Public Workshop #3

City of Portsmouth

Portsmouth's Climate Future

February 6, 2024

Today's Agenda

1. Welcome Message (5 minutes)
2. Updated 2021 GHG Emissions Inventories (5 minutes)
3. Draft GHG Mitigation Targets (10 minutes)
4. Draft Prioritized GHG Mitigation Measures (15 minutes)
5. Breakout Discussions (60 minutes)
6. Table Report Backs (20 minutes)
7. Next Steps in the Planning Process (3 minutes)
8. Thank You and Workshop Closing (2 minutes)

Welcome Message

Updated 2021 GHG Emissions Inventories

Greenhouse Gas (GHG) Emission Inventories

- Portsmouth conducted Local Government and Community-Based GHG Emissions Inventories in 2006, 2012, and 2018, and **has recently prepared an update for the 2021 reporting year**
- GHG emissions inventories are developed to help community leaders and members understand how and in what quantities their activities generate GHG emissions
- They are prepared based on standards/protocols to enable consistent reporting across organizations and to limit double-counting of emissions sources
- To distinguish GHG emissions, they are typically categorized as either Scope 1, Scope 2, or Scope 3

Why Conduct a GHG Inventory?

- To identify current sources of carbon dioxide (CO_2) and other GHGs generated in Portsmouth
- To quantify GHG emissions from municipal and community-wide activities
- To compare GHG emissions over time to measure progress towards meeting reduction targets

Greenhouse Gas (GHG) Emission Inventories

Local Government Operations

- **Scope 1:** Direct GHG emissions generated by sources owned or controlled by the City (e.g., fossil fuel consumption in the municipal fleet)
- **Scope 2:** Indirect GHG emissions associated with purchased electricity, steam, and district heating/cooling consumed by the City (i.e., in City facilities)
- **Scope 3:** All other indirect GHG emissions occurring as a consequence of the activities of the City but from sources not owned or controlled by the City (e.g., employee commuting)

Community-Based

- **Scope 1:** Direct GHG emissions from sources located within the City, such as gasoline consumed by cars and natural gas used to heat buildings
- **Scope 2:** Indirect GHG emissions associated with electricity supplied by the grid to power buildings and motorized modes of transport
- **Scope 3:** All other indirect GHG emissions occurring outside of the City limits resulting from activities taking place within the City (for example, treatment of the City's waste outside of Portsmouth)

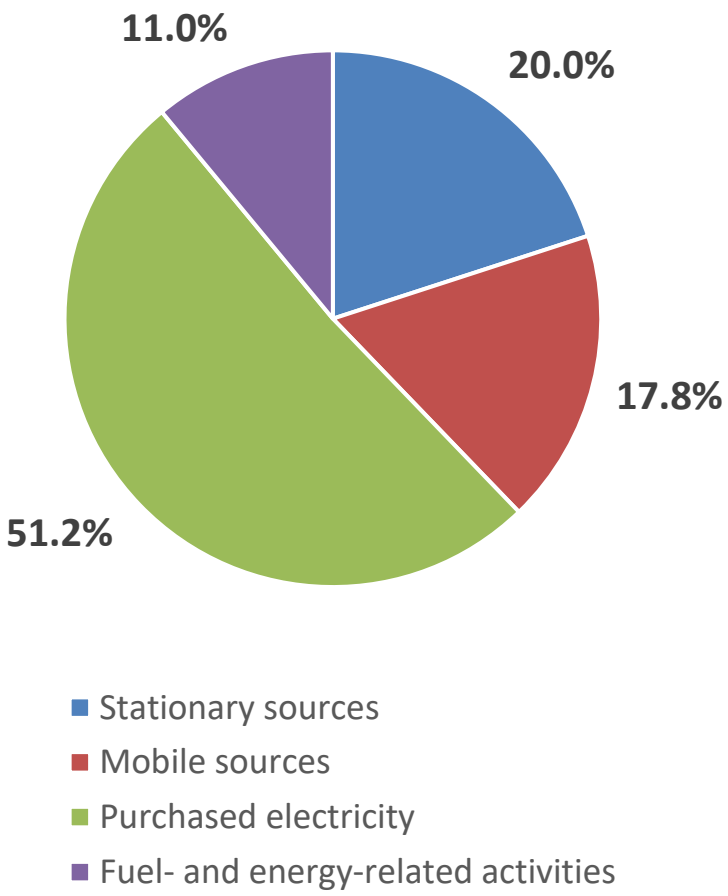
How GHG Emissions are Calculated

The basic equation for calculating GHG emissions is:

- **Activity data** refers to measurements of energy use or other GHG emissions-generating processes, such as fuel consumption, electricity consumption, vehicle miles traveled, and tons of waste generated
- **Emission factors** are used to convert activity data into amounts of emissions generated by the activity (for example, pounds of carbon dioxide per megawatt hour of electricity)
- Emissions are reported using the unit of **metric tons of carbon dioxide equivalent (MT CO_2e)**

Portsmouth's GHG Emissions Generation (2021)

Total Municipal GHG Emissions by Source (2021)



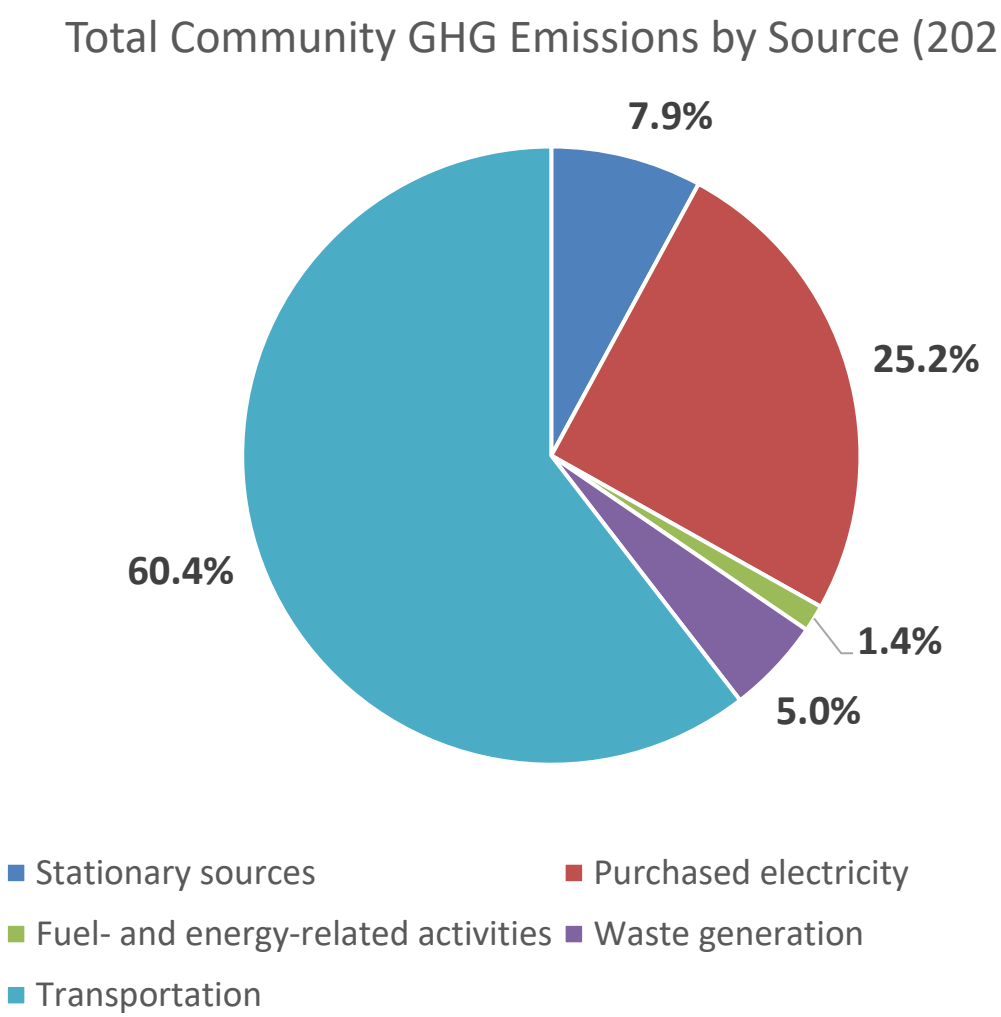
In Calendar Year 2021, Municipal GHG Emissions amounted to: 11,969.1 MT CO_2e. Representing an increase of 17.9% since 2018.

This is equivalent to about 30,683,372 miles driven by an average gasoline-powered passenger vehicle.

- Scope Breakdown
  - Scope 1 = 37.8% (Natural Gas and Fleet)
  - Scope 2 = 51.2% (Electricity Purchases)
  - Scope 3 = 11% (T&D and FERA* Losses)

*Fuel- and energy-related activities

Portsmouth's GHG Emissions Generation (2021)



In Calendar Year 2021, Community GHG Emissions amounted to: 167,397 MT CO_2e.

This is equivalent to over 429 million miles driven by an average gasoline-powered passenger vehicle.

- Scope Breakdown
  - Scope 1: 68.3% (Natural Gas, In-Boundary Transportation)
  - Scope 2: 25.2% (Electricity Purchases)
  - Scope 3: 6.5% (FERA* Losses and Solid Waste)

*Fuel- and energy-related activities

Draft GHG Mitigation Targets

Draft GHG Emissions Mitigation Targets

- Community-Scale Activities (In-Boundary)
  - 2030 – 50% reduction from 2018 Levels
  - 2040 – 80% reduction
  - 2050 – Net zero emissions
- Municipal Operations (Owned and Controlled Emissions)
  - 2035 – 80% reduction from 2018 Levels
  - 2040 – Net zero emissions

Both sets of targets are generally consistent with what climate science tells us for achieving a long-term global warming outcome of below 1.5°C, enabling us to adapt to climate change successfully.

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Aligns with the City's Renewable Energy Policy (March 2018)

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New Hampshire:

Reach 20% below 1990 GHG emissions levels by 2025

Reach 80% below 1990 GHG emissions levels by 2050

Draft Prioritized GHG Mitigation Measures

GHG Mitigation Pathways

1. Building Energy Conservation and Efficiency
2. Clean Buildings and Transportation
3. Renewable Energy Production and Procurement
4. Sustainable Waste Management
5. Climate-Smart Land Use

Cost-Benefit Evaluation

1. GHG Emissions Benefits
2. Upfront Cost
3. Implementation Complexity
4. Staffing Needs
5. Sustainability Co-Benefits
6. Support For Climate Adaptation

- Energy Conservation/Efficiency
- Water Conservation/Efficiency
- Natural Resource Protection or Enhancement
- Responsible Materials Management
- Community Health and Wellness (Air Quality and Access to Open Space)
- Focus on Equality, Equity, and Justice (Affordability and Access to Jobs)
- Added Economic Value

Building Energy Conservation and Efficiency

ID*	Measure
Community	
C.BE-1	Adopt tax incentives (e.g., preferential rates) for multi-family and commercial buildings that are both highly efficient and fossil-fuel-free.
C.BE-2	Implement and enforce building energy performance standards. Require buildings of a certain size to report their energy usage and GHG emissions to the City for purposes of enforcement and benchmarking. ENERGY STAR Portfolio Manager can be used to track, benchmark, and report data.
Municipal	
M.BE-2	Ensure all new municipal construction projects (new or major renovations) are net zero-ready. To support performance verification and reporting, adopt a requirement that these projects meet the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) Zero Energy.
M.BE-3	Implement a Building Energy Management System (BEMS) to monitor, measure, and control energy use in municipal buildings. Investigate a demand response and/or routine load-sharing program.

Clean Buildings and Transportation

ID*	Measure
Community	
C.CBT-1	Ensure an update to the City's 2014 Bicycle and Pedestrian Plan supports the creation of a viable alternative transportation network that reduces the community's dependence on motor vehicles, thus reducing overall vehicle miles traveled. Implement associated recommendations in a timeframe consistent with the interim and final targets of Portsmouth's Climate Future.
C.CBT-2	Prepare an electric vehicle charging plan to identify feasible and strategic locations for the installation of publicly available charging supply equipment. Engage in partnerships to enable the installation of charging stations at priority locations, while promoting their co-location with renewable energy systems to improve the clean energy profile of transportation electrification.
Municipal	
M.CBT-1	Develop and implement a fleet electrification plan. Ensure that this plan adequately assesses future charging needs by department and vehicle use types. Install additional Level 2 (240V) and DC Fast (480V) charging stations, as appropriate.
M.CBT-2	Assess opportunities to optimize the size of the municipal fleet to ensure the fleet inventory does not exceed operating requirements.

Renewable Energy Production and Procurement

ID*	Measure
Community	
C.RE-1	Amend zoning and other City policies to eliminate existing barriers to solar development. For example, consider allowing solar arrays as a principal use and adopting a policy that allows more visible PV Solar Arrays in the Historic District.
C.RE-2	Establish targets to increase participant sign-ups for the "Clean 100" option (i.e., 100 percent renewable content) under the Portsmouth Community Power program, established under RSA 53-E. Achieve these targets through continued education and awareness building among residents and businesses, as well as continuous efforts to ensure the option is price competitive.
Municipal	
M.RE-1	Plan, design, and build solar arrays with battery storage of sufficient generating capacity to power municipal buildings. Solar panels could be distributed across building roofs and parking lots or aggregated into one site. The Public Undeveloped Land Assessment lists several sites that may be suitable.
M.RE-2	Track the City's renewable electricity supply, produced and/or procured, and supplement as needed with certified renewable energy certificate (REC) purchases to ensure that 100 percent of the City's electricity consumption is covered by renewable energy projects.

Sustainable Waste Management

ID*	Measure
Municipal	
C.WM-1	Conduct waste characterization studies to better understand the composition of the local government and community waste streams.
C.WM-2	Building off the waste characterization studies, prepare and implement a Zero Waste Plan, which would see the Portsmouth community reduce, reuse, recycle, and compost at least 90 percent of its solid waste.
C.WM-3	Create a voluntary certification program for Portsmouth restaurants working to reduce food waste (levels might include "skip the stuff", composting, and offering smaller portion sizes).
Community	
M.WM-1	Adopt a municipal environmentally preferable purchasing policy that can be used as a model for the private sector.

Climate-Smart Land Use

ID*	Measure
Community	
C.LU-1	Strengthen Article 7.1 of the Site Plan Regulations to require Low Impact Development (LID) design practices and techniques in building design. Encourage the planting of trees and greenery around new or renovated buildings and sites that are being developed or subdivided. Prioritize the inclusion of open space.
C.LU-2	Rezone the Schiller Station area to ensure that the existing power infrastructure stays intact for future uses such as energy storage. Explore the opportunity for this site to support the conveyance and perhaps storage of power generated by off-shore wind projects.
C.LU-3	Identify publicly-owned land areas, or privately-owned lands for acquisition, that are suitable for new or enhanced greenhouse gas emissions sequestration and storage. For example, reforestation/afforestation, forest management, and wetland restoration. Work with private landowners and land trusts to develop and manage similar projects, where appropriate. This could include improved forest management plans.
C.LU-4	Study neighborhood completeness (i.e., amenities and services within walkable and bikeable areas) and work to address gaps through regulatory (e.g., zoning-based incentives) and non-regulatory (e.g., business recruitment, tax incentives) means.

Climate Adaptation Measures – Flood Resilience

ID*	Measure
Community	
CA.FR-1	Continue to identify critical public and private properties and infrastructure subject to sea-level rise and identify potential adaptation measures for each location. Seek implementation financing through Coastal Resiliency Funds (RSA 36:53) and Coastal Resiliency and Cultural and Historic Resources District & Funds (RSA 12-A:68 & 69).
CA.FR-2	Establish a Coastal Flood Hazard District around the low-lying areas of the downtown area including North Mill Pond to Newcastle Ave that will require new and redevelopment projects to include flood protection measures including building floodproofing, higher floor elevations, and potential barriers to protect against future flooding from sea level rise and storm surge.
CA.FR-3	Establish a Coastal Flood Risk Mitigation Fund using a percentage of the local Room & Meal tax receipts, parking fees, or other local revenue sources to purchase and install temporary or permanent flood protection measures and establish a rebate program to encourage property owners to install flood protection measures.
CA.FR-4	Conduct and/or update previous hydraulic & hydrologic modeling studies of the City's storm drain system and major road culverts/bridges to identify and rank capacity constraints that contribute to land-based flooding affecting critical transportation corridors and properties. Identify any adjacent undeveloped areas and recreation areas that could provide additional temporary flood storage in flood-prone drainage areas. Build upon Coastal Hydraulic Model being developed by Rockingham Planning Commission.

Climate Adaptation Measures – Heat Resilience

ID*	Measure
Community	
CA.H-1	Develop a Citywide Heat-Health Warning and Protection Plan to activate public health warnings, cooling centers, and other relief measures when air temperatures exceed 90° F for prolonged periods.
CA.H-2	Assess and ensure public facilities, schools, and other critical community facilities are resilient to extreme heat and provide access to cooling.
CA.H-3	Coordinate an Annual Heat Resilience Workshop to engage and support local/regional healthcare providers, health educators, and caregivers to develop a coordinated plan to screen and connect individuals at higher risk for heat-health impacts to prevention resources.
CA.H-4	Integrate heat resilience goals, standards, and guidelines into open space and recreation planning for planned improvements to existing open space.

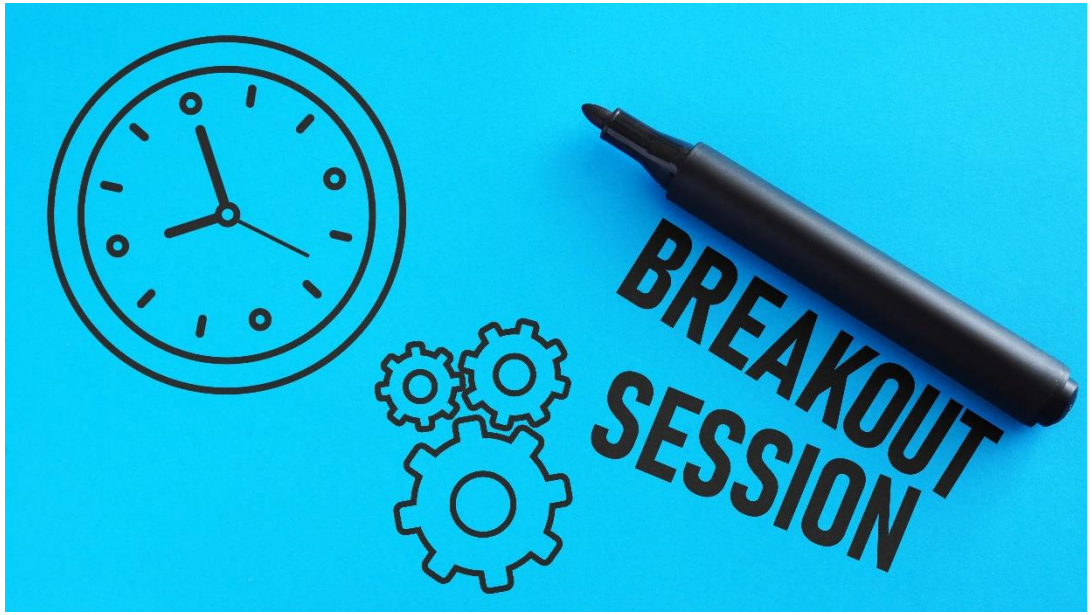
Climate Adaptation Measures – Energy Resilience

ID*	Measure
Community	
CA.E-1	Encourage community-wide building weatherization measures for more resiliency during extreme weather events so that heating/cooling is more effective and efficient.
CA.E-2	Remove any barriers in the land use ordinances to enable the addition of exterior insulation and improve the efficiency in renovations to existing buildings while being sensitive to both historic preservation and fire and life safety.
CA.E-3	Identify and map vulnerable electric and gas infrastructure and work with Eversource and Unitil on adaptation strategies as infrastructure is maintained and upgraded. This may include converting existing overhead electric infrastructure to underground conduits if wind shear is a concern or relocating ground-mounted transformers to poles where flooding is a concern.
CA.E-4	Investigate the potential for an islandable microgrid of critical municipal and/or public infrastructure that could continue to provide services if the regional grid is offline. This would require integration of renewables and battery storage sufficient to power minimal facility electric/HVAC/refrigeration needs (e.g., shelter).

Breakout Discussions

Breakout Discussions

- Breakout sessions will last approximately 60 minutes.
- Use the questions on your worksheets and on the following slide to guide your conversation
- The Planning Team will serve as facilitators of the discussions and will provide time notices and prompts to move on to the next question
- Ground Rules:
  - Everyone gets the chance to talk
  - Be respectful of everyone's contributions
  - If you get stuck, then move on
  - Be creative and have fun!



Breakout Discussions – Questions on Targets

#	Question
1	Do you agree with the draft GHG emissions reduction targets at the Community-Scale? Why or Why Not?
2	Do you agree with the draft GHG emissions reduction targets for the City's municipal operations? Why or Why Not?
3	Aside from the prioritized mitigation measures, what does the City require to be successful in reaching its GHG emissions reduction targets?

Breakout Discussions – Questions on Measures

#	Question
1	What requirements (for example, financial or physical resources and policy changes) are necessary to implement the proposed measures effectively and efficiently?
2	Are there any known or suspected blockers or barriers preventing the success of the measures?
3	Have you seen the measures implemented elsewhere? If so, why or why not were they successful?
4	Who or what groups (local or otherwise) need to or should be involved in the planning and implementation of the measures?
5	Who could be potentially left out of the benefits or harmed by the implementation of the measures? How could this be avoided?
6	Do you have any other comments on the measures?
7	Lastly, do you believe any measures are missing from this list that the City should prioritize?

Table Report Backs

Next Steps in the Planning Process

Next Steps

1. Continued engagement by the Portsmouth Climate Future Ambassadors and with Target Communities
2. Mitigation and Adaptation Measure Refinement
3. Confirming GHG Emissions Reduction Targets
4. CAP Development, Including Implementation Timelines and Funding Plans

Thank You and Workshop Closing

Thank you.

Questions?

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