

DRAFT

Livable  
Nashville



# Letter from the Mayor



Nashville's scenic beauty, diverse economy, arts and amenities, top-ranked universities, and friendly culture attract more residents and visitors to our area each and every day. We can welcome additional jobs and people in a way that's sustainable – but only if we intentionally guide and manage our growth.

I believe a healthy natural environment is critical to maintaining both Nashville's economy and quality-of-life. As do most Nashvillians: thousands of citizens engaged with the NashvilleNext resource-teams who worked to set our most recent countywide policies in the areas of Natural Resources and Climate Adaptation, and Health, Livability and the Built Environment. Shortly after taking office, I signed on to the Global Compact of Mayors to better track and report on Nashville's climate impact, and launched the Livable Nashville Committee.

I charged this Committee's diverse membership of smart, dedicated community leaders with generating a comprehensive new sustainability strategy, for both my term-in-office and beyond. I'm grateful to these individuals and the organizations they represent for working hard and collaboratively to prioritize their recommendations, based on latest-and-best sustainability practices and benchmarking to Nashville's peer and aspirational cities. Engaging leaders outside of Metro Government allows us to harness formidable public interest in environmental concerns, and produce a diverse range of ideas to impact the city's livability and resilience.

Protecting and enhancing our resources in a growth context can be challenging, but doing so can concurrently have a positive impact on economic development, social equity, public health and safety, and civic life. Working together, we can create a climate-resilient future that offers access to good-paying jobs, active lifestyles, more public spaces for recreating and community-building, and diminished financial-burden on both taxpayers and businesses.

This work offers an opportunity to not just advocate for a more livable city, but to authentically make progress toward it. The Livable Nashville Committee and my administration are committed to an exemplary sustainability strategy for Metro Government and for Nashville, and are thrilled to share this draft report with you. We welcome your feedback, and look forward to your partnership in our shared responsibility for making Nashville the greenest city in the Southeast.

Sincerely,

A handwritten signature in blue ink, which appears to read "M. Barry".



Megan Barry, Mayor  
Metropolitan Government of Nashville & Davidson County

# Subcommittee Members

Walker Mathews (Co-Chair), R.C. Mathews Contractor  
Beth Prichard Geer (Co-Chair), Office of Al Gore  
Curt Stevens, Louisiana Pacific  
Linda Breggin, Environmental Law Institute/NRDC  
John Sherman, Headwaters Philanthropic Services  
Anne Davis, Southern Environmental Law Center  
Gary Gaston, Nashville Civic Design Center  
Mekayle Houghton, Cumberland River Compact  
DeCosta Jenkins, Nashville Electric Service  
G. Dodd Galbreath, Lipscomb University  
Janet Miller, Colliers International  
David Briley, Metro Government of Nashville and Davidson County  
Liz Edsall McLaurin, Land Trust for Tennessee  
Mike Pearigen, Luna Law Group PLLC  
Greer Tidwell, Bridgestone Americas Tire Operations  
Beth Fortune, Vanderbilt University  
Tiffany Wilmot, Wilmot Inc.  
Martin S. Brown Sr., Former Chairman of Jack Daniel's  
Nora Kern, Walk/Bike Nashville  
Chris Lunghino, Southern Alliance for Clean Energy  
John Esposito, Warner Music Nashville  
Bob Martineau, TN Dept. of Conservation (TDEC)  
Ryan Stanton, Schneider Electric  
Mark Deutschmann, Village Real Estate Services, Core Development Services  
Jennifer Westerholm, Urban Green Lab  
Todd Lawrence, Urban Green Lab  
Pam Martin, Cushion Employer Services  
Joe Woolley, Get It Done Solutions  
Gini Pupo-Walker, Conexion Americas  
Mary Anne Howland, Ibis Communications  
Mary Vavra, Barge, Waggoner, Sumner & Canon, Inc.  
Robert Cheney, Waste Management  
Holly Baird, USGBC Tennessee Chapter  
Van Pinnock, Fisk University  
Gina Hancock, The Nature Conservancy  
Gavin Duke, Page Duke Landscape Architects  
Eddie Davidson, Piedmont Natural Gas  
Jana Davis, HCA  
Vanessa Paz, Community Member  
Bob Freeman, Freeman Applegate Partners  
Matt Von Lunen, GNRC  
Steve Law, Tennessee Parks & Greenways Foundation (TennGreen)





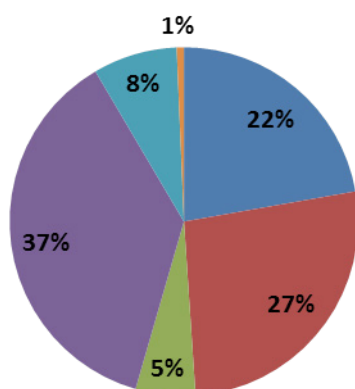
# Table of Contents

1	Greenhouse Gas Emissions Inventory
5	Executive Summary
9	Climate & Energy Recommendations
15	Green Buildings Recommendations
23	Natural Resources Recommendations
29	Waste Reduction & Recycling Recommendations
35	Mobility Recommendations

# Greenhouse Gas Emissions Inventory

## METRO COMPLETES THIRD INVENTORY OF GREENHOUSE GAS EMISSIONS TO INFORM LIVABLE NASHVILLE COMMITTEE'S WORK

### Nashville 2014 Emissions Percentage



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

The Metropolitan Government of Nashville-Davidson Co. recently completed two Greenhouse Gas Emissions' inventories as a result of Mayor Barry's having signed on to the Global Compact of Mayors – the world's largest, cooperative effort among mayors to reduce carbon emissions. The Compact of Mayors was created by the C40 Cities Climate Leadership Group, ICLEI–Local Governments for Sustainability, and the United Cities and Local Governments, with support from UN-Habitat.

The Compact responds to the 2015 Paris Climate Agreement as a platform for cities' actions through standardized measurement of emissions and climate risk. It provides consistent, public reporting of cities' efforts to address climate change, demonstrates commitment to an ambitious global-climate solution, encourages direct investments in cities by meeting transparent standards similar to those followed by national governments, builds a consistent and robust body of data on the impact of city action, and accelerates ambitious, collaborative, and sustainable local climate action. Ultimately, the Compact provides evidence of cities' climate leadership, and the global significance of local actions.

An internal team of Metro Departmental stakeholders, in collaboration with environmental-consulting group Big Wave Strategies LLC, assembled current inventories to meet the Compact's first-year requirements, which included Community-scale CO<sub>2</sub> emissions from transportation and stationary energy. The Nashville Area MPO, Nashville Electric Service, and the Metro Departments of General Services, Health, Public Works, and Water Services played critical roles in data acquisition.

Metro also completed an inventory for its own municipal CO<sub>2</sub> emissions – a step above-and-beyond Year-One member requirements for the Compact of Mayors. 2014 emissions' data was used for both inventories, as complete data-sets for 2015 were not yet available.

This is the third GHG inventory conducted by Metro-Nashville. The first was completed in 2009, reporting 2005 emissions, as a baseline year for tracking emissions. The second was completed in 2014, reporting 2011 emissions. Each of these inventories provides a "snapshot in time" for annual emissions from both community and municipal operations and, in part, reflects then-current technology and data-collection practices. As the practice has evolved over time, the three GHG inventories are not an exact "apples to apples" comparison with each other.

# Community Greenhouse Gas Inventories - Nashville

CO2e Emissions Comparisons of 2005, 2011, & 2014 Community GHG Inventories			
Community Inventories			
Sectors	2005	2011	2014
<i>Transportation &amp; Mobile Sources</i>	4,673,831	4,489,677	4,986,501
<i>Solid Waste</i>	722,897	342,791	1,051,624
<i>Commercial Energy</i>	3,969,299	3,723,787	3,595,170
<i>Industrial Energy</i>	1,599,172	1,365,688	746,654
<i>Residential Energy</i>	3,425,508	3,323,045	2,991,664
<i>Process &amp; Fugitive Emissions</i>	-	-	89,679
<b>Total CO2e Emissions (metric tons)</b>	<b>14,390,707</b>	<b>13,244,988</b>	<b>13,461,292</b>
<b>Community emissions per person</b>	<b>26.17</b>	<b>20.84</b>	<b>20.14</b>

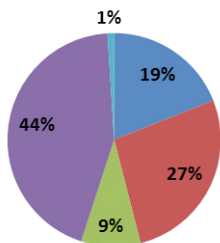
CO2e Emissions Comparisons of 2005, 2011, & 2014 Municipal GHG Inventories			
Municipal Inventories			
Sectors	2005	2011	2014
<i>Buildings &amp; Facilities</i>	282,436	253,846	410,199
<i>Street Lights &amp; Traffic Signals</i>	3,306	80,332	36,131
<i>Vehicle Fleet</i>	75,805	51,382	41,088
<i>Transit Fleet</i>	-	-	34,096
<i>Employee Commute</i>	99,227	54,663	20,782
<i>Solid Waste Facilities</i>	100,507	90,859	74,991
<i>Water &amp; Wastewater Treatment Facilities</i>	139,403	143,072	142,685
<i>Process &amp; Fugitive Emissions</i>	48	1,422	17
<b>Total CO2e Emissions (metric tons)</b>	<b>700,732</b>	<b>675,576</b>	<b>759,989</b>

This inventory has been assembled with 2014 data using today's standard best practices and information sources for Community emissions, as well as the most complete, current emissions' data-sets from municipal operations. This inventory therefore provides a strong basis from which to build comparisons for future inventories, and for use in developing climate action plans.

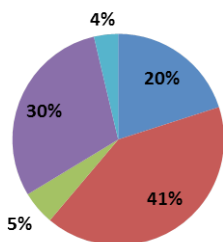
This new inventory was entered into the ICLEI ClearPath database, which is shared by ICLEI members – meaning, over 1,000 municipal leaders in 86 countries, including hundreds of members within 42 US states. Future inventories using ClearPath will provide near-instant transparency for comparison over time, thus furthering Compact goals and helping Nashville to develop strategies and plans for climate action.

## Peer Cities Comparison

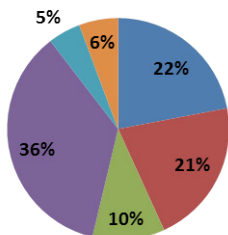
Knoxville 2012



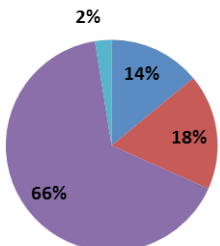
Atlanta 2014



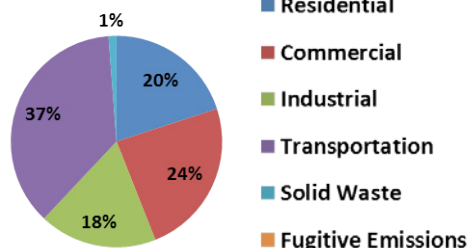
Austin 2013



Seattle 2014



Portland 2013

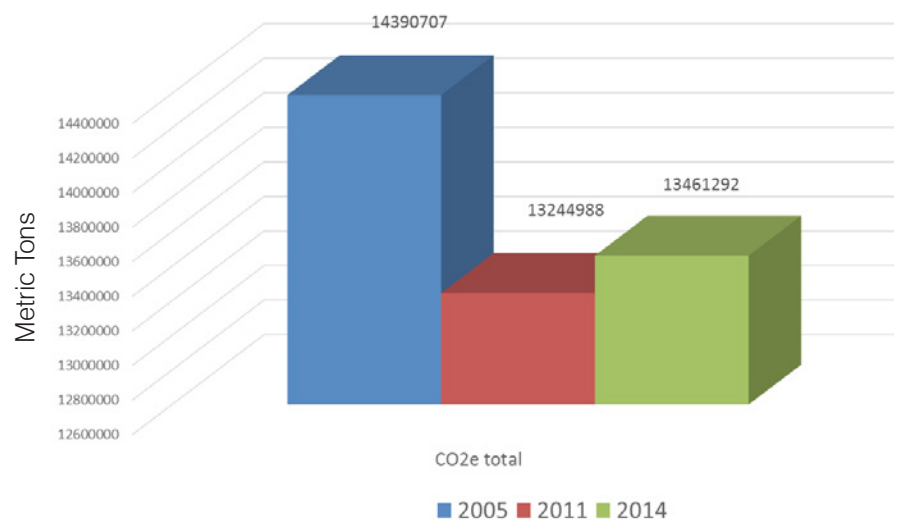


Nashville's population has continually grown from 2005 until now, and remains a "commute into" work destination. GHG emissions are thus expected to continue rising commensurately, while reflecting GHG reduction actions taken in the interim.

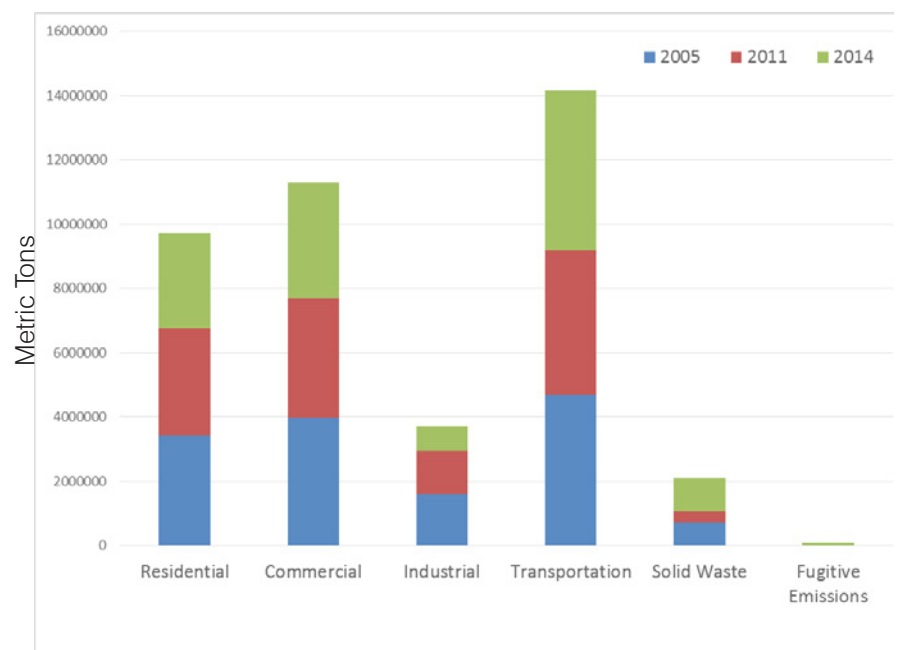
Many GHG emission-reduction actions have been taken since 2005 and more are underway; however, population growth continues compounding Nashville's challenges to reduce emissions. Mayor Barry's Livable Nashville Committee is developing responses for action, taking into account the contents of this new GHG inventory.

## Nashville Emissions by Year

Community Inventory: Total Emissions by Year in Metric Tons

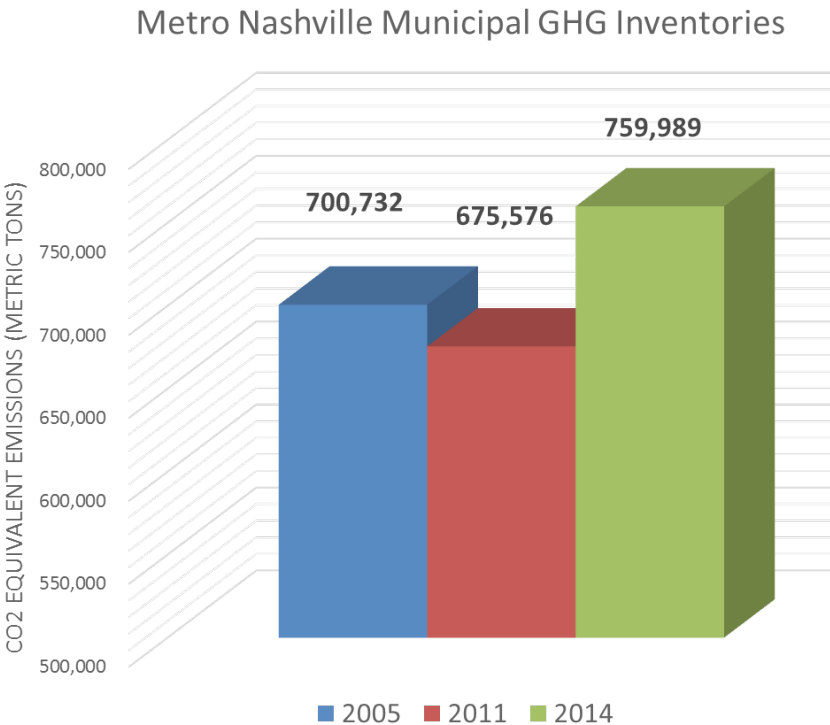


## Nashville Sector Comparison by Year

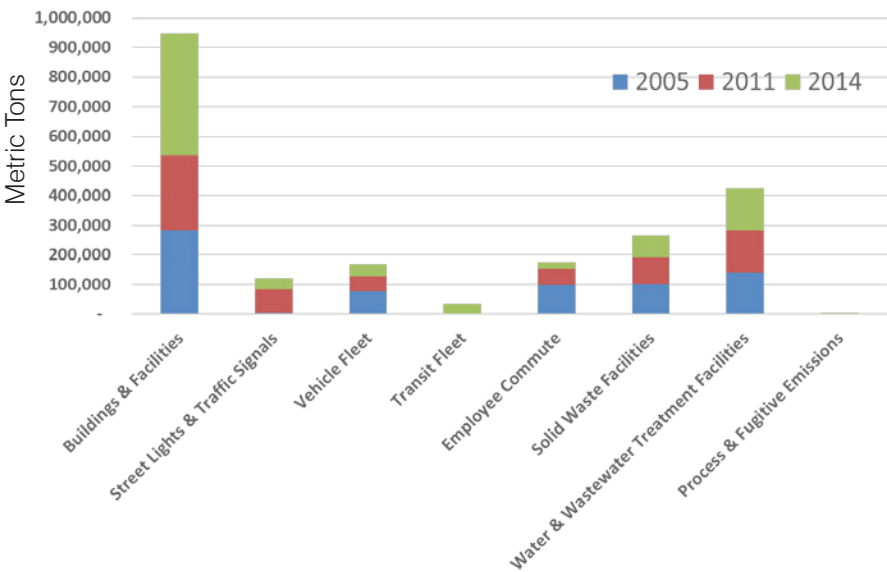




# Municipal Emissions by Year



# Municipal Sector Comparison by Year



# Executive Summary

## Livable Nashville Committee DRAFT Recommendations

On April 26, 2016, Mayor Megan Barry convened the Livable Nashville Committee –comprised of leaders from Nashville’s public, private, environmental, academic, and philanthropic sectors– and charged its members with developing a shared vision for protecting and enhancing Nashville’s livability and environmental quality.

Building off the accomplishments of Mayor Karl Dean’s 2009 Green Ribbon Committee, as well as the formally-adopted sustainability policies from Metro’s countywide General Plan NashvilleNext, their 2017 inaugural report recommends Nashville pursue goals and actions across five focus-areas: Climate and Energy, Green Buildings, Waste Reduction and Recycling, Mobility, and Natural Resources.

Nashville-Davidson County’s population is expected to grow by 186,000 over the coming 25 years. With more than 18,000 public inputs, NashvilleNext identified Guiding Principles along with specific strategies to address the challenges related to this growth – such as championing the environment by providing housing close to transit and jobs while protecting the unique character of our neighborhoods, green buildings and green infrastructure. Mayor Barry recognizes that with this added growth and prosperity comes a need to be proactive in preserving our quality-of-life and environmental resources.

The Livable Nashville Committee –co-chaired by Beth Geer of Vice-President Al Gore’s Office and Walker Mathews of R.C. Mathews Co.– has worked collaboratively to develop a prioritized list of measurable goals and actions reflecting the pioneering work of Mayor Dean’s Green Ribbon Committee, NashvilleNext and other related city plans, and Mayor Barry’s priorities.

### Livable Nashville Vision Statement:

To make Nashville the greenest city in the Southeast, together we will work to conserve resources; increase equity of access to clean air, water, nature and the amenities of a livable community; and preserve and enhance the dynamic and authentic Nashville we love.





## Community Involvement:

Community and stakeholder engagement with the Committee presents an opportunity to harness public interest in environmental leadership, and to initiate ambitious sustainability goals, policies, and projects.

- February 7th, 2017: Draft recommendations released for one-month public review and comment period;
  - o Online survey to assist with collecting public feedback on draft recommendations;
- Earth Day 2017 (anticipated): Livable Nashville Committee 2017 Report finalized and published.

## Proposed General Recommendations:

- A) Implement the practice of sustainability across and throughout Metro Departments with assigned staff and metrics.
- B) Work with the local philanthropic sector to encourage strategic, environmentally-focused giving.
- C) Appoint more citizens with an environmental ethic or a background in environmental sciences to Metro Boards and Commissions.
- D) Encourage current and future mayoral administrations to dedicate staff to sustainability practice.
- E) Structure the Metro Code and its enforcing Department around achieving sustainability goals.
- F) Establish an annual “Green State of Metro” mayoral address to update the public and stakeholders on progress of implementation on Livable Nashville’s recommendations.
- G) Develop partnerships around sustainability measures with board-governed, Metro-affiliated agencies such MDHA and MNPS.

## Climate & Energy

TARGETS	STRATEGIES	“SIZZLE” ITEMS
CLIMATE & ENERGY – Lower energy costs for residents and businesses, while reducing our reliance on oil and coal, in order to improve air quality and lower GHG emissions.		
<ul style="list-style-type: none"> <li>• Reduce Metro GHG emissions by 20% by 2020 (40% by 2030; 80% by 2050).</li> <li>• Reduce Nashville GHG emissions by 10% by 2020 (30% by 2030; 70% by 2050).</li> <li>• Install 10 MW of renewable energy by 2020; increase energy from renewables 30% by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish specific GHG emission-reduction targets and timelines</li> <li>• Scale up local renewable-power generation.</li> <li>• Reduce GHG emissions from non-building assets.</li> <li>• Develop an outreach/education campaign to engage citizens in reducing GHG emissions.</li> </ul>	<ul style="list-style-type: none"> <li>• NES to build 2MW Community Solar.</li> <li>• Convert street and traffic lights to LED and “dark-sky” compatible technologies.</li> <li>• Install 4-6 MW solar on Metro buildings.</li> </ul>

## Green Building

TARGETS	STRATEGIES	“SIZZLE” ITEMS
<b>GREEN BUILDING</b> – Enhance the resource-efficiency of new and existing buildings in order to improve occupant health and productivity.		
<ul style="list-style-type: none"> <li>• Reduce Metro building resource-use by 20% by 2020 (40% by 2030; 80% by 2050)</li> <li>• Reduce Nashville building resource-use by 10% by 2020 (25% by 2030; 75% by 2050).</li> <li>• Ensure energy utilities for low-income residents are under 20% of income by 2020 (&lt;15% by 2030; &lt;10% by 2050).</li> <li>• Reduce energy consumption of commercial buildings by 5% by 2020 (20% by 2030; 60% by 2050).</li> </ul>	<ul style="list-style-type: none"> <li>• Improve energy-efficiency in Metro buildings.</li> <li>• Improve energy-efficiency in residential buildings.</li> <li>• Improve energy-efficiency in commercial and institutional buildings.</li> <li>• Improve energy Code compliance</li> <li>• Deploy education/outreach strategies at the building level to increase individual action.</li> </ul>	<ul style="list-style-type: none"> <li>• Build a highly-visible ‘Zero Net Energy’ Metro building.</li> <li>• Launch a “Round It Up” program to fund low-income energy-efficiency projects.</li> <li>• Launch a Green and Healthy Homes Initiative.</li> </ul>

## Natural Resources

TARGETS	STRATEGIES	“SIZZLE” ITEMS
<b>NATURAL RESOURCES</b> – Ensure Nashville enjoys clean air, clean water, and conserved green, open spaces.		
<ul style="list-style-type: none"> <li>• 0 stream miles added to 303B designation by 2020 (Remove all 350 miles from list by 2050).</li> <li>• 0 hazardous air-quality days by 2020 (0 days with risk to human health by 2050).</li> <li>• 4000 acres of land preserved by 2030.</li> <li>• 10 new miles of greenways by 2020; 53 new miles by 2030.</li> <li>• Stop net tree-loss by 2020 (Plant 500,000 trees by 2050).</li> </ul>	<ul style="list-style-type: none"> <li>• Restore natural functions of the landscape to improve water quality, save money, and improve resiliency</li> <li>• Plant a half-million trees to increase canopy-cover from 47% to 50%.</li> <li>• Conserve, restore, and sustainably manage public and private lands throughout Davidson County.</li> <li>• Ensure that outdoor air-quality is healthy for all of Nashville’s residents by reducing non-point source air pollution.</li> </ul>	<ul style="list-style-type: none"> <li>• Stop net tree loss and plant 50,000 trees during first term</li> <li>• Launch a Conservation Assistance Fund.</li> <li>• Implement a high-profile ‘De-pave’ [green infrastructure] project, such as the Nissan Stadium parking lot.</li> </ul>



## Waste Reduction & Recycling

TARGETS	STRATEGIES	“SIZZLE” ITEMS
<b>WASTE REDUCTION &amp; RECYCLING – Reduce, Reuse, Recycle our waste for a healthier, cleaner, more prosperous Nashville.</b>		
<ul style="list-style-type: none"> <li>• Reduce food waste by 10% by 2020 (50% by 2030).</li> <li>• Increase landfill-diversion rate to 35% by 2020 (50% by 2030; Zero waste by 2050).</li> </ul>	<ul style="list-style-type: none"> <li>• Increase residential recycling rates.</li> <li>• Reduce construction and demolition waste.</li> <li>• Increase rates of commercial waste-diversion and recycling.</li> <li>• Demonstrate leadership on food-waste reduction.</li> <li>• Leverage Metro’s administration of the solid-waste program.</li> <li>• Equip Metro Government with the ability to “lead by example.”</li> </ul>	<ul style="list-style-type: none"> <li>• Mayor’s Restaurant Food-Saver Challenge</li> <li>• Biweekly curbside-recycling pickup.</li> <li>• Glass-Bottle recycling pilot-project with lower-Broadway’s Honkey-Tonk row.</li> </ul>

## Mobility

TARGETS	STRATEGIES	“SIZZLE” ITEMS
<b>MOBILITY – Provide more transportation options for cleaner air, healthier commutes, and better access to jobs and opportunities.</b>		
<ul style="list-style-type: none"> <li>• Increase active-transportation [bike/ped] mode share to 7% by 2020 (12% by 2030; 30% by 2050).</li> <li>• Achieve Vision Zero program goals (no increase in traffic fatalities by 2020; 50% reduction by 2030; zero fatal crashes by 2050).</li> <li>• By 2030, increase share of households within 0.5 mile of transit running at least every 15 minutes to 40%.</li> <li>• Transition 25% of Metro LDV fleet to AFV by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>• Organize Metro institutions and processes around delivering a more equitable, efficient multi-modal transportation system.</li> <li>• Bring <i>nMotion</i> to life.</li> <li>• Empower Nashvillians of all ages and abilities to get around by bicycle.</li> <li>• Develop and implement a true Vision Zero program.</li> <li>• Use technology and innovation to improve the transport system.</li> <li>• “Green” the vehicle fleet.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase frequency and service-hours on 14 MTA routes (benefiting 70% of today’s ridership, requiring 50 new buses).</li> <li>• Build a high-profile protected bikeway in the urban core.</li> <li>• Launch a robust, regional Transportation Demand Management program.</li> </ul>

# Climate & Energy

## SUBCOMMITTEE TEAM

The subcommittee was chaired by Dodd Galbreath and consisted of Martin S. Brown, Sr., Eddie Davidson, Anne Davis, Decosta Jenkins, Chris Lunghino, Ryan Stanton, Jennifer Westerholm, Beth Prichard Geer, with technical assistance from Amanda Garcia.

The Climate & Energy Subcommittee provided oversight for an update to Nashville's greenhouse gas (GHG) inventory that was completed at the end of 2016. Nashville's last GHG inventory was updated in 2011. The group was committed to setting measurable goals and recommendations for Nashville and Metro Government to lower GHG emissions and energy consumption through gains in efficiencies and renewables. The subcommittee has recommended three targets addressing greenhouse gas emissions and the share of renewable energy sources in our annual fuel mix. The group has recommended 11 actions across 4 strategies including, setting GHG emission reductions, scaling up renewable energy, addressing emissions from non-building assets, and developing an outreach and communications plan. Implementation of the subcommittee's recommendations will lower energy costs for residents and businesses and reduce our reliance on oil and coal to improve air quality and lower GHG emissions.

## TARGETS

## GOALS

	Baseline	Desired Trend	2020	2030	2050
Annual Metro Government's greenhouse gas emissions	2014	Decrease	20%	40%	80%
Annual Nashville-Davidson County greenhouse gas emissions	2014	Decrease	10%	30%	70%
Renewable energy in annual fuel mix	2014	Increase	10 MW	30%	





## STRATEGIES

### 1 Establish specific GHG emission reduction targets and timelines

#### Recommendations & Actions

A) Institutionalize GHG and energy tracking. Specific actions could include, but are not limited to:

- Work with Metro Council to institutionalize GHG inventory process through municipal ordinance.
- Require comprehensive energy usage and GHG reporting for all Metro Departments.
- Request quasi-independent municipal agencies adopt a commitment to report energy usage and GHGs.
- Establish high-level budgetary liaison between Metro and NES to identify opportunities to reduce GHG emissions.
- Work with NES, Piedmont Gas and Metro Finance to consolidate municipal-wide and community-wide data for better benchmarking and more efficiency.
- Expand future municipal GHG inventories to include Scope 3 emissions and explore inclusion of Scope 3 emissions in future community-wide GHG inventories.
- Incorporate intensity-based metrics into future GHG inventories.
- Identify additional actions needed to create a robust, all-encompassing data-management system for GHG tracking.
- Assign a specific contact person at each Metro department with responsibility for regularly reporting data on GHG emissions.

B) Require regular reviews and updates of Metro's GHG targets and actions.

- Commit to review targets every four years to identify opportunities to reduce GHG emissions more quickly than planned and revise targets accordingly.

C) Develop climate action and adaptation plans. Specific actions could include, but are not limited to:

- Launch scenario planning to ensure the suite of strategies proposed will achieve Metro's targets.
- Develop climate adaptation plan and climate action plan consistent with the Compact of Mayors' requirements.
- Incorporate recommendations from the Connected Nashville stakeholder process into broader GHG reduction plans.
- Develop a comprehensive Resiliency plan in conjunction with the new Chief Resilience Officer.

# 2 Significantly scale up local renewable generation

## Recommendations & Actions

A) Increase renewables in utility energy mix. Specific actions could include, but are not limited to:

- Encourage Metro Council adopt a renewable portfolio standard that increases over time.
- Advocate for TVA to increase the percentage of utility-scale solar and wind in its portfolio.
- Support NES' application for TVA's 2017 Distributed Solar Solutions program funding for a 2 MW community solar project, including a carve-out for low-income residents.
- Work with Vanderbilt University to develop GHG mitigation bank and/or energy efficiency revolving loan fund mechanism.
- Encourage NES to adopt programs that promote renewable energy installation, such as Solarize and the US Department of Energy SolSmart.
- Support NES in reducing the timeframe for processing applications for renewable and interconnecting systems.

B) Install solar on Metro buildings. Specific actions could include, but are not limited to:

- Install economically feasible solar panels (at least 4-6 MW) on existing General Services' buildings.
- Evaluate additional opportunities for solar on MNPS and MDHA buildings.
- Request quasi-independent municipal agencies install solar.
- Encourage Metro Council to amend Metro Building LEED ordinance to require installation of solar on future municipal buildings.
- Evaluate opportunities to utilize distributed solar projects to build resiliency and provide battery backups throughout the community.

C) Leverage state and federal funding sources and mechanisms for renewable energy. Specific actions could include, but are not limited to:

- Explore partnership with State of Tennessee to make Nashville as the state capitol a model energy efficient city for the state.
- Leverage existing federal, state, TVA programs for energy efficiency and distributed renewables funding and financing.



## STRATEGIES

### 3 Reduce GHG emissions from non-building assets

#### Recommendations & Actions

A) Upgrade public lighting in Metro. Specific actions could include, but are not limited to:

- NES convert all streetlights in Urban Services District to LED, ensuring technology chosen meets the International Dark-Sky Association's guidelines.
- Public Works convert all traffic lights to LED by 2020.

B) Address emissions from solid waste

- Develop a strategy for reducing GHG emissions in the solid waste sector.

C) Address cross-sectoral emissions

- Explore the development of a municipal purchasing policy that reflects commitment to lower GHG emissions in the supply chain.



# 4 Develop an outreach and education campaign to engage citizens in reducing GHG emissions

## Recommendations & Actions

A) Develop public campaign to understand resident concerns and build engagement. Specific actions could include, but are not limited to:

- Conduct survey to gauge local interest in access to solar and energy efficiency measures in different sectors.
- Commit to publicly communicate progress toward GHG reduction goals, metrics, and milestones each year.
- Partner with NES on Socket, Unplug Nashville energy efficiency education campaign.
- Work with NES to promote the community solar project.
- Develop communications campaign highlighting energy savings of existing municipal solar installations and private commercial installations.

B) Create transparency in the electricity billing and energy consumption process. Specific actions could include, but are not limited to:

- Support NES adoption of transparent electric billing and rate design policy to encourage smart use of energy and adoption of efficiency measures among consumers.
- Encourage NES to implement customer-side Advanced Metering Infrastructure interface with customer access to real-time energy usage data.
- Develop local policy regarding access to aggregated utility data to encourage smart use of energy and adoption of efficiency measures.



# Green Buildings

## SUBCOMMITTEE TEAM

The subcommittee was chaired by Holly Baird and included Vice Mayor David Briley, Eddie Davidson, Bob Freeman, Walker Mathews, Curtis Stevens, Tiffany Wilmot, with department staff support from Laurel Creech, and technical assistance from Justin Southwick, Mike Blosser, and Michelle Hammond.

The Green Buildings Subcommittee has worked to set measurable goals and recommendations for Metro Government and the Nashville community to use green building practices as a visible and impactful way to measure, promote and recognize a more Livable Nashville. The subcommittee has recommended four targets addressing the resources used by Metro and Nashville buildings, improving the affordability of energy utilities for low-income residents, and costs-savings through reducing energy consumption for commercial buildings. The group's five strategies and 14 recommended actions include reducing GHG emissions, water use, and other environmental impacts generated by buildings, including Metro facilities, commercial, institutional, and residential properties; improve energy code compliance; and using education and outreach to increase individual action on energy-efficiency. Implementation of the subcommittee's recommendations will help enhance the resource efficiency of new and existing buildings, while also cutting energy costs and improving user health and productivity.

## TARGETS

## GOALS

	Baseline	Desired Trend	2020	2030	2050
Annual energy and water use, waste generation, and stormwater runoff for existing Metro buildings	2017	Decrease	20%	40%	80%
Annual energy and water use, waste generation, and stormwater runoff for existing Nashville buildings	2017	Decrease	10%	25%	75%
Annual energy utility bills are affordable for lower income Nashville residents*	2017	Decrease	< 20% of income	< 15% of income	< 10% of income
Commercial buildings sector annual energy consumption	2017	Decrease	5%	20%	60%

\*Based on Home Energy Affordability Gap definition of income (<http://www.homeenergyaffordabilitygap.com/>)





## STRATEGIES

### 1 Improve Energy Efficiency in Metro Buildings

#### Recommendations & Actions

A) Strengthen coordination and management of Metro buildings. Specific actions could include, but are not limited to:

- Conduct an energy, water waste and stormwater assessment for existing Metro buildings.
- Benchmark municipal building energy and water use, as part of US DOE's Better Buildings Challenge.
- Conduct regular audits of Metro buildings. Higher level audits for low-performing buildings.
- Conduct a feasibility analysis for the consolidation of Metro Departments' MEP (mechanical, electrical, plumbing) under the management of the Department of General Services.
- Establish an interagency energy task force for all municipal and quasi-independent municipal agencies to coordinate energy/GHG planning.
- Implement a continuous improvement process to evaluate Metro's new construction policies, as well as its operations and maintenance of existing buildings.

B) Increase efficiency of existing Metro buildings. Specific actions could include, but are not limited to:

- Require all Metro facilities to create energy/GHG management plans.
- Require Metro buildings to perform the cost-effective upgrades found in the audits.
- Conduct retro-commissioning on all Metro buildings that are low performers and/or above a size threshold (e.g. over 20,000 sf).

C) Increase efficiency of new Metro buildings. Specific actions could include, but are not limited to:

- Request quasi-independent municipal agencies to adopt Metro LEED ordinance requirement.
- Construct Metro's first Zero Net Energy building.
- Require Triple Bottom Line Assessments (TPL) on new Metro buildings.
- Enhance Green Procurement Policy for new construction.

# 2 Improve Energy Efficiency in Residential Buildings

## Recommendations & Actions

A) Encourage energy efficiency in affordable and workforce housing. Specific actions could include, but are not limited to:

- Work with NES to develop a “Round It Up” program similar to finance low income energy efficiency/weatherization projects.
- Provide bonus points for, or mandate, Green Building and Energy Star rated homes that receive funds from the Barnes Fund and the Housing Incentives Pilot Program (HIPP).
- Partner with Green and Healthy Homes Initiative (GHHI) to evaluate Nashville’s affordable housing stock and develop an action plan that addresses the findings of the evaluation.
- Influence award criteria of affordable housing property tax credits and other incentives to include a minimum requirement for Energy Star-rated homes.
- Provide training programs for developers interested in green building practices for affordable housing.
- Request MDHA board adopts LEED ordinance or equivalent for new construction.
- Work with MDHA to develop an audit and energy-efficiency program for all existing units, including education & outreach for tenants and training of maintenance staff.
- Evaluate peer cities and identify additional programs and funding opportunities to target energy-efficiency in affordable and workforce housing.

B) Create financing mechanisms for retrofits of residential properties. Specific actions could include, but are not limited to:

- Explore additional local incentives for energy efficiency and renewables, such as PACE financing, local property tax incentives, etc.
- Commit to energy efficiency goal for residential buildings at level that will facilitate achievement of GHG targets recommended by C&E subcommittee.



## STRATEGIES

### 3 Improve Energy Efficiency in Commercial and Institutional Buildings

#### Recommendations & Actions

- A) Work with commercial and institutional building owners to track energy use and accelerate improvements. Specific actions could include, but are not limited to:
- Create an industry roundtable group to share best practices on energy management and accountability for commercial buildings.
  - Launch a voluntary benchmarking program for large commercial and institutional buildings.
- B) Incentivize improvements to existing buildings. Specific actions could include, but are not limited to:
- Commit to an energy efficiency goal for commercial buildings of 2-3% savings annually as a percent of anticipated commercial sales.
  - Consider revising corporate incentive programs to also require green building improvements, such as LEED, on-bill financing, revolving loan funds, technical assistance, and property tax rebates for green certification.
  - Encourage use of cool roofs for new commercial roof construction or roof replacements.
- C) Support the development of new green buildings. Specific actions could include, but are not limited to:
- Consider amending the 2010 Downtown Code to allow more density than the current incentive for LEED (or equivalent) buildings.
  - Advocate for state legislative authority for green tax incentives along the transit corridors.
  - Provide a dedicated staff person at Metro Planning to support developers with green building requirements, regulations, and technical assistance.
  - Require commercial flat roof buildings to be solar ready, if possible.
  - Encourage Metro Council to adopt an ordinance requiring green building assessments (e.g. Triple Bottom Line, LEED, or equivalent) for new construction that receives Metro incentives (land donation, financial incentives, etc.).

# 4 Improve Energy Code Compliance

## Recommendations & Actions

A) Strengthen Metro codes and regulations. Specific actions could include, but are not limited to:

- Update Metro Nashville Codes to 2018 IECC Energy Code.
- Establish a three year review cycle to keep or advance Metro Nashville Codes.
- Create mandatory codes training for self-performing construction permit applications.
- Create a Metro Advisory Committee to review Codes and make recommendations on local amendments if appropriate.

B) Expand Green Permit Program. Specific actions could include, but are not limited to:

- Revise and expand the Green Permitting Incentive Program. Incentives for green buildings could be reduced permit fees, expedited permits, or priority inspections.
- Track residential and commercial green permits.

C) Strengthen the enforcement of Metro building codes. Specific actions could include, but are not limited to:

- Conduct a third party assessment of code practices and enforcement. Based on assessment, make recommendations for improvement.
- Reorganize Metro Codes Department to improve organizational efficiency.
- Improve enforcement of the 2012 IECC Energy Code.



## STRATEGIES

### 5 Use Education & Outreach to Increase Individual Actions

#### Recommendations & Actions

A) Launch local education and awareness programs. Specific actions could include, but are not limited to:

- Support Socket, Unplug Nashville as the education campaign for Metro sustainability efforts.
- Partner with local educational institutions on Opportunity Now, a summer youth training and job training program to identify and promote “green jobs”.
- Participate in Earth Hour.
- Partner with local trade groups/associations to provide a Green Building Award to leading green developers/designers/builders.
- Health Department to identify private partners to study the connection between the health (e.g. days absent/present) of occupants of sustainable buildings vs non-sustainable buildings.
- Promote and educate the private sector on the health-related business return on investment of green buildings.
- Support trainings for homebuilders and maintenance staff of green buildings.
- Organize Green Building tours: self-guided tours of green remodels and new homes, perhaps targeting celebrities’ green homes for a greater draw.
- Replicate KILL-A-WATT: Boston’s Education program about “phantom” electricity use.

B) Relaunch Mayor’s Workplace Challenge. Specific actions could include, but are not limited to:

- Relaunch workplace challenge program with a specific category for green buildings
- Create a recognition or challenge program (e.g. Mayor’s Workplace Challenge) to incentivize businesses to track and report GHG emissions.

C) Increase homebuyer awareness of green building features. Specific actions could include, but are not limited to:

- Create an education program for Realtors to market benefits of green homes.
- Amend Multiple Listing Service (MLS) to detail green building measures.
- Add monthly and yearly energy costs to Multiple Listing Service (MLS) home listings.





# Natural Resources

## SUBCOMMITTEE TEAM

The subcommittee was chaired by Mekayle Houghton and consisted of Liz Edsall McLaurin, Greer Tidwell, Gina Hancock, Gavin Duke, Vanessa Paz, Steve Law, with departmental staff support from Shain Dennison, Rebecca Dohn, and Jennifer Smith.

The Natural Resources Subcommittee has worked to set measurable goals and provide recommendations to improve our region's air quality, prevent water pollution in our rivers and streams, and preserve open space. The group has suggested six targets aiming to improve compliance with the Clean Water Act and the Clean Air Act, preserve more open space, build more greenway miles, and increase our tree canopy cover. The subcommittees recommended strategies include restoring natural functions of the landscape to improve water quality, planting more trees to increase our canopy cover, conserving and sustainably managing public and private lands, and improving outdoor air quality. Implementation of these recommendations will ensure that Nashvillians have clean air, clean water and open space to support life now and for future generations.

## TARGETS

## GOALS

	Baseline	Desired Trend	2020	2030	2050
Percentage of city streams that meet Clean Water Act's water-quality standards	2016	Increase	Achieve a net gain	40%	100%
Number of days that reach the EPA's criteria for unhealthy to sensitive groups, unhealthy, very unhealthy, hazardous on the Air Quality Index	2016	Decrease	0 days "unhealthy-hazardous"	0 days "unhealthy to sensitive groups"	No risk to human health on any day
Number of new acres of public park land and conserved private open space*	2016	Increase		4,000	
Percentage of rural and suburban residents within 3 miles of a park or greenway; urban residents within 1 mile, urban center residents within 0.5 mile*	2016	Increase		100%	
Number of new miles of Greenways*	2016	Increase	10 miles	53 miles	
Tree canopy grows to 50% coverage (up from 47%) for a net gain of 500,000 trees~	2016	Increase		175,000	500,000 / 50%

\*Targets are based on Plan to Play report; ~Target based on Urban Forestry Master Plan





## STRATEGIES

### 1 Restore Natural Functions of the Landscape to Improve Water Quality, Save Money, and Improve Resiliency

#### Recommendations & Actions

- A) Increase green infrastructure on Metro projects. Specific actions could include, but are not limited to:
- Complete a pilot depave project that demonstrates the conversion of impervious surfaces to living landscapes.
  - Replace 10 percent of impervious surfaces with green infrastructure at five Metro properties developed before LID stormwater regulations were in place.
  - Establish a program to retrofit existing sidewalk infrastructure to provide vegetated buffers between streets and sidewalks.
  - Establish full-time gardener positions for green-infrastructure in the appropriate Metro departments.
  - Conduct a cost-benefit analysis of potential flood-mitigation projects, including an approach that repurposes area floodplains for storage as well as floodwater reductions upriver from Downtown.
  - Work with MNPS to retrofit portions of the Harris Hillman campus and redirect runoff to rain gardens.
  - Retrofit 1-4 treeless parking-lots with inverted landscape islands.
- B) Encourage and incentivize use of natural infrastructure in private development. Specific actions could include, but are not limited to:
- Work with Nissan Stadium and the Metro Sports Authority to retrofit the stadium's parking lot with a pervious, green surface.
  - Launch a visioning process that includes a large downtown park in any potential redevelopment of the current PSC Metals site.
  - Institutionalize green-street engineering standards and implementation policies as outlined in Mayor Barry's May 2016 Executive Order on Green and Complete Streets.
  - Consider strengthening Metro's green-infrastructure requirements around parking-lot designs for private development.
- C) Encourage use of native species and natural landscapes, including local food production. Specific actions could include, but are not limited to:
- Promote use of native and food-producing flora on Metro properties and through NGO/neighborhood group cost-share programs
  - Promote natural landscapes through classes, brochures, signage, and community outreach including programs at Metro Parks' community centers.
  - Convert 500 acres of land from maintained turf-grass to native landscapes.
  - Complete Davidson County Food Systems Assessment.



# 2 Plant 500,000 More Trees to Increase our Tree Canopy from 47% to 50%

## Recommendations & Actions

A) Demonstrate Metro commitment to preserving and growing our tree canopy. Specific actions could include, but are not limited to:

- Accept “50x50 Challenge” to reach 50% canopy cover and develop implementation plan.
- Update Metro's 2010 Urban Tree Canopy Assessment to prioritize work.
- Evaluate potential for a Metro Urban Forestry Division that partners with local NGOs to comprehensively plan, plant, manage, and maintain Nashville's urban forest (including care for Metro's Green Streets).

B) Strengthen codes, standards, and right of way (ROW). Specific actions could include, but are not limited to:

- Expedite Metro Public Works' approval process around requests for tree-planting in the public right-of-way, and establish pre-approved zones for ROW plantings.
- Develop strategies to more rigorously enforce MCL Chapter 17.24 (Landscape Ordinance), and establish re-planting plans for violations.
- Develop green-street standards for Green and Complete Streets as triggered by capital improvement projects.
- Use citizen-empowerment tools and spot evaluations to ensure ordinance-inspectors are more consistently accountable for the enforcement of code compliance.
- Encourage Metro Council to update Landscape Ordinance (MCL 17.24) to align with tree-density goals for specified land-uses.
- Encourage Metro Council to amend the Landscape Ordinance (MCL 17.24) to protect existing trees that fall within 'Tree Protection Zones' and work to ensure a 10-year survival rate for newly-planted trees.
- Require new development to bury utility lines so the public right-of-way remains available for native landscaping.

C) Increase tree planting on Metro property. Specific actions could include, but are not limited to:

- Request that Metro Nashville Public Schools (MNPS) partners with NGOs to meet transect-specific tree-canopy targets on five school properties that could serve as pilot projects for the District as a whole.
- Establish a Tree Enhancement Program for Metro properties targeting five Metro properties to meet transect-specific tree-canopy targets.
- In partnership with NGOs, establish an interim tree-maintenance program for trees in the public ROW and on public lands.

D) Encourage community to expand tree cover. Specific actions could include, but are not limited to:

- Partner with NGOs to launch a neighborhood-tree planting initiative targeting tree-deficient neighborhoods and areas-of-need.
- Launch a “Friends of the Urban Forest” recognition program, and honor 5-10 commercial and church properties that meet targets for the urban-forest transect.

## STRATEGIES

### 3 Conserve, Restore and Sustainably Manage Public and Private Lands throughout Davidson County

#### Recommendations & Actions

A) Create dedicated funding streams for conservation. Specific actions could include, but are not limited to:

- Establish a Conservation Assistance Fund and associated grant-making program within Metro.
- Structure greenway and parkland acquisitions around prioritized protections for natural resources, sensitive ecosystems, and scenic vistas.
- Grow the Open Space Fund in order to meet new level-of-service goals established in Plan To Play – 4,000 acres of public land and privately-held, conserved open space.
- Convene key stakeholders to explore impact-fees and use of MDHA redevelopment-district TIFs for open space, particularly downtown.

B) Encourage creation of new public open space. Specific actions could include, but are not limited to:

- Consider revising the zoning code to prioritize open space preservation, parks and greenways as part of the residential and commercial development process, particularly in downtown.
- Purchase additional green space downtown.
- Create new open space acquisitions through thoughtful park- and greenway-oriented development (e.g. 'Rails to Trails' type strategies).
- Connect the existing greenway network and achieve new Plan To Play level-of-service goals for greenway access.
- Strengthen greenway and park networks to more actively preserve remaining wildlife corridors.
- Provide open-space bonus incentives for smaller-footprint housing or requested density-increases.

C) Strengthen regulations to better protect open spaces and vital natural resources, such as floodplains and ridges/steep slopes. Specific actions could include, but are not limited to:

- Increase quantity of, and professional development for, Zoning Examiners at Metro Codes.
- Protect steep slopes greater than 15 and prohibit ridgetop development.
- Prohibit development in the floodplain (exceptions being parks, greenways, agriculture, and similar passive uses).
- Protect critical rural parcels through both parkland acquisition and privately-held conservation easements in high-priority areas.
- Create taskforces and/or convene existing affiliated conservation groups to develop public/private conservation strategies for high-priority areas.
- Re-establish stream buffers on flood-buyout properties, such as Gibson Creek.
- Increase headwater stream-buffer requirements from 30' to 50' in sensitive watershed areas.

D) Preserve historic structures and landscapes. Specific actions could include, but are not limited to:

- Establish a fund and associated grant program to provide capital funds for preservation of historic structures, landscapes, and cultural resources.
- Create a Historic Preservation Grant Fund – a 50|50 match-grant program for historic buildings (NR, NRE) that are endangered or threatened.
- Incentivize adaptive reuse of existing structures through the development-review process.
- Initiate a grant program and a revolving fund through the Metropolitan Historical Commission and Historic Nashville, Inc. that would promote facade easements and allow for the purchase of threatened historic properties.

## 4 Ensure that Outdoor Air Quality is Healthy for all of Nashville's Residents by Reducing Non-Point-Source Air Pollution

### Recommendations & Actions

A) Launch public engagement campaigns to increase awareness and behavioral change. Specific actions could include, but are not limited to:

- Launch a “No Idling” pilot program at Nashville schools, hospitals, and daycare centers.
- Work with MNPS to participate in the Air Quality Flag program at ten pilot schools.

B) Utilize natural infrastructure to reduce pollution.

- Partner with the Tennessee Dept. of Transportation to plant trees and restore native grasslands on state and federal highways.

C) Convert turf maintenance equipment to propane or electric. Specific actions could include, but are not limited to:

- Evaluate feasibility of converting Metro turf-maintenance equipment to propane- and electric-energy sources.
- Provide educational resources to the city's lawn-care sector on propane and electric conversion.
- Encourage Metro Council to amend the Landscape Ordinance to incentivize conversion of traditional turf to naturalized landscapes.

D) Reduce air pollution from public fleet.

- Encourage MNPS to join the EPA's Clean School Bus Program and apply for federal funding to replace old school buses.

# Waste Reduction & Recycling

## SUBCOMMITTEE TEAM

The subcommittee was co-chaired by Linda Breggin and John Sherman and included Robert Cheney, Anne Davis, John Esposito, Beth Fortune, Todd Lawrence, Pam Martin, Vanessa Paz, and Van Pinnock, with departmental staff support from Sharon Smith.

The Waste Reduction and Recycling Subcommittee has worked to set measurable goals and provide recommendations to increase recycling and composting and reduce overall waste generated in Davidson County across municipal, residential, commercial, and industrial sectors. Since Public Works has recently launched a Solid Waste Master Plan, the group focused on identifying short and midterm (1-3 years) opportunities to jump start waste reduction, while also informing and providing oversight for the long-range Solid Waste Master Plan. The subcommittee has recommended two targets aimed at reducing food waste and setting Davidson County on a path to achieving a long-term zero waste goal. The groups six strategies and 13 recommended actions include increasing residential and commercial diversion and recycling, reducing construction and demolition waste, demonstrating leadership on food waste, improving Metro's administration of the solid waste program, and encouraging Metro to lead by example. Implementing the subcommittees recommendations will help Davidson County reduce our waste and keep our city clean for now and future generations to enjoy.

## TARGETS

## GOALS

	Baseline	Desired Trend	2020	2030	2050
Annual waste diversion from landfills*	24% [2016]	Increase	35%	50%	100%
Annual food waste sent to landfills	2017	Decrease	10%	50%	

\*2030 and 2050 goals will adjusted as needed once the Solid Waste Master Plan is completed





## STRATEGIES

### 1 Increase Residential Recycling

#### Recommendations & Actions

A) Expand Metro recycling program. Specific actions could include, but are not limited to:

- Establish bi-weekly recycling pickup in urban services district.
- Evaluate options for glass collection and recycling.
- Investigate increasing convenience centers in underserved areas, particularly the western half of County's general services district.
- Evaluate potential for requiring recycling in existing and planned multi-unit dwellings in cooperation with the TN Apartment Association and other stakeholder groups.
- Provide bonus points for Barnes-Fund supported housing units that will offer on-site recycling containers.
- Request that MDHA public-housing units are equipped with on-site recycling containers.

B) Increase public education and engagement on recycling and composting. Specific actions could include, but are not limited to

- Work with Urban Green Lab to ensure 80 percent of all 3rd grade public school classrooms receive recycling education.
- Launch a public education campaign on current rates of recycling, reducing, and reusing waste and on zero waste goal.
- Partner with non-profit organizations and private haulers to promote residential food composting.
- Work with Metro Councilmembers to encourage recycling in their districts.



## 2 Increase Commercial Diversion and Recycling

### Recommendations & Actions

A) Increase commercial recycling. Specific actions could include, but are not limited to:

- Pilot a voluntary glass bottle recycling program with downtown bars and restaurants.
- Evaluate the feasibility to establish requirements for reduction, recycling and reuse plans in connection with building permits.

B) Expand Green Permit Program. Specific actions could include, but are not limited to:

- Develop a plan for reducing or eliminating the distribution of plastic bags.
- Work with the Hospitality Association and others to reduce or possibly eliminate the use of polystyrene in food service operations

## 3 Reduce Construction and Demolition Waste

### Recommendations & Actions

A) Reduce generation of construction and demolition waste. Specific actions could include, but are not limited to:

- Convene dialogue with Association of General Contractors, Association of Builders and Contractors, US Green Building Council, and appropriate Metro agencies to explore options to reduce generation of construction and demolition wastes.
- Expand current requirements to include reduction and reuse plans in connection with building permits.
- Request that builders include materials-recycling reports at conclusion of construction projects before use and occupancy permits are issued.

## STRATEGIES

### 4 Demonstrate Leadership on Food Waste Reduction

#### Recommendations & Actions

A) Set targets and increase measurement of food waste. Specific actions could include, but are not limited to:

- Adopt the new FDA national goal to reduce food waste by 50% by 2030 (10% by 2020) commit to report annually on progress.
- Issue an Executive Order setting goals for Metro's reduction of food waste and directing Metro departments to consider food-waste reductions in their operations, including contracting and event planning.
- Support the Nashville Food Waste Initiative's efforts to conduct baseline measurement initiatives.
- Encourage Metro quasi-independent agencies (e.g., Music City Center, Airport Authority, Metro-Nashville Public Schools) to adopt food waste reduction goals and consider food-waste reductions in their operations, including contracting and event planning.

B) Work with large producers of organic waste to reduce or compost food waste. Specific actions could include, but are not limited to:

- Issue a Mayor's Restaurant Food Saver Challenge to encourage restaurants to reduce their food waste.
- Investigate the value of legislation to require mandatory organics separation for companies generating more than one ton of food waste per week.

C) Increase food donations. Specific actions could include, but are not limited to:

- Develop a website to educate on best practices for surplus food donations.
- Create a Healthy Food Donation Initiative to: i) encourage area businesses to donate surplus food; and ii) build the capacity of Nashville's emergency food system.
- Work with the Metro Health Department to train inspectors on food-donation practices and options.
- Implement a food-waste prevention education/outreach effort based on the Food: Too Good to Waste program, or similar efforts.
- Participate in the National Ad Council/Natural Resources Defense Council "Save the Food" campaign.

D) Expand capacity to process organic waste. Specific actions could include, but are not limited to:

- Explore options to allow siting of organic material recycling facilities in a broader range of zoning districts by rule.
- Explore opportunities to develop an organic food processing facility and/or anaerobic digester.



# 5 Leverage Metro's Administration of Solid Waste Program

## Recommendations & Actions

### A) Enforce restrictions on waste disposal

- Train Metro Public Works staff to enforce disposal restrictions on cardboard, electronic waste, yard waste and other recyclable and compostable materials.

### B) Restructure incentives to encourage reduction of solid waste. Specific actions could include, but are not limited to:

- Investigate usage-fee options for waste collection, including, but not limited to: listing collection costs on property-tax bills, issuing a separate waste-collection bill (similar to water or electric bills), or charging according to size-of-waste containers.
- Ensure new Metro disposal contracts do not create financial penalties for waste reduction, and allows adequate flexibility for amendments to facilitate attainment of a zero-waste goal, by accommodating new policies and technologies.

### C) Institutionalize Solid Waste Master Plan. Specific actions could include, but are not limited to:

- Establish a policy of annual review and updates to Solid Waste Master Plan by the Davidson County Solid Waste Region Board and Metro Public Works.
- Release updated Solid Waste Master Plan

# 6 Lead by Example

## Recommendations & Actions

### A) Ensure Metro is leading by example. Specific actions could include, but are not limited to:

- Require Metro departments and agencies to have recycling bins at all Metro-sponsored events.
- Request that Metro Sports Authority has recycling services at all of their venues.
- Prohibit polystyrene-foam food-service containers at Metro-sponsored events; use recyclable or compostable containers instead.
- Prohibit the sale of single-use plastic water bottles at Metro-sponsored events whenever feasible, and ensure availability and promote use of potable water whenever possible.
- Request that MNPS facilities offer recycling containers, including containers in each classroom.
- Increase street recycling bins with goal of replacing all street litter baskets with dual stream trash and recycling containers that are labeled clearly and picked up regularly.

# Mobility

## SUBCOMMITTEE TEAM

The subcommittee was chaired by Mary Vavra and included Mark Deutschmann, Janet Miller, Jana Davis, Joe Woolley, Commissioner Bob Martineau, Nora Kern, Gini Pupo-Walker, MaryAnne Howland, Matt Von Lunen, and Eddie Davidson, with departmental staff support from Michael Briggs and Peter Bird.

The Mobility Subcommittee worked to set measurable goals and provide recommendations to reduce the environmental impacts of the transportation sector, including greenhouse gas emissions and criteria air pollutants. The group also worked to identify opportunities to encourage low-carbon trip choices (walking, biking, and transit) and to develop strategies that create a more sustainable and better-integrated transportation system. The subcommittee's recommended targets aim to increase the mode share of active transportation options, ensure our streets are safe for all modes, increase access to transit, and to green the Metro fleet. The group's six strategies and 20 recommended actions include enhancing Metro departmental coordination, improving transit service and biking opportunities, implementing a Vision Zero program, better utilizing technology to improve the transportation system, and increasing the number of alternative fuel vehicles in Nashville. Implementation of the group's recommendations will provide more transportation options for cleaner air, healthier commutes, and better access to jobs and opportunities.

## TARGETS

## GOALS

	Baseline	Desired Trend	2020	2030	2050
Percentage of commuters using active transportation options (transit, biking and walking)* ~	2016	Increase	7%	12%	30%
Annual number of fatal crashes by all modes of travel ~	2017	Decrease	No Increase	50%	100%
Percentage of households within a 0.5 mile walk of a frequent transit route running every 15 minutes or better*	2016	Increase	25%	40%	60%
Percentage of Metro LDV (Light Duty Vehicles) fleet that are electric or alternative fuel	2016	Increase		25%	

\*Targets are based off of the nMotion Strategic Plan; ~Targets are based on the WalknBike Strategic Plan



## STRATEGIES

### 1 Organize Metro Institutions and Processes to Deliver a Better Multimodal Transportation System

#### Recommendations & Actions

- A) Increase coordination among transportation entities. Specific actions could include, but are not limited to:
- Establish regular coordination meetings and processes among Metro department heads, Mayor's Office, and other stakeholders (such as greenways).
  - Complete Downtown Mobility Study to better address circulation challenges in the region's jobs center.
  - Locate the Metro DOT, Planning, and MTA administration in the same physical office space.
- B) Explore creation of a Metro DOT. Specific actions could include, but are not limited to:
- Metro Planning, Public Works, MTA/RTA will evaluate the creation of a Metro Department of Transportation.
  - Commit new funding to staff and deliver full suite of services for a Metro DOT.
  - Publish an MDOT Strategic Plan.
- C) Place an equal emphasis on all forms of transportation. Specific actions could include, but are not limited to:
- Create policies that place multimodal trips on an equal footing with driving.
  - Implement a Transportation Demand Management (TDM) program to market and expand use of transit, active transportation, and rideshare options (MTA EasyRide, vanpool, carpool, etc.).
  - Encourage all companies with workforce of 100+ to designate a transportation coordinator responsible for incentivizing use of carpools, vanpools, telecommute.
  - Utilize TDM to increase efficiency of the existing transportation system. Could include: limiting street closures during peak times, off-peak freight delivery, limiting left turns on major corridors, encouraging employers and schools to vary start/finish times.
  - Prioritize 'green' transportation choices in traffic-management plans for special events and new development.
  - Explore pricing publicly-owned parking closer to market rates; invest proceeds in multimodal projects (bikeshare, sidewalks).



# 2 Bring the nMotion Vision to Life

## Recommendations & Actions

A) Expand access to and use of transit. Specific actions could include, but are not limited to:

- Increase participation in MTA EasyRide program.
- Encourage Metro Council to adopt a transit-oriented development (TOD) ordinance that allows for transit-supportive land uses, removes parking minimums around transit centers. Adopt a goal for percentage of development that should happen in TOD's.
- Identify potential ballot measures for dedicated transit funding, in Davidson County and neighboring counties.

B) Improve bus service. Specific actions could include, but are not limited to:

- Extend service hours on MTA's busiest routes.
- Pilot on-demand reservations for Access Ride system.
- Begin construction on TIGER-funded Murfreesboro Transit Signal Priority (TSP) project.
- Introduce more frequent service (routes running every 15 minutes or better) on MTA's busiest routes.
- Initiate crosstown routes, as recommended in nMotion.
- Improve AccessRide system, including system expansion, on-time performance, after-hours dispatching, and real-time information.
- Implement plans for downtown access and mobility to better prioritize transit.

C) Begin development of new high capacity corridors and improve Music City Star service. Specific actions could include, but are not limited to:

- Select first high-capacity corridor and begin initial design, engineering, and environmental analysis.
- Commit funds to finalize engineering and begin construction of first high-capacity transit corridor.
- Commence Alternatives Analyses for nMotion HCT corridors.
- Improve the Music City Star line and station areas to increase ridership.

D) Improve communication with the public. Specific actions could include, but are not limited to:

- Update MTA/RTA website and market the real-time transit app.
- Extend customer-service hours to coincide with bus-hour operations with trained staff to answer calls.
- Rebrand MTA/RTA services, and specific service categories with the overall goal of service simplification and positive brand recognition.

## STRATEGIES

### 3 Empower Nashvillians of All Ages and Abilities to Bike

#### Recommendations & Actions

A) Expand bike share system. Specific actions could include, but are not limited to:

- Develop a funding plan to quadruple the number of bikeshare kiosk locations in Nashville.
- Investigate subsidy strategies for bikeshare expansions to lower-income neighborhoods.

B) Expand bike Infrastructure. Specific actions could include, but are not limited to:

- Finalize a 5-year project list of low-stress bikeways as part of WalkNBike. Publish clear goals and benchmarks.
- Align bikeway and greenway implementation.
- Break ground on first priority protected bikeway project identified in WalkNBike.
- Identify additional funding for urban greenway access (inner-loop and I-440).
- Identify eligible streets for “road diets.”
- Work to achieve Gold-level status for Bicycle-Friendly Communities, including increasing bike parking and improving cyclist safety at intersections.
- Incentivize trail-oriented development along I-440 Greenway.
- Deliver 3-5-year priority, urban-core greenway projects as outlined in Plan To Play.
- Complete additional WalkNBike priority bikeway projects (low-stress network, bike boulevards, crossings, programs, policies).

C) Launch community engagement events

- Promote a youth biking culture through school activities and community events, such as Open Streets and Bike to School Day.

# 4 Develop Vision Zero Program

## Recommendations & Actions

A) Adopt a Vision Zero action plan. Specific actions could include, but are not limited to:

- Convene an interdepartmental team to set goals and benchmarks around road safety.
- Develop an online platform for mapping crash data and tracking progress of VZ implementation.
- Develop goals and action-items for all Metro departments with a role in traffic safety.
- Launch a public-education campaign for safety awareness among motorists, pedestrians and cyclists.
- Implement infrastructure countermeasures at (at least) five locations per year in Metro Public Works' 2014 Bicycle & Pedestrian Safety Pilot Project.

B) Redesign roadways for safety. Specific actions could include, but are not limited to:

- Begin retrofitting existing corridors to be complete streets.
- Establish a user-friendly process for community groups wanting to work with Metro on tactical-urbanism installations (e.g. "Living Laboratory" Program).
- Identify 5 pilot projects to implement 20 MPH zones near intersections with a high-collision history and/or near high pedestrian generators.
- Implement engineering and enforcement countermeasures at the 20 most dangerous intersections.
- Revise traffic calming application and implementation process to reduce time-consuming bureaucratic reviews.
- Develop clear, concise guidelines for traffic-calming measures that all neighbors can understand.

C) Strengthen traffic enforcement. Specific actions could include, but are not limited to:

- Advocate for strengthening state law to improve safety for the most vulnerable roadway users.
- Explore the installation of traffic cameras around schools and high-crash intersections.

## STRATEGIES

### 5 Use Technology and Innovation to Improve Mobility System

#### Recommendations & Actions

A) Improve transit service. Specific actions could include, but are not limited to:

- Implement Advanced Fare Collection System (e.g. eliminate transfer fees, pilot mobile payment systems).
- Create, promote a platform/app with a menu of mobility options, featuring seamless payment and coordination between modes and allowing users to preference filters for time, cost, etc.
- Launch a first-mile/last-mile pilot with TNCs (Transportation Network Companies).
- Identify additional corridors and funding to implement transit signal priority improvements.
- Support Vanderbilt's application to NSF's Smart & Connected Corridor program.

B) Reduce congestion. Specific actions could include, but are not limited to:

- Develop a bicyclists and pedestrians count program. Designate necessary staff and technology to collect, monitor, and publicly share data.
- Explore purchasing and deploying "smart sensors" to read on-the-ground traffic conditions in real time and adjust signals accordingly.
- Explore, in collaboration with TDOT, installing traffic-monitoring devices along all Interstates and other key routes.
- Monitor performance and report on the effectiveness of Metro's new signal-timing and traffic-management systems, including their optimization for pedestrian safety.
- Pilot new, innovative congestion-management strategies during events (concerts, sports games, festivals).

C) Improve parking. Specific actions could include, but are not limited to:

- Conduct an assessment on parking spaces downtown to determine appropriate pricing, policies, and technology improvements.
- Work with neighborhood groups to develop a multimodal strategy and move towards a comprehensive approach to parking for neighborhood centers.
- Pilot a "smart" parking-meter installation project for on-street parking spaces in select neighborhood(s).

D) Advance connected infrastructure and autonomous vehicles. Specific actions could include, but are not limited to:

- Demo an autonomous vehicle shuttle, such as the EZ-10.
- Identify partners to pilot autonomous vehicle technologies and applications in Nashville.
- Explore opportunities to install Connected and Automated Vehicle (CAV) infrastructure along key corridors.



# 6 “Green” the Vehicle Fleet

## Recommendations & Actions

A) Increase the number of low-to-no emission vehicles owned by Metro Government. Specific actions could include, but are not limited to:

- Metro General Services to participate in Electrify America.
- Conduct an inventory of publicly-available, electric-vehicle charging stations and evaluate demand for new infrastructure.
- Establish a Metro interdepartmental taskforce to develop policies for fuel-efficient routing and telecommuting.
- Consider municipal EV/AFV goals mirroring those of Indianapolis. Indianapolis is transition its entire 3,100-vehicle fleet by 2025.

B) Increase the number of low emission transit vehicles. Specific actions could include, but are not limited to:

- Ensure new MTA transit coaches are best-available-technology, such as hybrid-electric clean diesel.
- Explore purchasing more fully electric buses.

C) Identify partners to deploy electric vehicle/alternative fuel vehicles ride-sharing and car-sharing programs. Specific actions could include, but are not limited to:

- Research private-sector partnerships and TVA grant opportunities to help launch an all-electric car-share service in Nashville (such as the recent deployment in Chattanooga).
- Encourage TNCs (Transportation Network Companies) and taxi companies to incorporate low emission vehicles into their fleet and/or operations.



# Livable**Nashville**

C o m m i t t e e   D R A F T   R e c o m m e n d a t i o n s