables

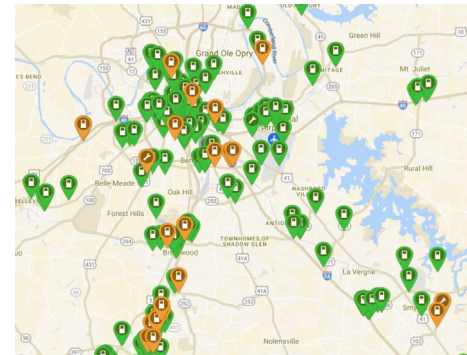
- Metro required to use 100% renewable energy by 2041
- Rooftop and other Metro sites solar projects
  - 12 General Services buildings – 2,062 solar panels generating approximately 870,000 kWh annually.
  - Metro Water Services at Central, Whites Creek and Omohundro treatment plants; 9,777 individual solar panels over 7 acres producing 3.2 MW
  - Music City Center – 845 solar panel array producing 211 kW
- Large Scale Solar – 125 MW joint solar array project in Tullahoma, Tennessee through TVA Green Invest program; operational in 2024
  - Project will produce the clean-electricity equivalent of powering over 11,000 homes or removing 14,000 vehicles from the road every year and result in an estimated \$6.8 million in health benefits.
- Community Solar – Music City Solar; 17,020 panels available for subscription to participating customers via NES.

## Energy Efficiency

- Energy benchmarking across Metro facilities
- Energy savings and public reporting program for large buildings
- LED streetlight conversions

## Alternative Fuels/Fleets

- EV infrastructure and electrification of Metro fleets; other alternative fuels where well suited
- BL2019-1598 requires Metro's general government fleet to be zero-emissions (with exception of emergency response vehicles) by 2050
  - General Services has 53 charging stations at Metro facilities across Nashville. All General Services' stations are free to use; 67% of ports are accessible for public use.
  - Minimum of 2 dual port, Level 2 charging stations (4 parking spots) and EV Make-ready for new construction
  - Metro fleet has 13 Nissan LEAFs, 11 of which are used for Metro employee car-share program, and four EVs on order
- EV infrastructure across the community with Nashville Electric Service



# QUESTIONS

THANK YOU