

# GREENHOUSE GAS DRIVERS OF CHANGE

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Water Resources Technical Committee  
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Metropolitan Washington  
Council of Governments

# Tracking Progress Towards Shared Goals

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- All COG local governments have adopted goals to reduce GHG emissions.
- Climate, Energy and Environment Policy Committee (CEEPC) works together to meet local and regional GHG goals.
- Elected officials and stakeholders: GHG inventories are a top priority



# Drivers of GHG Change Project

- MWCOG is a partner on a national grant team under the US Department of Energy CLEAP (Cities Leading through Energy Analysis and Planning) Program. Two main tasks include:
  - Develop new inventory (2015) and condition last inventory (2012).
  - Support development of a *GHG drivers of change model and toolkit* for local community-scale inventories. Test model with 2 regional inventory years.



# Methodology Basics

- Strive for US Communities Protocol and Global Protocol Compliance
- ClearPath online tool
- Global Warming Potential Factors from IPCC 4<sup>th</sup> Assessment
- Activities-based inventory
- Consistent, reliable data sources for all years, all COG members

## Emissions Types

Built Environment

Transportation and Mobile

Wastewater Treatment

Solid Waste Treatment

Agriculture

Some Process and Fugitive

## Greenhouse Gases

Carbon dioxide (CO<sub>2</sub>)

Methane (CH<sub>4</sub>)

Nitrous oxide (N<sub>2</sub>O)

Hydrofluorocarbons (HFCs)

Perfluorocarbons (PFCs)



# MWCOG Team

Project Advisors: Steve Walz, Jeff King

Project Manager: Maia Davis

Emissions Types	Staff
Built Environment	Maia Davis, Tim Masters
Transportation and Mobile	Sunil Kumar, Ron Milone, Dusan Vuksan, Jinchul Park, Rick Roisman, Arianna Koudounas, Abdul Mohammed, Maia Davis
Wastewater Treatment	Tanya Spano, Mukhtar Ibrahim, Nasser Ameen, Maia Davis
Agriculture	Tanya Spano, Mukhtar Ibrahim, Lindsay Smith, Jimmy Shue, Maia Davis
Solid Waste Treatment	Maia Davis, Tim Masters, John Snarr
Process and Fugitive Emissions	Maia Davis, Tim Masters



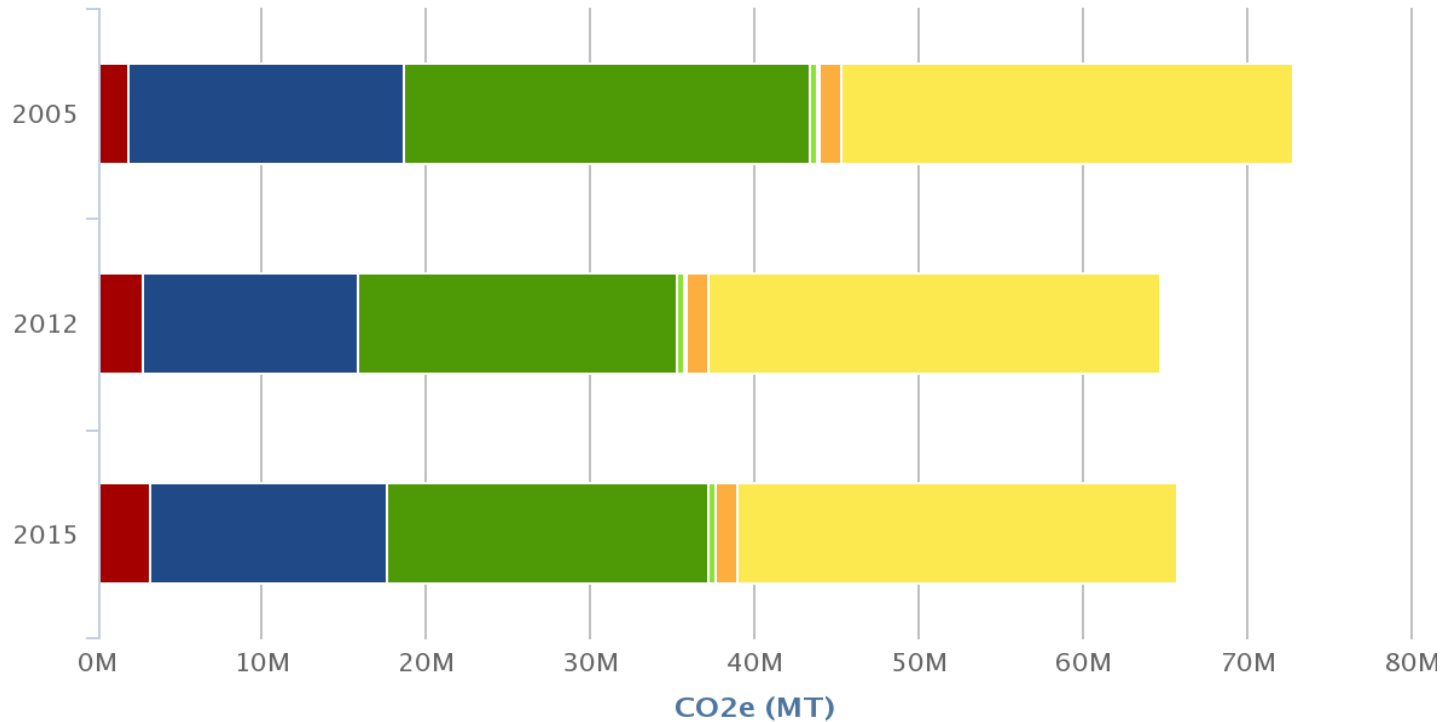
# Project Timeline

Month	Activities
Summer/Fall 2017	<ul style="list-style-type: none"><li>• Condition 2012 inventory, develop 2015 GHG inventory</li><li>• Begin developing GHG drivers of change model with CLEAP team</li></ul>
October – December 2017	<ul style="list-style-type: none"><li>• GHG Inventory Work Session</li><li>• Comment period and 1-on-1 meetings with local jurisdictions</li></ul>
January – March 2018	<ul style="list-style-type: none"><li>• Adjustments/additions to 2012, 2015 inventories</li><li>• Complete 2005 GHG inventory conditioning</li><li>• Model metro Washington GHG drivers of change for 2012-2015</li></ul>
April – June 2018	<ul style="list-style-type: none"><li>• Final ClearPath entries, spreadsheets and fact sheets to Final GHG Inventory Methodology Guide</li></ul>
July 2018	<ul style="list-style-type: none"><li>• GHG drivers of change workshop with ICLEI, BEEAC and CEEPC</li></ul>



# Regional GHG Trends, 2005-2012-2015

Metropolitan Washington greenhouse gas emissions decreased by 10% from 2005 to 2015.



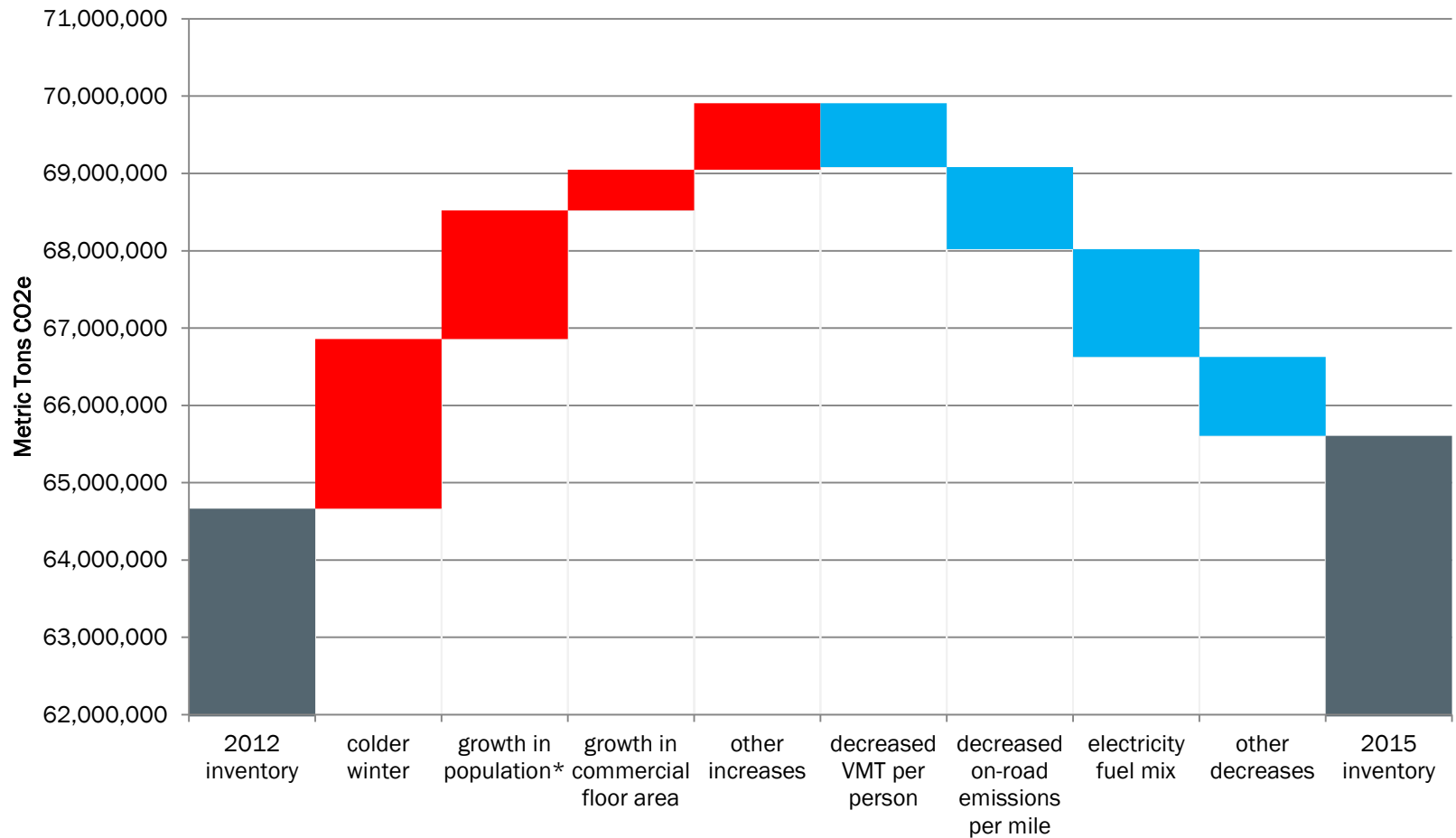
■ Process & Fugitive Emissions ■ Residential Energy ■ Commercial Energy ■ Agriculture  
■ Water & Wastewater ■ Solid Waste ■ Transportation & Mobile Sources

Source: ICLEI ClearPath

Highcharts.com



# Leading Drivers of Change, 2012-2015



Source: ICLEI Drivers of Change Tool, Beta





# Wastewater Treatment Trends

## GHG Inventory INPUTS:

Emissions Activity	2005	2012	2015	% Change, 2012-2015
Population Served by Septic	326,228	342,445	346,977	6%
Population Served by Sewer	4,432,172	4,893,955	4,995,027	13%
Daily Nitrogen Load (kg N / day)	13,692	8,363	6,895	-50%

## GHG Inventory OUTPUTS:

Emissions Activity	2005	2012	2015	% Change, 2012-2015
Septic System Emissions	35,389	37,148	37,639	6%
Sewer System Emissions	11,557	12,761	13,025	13%
N2O Effluent Discharge Emissions	11,699	7,146	5,891	-50%

# Activities v. Source Methodologies



Source: DC Water



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