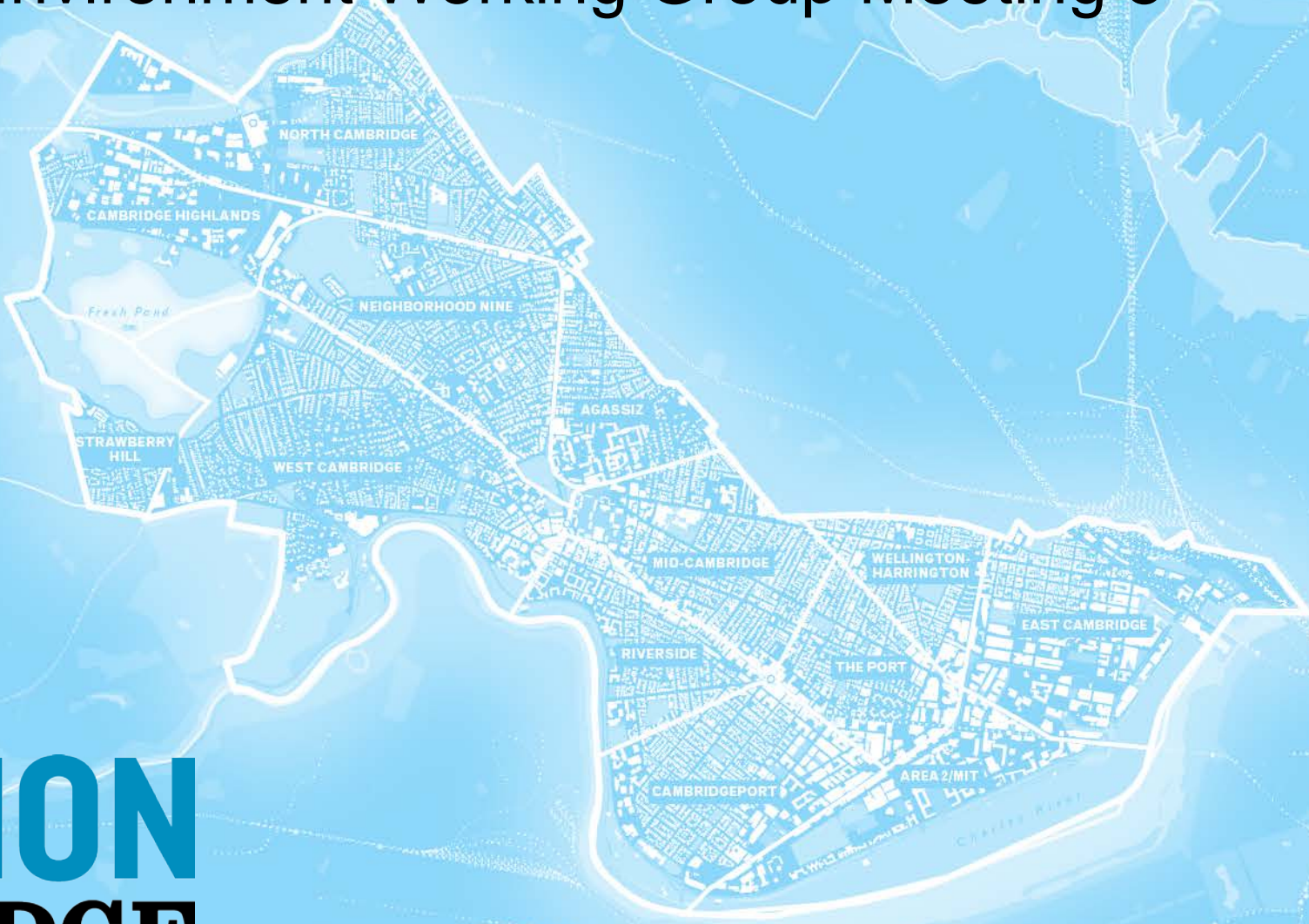


# Climate and Environment Working Group Meeting 5

## April 10, 2018



**ENVISION  
CAMBRIDGE**

# Today's agenda

**Meeting objective:** Discuss draft indicators and targets, select up to 5 indicators that the City will measure on an ongoing basis

- **Joint Working Group Meeting recap** **10 mins**
- **Indicators and Targets discussion** **75 mins**
- **Climate Action Plan update** **25 mins**
- **Next steps** **10 mins**



# What we heard at the Joint Working Group meeting



# Top voted actions across focus areas

CLIMATE	Develop disaster preparedness plans at the neighborhood level...
	Develop a Green Infrastructure Action Plan
ECONOMY	Undertake targeted business recruitment efforts to attract firms that offer low barrier-to-entry jobs...
	Change zoning to increase density and achieve a mix of uses in targeted areas...
HOUSING	Increase existing City funds dedicated to affordable housing...
	Establish new City funding sources...to support affordable housing at the project or district scale.
	Establish or expand the use of taxes that provide dedicated revenue for affordable housing...
	Change zoning to enable more housing, including affordable housing, to be built along major corridors...
MOBILITY	Develop an implementation plan and increase funding to complete gaps in the Bicycle Network Plan...
	Prepare transportation infrastructure to be more resilient to periodic flooding...
	Change zoning to allow low maximum parking requirements near transit nodes...
URBAN FORM	Build the connections to integrate “Alewife Square” into the fabric of the City...

# Other high priority climate & environment actions

- Procure 100% of municipal electricity from renewable sources
- Offer a density bonus incentive through zoning for net zero projects
- Leverage new communication technologies to alert residents and workers, by geography, of risks in the event of an emergency (e.g. text message, smartphone app)
- Purchase additional land reserved to be used as open space



# Development Requirements and Incentives

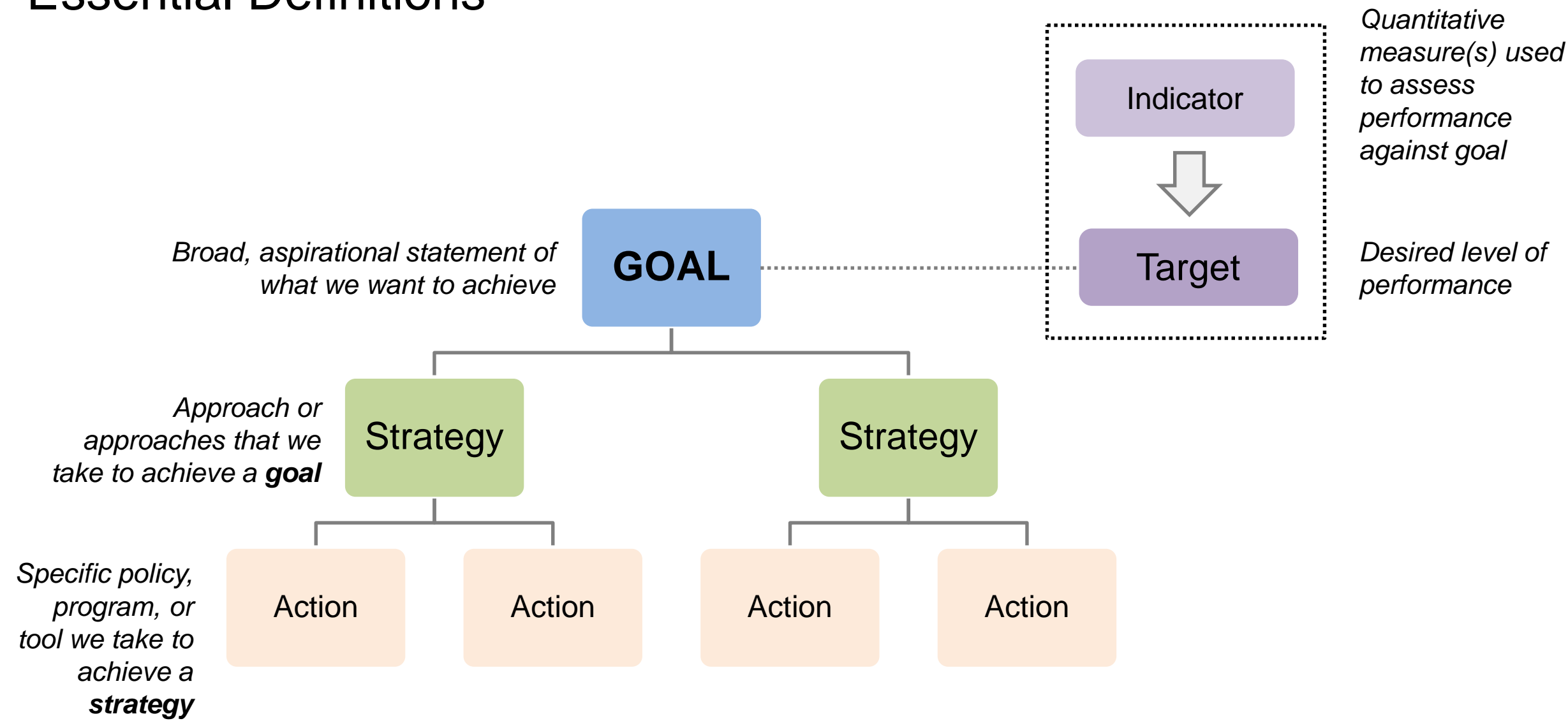
- Support to incentivize affordable housing beyond 20% inclusionary requirement and incorporate family-sized units with density bonuses
- Support to incentivize public gathering spaces (community rooms, childcare facilities, library)
- Support to incentive net zero construction ahead of required schedule
- District energy to be incentivized as part of large-scale developments (as part of PUDs).
- Increased trees and additional open space should be required rather than incentivized.



# Indicators and Targets



# Essential Definitions





# Proposed Indicators and Targets

Indicator	Existing / Target	Category	Potential Source	Recommendation
<b>Vulnerable populations at risk of displacement due to flooding (% of households)</b>	<ul style="list-style-type: none"> <li>Baseline: TBD w/ CCPR</li> <li>2025: 5% reduction</li> <li>2030: 10% reduction</li> </ul>	Goal A. Preparedness and Resilience	City of Cambridge Community Development Department	<b>Recommended:</b> This indicator provides insight into the City's actions to protect vulnerable populations from the impacts of flooding, one of the major climate hazards that are expected to intensify in the future.
<b>Heat-related hospitalizations (annual hospitalizations per 100,000 people)</b>	<ul style="list-style-type: none"> <li>Baseline: ~1.5 hospitalizations per 100,000 people per year (1991-2006)</li> <li>2025: Zero hospitalizations</li> <li>2030: Zero hospitalizations</li> </ul>	Goal A. Preparedness and Resilience	City of Cambridge Public Health Department	<b>Recommended:</b> This indicator provides insight into the City's actions to protect Cantabrigians from the impacts of heat events, one of the major climate hazards that are expected to intensify in the future.
<b>Green-collar jobs (growth rate)</b>	<ul style="list-style-type: none"> <li>Baseline: To be determined from existing employment statistics*</li> <li>2025: 10% faster growth than national average</li> <li>2030: 10% faster growth than national average</li> </ul>	Goal B. Engagement and Benefits Sharing	Massachusetts Executive Office of Labor and Workforce Development	<p><b>Recommended:</b> Cambridge can ascertain what percentage of the workforce (by NAICS job codes) is in green-collar jobs. The rate of improvement can then be compared against the national trend.</p> <p>*This indicator will require additional budgetary resources to acquire 6-digit NAICS code data provided by a commercial third party.</p>

\*Vulnerable households are those located in Census block groups with high vulnerability score (V4 or V5) as defined by CCVA.

Areas subject to inundation are all Census block groups that partially or fully overlap with the 0.2-percent-annual-chance flood hazard map.

# Proposed Indicators and Targets

Indicator	Existing / Target	Category	Potential Source	Recommendation
<b>Tree canopy coverage (% by neighborhood)</b>	<ul style="list-style-type: none"> <li><b>Baseline:</b> 30% tree canopy coverage citywide (2009)</li> <li>Targets to be established as the Urban Forestry Master Plan is developed</li> </ul>	Goal C. Natural Environment	City of Cambridge Department of Public Works	<b>Recommended:</b> This indicator provides insight into the success of actions to expand Cambridge's tree canopy, particularly in neighborhoods that currently lack trees.
<b>Community-wide greenhouse gas emissions (mt CO2e)</b>	<ul style="list-style-type: none"> <li><b>Baseline:</b> 1.46 million mt CO2e (2012)</li> <li><b>2025:</b> 0.95 million mt CO2e</li> <li><b>2030:</b> 0.80 million mt CO2e (Inventory target path)</li> </ul>	Goal D. Carbon Neutrality	City of Cambridge Community Development Department	<b>Recommended:</b> This indicator demonstrates the City's efforts to mitigate greenhouse gas emissions. The community-wide greenhouse gas emissions inventory is updated on a regular basis.
<b>Potable water use (gallons per resident)</b>	<ul style="list-style-type: none"> <li><b>Baseline:</b> ~50 gallons Residential Gallons per Capita Day (2016)</li> <li><b>2025:</b> 5% reduction</li> <li><b>2030:</b> 10% reduction</li> </ul>	Goal E. Sustainable Water Resources	Cambridge Water Department	<b>Recommended:</b> This is a direct indicator that tracks the per capita consumption of potable water, providing insight into conservation and efficiency efforts.

# Proposed Indicators and Targets

Indicator	Existing / Target	Category	Potential Source	Recommendation
<b>Water quality in local water bodies (A-F Grade)</b>	<ul style="list-style-type: none"> <li><b>Baseline:</b> “B” grade for water quality in the Charles River and “D+” for Alewife Brook during 2016</li> <li><b>2025:</b> “A-“ grade for Charles River; “C” grade for Alewife Brook</li> <li><b>2030:</b> “A” grade for Charles River, “B” grade for Alewife Brook</li> </ul>	Goal E. Sustainable Water Resources	U.S. Environmental Protection Agency	<b>Recommended:</b> This provides insight into long-term efforts to improve water quality; it is influenced and impacted by other communities that share the same watersheds.
<b>Trash collection (pounds per household per week)</b>	<ul style="list-style-type: none"> <li><b>Baseline:</b> 23 lbs/HH/week (2008)</li> <li><b>2025:</b> 14 lbs/HH/wk</li> <li><b>2030:</b> 12 lbs/HH/wk</li> </ul>	Goal F. Zero Waste	City of Cambridge Department of Public Works	<b>Recommended:</b> This indicator provides insight into the City’s efforts to reduce and divert waste from landfill via recycling and separation of organics and other waste streams.



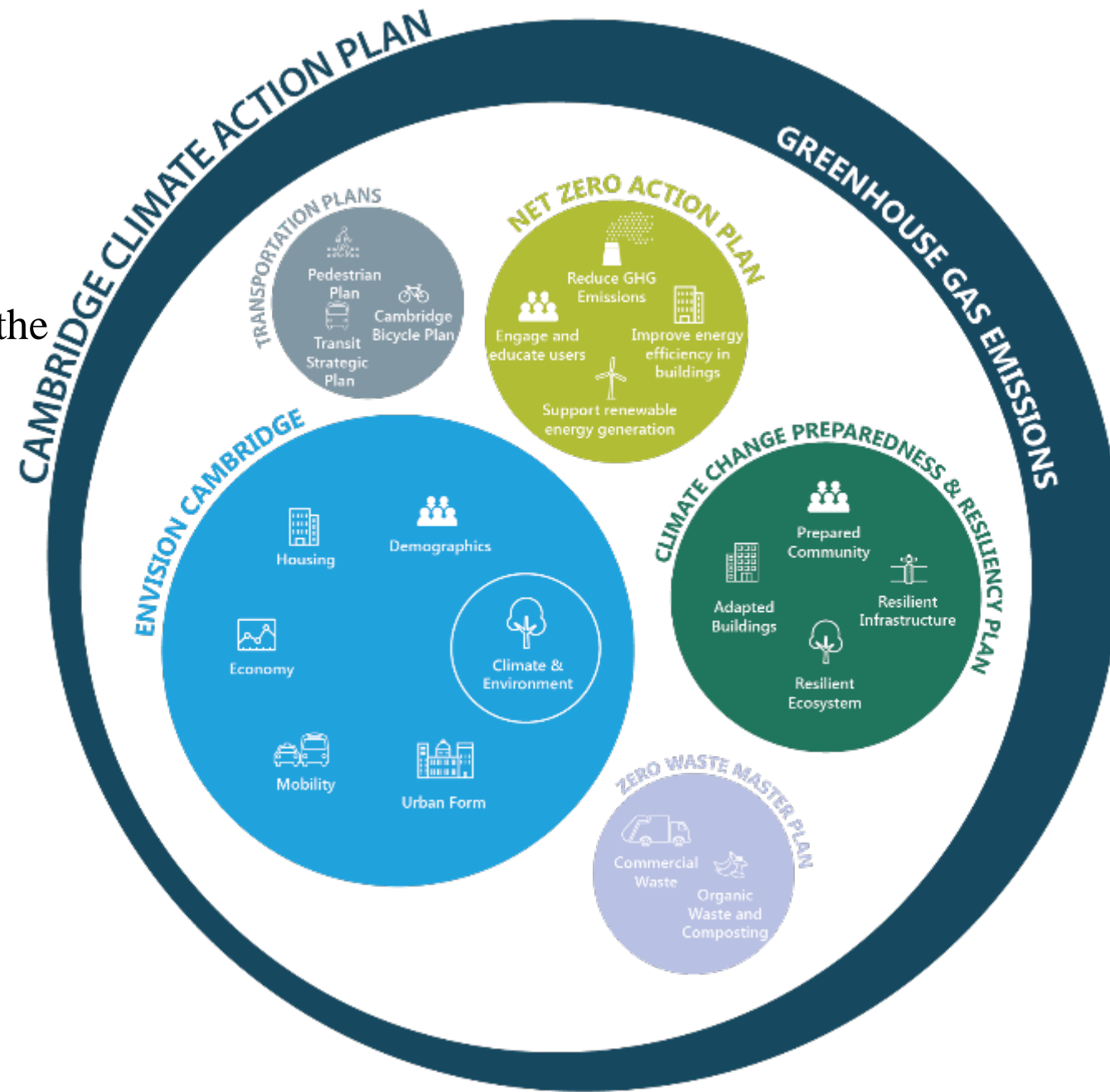
# Climate Action Plan



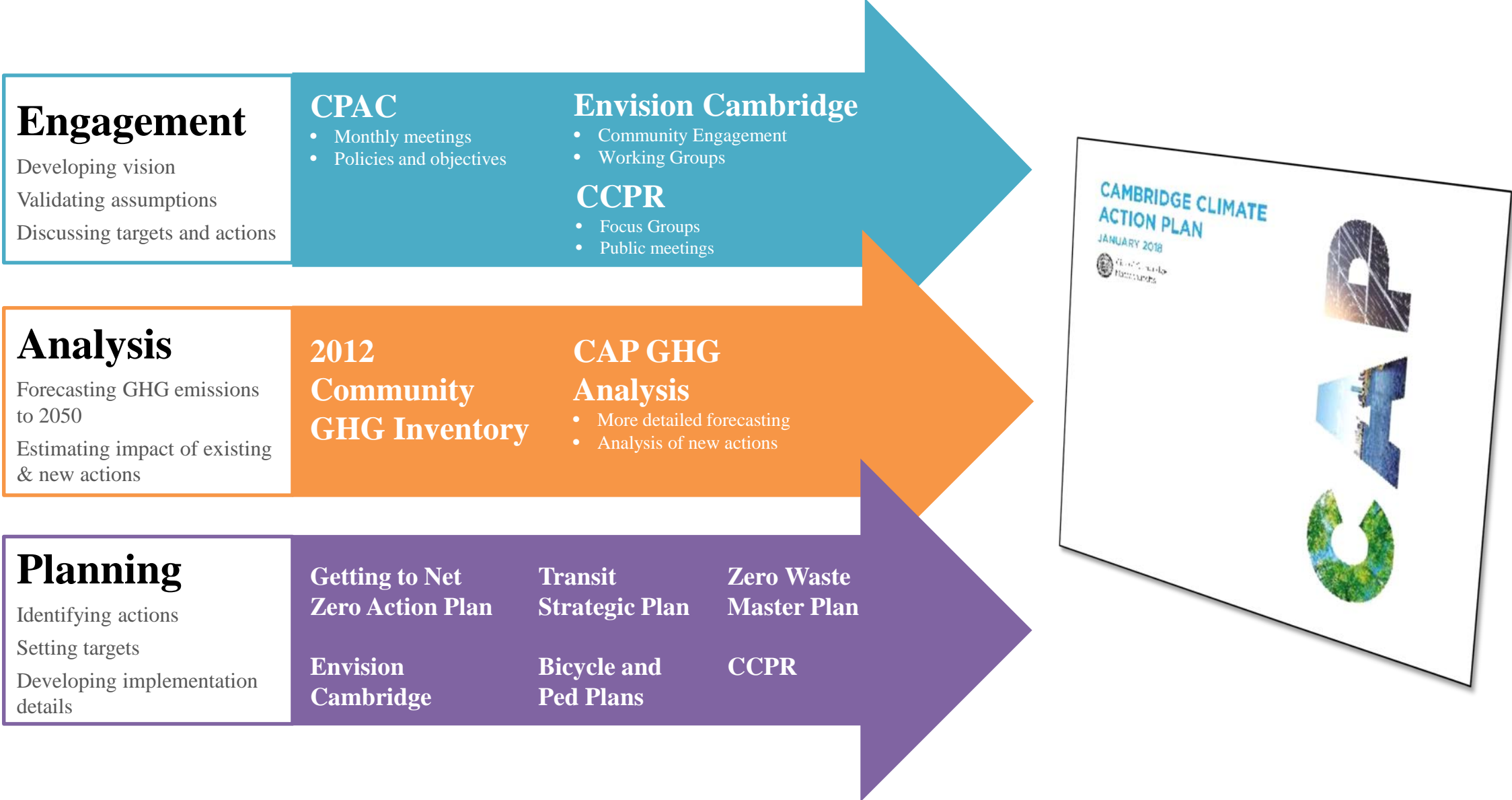
# 2018 Climate Action Plan

The Climate Action Plan will provide an umbrella framework for reducing greenhouse gas emissions, including the reductions expected to be achieved by the City's existing climate-related plans and initiatives, including:

- Envision Cambridge
- Net Zero Action Plan
- Zero Waste Master Plan
- Transportation Plans (multiple)
- Climate Change Preparedness & Resiliency Plan (CCPR)



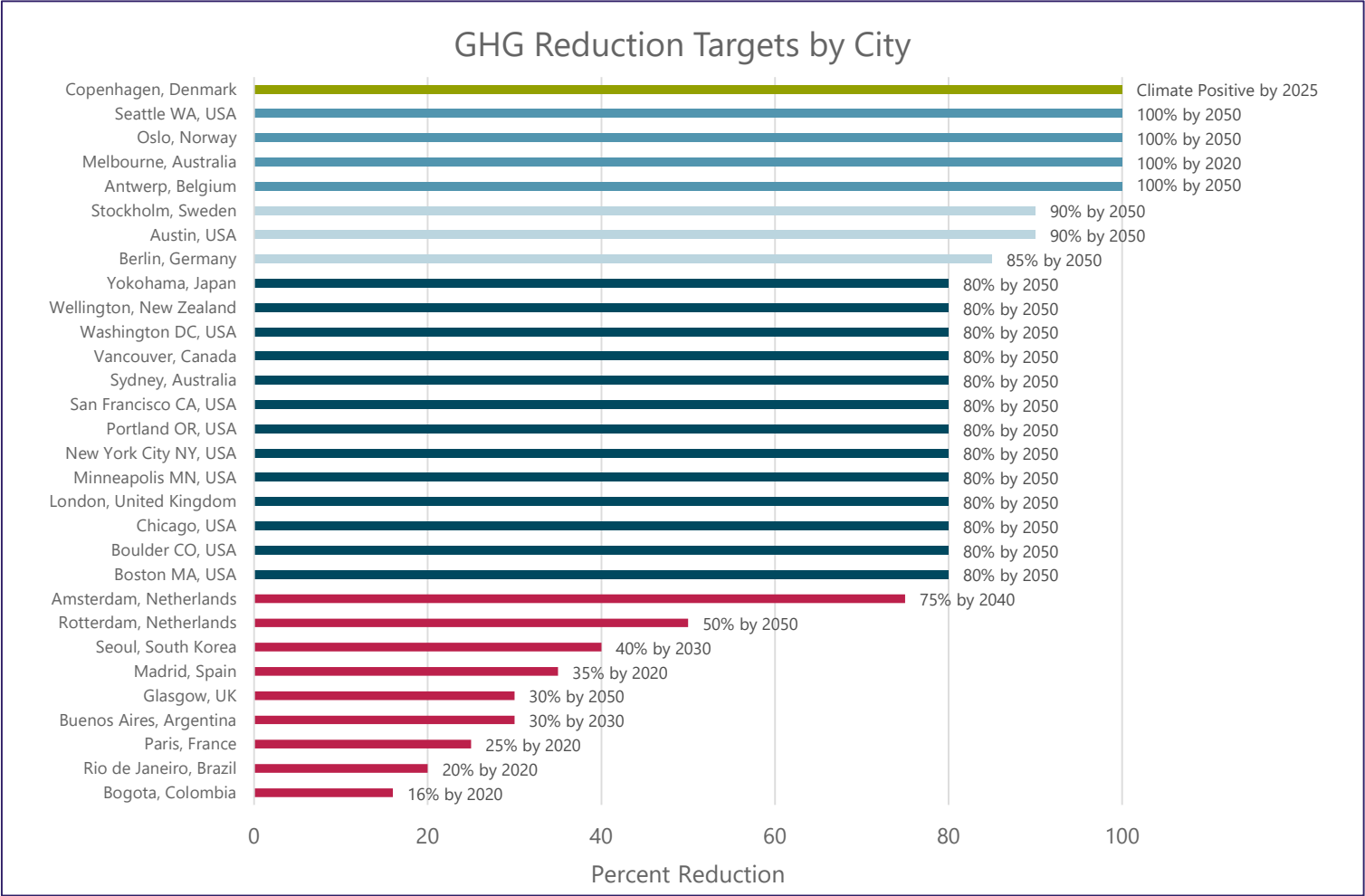
# 2018 Climate Action Plan





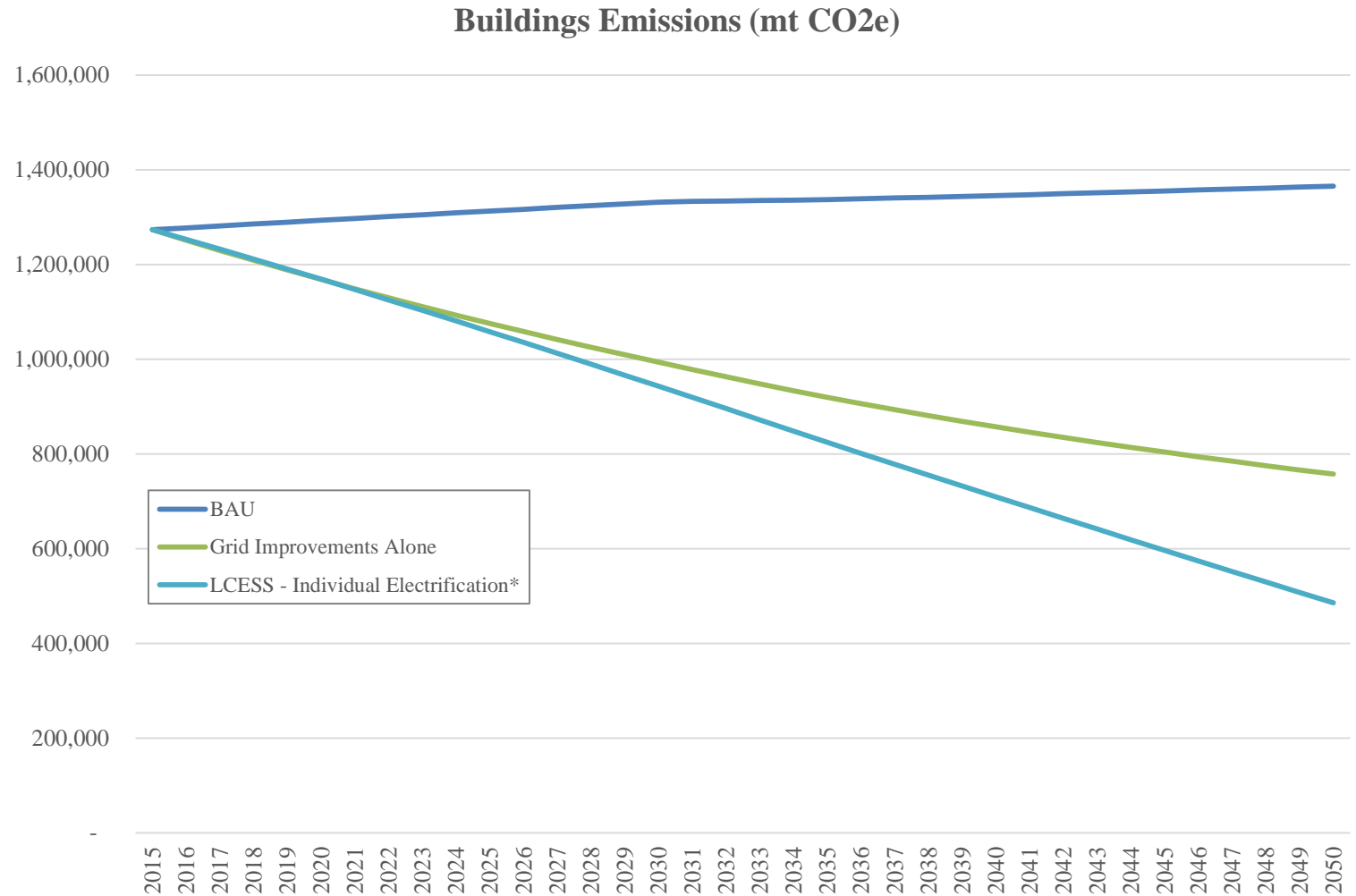
# Carbon Neutrality Target

- 80x50, Carbon Neutrality, and Climate Positive targets were evaluated
- Climate Positive at a city-scale requires offsite renewable assets (Copenhagen)
- **Carbon Neutral by 2050 (100x50)** was recommended by the Climate Protection Action Committee (CPAC). Metro Mayors Coalition has jointly committed to this in 2017.



# Emissions Forecast: Buildings

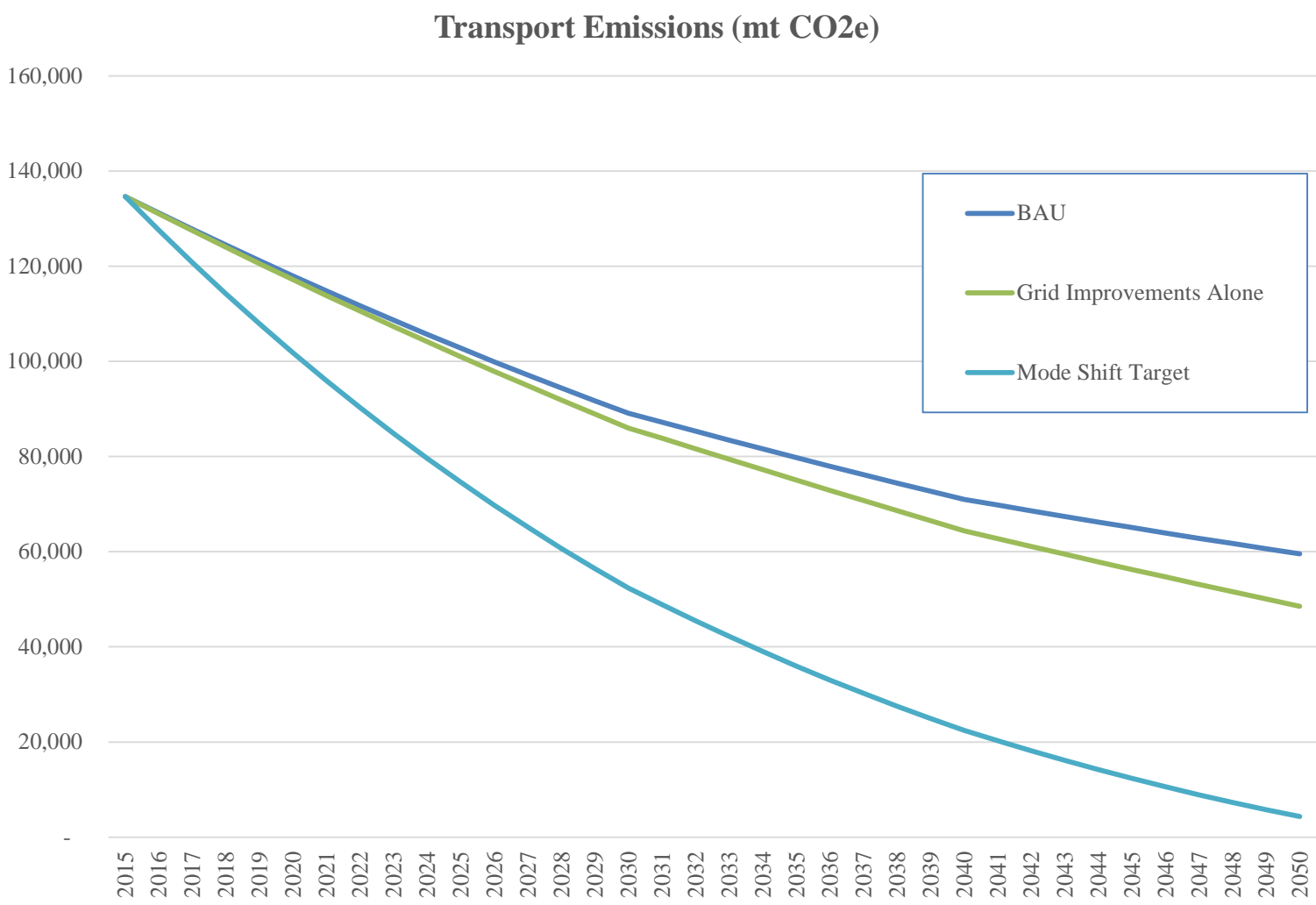
- Grid improvements significantly reduce GHG emissions.
- Implementing low carbon energy supply strategies helps narrow the gap, particularly with electrification of heating and hot water systems, but some fossil fuels remain as energy sources for power, heating, and cooling.
- *Note: Business-as-usual (BAU) assumptions include existing plans and baseline performance targets.*



# Emissions Forecast: Transportation

A national move toward electric vehicles allows for a BAU with significant emissions reductions. Combined with a cleaner grid and new mode shift targets (below), 2050 emissions are 95% lower than 2015 levels.

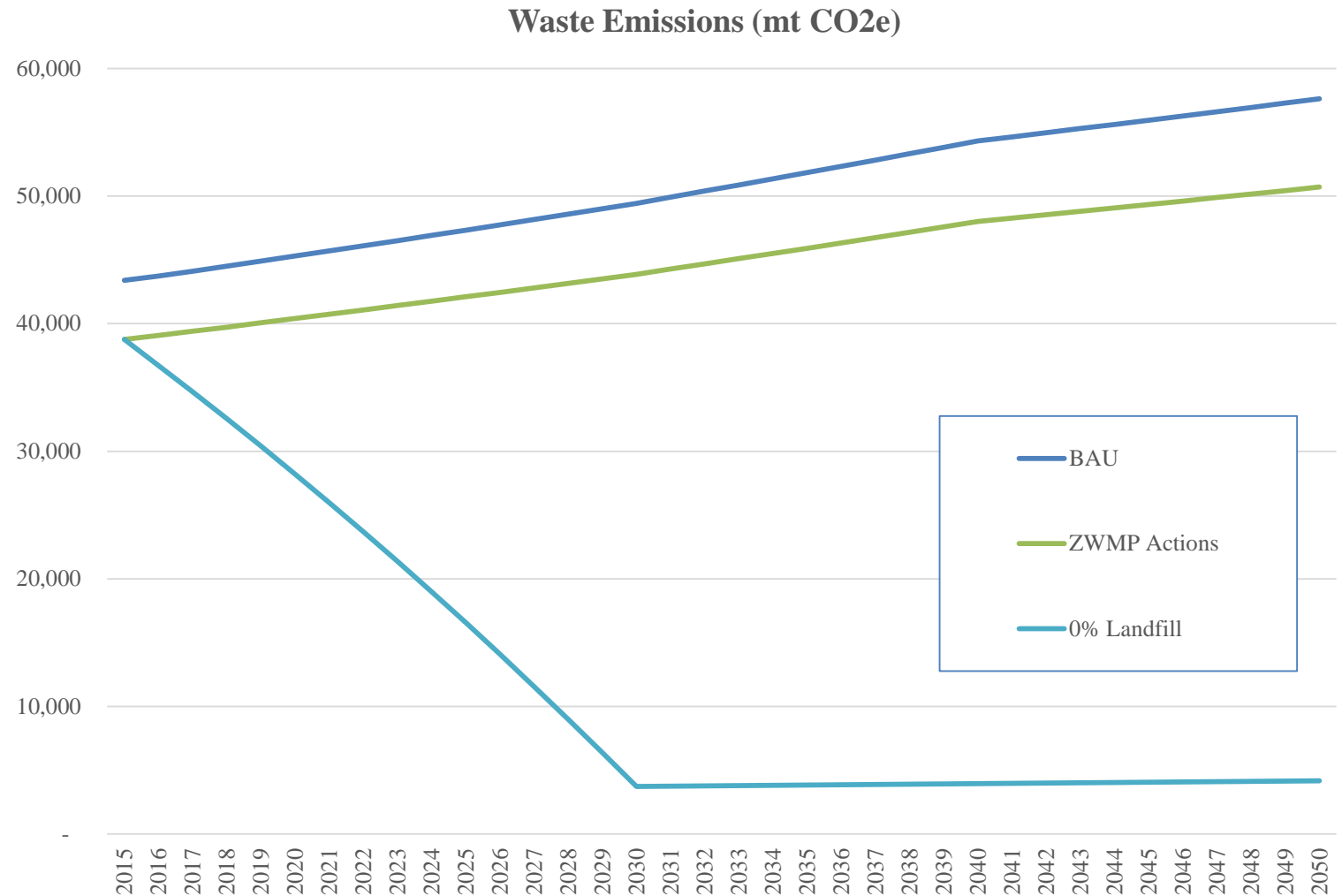
Transport Mode Type	2015		2050
Non-motorized: Walking	19%	→	20%
Non-motorized: Biking	6%	→	20%
Private Passenger Vehicles	43%	→	10%
Commuter Rail	1%	→	1%
Heavy Rail	12%	→	20%
Light Rail	2%	→	4%
Bus	8%	→	20%
Other	11%	→	5%





# Emissions Forecast: Waste

- Even with implementation of all Zero Waste Master Plan (ZWMP) actions, emissions rise at a faster pace than reductions due to population/job growth.
- ZWMP actions address municipal solid waste only. The City has limited data about and influence over commercial waste – but this could change with commercial waste zones (franchising).
- Switching from landfill to incineration drastically reduces GHG emissions.



# Climate Action Plan Proposed Framework

Overlaps with Envision  
Strategies/Actions from NZAP  
Strategies/Actions from ZVMP

Sectors

BUILDINGS				TRANSPORT		
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Strategies

Energy Efficiency in Existing Buildings	Net Zero New Construction	Energy Supply	Local Carbon Fund & Engagement and Capacity Building	Active Transportation and Promote Public Transit	Low and Zero Carbon Mobility Solutions	Reduce Vehicle Miles Traveled and Single Occupancy Vehicles
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Actions  
(partial list shown)

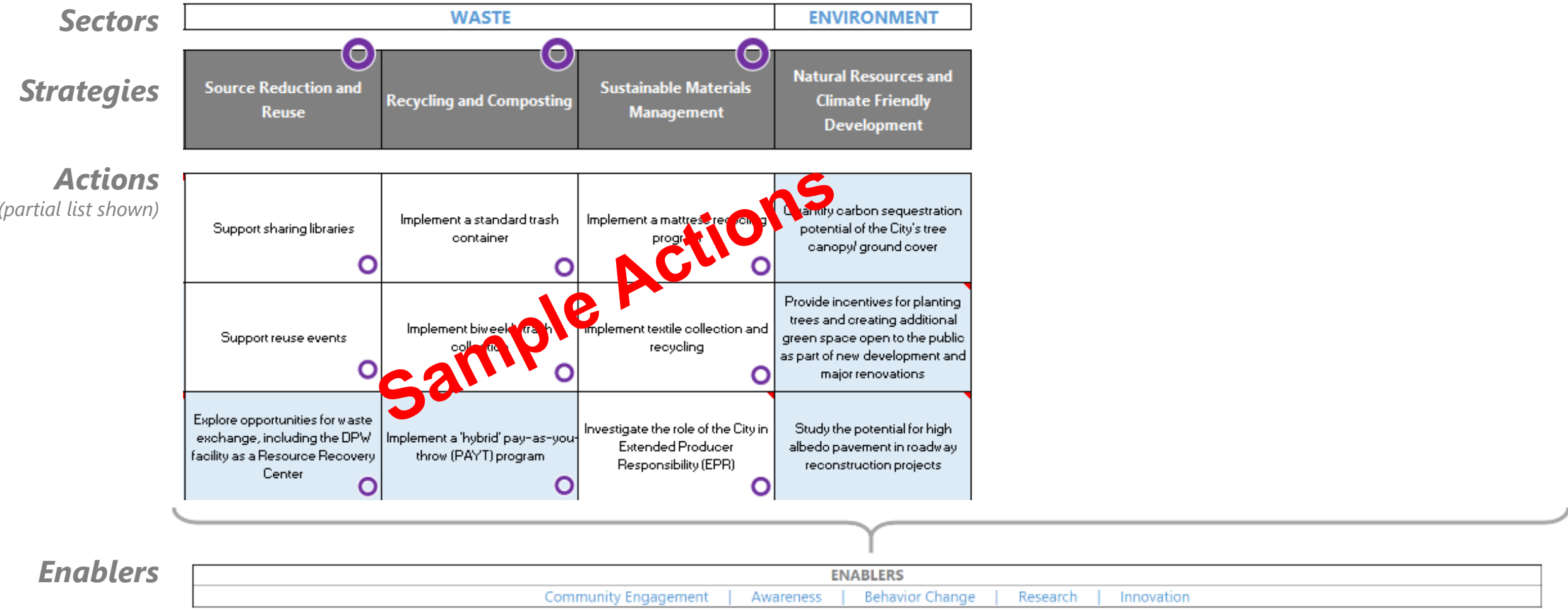
Explore the development of a 'custom' retrofit program that offers cash incentives determined by the total GHG savings.	Develop a market-based incentive program	Create and enact a low carbon energy supply strategy	Undertake feasibility study and solicit a third-party organization to administer the program	Develop a zero emissions transportation plan, addressing both mode shift and zero emissions vehicles		Promote Transit-Oriented Development for decreased travel distances to work, home, retail, and other services
Introduce additional requirements to BEUDO	Explore the potential impact of offering additional floor area allowance and extra height to projects that achieve net zero emissions	Introduce a requirement for onsite renewable energy generation, with a focus on rooftop solar	Develop a long-term communications strategy around the Cambridge Net Zero objective	Implement bus priority treatments on key bus corridors	Mandate EV charging infrastructure for large-scale developments	Lower parking requirements, especially near transit nodes and in key squares and corridors
Explore a requirement for energy upgrades at the time of renovation or sale	Increase Green Building Requirements in Cambridge Zoning Ordinance	Develop a memorandum of understanding with local utilities to work closely with the City on taking action towards net zero emissions	Engage with stakeholders to develop new standards for lab operations that support lower energy use	Collaborate with MBTA to support bus-only lanes, off-board fare payment, and all-door boarding on key corridors	Develop public EV charging infrastructure	Work to expand PTDM programs and incentives citywide

Sample Actions

Enablers

# Climate Action Plan Proposed Framework

Overlaps with Envision  
Strategies/Actions from NZAP  
Strategies/Actions from ZWMP



# Next steps





# Next steps

- Finalize targets and indicators based on today's discussion.
- Assign an implementation timeframe for actions based on the priority discussion at the Joint Working Group meeting.
- Share final targets and indicators for C&E and a draft implementation schedule for comments.