

## MEMORANDUM

**To:** ND Acquisitions LLC  
c/o Steve Senna, VP  
National Development

**From:** Michelle Lambert, LEED AP BD+C, ENV SP  
Lambert Sustainability, LLC

**RE: LEED/Sustainability Report**  
WATERSTONE & BRIDGES AT LEXINGTON  
55-56 Watertown Street, Lexington, MA

**Date:** May 1, 2019

**LEED/Sustainability Report**

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### Project Descriptions and Sustainability Goals

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#### **Bridges at Lexington**

The Bridges at Lexington project is a 48 unit memory care assisted living community totaling approximately 45,000 sf, on four acres at 56 Watertown Street in Lexington.

Both in terms of building design and the services provided to residents, the goals embraced by all Bridges communities are inherently in sync with the health and wellness aspects of sustainability. The intent and design criteria of the spaces embrace many characteristics embedded in LEED and sustainable design practice.

Bridges by EPOCH memory care communities are purpose-built facilities designed and constructed based on the specific needs of people with various types of memory impairment. The design and operation of Bridges communities is informed by the latest research on memory impairment in order to create a setting where residents always feel comfortable, valued and secure in their new home. As a member of one of three “household” wings within the community, each Bridges resident enjoys a homelike environment with familiar faces and no long hallways to navigate, reducing the major causes of stress and confusion for many people suffering from memory loss. Complemented by soft color finishes, ample directional cues, aromatherapy and interactive life stations for reminiscence therapy, each Bridges household provides a warm and comfortable atmosphere designed to help the residents to feel safe and at peace. In addition, Bridges communities provide residents with direct access to secure, peaceful outdoor areas featuring sensory gardens, raised planters, comfortable seating and more ([bridgesbyepoch.com](http://bridgesbyepoch.com)).

#### **Waterstone at Lexington**

The Waterstone at Lexington project consists of 156 units of independent living and assisted living in addition to amenity spaces, totaling approximately 210,000 sf, on 13 acres at 55 Watertown Street in

Lexington. Similar to Bridges, Waterstone shares many inherently sustainable design goals. The integration of indoor and outdoor spaces was a hallmark of the first Waterstone project in Wellesley and continues to be an important feature. This project will feature landscaped patios, gardens and wooded walking trails.

### **Sustainability Goals**

Both projects were approved by the Town of Lexington with the understanding that they would be designed and constructed to meet LEED Silver standards.

LEED (“Leadership in Energy and Environmental Design”) is a green building certification. Developed by the non-profit U.S. Green Building Council (USGBC), it includes a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes, and neighborhoods that aims to help building owners and operators be environmentally responsible and use resources efficient.

The Memorandum of Understanding (MOU) between National Development and the Town of Lexington dated November 2018 has a number of conditions related to sustainability, including an extensive transportation demand management plan that includes significant roadway and pedestrian improvements as well as a wide range of operational commitments (such as showers and lockers for bicyclists); the donation of 17 acres to a permanent land conservation restriction; an annual monetary contribution to allow for inspection and maintenance of the conservation area by the Town; the provision of publicly accessible walking nature trails on site (with dedicated parking); and a monetary contribution to the Town for the creation and maintenance of public recreational nature trails in an area abutting the project. In addition, the MOU includes the following provisions specifically related to LEED:

“Prior to the issuance of the Certificate of Occupancy for either building, the Developer shall certify to the Town that such building has been designed and built in accordance with the requirements of LEED Silver certification according to the U.S. Green Building Council.”

“The Developer shall engage and fund a third party sustainability consultant to evaluate all aspects of the building design and building systems, including the feasibility of using alternative energy sources and solar readiness. The Developer shall meet with and provide the written evaluation to the Sustainable Lexington Committee prior to Site Plan Review.”

As expressed in the MOU, the intent of this memorandum is to provide an update on the LEED strategy that the development team has adopted and in so doing, to summarize in writing how the team has evaluated the “building design and systems, including the feasibility of using alternative energy sources and solar readiness” as part of the project’s LEED process.

The August 2018 Sustainable Lexington Action Plan, developed by the Sustainable Lexington Committee, appointed by the Board of Selectmen, recommends a number of goals related to the design and construction of new buildings that would be addressed in these projects.

### **The LEED Rating System**

LEED is the most widely used green building rating system in the world. LEED is designed to address environmental challenges while responding to the needs of a competitive market. The LEED rating systems aim to promote a transformation of the real estate development and construction industry through wholistic strategies designed to achieve seven goals:

- To reverse contribution to global **climate change**

- To enhance individual **human health** and well-being
- To protect and restore **water resources**
- To protect, enhance, and restore **biodiversity** and ecosystem services
- To promote sustainable and regenerative **material resources** cycles
- To build a **greener economy**
- To enhance social equity, environmental justice, **community** health, and quality of life

These goals are the basis for LEED’s prerequisites and credits. Across all of the rating systems, LEED has four levels of certification, depending on the point thresholds achieved:

- Certified, 40–49 points
- Silver, 50–59 points
- Gold, 60–79 points
- Platinum, 80 points and above

### LEED for Building Design and Construction (BD+C)

The project team has reviewed and considered several different LEED standards that might apply to the Waterstone and Bridges projects (including LEED for Neighborhood Development, LEED for Homes, etc.). Based on that analysis, the team concluded that the Waterstone and Bridges projects should and will be designed and constructed consistent with LEED for Building Design and Construction (BD+C) version 4, which is the most recent version of that rating system. LEED BD+C is intended for buildings that are new construction or major renovations. Version 4.1 of BD+C was released as a Pilot in January 2019. While 4.1 is still a pilot program, the USGBC allows projects the flexibility of using either version 4 or version 4.1 credit standards. As appropriate, the Waterstone and Bridges projects may take advantage of that flexibility.

In concert with National Development and the consultant teams across all design disciplines, Lambert Sustainability has developed a site/use specific comprehensive sustainability strategy for each project – Waterstone and Bridges. This report outlines the strategy using the format of LEED BD+C’s Prerequisites and Credits with an overview of the rationale behind the team’s approach and the feasibility of each of the Credits under consideration. The preliminary LEED checklists for both projects are included at the end of the report as Exhibit A (Waterstone) and Exhibit B (Bridges).

### LEED CATEGORY: INTEGRATIVE PROCESS

#### Credit: Integrative Process

During the schematic design phase, both projects held integrated team LEED charrettes to identify sustainability goals and discuss the feasibility of all prerequisites and credits. Team members in attendance included the owner, architects, MEP engineers, civil and landscape engineers, contractor and sustainability consultant. Preliminary energy models and water use estimates will be completed in schematic design.

### LEED CATEGORY: LOCATION AND TRANSPORTATION (LT)

#### LT Credit: LEED for Neighborhood Development Location

Not applicable at this site.

#### LT Credit: Sensitive Land Protection

The development footprints of both projects are technically on previously developed sites (previous development included house subdivisions, golf course facilities and construction/highway construction

staging, mining, dumping and laydown areas), so would automatically comply with this credit. In addition, both project development footprints also comply with Option 2 of this credit as they do not include any of the following criteria for sensitive land: prime farmland, floodplains, threatened/endangered habitat, within 100' of a water body, or within 50' of a wetland. Beaver Brook crosses through the Waterstone property line, but no improvements are being made within the water body setback area.

**LT Credit: High-Priority Site**

Not applicable at this site.

**LT Credit: Surrounding Density and Diverse Uses**

Technically, not achieved. However, the projects have significant on-site amenities that will not only enhance the quality of life of residents, but also limit traffic impacts on the larger community.

*Option 1: Surrounding Density-* Within the stated 1/4 mile radius of the site, the surrounding density does not meet the minimum at either project.

*Option 2: Diverse Uses-* Waterstone and Bridges will feature extensive onsite amenities, including activity rooms, libraries, salons, on site dining/commercial kitchen, art rooms, fitness areas (Waterstone will also have a movie theater room and a pool). In this respect, the projects are inherently “smart growth” and will have limited traffic impact because residents are able to meet many of their needs (social, entertainment, food, etc.) without having to leave the site. However, the technical LEED requirement for this Credit is that 4-7 diverse “off site” amenities must be within 1/2 mile walking distance of the subject project. The closest restaurants, grocery stores, banks, pharmacies, hair salons, dry cleaners and urgent care facility are all located on Mass Ave about 1.5 miles away so technically, neither Waterstone nor Bridges earn this credit.

**LT Credit: Access to Quality Transit**

There are three existing bus stops within 1/4 mile of the project sites. The Developer also plans to work with the Town to advocate with the MBTA for an existing bus route to create a new stop at the new crosswalk along the frontage of the Bridges project. The number of points achieved in this credit will be determined by the calculation of the number of weekday and weekend trips provided within 1/4 mile of the project.

In addition, the Developer is paying into a fund to support LexPress, the public town bus, and LexConnect, an on-call transportation service for seniors.

**LT Credit: Bicycle Facilities**

*Bicycle Network-* The Town recently repaved a portion of Watertown Street and included dedicated bike lanes. The Developer’s Town Meeting rezoning approval includes a commitment to extend those bike lanes to the project sites.

*Bicycle Storage and Shower Rooms-* Both projects will provide bike racks, lockers and showers.

**LT Credit: Reduced Parking Footprint**

Not achieved- Projects that do not achieve the LT Density and Diverse Uses credit must achieve a 20% reduction in parking from the LEED baseline. The baseline for Assisted Living use is 0.35 spaces/dwelling unit.

Waterstone has 156 units so 54.6 spaces would be the baseline, and a 20% reduction from there would be a maximum of 44 spaces. Bridges has 48 units so 16.8 spaces would be the baseline and 13.44 spaces would be the maximum allowed to achieve this credit.

Given the suburban location, the project team (including the traffic engineer) does not believe that the above parking ratios are practical. In addition, they would not be allowed at these locations due to significantly higher “minimum parking” required by Lexington’s Zoning Bylaw.

While technically, it does not earn the project a LEED Credit here, the design of the Waterstone building has more than 75% of all of the parking in a garage under the building. This very significant investment in the building design and construction allows for a significantly larger undisturbed area (almost 50% of the 13 acres) and significantly less impervious surfaces than a “standard” suburban senior housing design of this size and type would typically require.

#### **LT Credit: Green Vehicles**

*Green Vehicles-* In order to comply with this credit, both Waterstone and Bridges will designate 5% of all parking spaces as preferred parking for green vehicles. The Projects will also comply with Option 1 for “alternative fuel stations” as outlined below.

*Option 1- Electric Vehicle Charging-* To comply with this credit, both Waterstone and Bridges will feature electrical vehicle supply equipment at 2% of all parking spaces, in addition to the green vehicle designated spaces referred to above. Eversource, the electric utility provider for both buildings, currently is offering substantial support for the installation of car charging stations. Based on successful participation in this program on other projects, National Development has already engaged with Eversource on this topic and will be submitting applications later this year.

### **LEED CATEGORY: SUSTAINABLE SITES (SS)**

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#### **SS Prerequisite: Construction Activity Pollution Prevention**

An erosion and sedimentation control plan (stormwater pollution prevention program – SWPPP) for all construction activities associated with the project will be created and implemented. The plan will conform to the requirements of the 2012 EPA Construction General Permit (CGP). National Development has already prepared and submitted draft SWPPPs (extensive narrative and plans) for each project to Lexington Engineering Department and the Town’s peer reviewer (Woodard & Curran) as part of the Stormwater Management Permit application process for each site. Based on initial comments, the SWPPP was well received by the Town.

#### **SS Credit: Site Assessment**

To comply, a site survey or assessment must be completed that includes the following information: Topography, Hydrology, Climate, Vegetation, Soils, Human use, and Human Health Effects. As part of the last year’s Planning Board and Town Meeting rezoning process for both Projects, an extensive Environmental Impact Report (as required by the rezoning process) was prepared and submitted that addresses these topics in detail. Among other things, the report helped to highlight for Town staff, boards and other stakeholders the important ways in which the design of the projects was based on sound planning and site design principles that make use of the existing topography of each site, maintain substantial critical tree buffers and minimize the amount of impervious surface needed to meet the basic program requirements of the projects.

#### **SS Credit: Site Development—Protect or Restore Habitat**

This credit has two components. First, 40% of the greenfield area on the sites will be preserved and protected from all development and construction activity. Second, 30% of all portions of the site identified

as previously developed will be restored using native or adapted vegetation. For each project site, the team has completed a percentage calculation of any greenfield area (areas that have not been previously developed, graded or disturbed), areas identified as previously disturbed, and the new proposed vegetated site areas in order to confirm compliance. As described above, given the well-conceived site plans developed during the rezoning process, this Credit is achievable.

### **SS Credit: Open Space**

On both project sites, 30% of the total site area will be outdoor space. And in addition, 25% of that outdoor space will be vegetated. The outdoor space will be physically accessible and include one or more of the following required space types-

- a pedestrian-oriented paving or turf area with physical site elements that accommodate outdoor social activities;
- a recreation-oriented paving or turf area with physical site elements that encourage physical activity;
- a garden space with a diversity of vegetation types and species that provide opportunities for year-round visual interest;
- a garden space dedicated to community gardens or urban food production;
- preserved or created habitat that meets the criteria of SS Credit Site Development—Protect or Restore Habitat and also includes elements of human interaction.

Again, as described above, given the well-conceived site plans developed during the rezoning process and the desire to have as many wonderful amenities on site (both indoors and outdoors) so that the senior residents of the projects do not have to leave the site to pursue the things they need and enjoy in life, this Credit is achievable.

### **SS Credit: Rainwater Management**

There are a number of low-impact development (LID) features designed on both sites to manage rainwater on the site. Path 1 of this credit awards points for managing the runoff on site for the 95<sup>th</sup> percentile of regional or local rainfall events using LID and green infrastructure strategies and techniques. Path 2 awards an additional point for managing the runoff on site for the 98<sup>th</sup> percentile rainfall event. At this stage (with detailed stormwater management and utility plans developed and under review by the Town's Peer Reviewer), the project team believes that both path 1 and path 2 may be achievable.

### **SS Credit: Heat Island Reduction**

There are two compliance paths for this credit-

*In Option 1*, projects must install both roof materials and nonroof materials that meet the LEED requirements. Roofing materials can either be high-reflectance (light-colored) or vegetated. Nonroof measures include shading of paved areas with trees or plants, shade structures with high reflectance cover materials or shade structures covered with energy generation systems.

*In Option 2*, the credit is achieved if 75% of the parking spaces are under cover and that roof material is high-reflectance, vegetated or covered in energy generation systems.

At Waterstone, Option 2 is achieved because approximately 132 of the 166 parking spaces (80%) are under cover in the garage, and the roofing material over the garage will have an initial solar reflectance index (SRI) of at least 82.

The design for Bridges intentionally uses sloped (instead of flat) roofs and gables finished with medium-toned architectural asphalt shingles in order to not stand out within the neighboring residential

neighborhood to its east. With the use of medium-tone roof shingles (and conventional asphalt paving) Bridges will not be able to achieve this credit.

### **SS Credit: Light Pollution Reduction**

There is minimal site lighting and minimal lighting on the building exterior of both projects. A preliminary photometric plan has been completed and submitted to the Town as part of the Site Plan Review approval process. These photometric plans indicate that projects will comply with this LEED credit.

## **LEED CATEGORY: WATER EFFICIENCY (WE)**

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### **WE Prerequisite: Outdoor Water Use Reduction**

At both Waterstone and Bridges, a minimal irrigation system will be installed for plant establishment and to be used in periods of little rainfall. These irrigation systems will be fed 100% from well water on each site and will not rely on potable water. Consistent with the Planting Plans approved during the Town Meeting process, the proposed landscaping may only use plants and vegetation native to Middlesex County so will not require irrigation under normal conditions.

Per the LEED prerequisite, the Projects' landscape water requirement will be reduced by at least 30% from the baseline for the peak watering month. The reductions will be achieved through plant species selection and irrigation system efficiency.

### **WE Prerequisite: Indoor Water Use Reduction**

In both projects, all toilets, urinals, private lavatory faucets, and showerheads will be WaterSense labeled. Clothes washers and dishwashers will be Energy Star rated. In aggregate, all fixtures will reduce water consumption by 20% from the LEED baseline. Despite the somewhat unique requirements of seniors (especially assisted living residents), this program was successfully implemented at National Development's recent Waterstone at the Circle project in Boston/Brookline.

### **WE Prerequisite: Building-Level Water Metering**

This Prerequisite will be achieved. Permanent water meters that measure the total potable water use for the building and associated grounds will be installed at both projects.

### **WE Credit: Outdoor Water Use Reduction**

Once the landscape design and materials selection have progressed, the team will be able to size the irrigation system and calculate the associated water use. At this stage, we believe that the irrigation system and plant selections will be able to reduce the water requirement by 50% from the baseline, thereby achieving 1 point under this credit.

### **WE Credit: Indoor Water Use Reduction**

As the design progresses and the indoor plumbing fixtures and fittings are selected, the team will perform indoor water use calculations. At this stage we feel confident that both projects can achieve a 30% reduction in water use, thereby achieving 2 points under this credit.

### **WE Credit: Cooling Tower Water Use**

The Bridges mechanical systems design includes a closed cell cooling tower which may be able to comply with the requirements of this credit. This will be studied once final equipment is selected. Waterstone does not use a cooling tower so this credit is not applicable to that project.

**WE Credit: Water Metering**

This credit requires the installation of permanent water meters for two or more water subsystems (beyond the overall water meter required by the prerequisite). As the mechanical and plumbing system designs progress, the team will investigate opportunities to submeter water systems in both projects in ways that will allow the facility management teams at each building to monitor and maximize water use efficiency.

**LEED CATEGORY: ENERGY AND ATMOSPHERE (EA)**

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**EA Prerequisite: Fundamental Commissioning and Verification**

Fundamental commissioning process activities for mechanical, electrical, plumbing, and any renewable energy systems and assemblies will be completed by an independent commissioning authority. As such, this Prerequisite will be achieved by both projects. National Development is in the process of engaging the third-party commissioning agent for the Projects as this report is being written.

**EA Prerequisite: Minimum Energy Performance**

Both Waterstone and Bridges will perform whole-building energy modeling to demonstrate energy efficiency. For the prerequisite level, both projects will demonstrate a minimum 5% improvement compared to the baseline building modeled using ASHRAE Standard 90.1-2010.

**EA Prerequisite: Building-Level Energy Metering**

Building-level energy meters that can be aggregated to provide building-level data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, etc.) will be installed.

**EA Prerequisite: Fundamental Refrigerant Management**

Heating, ventilating, air-conditioning, and refrigeration (HVAC&R) systems installed will not use chlorofluorocarbon (CFC)-based refrigerants.

**EA Credit: Enhanced Commissioning**

National Development is in the process of evaluating the nature of and potential benefits of services related to enhanced commissioning, monitoring, and envelope commissioning.

**EA Credit: Optimize Energy Performance**

The Stretch Energy Code, adopted by the Town of Lexington, requires that buildings must be 10% more efficient than the ASHRAE Standard 90.1-2013. LEED v4 uses an older version of the ASHARE Standard, 90.1-2010, as a baseline, therefore at this stage with only a preliminary energy model complete, the project teams feel comfortable estimating that both projects will achieve around 16-20% improvement in energy use over the LEED baseline, potentially achieving 6-8 points.

**EA Credit: Advanced Energy Metering**

In addition to the prerequisite which requires metering of whole-building energy sources used by the building, this credit is achieved if advanced energy metering is installed for any individual energy end uses that represent 10% or more of the total annual consumption of the building. This will be studied as the mechanical system design progresses.

**EA Credit: Demand Response**

Not achieved- A demand response program which allows for load shifting and for utilities to alter electricity use demands at certain times would not be appropriate for the occupants of these facilities and in

particular the memory care units at Bridges. Many residents are reliant on constant temperature and lighting levels, so demand response adjustments would not be feasible.

### **EA Credit: Renewable Energy Production**

To achieve this credit, projects must use renewable energy systems to offset the building energy costs by 1%, 5% or 10% for 1-3 points respectively. In LEED v4 this may be achieved either by installing renewable energy systems on site or by purchasing renewable energy credits (RECs) from a third party.

At most suburban development sites, the types of renewable energy production that warrant consideration are typically limited to the following: wind, geothermal, and solar/photovoltaic (PV). Given that wind turbines were not part of the “what you see is what you get” Planned Development approved by Town Meeting and the height of the tree canopies that make up the substantial tree buffers – greater than 30’ on all four sides of both projects- the project teams determined that wind energy production is not a viable option under the existing approvals and zoning for the projects due to the requirement to minimize visual impacts of the project on residential neighbors to the east and north. As such, no further analysis was conducted on wind power for these sites.

Given that heating/cooling loads make up a significant portion of the energy use at both Bridges and Waterstone, the project team lead by Sanborn Head (geotechnical engineers at both sites) has investigated geothermal systems as an energy source for HVAC systems. Sanborn Head determined that the Town Meeting approved site plans do not have room for well-fields large enough to accommodate the full loads of either building. Given both cost and space constraints, the project team discussed the possibility of installing hybrid full-source systems, but that was determined not to be feasible and impractical relative to other more cost-effective way of achieving sustainable goals.

With the assistance of both a solar/PV vendor (Sun Wealth) and a solar/PV consultant (Solar Design Associates, Inc), the project teams have studied PV options for both the Waterstone and Bridges buildings. Our preliminary studies have found that neither building is an excellent candidate for PV. Despite the fact that the Bridges building has a high ratio of roof area relative to overall square footage, the project team determined that the Bridges project is particularly poorly suited for solar/PV in addition to significant concerns about glare from the roof negatively affecting memory care residents. Based on a shadow study of the site commissioned by the Developer, the project team concluded that with the orientation of the building (north-south) and the height of the surrounding tree canopies (buffers to be maintained in perpetuity as part of Town Meeting approvals), a PV installation on the Bridges roof would generate only a very small percentage of its electricity consumption in an extremely inefficient manner, making it an impractical approach to producing renewal energy.

While the Waterstone building (due to massing between 3 and 6 stories) is slightly less challenged by tree shadows, the project team concluded that it is also likely not an ideal candidate for a substantial solar/PV installation. The challenges with solar/PV at Waterstone include: (1) the fact that a significant portion of roof area is already designated as green roof and/or courtyard/roof deck areas under the Town Meeting approvals plus some of the remaining area being needed for various roof penetrations (elevator overrides, kitchen equipment, HVAC equipment, roof access doors and vents, circulation, etc); and (2) the project has significant entitlement and legal commitments to limit the visual impacts (related to height) on the Belmont Country Club golf course and residential abutters to the north.

Based on the work and analysis described above, the development team has decided to forgo any further analysis related to wind power or geothermal and to continue to evaluate PV at the Waterstone facility – likely in a limited “demonstration project” scale with an attempt to provide some proof-of-concept of both

whether or not and how PV might be cost-effectively accommodated at future Waterstone projects (with fewer height and visual restrictions) on a larger scale. Furthermore, with the assistance of Solar Design Associates, the project teams will continue to evaluate the scope (and cost/benefits) of making both the Bridges and Waterstone building's fully solar ready with respect to structural (wind) loads, pathway and infrastructure space requirements.

**EA Credit: Enhanced Refrigerant Management**

To achieve this credit, the refrigerants used in HVAC&R equipment must minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change and must comply with the formula given. As the mechanical systems design progresses, the project team will evaluate the refrigerants necessary to meet the program requirements of each building in order to determine if compliance can be achieved.

**EA Credit: Green Power and Carbon Offsets**

This credit requires that building owners engage in a contract for qualified resources for a minimum of five years, and that the contract must specify the provision of at least 50% or 100% of the project's energy from green power, carbon offsets, or renewable energy certificates (RECs). The development team will determine the feasibility of this credit at a later stage as the building designs progress and energy use can be accurately estimated.

**LEED CATEGORY: MATERIALS AND RESOURCES (MR)**

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**MR Prerequisite: Storage and Collection of Recyclables**

Both Waterstone and Bridges will achieve this prerequisite by providing dedicated areas for the collection and storage of recyclable materials for the entire building including mixed paper, corrugated cardboard, glass, plastics, and metals. In addition, appropriate measures will be implemented for the safe collection, storage, and disposal of two of the following hazardous waste streams: batteries, mercury-containing lamps, and electronic waste.

**MR Prerequisite: Construction and Demolition Waste Management Planning**

Both Waterstone and Bridges will achieve this prerequisite. Facilitated by the project's LEED consultant, Cranshaw Construction, the general contractor for both projects, will develop for review and approval a construction and demolition waste management plan that will outline the following:

- Establishment of waste diversion goals for the project by identifying at least five materials targeted for diversion. Approximate a percentage of the overall project waste that these materials represent.
- Specify whether materials will be separated or comingled and describe the diversion strategies planned for the project. Describe where the material will be taken and how the recycling facility will process the material.

**MR Credit: Building Life-Cycle Impact Reduction**

There are no existing buildings on either site so this credit is not applicable.

**MR Credit: Building Product Disclosure and Optimization—Environmental Product Declarations (EPD's)**

**MR Credit: Building Product Disclosure and Optimization – Sourcing of Raw Materials**

**MR Credit: Building Product Disclosure and Optimization – Material Ingredients**

As the design progresses, the project teams will carefully review and evaluate all of the proposed materials, finishes and other products against the criteria of these three MR credits. All of these credits require the

use of at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria. While it can be challenging to obtain the required documentation from some product manufacturers, the project teams – including Cranshaw Construction and the project architects (Elkus Manfredi for Waterstone and CBT for Bridges) – have extensive experience with sourcing sustainable construction materials for LEED projects. As such, the project teams are optimistic that both projects will achieve two of the three credits.

#### **MR Credit: Construction and Demolition Waste Management**

This credit has historically required the diversion of at least 50% (1 point) or 75% (2 points) of the total construction and demolition material. An additional requirement in LEED v4 is that the diverted materials must include at least three material streams (1 point) or four material streams (2 points). Given the nature of existing recycling operations and processing facilities in Massachusetts, which focus on separating recyclable goods offsite, the new requirement for source-separated material streams has made this credit more challenging in Massachusetts than in prior versions of LEED, so at this time the project teams are conservatively estimating achieving 1 point.

### **LEED CATEGORY: INDOOR ENVIRONMENTAL QUALITY (EQ)**

#### **EQ Prerequisite: Minimum Indoor Air Quality Performance**

The Waterstone and Bridges design teams will determine the minimum outdoor air intake flow for mechanical ventilation systems using the ventilation rate procedure and meet the minimum requirements of ASHRAE Standard 62.1–2010, Sections 4–7, Ventilation for Acceptable Indoor Air Quality. Both projects will also meet all ventilation monitoring requirements per LEED.

#### **EQ Prerequisite: Environmental Tobacco Smoke Control**

Smoking will be prohibited inside both buildings. Smoking will also be prohibited outside within 25 feet of all entries, outdoor air intakes and operable windows. Signage will be posted on the exterior indicating the no smoking areas.

#### **EQ Credit: Enhanced Indoor Air Quality Strategies**

To achieve this credit, all mechanically ventilated spaces must comply with all of the following requirements:

- *Entryway systems*- Install permanent entryway systems at least 10 feet long in the primary direction of travel to capture dirt and particulates entering the building at regularly used exterior entrances, and maintain weekly. Unfortunately, given the need to avoid any tripping hazard risks, the use of walk-off mats and other high-texture surfaces is not appropriate in senior housing facilities.
- *Interior cross-contamination prevention*- Sufficiently exhaust each space where hazardous gases or chemicals may be present or used (e.g., garages, housekeeping and laundry areas). For each of these spaces, provide self-closing doors and deck-to-deck partitions or a hard-lid ceiling. Both projects will comply with these requirements.
- *Filtration*- Each ventilation system that supplies outdoor air to occupied spaces must have particle filters or air-cleaning devices that meet the listed filtration media requirements. The project teams will evaluate these specific standards related to this filtration credit at subsequent phases of design.

The team will investigate the feasibility of meeting the entirety of this credit as the design progresses.

### **EQ Credit: Low-Emitting Materials**

Under this credit, varying numbers of points are available depending on the number of material categories in which all products comply with the emissions and VOC content limits-

- Interior paints and coatings applied on site,
- Interior adhesives and sealants applied on site,
- Flooring,
- Composite Wood,
- Ceilings, walls, thermal, and acoustic insulation,
- Furniture (if in scope).

At this stage, based on extensive experience with other LEED projects in this area, the project teams are confident that both projects can achieve several of these product category credits. During the upcoming interior design phase of the projects, facilitated by the projects' LEED consultant, the teams will review all materials proposed by the architect and interior designers to determine which items comply and to seek sustainable alternates where possible.

### **EQ Credit: Construction Indoor Air Quality Management Plan**

Both Waterstone and Bridges will achieve this credit. The project teams will develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of each buildings. The plans will address all of the required items listed in LEED Reference Guide.

### **EQ Credit: Indoor Air Quality Assessment**

Both Waterstone and Bridges will pursue this credit under "Option 1 Flush-out." Both projects will build time into the schedule to allow for a building flush-out prior to occupancy.

### **EQ Credit: Thermal Comfort**

This credit includes mandatory requirements for *both* Thermal Comfort Design and Thermal Comfort Control.

*Thermal Comfort Design*- Obviously, thermal comfort is an essential aspect of the operational requirements of any senior housing project. As the design progresses, the mechanical systems engineers for the project will determine if the HVAC systems selected for the buildings will comply with the specific technical standards of ASHRAE Standard 55-2010-Thermal Comfort Conditions for Human Occupancy.

*Thermal Comfort Control*- Both Waterstone and Bridges comply with this section of the credit as both buildings include thermal comfort controls (thermostats) for at least 50% of the individual occupant spaces and group thermal comfort controls for all shared multi-occupant spaces.

### **EQ Credit: Interior Lighting**

This credit has two options for points under different categories-

*Option 1- Lighting Control (1 point)*: For at least 90% of individual occupant spaces, individual lighting controls that enable occupants to adjust the lighting, with at least three lighting levels or scenes (on, off, mid-level) must be provided. For both Waterstone and Bridges, as the lighting design process progresses, the design teams will be working to select light fixtures and controls that meet the specific lighting control needs of seniors (including the unique requirements of memory care residents – such as simplicity of use and night lights), but that might also comply with the specific requirements to achieve this credit.

*Option 2- Lighting Quality (1 point):* For this option, four out of eight specific lighting quality strategies must be achieved. For both Waterstone and Bridges, as the lighting design process progresses, the design teams will be working to select light fixtures and controls that meet the specific needs of seniors (including the unique requirements of memory care residents – including lighting color and intensity), but that might also comply with the specific requirements to achieve this credit.

### **EQ Credit: Daylight**

Three different options are available to demonstrate compliance with the Daylight credit.

*Option 1- Simulation of Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure* requires computer simulations of all regularly occupied floor areas demonstrating compliance with both sDA and sunlight exposure thresholds.

*Option 2- Simulation, Illuminance Calculations* requires computer modeling of illuminance levels for all regularly occupied floor areas, demonstrating compliance with thresholds.

*Option 3- Measurement* does not require computer modeling but instead requires measurement of actual daylight illuminance levels of finished spaces to determine compliance.

Both Waterstone and Bridges are designed to maximize daylight in the individual resident units as well as in the shared spaces in order to create a bright, warm and enjoyable indoor experience. As the design progresses, the team will determine which option to pursue in order to determine if the daylight provided complies with the LEED requirements.

### **EQ Credit: Quality Views**

In addition to having ample daylight, both Waterstone and Bridges were designed to allow for views to the outside from all individual and shared spaces in order for the residents to be able to enjoy nature, even when the weather prevents being outdoors. Both projects will meet the LEED criteria for achieving quality views as follows:

- Achieve a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area.
- Additionally, 75% of all regularly occupied floor area must have at least two of the following four kinds of views:
  - multiple lines of sight to vision glazing in different directions at least 90 degrees apart;
  - views that include at least two of the following: (1) flora, fauna, or sky; (2) movement; and (3) objects at least 25 feet from the exterior of the glazing;
  - unobstructed views located within the distance of three times the head height of the vision glazing;
  - views with a view factor of 3 or greater.

### **EQ Credit: Acoustic Performance**

This credit requires that all occupied spaces must meet the requirements listed for HVAC background noise, sound isolation, reverberation time, and sound reinforcement and masking. Compliance with this credit will be determined as the design progresses. Separately, the project teams will ensure that both projects comply with the significant acoustical commitments made by National Development in its MOU with the Town related to exterior noise control.

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## **LEED CATEGORY: INNOVATION (IN)**

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### **IN Credit: Innovation**

Projects may achieve up to five Innovation points by demonstrating significant, measurable environmental performance using a strategy not addressed in the LEED green building rating system being pursued. Credits from other LEED Rating Systems may be pursued under Innovation. The team has identified several possible Innovation credits to be investigated through the design phase including-

*Places of Respite SS Credit, v4 for Healthcare:* Provide places of respite for patients and visitors equal to 5% of net usable program area, plus places for staff equal to 2% of net usable program area. Places must be outdoors or in an atria, solaria, etc with views to nature.

*Direct Exterior Access SS Credit, v4 for Healthcare:* Provide direct access to an exterior courtyard, terrace, garden or balcony. Spaces must be minimum 5sf per patient for 75% of inpatients. Spaces must be designated non-smoking.

The project teams are also investigating the pros/cons of tunable LED lighting systems that might improve lighting quality, reduce glare, provide better control and allow residents to maintain healthier sleep patterns by reducing circadian rhythm disruption. The WELL Building Standard has a Circadian Lighting Design credit that could be pursued as an Innovation credit.

Under the Site Development- Protect or Restore Habitat credit, the Developer may achieve BOTH Option 1 for On-Site Restoration of both project sites and Option 2 for Financial Support (for the donation of 6.5 acres for permanent conservation plus a monetary donation to a fund to monitor the conservation land) and therefore could earn exemplary performance for this credit.

#### **IN Credit: LEED Accredited Professional**

The LEED Consultant on the team for both Waterstone and Bridges holds the LEED Accredited Professional BD+C credential as required for this credit.

#### **REGIONAL PRIORITY (RP)**

Regional Priority credits have been identified by the USGBC regional councils and chapters as having additional importance for the project's region. The database of Regional Priority credits is listed by project zip code on the USGBC website. A project may earn up to four of the six Regional Priority credits.

As indicated above, the RP credits that the development team expects both the Waterstone and Bridges projects to potentially achieve are as follows:

- Access to Quality Transit
- Site Development- Protect or Restore Habitat
- Optimize Energy Performance (8 points= 20%)
- Renewable Energy Production (2 points= 5%)

## **CONCLUSION**

Using the analysis and strategy outlined above, and relying on their experience developing other LEED projects in Greater Boston, the project teams will continue in each of the remaining phases of the development process to design the Waterstone and Bridges projects consistent with LEED Silver requirements while ensuring that the buildings also meet the specific needs and functional requirements of the seniors who will call these buildings home.