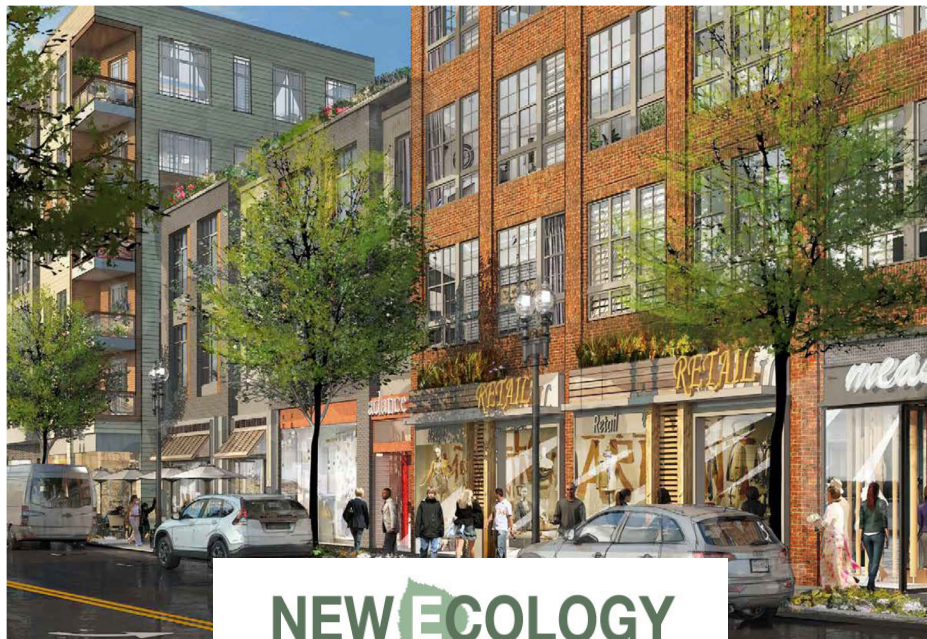


# *Sustainability Strategic Plan*

Dunstan East  
Newton, MA  
April 7, 2021



**NEW ECOLOGY**  
Community-Based Sustainable Development

## PROJECT SUSTAINABILITY GOALS

The Dunstan East project (the “Project”) will create a compact, walkable, and transit-oriented development that will create a new energy-efficient neighborhood with ample public amenity space and affordable housing units in West Newton. The project includes 302 dwelling units, 5,821 square feet of retail.

Planned as a 40B development, the Project will include 76 units of much-needed affordable housing in Newton (68 units at 80% AMI and 8 units at 50% AMI). It will also substantially improve and reduce the impacts to the surrounding environment by naturalizing the Southern bank of the Cheesecake Brook and contributing to the improvement of the Charles River Watershed. By creating a smart growth community near multiple modes of transit, and providing for electric vehicle charging in a portion of parking spaces, the project will reduce the internal combustion engine automobile dependency of new residents and commercial tenants.

In addition to both minimizing environmental impact and improving access to transit, indoor environmental air quality and occupant comfort are at the core of the community vision adopted by the design team for the Dunstan East. To implement these broad sustainability principles, the project will incorporate several Green Newton *Green Building Principles* including minimizing embodied carbon, incorporating all-electric heating, cooling, and domestic hot water systems for residential portions of the buildings, and minimizing the carbon footprint for transportation. Committing to all electric residential building areas is a strategy to “future-proof” these buildings, so that as the New England electric grid becomes cleaner, these buildings become cleaner as well.

These standards dovetail with the 30-year roadmap identified in the Newton *Citizens Climate Action Plan*, which also has a specific focus on encouraging the transition to electric vehicles (EVs). The project team is also committed to studying the feasibility of passive house design and construction during the schematic design phase for the individual buildings.

Mark Development understands the importance of a holistic, integrated design approach in achieving such ambitious goals, and has assembled a design team that has the experience and expertise necessary to realize this vision, with credentials including LEED Accredited Professional and Certified Passive House Consultant.

Mark Development is committed to be a leader in sustainability in the Newton community and pledges the following commitments for Dunstan East:

1. LEED BD+C v4 Multifamily Midrise certifiability at the Gold level.
2. Electrification of the residential portions of the project to reduce fossil fuel dependence.
3. Embodied Carbon analysis guiding material selection.
4. Sustainable Site Design and ecosystem improvements.

5. Electric Vehicle Charging stations for 10% of the project parking spaces and provisions for future electric vehicle charging for an additional 10% of spaces.
6. Passive House feasibility studies and energy modeling to inform design and construction approach.

Please refer to the Dunstan East Commitments Summary Table for building-by-building sustainability commitments.

## DUNSTAN EAST SUSTAINABILITY FEATURES

### LEED BD+C v4 MULTIFAMILY MIDRISE CERTIFIABILITY

The Mark Development team will incorporate sustainable principles into the design of the individual buildings for the Dunstan East development. The Project will meet the City of Newton's Sustainable Development Zoning Article, with each building achieving a certifiability at the Gold level through the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Building Design and Construction (BD+C) Version 4 for Multifamily Midrise rating system. Implementation of LEED certifiability ensures the Project design includes the following sustainable principles:

- An integrated team, members of which will be in constant communication throughout the design and construction process;
- Environmentally friendly site design and consideration of landscaping that benefits residents, visitors, and the surrounding habitats;
- Efficient water use that minimizes waste and maximizes applicable technology;
- Energy efficiency through installation of high-efficiency equipment and a right-sized system design;
- Healthy materials and finishes throughout all interior spaces, reducing health effects on residents; and
- Effective ventilation and exhaust systems design to ensure continued health and air quality throughout the life of each building.

Mark Development has retained New Ecology, Inc. (NEI) as its green building consultant to facilitate the implementation and compliance with the LEED certifiability requirements.

### ELECTRIFICATION

As outlined in the Carbon Free Boston Summary Report 2019, "Achieving carbon neutrality will require Boston's buildings to be highly efficient and to move away from fossil fuel use for heating and other services. New buildings can be built to the highest possible performance standards, while avoiding the lock-in of fossil fuels." The impact of building design on the total greenhouse gas emissions in Boston is identified further in the report, "The GHG emissions from the use of electricity, heating oil, natural gas, and steam in Boston's buildings account for more than two-thirds of the city's total emissions."

Reducing building energy usage intensity relative to code-compliant buildings enables cost-effective electrification of building energy end uses. To minimize dependence on carbon fuel sources and corresponding GHG emissions, buildings must switch to all-electric design where

feasible. Due to higher energy costs for electricity relative to natural gas, many projects face an innate challenge to overcome this imbalance to construct feasible projects. The design team will utilize strategies to reduce this imbalance with cost-effective envelope performance, electric heat pump heating and cooling, and electric domestic hot water generation. The impact of these strategies will be energy usage that is reduced in overall life-cycle cost, thereby increasing project feasibility.

The Mark Development has made the commitment to design and build the residential portion of the residential buildings at Dunstan East with all-electric-sourced heating and cooling systems (heat pumps, variable refrigerant flow systems, etc.) in addition to electric domestic hot water generation, where practicable, based on space type and utility metering.

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## EMBODIED CARBON

As project operational energy consumption is reduced through energy efficient design, the carbon emissions occurring during the construction phase become more prominent in the overall building life-cycle emissions.

To further understand these impacts, a preliminary embodied carbon analysis was performed to evaluate various envelope wall assemblies implemented for a previous project constructed by Mark Development. New Ecology, Inc. (NEI) examined the thermal performance of numerous wall assemblies in conjunction with embodied carbon to compare the impact of various construction materials.

The Dunstan East development will continue to evaluate material selection during the design phase and consider both embodied carbon and thermal performance during the wall assembly selection process. High performance wall assemblies with low embodied carbon and high thermal performance will be identified and evaluated for use during individual building design.

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## SUSTAINABLE SITE DESIGN AND ECOSYSTEM IMPROVEMENTS

By Dunstan East's very nature, it will present a substantial environmental benefit to both its immediate surroundings and the area as a whole. Located adjacent to the Cheesecake Brook, the reduction of impacts from stormwater runoff are of key importance. The parking facilities will be enclosed, and automobiles will be parked where they are protected from the elements. The salt, sand, and petroleum contamination associated with open-air parking will be drastically reduced. In addition, the Project includes improvements to the Southern embankment of the Cheesecake Brook, contributing to improvements in the Charles River Watershed.

To reduce heat island impact, the redeveloped Dunstan East site will provide green space and high solar reflectance roofs. In recent urban climate preparedness studies, large buildings with white roofs and pocket parks resulted in the most significant heat island reductions relative to other land cover types such as asphalt parking areas or low-density asphalt shingle-roofed houses (<https://www.cambridgema.gov/CDD/Projects/Climate/~media/A3977AB1B6AB47D7BEE02AE4D0B1410B.ashx>).

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## ELECTRIC VEHICLE CHARGING STATIONS

As outlined in the Carbon Free Boston Summary Report 2019, electric vehicle infrastructure needs to be drastically improved to meet the cities goals. *“Any remaining cars and trucks driving into and around Boston in 2050—including ride-hailing services—must run on low- or zero-GHG fuel or electricity. The City, region, and Commonwealth, along with utilities and other private sector partners, must help accelerate an affordable market transformation toward electric vehicles. Programs to support electric vehicle purchases and to build out local and regional electric vehicle infrastructure will help make EVs a more economic, convenient, and accessible solution.”*

Dunstan East residents will desire access to EV charging parking spaces for both convenience and climate change mitigation. Mark Development understands that provisions for electric vehicle charging stations need to be implemented during construction to avoid extensive costs of upgrading the electrical infrastructure at a future date. Therefore, Mark Development is planning to implement EV charging parking spots at the Project for at least 10% of the project parking spaces, to be located in preferred locations.

In addition, Mark Development is committing to an additional 10% of parking spaces to be electric vehicle-ready to allow simple conversion to EV parking spots in the future.

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## TRANSPORTATION

It is expected that by its design, the project will exhibit a substantial reduction in demand for automobile use with many residents opting to forgo car ownership altogether and retail tenants and visitors commuting by public transit. The site includes good proximity to the 553 and 554 MBTA bus lines as well as the West Newton Commuter Rail station. New bus shelters will be added on the North and South of Washington Street.

### Bicycle Facilities

The Dunstan East development will include 388 bicycle parking spaces in the parking garage located in a secure and weather protected location.

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## MECHANICAL SYSTEMS

Mechanical systems selected and sized to meet the minimal heating and cooling loads and ensure comfort will complement the building envelopes incorporated in the design. The design team will perform passive house feasibility analyses and energy modeling to inform building envelope and mechanical system design as well. This analysis will provide a more holistic view of the implications of the performance, operating cost, and carbon impacts of options under consideration.

Low flow, high performance fixtures that meet or exceed the EPA WaterSense standards will also be integrated to reduce water and domestic hot water energy use while maintaining tenant comfort.

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## LIGHTING AND ELECTRICITY

Appliances will be top performers in function, design, energy, and water efficiency. Electrical load will be reduced through smart lighting design that takes full advantage of the efficient, reliable, and attractive LED fixtures and lighting controls that are now available.

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## INDOOR AIR QUALITY

Of equally important consideration are the indoor air quality impacts of our approach. Mark Development is committed to providing individuals and families with a living environment that enhances their lives and health. Mark Development will accomplish this through two methods: ventilation and material selection. Ventilation systems will be designed to provide fresh supply air directly to each apartment. Toxins and contaminants will also be minimized through careful specification of low VOC and no added urea formaldehyde materials.

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## TRAINING, TESTING, AND VERIFICATION

Managing the transition from designed performance to achieving real world performance is a main focus for this project. A series of on-site trainings, inspections, testing, and continuous feedback to the team will be the primary tools used to ensure designed and modeled approaches translate to performance achievement.

As part of this process, the Dunston East team will:



- Hold a pre-construction trades training focused on trade specific best practices around performance-based construction;
- Review submittals for greening compliance;
- Conduct testing and inspections by certified HERS raters and LEED Accredited Professionals that include:
  - Foundation insulation inspections
  - Insulation and air barrier inspections
  - Mock-up level duct leakage and compartmentalization testing
  - Final duct leakage testing
  - Final compartmentalization testing
- Train and educate the buildings operations staff on the green features of the building and how to operate and maintain them; and
- Train and educate the residents of the buildings on the green features and how to minimize environmental footprint.

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## FUNDAMENTAL COMMISSIONING

Fundamental commissioning provides another critical layer of oversight that will be integrated into the Dunstan East Project. Heating, cooling, ventilation, domestic hot water, lighting, and other mechanical systems will be submitted to a performance testing and verification process to ensure proper installation and operations. As part of this process, a certified commissioning agent will:

- Develop and implement a commissioning plan
- Verify installation and performance of systems to be commissioned
- Provide a summary commissioning report to the building owner



Dunstan East - Sustainability Commitments Summary														
Building	Building Type			Secondary Use		Newton Ordinance Sustainability Pathway		Construction Standards	Residential Electrification	Embodied Carbon	Electric Vehicle Chargers	Electric Vehicle Ready	Solar PV	Solar PV Ready
[#]	[Type]	[Units]	Residential, including Amenity [sf]*	[Type]	[sf]	[12.4.A.1 - LEED Gold Certifiable]	[12.4.A.2 - Passive House]	[-]	[Yes/No]	[-]	[%]**	[%]**	[Y/N]	[Y/N]
1	Residential	79	94,758	Retail	1,432	Certifiable	PH Feasibility Study	Market Standards	Yes	Guiding Material Selection	10	10	No	Yes
2	Residential	91	106,844	Retail	4,389	Certifiable	PH Feasibility Study	Market Standards	Yes	Guiding Material Selection	10	10	No	Yes
3	Residential	132	156,512	Retail	0	Certifiable	PH Feasibility Study	Market Standards	Yes	Guiding Material Selection	10	10	No	Yes
* Not including parking														
** EV charger spaces (10%) and EV ready spaces (10%) will be allocated across the total parking area, which is shared between Buildings 1 and 2 and separate for Building 3														