Appendix A: MEPA Certificate and Comment Letters

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October 2, 2020

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: Northland Newton (Needham Street Redevelopment)
PROJECT MUNICIPALITY	: Newton
PROJECT WATERSHED	: Charles River
EEA NUMBER	: 15757
PROJECT PROPONENT	: Northland Development, LLC
DATE NOTICED IN MONITOR	: August 26, 2020

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Draft Environmental Impact Report (DEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations. The Proponent may prepare and submit for review a Final Environmental Impact Report (FEIR).

Project Description

As described in the DEIR, the project consists of the redevelopment of a 22.6-acre site that was formerly in commercial and industrial use. The project includes the construction of a 1.4 million-square foot (sf) mixed-use development in 14 buildings with 1,048,770 sf of residential space (800 units, of which 140 will be affordable units), 193,200 sf of office space in a building to be renovated and 115,114 sf of restaurant/retail space. The development program for each building is shown below in Table 1. It includes a total of 1,600 vehicle parking spaces, 1,100 bicycle parking spaces, a stormwater management system, enhanced pedestrian and bicycle connections, open space improvements, and landscaping. Access to the site's internal street network will be provided from Needham Street and Oak Street. Ten of the 11 existing buildings will be demolished; the historic 172,000-sf Saco-Pettee Mill building will be renovated and reused as office space.

Table 1: Development Program by Building (areas in sf)

Building	Area	Stories	Residential	Residential Units	Retail/ Commercial	Office	Parking Garage[1]
1	193,200	4	0	0	0	193,200	0
2	6,740	2	0	0	6,740	0	0
3	154,749	7	118,122	94	20,209	0	16,418
4	167,691	7	144,746	106	20,444	0	2,501
5a-b	232,283	8	209,844	160	16,369	0	6,070
6a	177,013	8	151,774	126	24,986	0	253
6b-c	143,373	8	135,852	119	4,834	0	2,687
7	81,236	5	65,584	50	15,652	0	0
8	152,375	7	131,708	80	5,880	0	14,787
9	46,122	3	46,122	36	0	0	0
10	46,122	3	46,122	36	0	0	0
11	46,122	3	46,122	36	0	0	0
12	33,558	4	33,558	23	0	0	0
14	13,860	3	11,460	0	0	0	2,400
Total	1,402,200	--	1,048,770	800	115,114	193,200	45,116

The project will be constructed in two phases. The first phase is expected to be completed by Fall 2023 and includes construction of Buildings 1, 2, 3, 5, 6, 7 and 12. The remaining buildings will be completed by Spring 2025.

Project Site

The 22.6-acre project site is comprised of three parcels primarily located along Needham Street at or near its intersection with Oak Street and Charlemont Street. The site is generally bounded by the Newton Upper Falls Greenway to the west, Tower Road and commercial buildings to the north, Needham Street to the east, and Oak Street to the south. Needham Street is a state roadway under the jurisdiction of the Massachusetts Department of Transportation (MassDOT).

South Meadow Brook is conveyed in a culvert from the north before daylighting at the site's northern property line. It flows in a well-defined channel with steep banks for a distance of 400 ft across the northern part of the site, enters a culvert and flows in a southerly direction through the rest of the site for a distance of approximately 1,050 ft. The brook remains culverted and discharges into the Charles River approximately 400 ft south of the site. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) number 25017C0562E (effective June 4, 2010), the exposed portion of South Meadow Brook in the vicinity of the northern property line is designated as a Regulatory Floodway within a Zone AE (100-year floodplain) with a Base Flood Elevation (BFE) of 109 ft NAVD 88. According to the FIRM, flooding associated with South Meadow Brook on the project site has not been studied.

[1] Includes above-grade garage space only.

The project site contains the Saco-Pettee Machine Shops complex (NWT.X), which is listed in the State and National Register of Historic Places.

Environmental Impacts and Mitigation

Potential environmental impacts associated with the project include 6,737 new unadjusted average daily vehicle trips (adt) (12,984 adt total); 474 net new parking spaces (1,600 total); alteration of 2.1 acres of Riverfront Area; an increase of 85,110 gallons per day (gpd) in wastewater generation (93,425 total gpd); an increase of 93,600 gpd in water demand (102,800 total gpd); and construction of 0.4 miles of sewer main. The project will reduce impervious surface by 0.7 acres. Greenhouse gas (GHG) emissions are associated with the project's energy use and transportation.

Measures to avoid, minimize, and mitigate impacts include a reduction of impervious area of 0.7 acres; provision of 10.4 acres of publicly accessible open space; removal of invasive plant species and new plantings along South Meadow Brook; implementation of a Transportation Demand Management (TDM) program to support alternative travel modes; construction of a new stormwater management system; and compliance with the City of Newton's (City) Infiltration/Inflow (I/I) Policy. At least three of the residential buildings will be constructed to meet Passivehouse design standards and the project includes measures to increase the site's resilience to the effects of climate change.

Jurisdiction and Permitting

The project is undergoing MEPA review and is subject to a Mandatory EIR pursuant to 301 CMR 11.03(6)(a)(6) because it will generate 3,000 or more New adt with access to a single location. The project also exceeds Environmental Notification Form (ENF) thresholds regarding the demolition of historic structures and the number of new vehicle trips and parking spaces pursuant to Sections 11.03(10)(b)(1) and 11.03(6)(b)(13), (14), and (15) (respectively) of the MEPA regulations. The project will require a Vehicular Access Permit from MassDOT. The project is subject to review under the May 2010 MEPA Greenhouse Gas Emissions Policy and Protocol ("the GHG Policy").

The project requires an Order of Conditions from the Newton Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from the Massachusetts Department of Environmental Protection (MassDEP)). The Newton City Council issued a Special Permit and Site Plan Approval on December 2, 2019. The project requires a National Pollutant Discharge Elimination System (NPDES) Construction General Permit from the U.S. Environmental Protection Agency (EPA).

Because the Proponent is not seeking Financial Assistance from the Commonwealth for the project, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required State Agency Actions and that may cause Damage to the Environment as defined in the MEPA regulations.

Changes Since the ENF

The DEIR identified the following changes to the project since the Environmental Notification Form (ENF) was reviewed:

- The project site has been reduced from 28.7 acres comprised of five parcels to 22.6 acres comprised of three parcels by eliminating two parcels on the east side of Needham Street from the project site;
- The area of open space to be provided has increased from 8 acres to 10 acres;
- The number of proposed parking spaces has decreased from 2,250 spaces to 1,600 spaces; and,
- The overall floor area of the project has increased from 1,391,000 sf to 1,402,200 sf (increase of 11,200 sf) and the development program has changed as follows:
    - Office space has increased from 172,000 sf to 193,200 sf (21,200-sf increase)
    - Retail/commercial space has decreased from 200,000 sf to 115,114 sf (a decrease of 84,886 sf)
    - Residential space has increased from 1,019,000 sf to 1,048,770 sf (an increase of 29,770 sf)
    - The number of residential units has decreased from 865 to 800 (a decrease of 65 units), the number of which will be affordable has decreased from 173 to 140 (a decrease of 33 units).

Review of the DEIR

The DEIR was generally responsive to the Scope included in the ENF Certificate. It described the project and its environmental impacts and identified mitigation measures. It provided a plan view of the development site and described the proposed development program. The DEIR provided a comprehensive transportation analysis, including a review of roadway improvement projects in the area, described energy-efficiency measures incorporated into the building designs to minimize GHG emissions and reviewed the project's climate change resiliency measures. It provided draft Section 61 Findings and responded to comments received on the ENF.

Alternatives Analysis

The DEIR provided an expanded analysis of project alternatives identified in the ENF. The No-Build Alternative would rehabilitate the existing buildings to provide 180,000 sf of office space, 62,600 sf of retail space and 257,100 sf of industrial space (499,700 sf total); this alternative was dismissed because the existing buildings would require extensive renovations and structural repairs, and there is little demand for more industrial space. The As-of-Right Alternative would construct 1.48 million sf of office space and would generally have similar impacts as the Preferred Alternative. However, the office use would generate more adt and more peak hour trips than the Preferred Alternative. According to the DEIR, the peak hour trips that would be added by the As-of-Right Alternative would have a significant negative impact on the Needham Street corridor, which already experiences congested conditions.

As noted above, the project has been redesigned since the ENF. The project site has decreased by 6.1 acres, but the size and program of the proposed development is generally the same. The Preferred Alternative will create 10 acres of open space, an increase of two acres from that proposed in the ENF, and the total number of parking spaces has decreased by 650 spaces. As required by the Scope included in the ENF Certificate, the DEIR reviewed potential design changes to the Preferred Alternative to further minimize parking spaces and impervious area and increase open space. The area of impervious surface has decreased by 0.3 acres compared to the previous proposal as a result of relocating nearly all surface parking spaces to the parking garages. The project includes additional open space as a result of removing small buildings previously proposed in the ENF and the redesign of a fourth building in the southwest part of the site. As described below, the DEIR also reviewed site access alternatives to minimize impacts to traffic operations on Needham Street.

Traffic and Transportation

The DEIR included a transportation study generally consistent with the EEA/MassDOT *Transportation Impact Assessment (TIA) Guidelines* issued in March 2014. It described existing and proposed roadway, pedestrian, and bicycle conditions, public transit capacity and infrastructure, roadway and intersection volumes and roadway safety issues. The analysis reviewed future conditions and vehicular and transit operations under No Build and Build scenarios using a seven-year planning horizon. As required by the Scope included in the ENF Certificate, the TIA identified roadway improvement projects that are planned, under construction or have been completed along the Needham Street corridor by MassDOT and the City. It evaluated site access alternatives based on traffic impacts and consistency with planned roadway improvements, as detailed below.

Analyses of transit and vehicular operations were provided for the weekday morning and evening peak hours for Existing 2020, No Build 2027, and Build 2027 scenarios. The TIA identified potential pedestrian and bicycle accommodations, roadway improvements, transit service and TDM measures, which will be implemented to minimize impacts to the transportation network. The TIA analyzed the transportation impacts of the project in a study area including the following 27 intersections:

- Chestnut Street at Route 9 Westbound (WB) Service Road;
- Chestnut Street at Route 9 Eastbound (EB) Service Road;
- Chestnut Street at Elliot Street;
- Chestnut Street at Oak Street;
- Oak Street at Site Driveway;
- Needham Street at Oak Street/Christina Street;
- Needham Street at South Site Driveway;
- Needham Street at Middle Site Driveway/260 Needham Street Driveway;
- Needham Street at North Site Driveway/Charlemont Street;
- Needham Street at Tower Road/Industrial Place;
- Needham Street at Jaconnet Street;
- Needham Street at Rockland Street;
- Needham Street at Columbia Avenue/Avalon Driveway;

- Winchester Street at Needham/Dedham Street;
- Winchester Street at Route 9 EB Service Road;
- Winchester Street at Route 9 WB Service Road;
- Centre Street at Walnut Street;
- Nahanton Street at Winchester Street;
- Nahanton Street at Wells Avenue/JCC Driveway;
- Highland Avenue at Riverside Street;
- Highland Street at Highland Terrace/Highland Circle;
- Highland Avenue at 2nd Avenue/Staples Driveway;
- Highland Street at Charles Street;
- Highland Street at Wexford Street;
- Highland Avenue at 1st Avenue/Riverside Community Health Driveway;
- Winchester Street/Centre Street at Boylston Street (Route 9);
- Highland Avenue at I-95 Northbound (NB) Ramps; and,
- Highland Avenue at I-95 Southbound (SB) Ramps.

The TIA reviewed crash data for the continuous five-year period of 2013 through 2017 at all study area intersections and compared crash rates against MassDOT District 6 averages. Eleven of the 27 study area intersections experience crash rates above the MassDOT District 6 averages. According to MassDOT, several intersections have been reconstructed since 2017 and reconstruction of additional intersections are expected to be complete in the near future; therefore, the crash data may not reflect current or anticipated roadway conditions. Two of the study intersections are potential Highway Safety Improvement Program (HSIP) eligible clusters: Winchester Street at Route 9 Westbound Service Road, and Centre Street at Walnut Street. The Proponent coordinated with the MassDOT to determine which locations required a road safety audit (RSA); Centre Street at Walnut Street was identified as the only candidate. The RSA was conducted in May 2020. The FEIR should include a summary of the recommendations in the RSA and a plan for how the recommendations will be implemented.

Roadway Improvements

The project has been designed in coordination with MassDOT's roadway improvement projects in the vicinity of the site. The DEIR reviewed the status of eight roadway improvement projects by MassDOT that have recently been completed or are in the planning/design stages. Of those projects, the following four projects were included in the traffic analysis because they have been or will be completed within the seven-year planning horizon of the TIA:

- Needham Street/Highland Avenue/Winchester Street Redesign: This project will commence construction this year. The Needham Street section of the project includes the realignment of Charlemont Street to align with the north site driveway to form a signalized intersection; raised bicycle lanes on both sides of the street; reconstructed sidewalks; new crosswalks with Rectangular Rapid Flashing Beacons; and cantilevered shared use paths on both sides of the bridge over the Charles River.
- Needham Street at Oak Street/Christina Street Improvements: This project was completed in 2019. It shifted Christina Street to the south at its intersection with Needham Street to more closely align with Oak Street on the opposite side of

Needham Street to improve the geometry of the intersection; provided enhanced pedestrian and bicycle facilities; and replaced the traffic signal.

- Highland Avenue at 1st Avenue Improvements: This project was completed in 2018. It included construction of additional approach turn lanes at the intersection, removal of the median in Highland Avenue to permit left turns from 1st Avenue onto Highland Avenue and added new pavement markings.
- Interstate-95 (I-95)/Route 128 Add-a-Lane project: This project was completed in 2018. It provided additional travel lanes and shoulders, new collector roads and interchange improvements.

These projects were designed to alleviate congestion, improve traffic operations and provide or upgrade pedestrian and bicycle facilities. As noted below, access to the site was planned in close coordination with MassDOT's design of improvements on Needham Street.

Site Access

Vehicular access to the site will be provided at four locations: from Tower Road to the north side of the site via an unsignalized intersection at Needham Street; a signalized intersection at Needham Street at Charlemont Street; an unsignalized driveway at Needham Street south of Charlemont Street; and an unsignalized driveway off Oak Street directly across from Saco Street. The DEIR reviewed alternative site access plans, including an alternative that would eliminate or restrict access to and from Oak Street while maintaining the other three proposed access points, and another alternative that would signalize the Needham Street at Tower Road intersection and maintain the existing unsignalized entrance to the site near Charlemont Street. A consultant hired by the City during the local review process determined that eliminating a full access driveway on Oak Street would not significantly change traffic volumes on Oak Street, but would negatively affect operations at the Needham Street at Oak Street/Christina Street intersection. According to the DEIR, signalization of the Needham Street at Tower Road intersection was included in an early design of MassDOT's Needham Street reconstruction project before the project design was developed. The Proponent acquired control of the 260 Needham Street parcel, which facilitated the realignment of Charlemont Street east of Needham Street with the site driveway on the west side of the street. According to MassDOT, this alignment has been incorporated into its design of the Needham Street improvements. The DEIR indicated that a signalized intersection of Needham Street with a realigned Charlemont Street would have greater benefits to traffic operations on Needham Street than a signal at Tower Road, as originally proposed.

Trip Generation

The project's trip generation was estimated using trip rates published by the Institute of Transportation Engineers (ITE) *Trip Generation Handbook*. Based on the ITE trip generation rates for land use codes (LUC) 221 (Mid-Rise Residential), 710 (Office) and 820 (Shopping Center), the project would generate 12,984 adt on an average weekday. The analysis converted the estimated adt to average person trips using vehicle occupancy rates based on the U.S. Department of Transportation's 2017 National Household Survey. Internal capture trips, reflecting new trips generated by the project that would occur within the different users at the

site, were deducted from the number of person trips. The remaining person trips were assigned to the following travel modes based on US Census data:

- Residential: 78 percent vehicle, 14 percent transit and 8 percent walking/bicycling;
- Office: 88 percent vehicle, 7 percent transit and 5 percent walking/bicycling; and,
- Retail: 90 percent vehicle, 5 percent transit and 5 percent walking/bicycling.

In addition, the project's trip generation was adjusted to account for pass-by trips to the proposed retail uses during the weekday evening and Saturday midday peak periods. On this basis, the project's adjusted weekday trip generation is 7,465 vehicle trips, 1,094 transit trips and 855 walking/bicycling trips. The project will generate 517 vehicle trips, 76 transit trips and 53 walking/bicycling trips during the weekday morning peak period; 586 vehicle trips, 89 transit trips and 71 walking/bicycling trips during the weekday evening peak period; and 630 vehicle trips, 95 transit trips and 77 walking/bicycling trips during the Saturday midday peak period.

According to the DEIR, 180,000 sf of office space and 62,600 sf of retail space could be reoccupied based on the recent use of the site and the 4,369 daily vehicle trips associated with this recent use do not represent added trips on the roadway system. When these trips are deducted from the proposed project's anticipated vehicle trip generation, the net new trips added by the project would be reduced to 3,096 daily weekday vehicle trips and 2,839 Saturday vehicle trips, including 232 vehicle trips during the weekday morning peak hour, 210 vehicle trips during the weekday evening peak hour and 277 vehicle trips during the Saturday midday peak hour.

Traffic volumes for the Existing 2020 condition were established by increasing traffic counts collected in 2017, 2018 and 2019 by a one percent annual growth rate and by adding traffic volumes associated with 13 planned or approved projects near the site. Traffic counts were not collected in 2020 because traffic volumes were significantly reduced due to the COVID-19 pandemic. No counts of pedestrians or bicyclists were provided in the DEIR. Transit capacity on the Massachusetts Bay Transportation Authority's (MBTA) Green Line and Bus Route 59 were based on data provided by the MBTA and ridership projections generated by the Boston Metropolitan Planning Organization's (MPO) Central Transportation Staff (CTPS) Regional Travel Demand Model. The No Build 2027 scenario incorporated a 0.5 percent annual growth rate in vehicle trips and included the implementation of anticipated roadway improvements. The Build 2027 condition includes the addition of project-generated trips to the No Build 2027 scenario.

Traffic Operations

The TIA provided an evaluation of the impact of project-generated vehicular traffic on roadways in the study area, including an intersection capacity analysis of peak hour traffic operations at study area intersections. The analysis designated intersections with a Level-of-Service (LOS), which reflects the overall operations of an intersection, including traffic speed, delay, and capacity. For urban intersections, LOS D reflects an acceptable level of operations; LOS E or F reflect significantly congested conditions and long delays.

According to the analysis, operations at five signalized intersections that will operate at LOS E or F under No Build 2027 conditions will continue to operate at those LOS under Build

2027 conditions with generally increased delay and congestion. Five intersections will experience degraded operations under the Build 2027 scenario compared to the No Build scenario; however only one of these, Highland Avenue at 2nd Avenue/Staples Driveway, will degrade from acceptable operations (LOS D) to impacted conditions (LOS E). Similarly, most unsignalized intersections will have similar levels of operation under both No Build 2027 and Build 2027 scenarios. The Proponent has not proposed any roadway mitigation measures because of the extensive roadway improvements planned or under construction by MassDOT and the City. The Proponent has committed to provide the City with $5,000,000 to address transportation issues in the vicinity of the site. Potential uses of the funds include completion of a study to evaluate options for improving public transportation; bicycle and pedestrian improvements, such as extending the Upper Falls Greenway to the MBTA's Newton Highlands or Eliot stations on the Green Line; providing traffic calming measures on residential streets in nearby neighborhoods; and implementing measures to improve traffic flow and safety on Needham Street and improving traffic operations at the MBTA Newton Highlands Green Line station. The FEIR should provide additional details on these potential mitigation measures and evaluate the additional mitigation measures identified in MassDOT's comment letter.

Bicycle and Pedestrian Facilities

The DEIR reviewed pedestrian and bicycle facilities within the study area. Sidewalks and crosswalks with pedestrian signals are generally present along roadways and at intersections throughout the study area. Bicycle lanes are limited to sections of Winchester Street and Highland Avenue. The Upper Falls Greenway is an approximately one mile long multi-use path that passes the western side of the project site. It runs from Easy Street in the northeast to the Charles River in the southwest.

The project includes an internal road network with bicycle and pedestrian facilities that connect to Oak Street and Needham Street, which will be reconstructed by MassDOT to include new sidewalks and separated bicycle facilities. The project will provide connections between Needham Street and the Upper Falls Greenway, a bike sharing station, a bicycle repair station for residents and a minimum of 1,100 bicycle parking spaces. The FEIR should commit to designing connections to the Upper Falls Greenway to be compliant with Americans with Disability Act (ADA) standards and review additional bicycle and pedestrian improvements recommended by MassDOT.

Public Transportation

The site is directly served by the MBTA's Bus Route 59, which travels on Needham Street for a portion of its route between Watertown Square and Needham Junction. Two stations on the MBTA's Green Line, Newton Highland and Eliot, are located approximately one mile from the site and the MBTA's Needham Heights Commuter Rail station is located approximately 1.5 miles away. The 128 Business Council provides private shuttle service to its members in the vicinity of the site to the Newton Highland station.

The DEIR included an analysis of the impact of project-generated transit trips on the capacity of Bus Route 59 and the Green Line. The analysis was conducted with the assumption that the project's TDM measures will reduce vehicle trips associated with the residential and

office uses by 20 percent, as required by the City. The analysis of project's impacts on Bus Route 59 was based on the MBTA's Passenger Comfort metric, which reflects the percentage of a passenger's travel time that occurs in comfortable conditions. Comfortable conditions are defined as 140 percent or less of seated capacity during peak periods and 125 percent or less at other times. According to the DEIR, the MBTA's Service Delivery Policy establishes a minimum goal of 92 percent of travel time per passenger under comfortable conditions and a target goal of 96 percent. The MBTA's Better Bus profile for Bus Route 59 indicates that passengers travel under comfortable conditions 99.9 percent of the time on weekdays and 100 percent of the time on weekends. The DEIR included graphs of the capacity of Bus Route 59 throughout the day, which indicated that adequate capacity exists to accommodate the additional ridership generated by the project.

The analysis of Green Line capacity evaluated the number of riders that can be accommodated in 30-minute intervals during service periods throughout the day under existing and future conditions. The analysis indicated that under existing conditions, the Green Line experiences crowding levels above the MBTA thresholds in the "shoulder" of the peak period, which occurs as peak service ramps down. According to MassDOT, this is partly the result of the MBTA running fewer trains as it transitions to off-peak service. The analysis indicated that this crowding will continue under future ridership levels, assuming no increase in capacity. As noted by MassDOT, the MBTA's Green Line Transformation program will enhance the capacity of the Green Line by adding larger vehicles and increasing the frequency of trains. The FEIR should include a revised analysis using the most updated methodology for transit analysis on the Green Line and review potential measures to improve bus operations on Needham Street.

Parking

The project's parking supply has decreased from 2,250 spaces to 1,600 spaces, including 250 spaces used for valet parking, 119 on-street and surface lot spaces and 1,231 spaces in parking garages. According to the DEIR, the City's base zoning would require that the project provide 2,694 spaces, including 1,600 spaces for residential units (two spaces per unit), 600 spaces for the office use and 494 spaces for retail uses. The project includes one parking space per residential unit (800 spaces) as recommended in the City's *Newton 2040* transportation planning report. The DEIR provided an analysis of peak parking demand per month using the methodology described in the Urban Land Institute's (ULI) *Shared Parking,* 3rd edition. The analysis determined that the peak parking demand would occur on weekdays in December, with a peak demand of 1,580 spaces. The DEIR concluded that the proposed 1,350 parking spaces, with the ability to park another 250 cars using valet service, will be sufficient to meet the parking needs of the project.

Transportation Demand Management (TDM)

The Special Permit issued by the City for the project requires the Proponent to reduce the number of vehicle trips associated with the proposed residential and office uses by 20 percent. The DEIR included a comprehensive TDM plan intended to help the project meet this obligation. The proposed TDM measures include:

- A Mobility Hub that will serve as a coordinated transportation center with a shuttle bus stop, bus shelter, maps and other information transit services, screens displaying real-time transit information, benches, restrooms and café space;
- A TDM Coordinator who will oversee the TDM program implementation, including education and marketing;
- Free shuttle service for site residents, employees and visitors and area residents. The shuttle will operate 16 hours per day, 7 days per week and provide service between the site and the Newton Highlands Green Line station;
- Develop of a zip car and bicycle share programs;
- Designate parking spaces for carpools and vanpools;
- Provide emergency ride home service for users of carpools and vanpools;
- Unbundle parking fees from rent or lease costs;
- Provide 1,100 bicycle parking spaces and a bike repair station;
- Provide shower facilities for commuters to the office building;
- Set parking limitations for commercial tenants;
- Provide a transit pass subsidy to residents and employees without cars;
- Provide pedestrian and bicycle connections to area roadways and the Upper Falls Greenway; and,
- Provide EV charging stations at a minimum of five percent of the parking spaces and construct an additional 10 percent of the spaces to be EV-ready.

The DEIR also identified common TDM measures that may be adopted by office and retail occupants of the site. As noted below in the Scope, the FEIR should include an evaluation of these additional TDM measures.

A key measure proposed to meet the TDM target is the free shuttle service. As detailed in the Scope, the FEIR should provide additional details on the operation of this shuttle service. It should provide a firm commitment to detailed TDM measures and review how the TDM plan will be implemented and its adjusted, if necessary.

Transportation Monitoring Program

The FEIR included a proposed transportation monitoring plan beginning within six months of the issuance of a Certificate of Occupancy for the 400th residential unit. The monitoring program includes:

- Traffic counts at site driveways during weekday peak periods;
- Surveys of residents and occupants of commercial space to document their travel characteristics to and from the site; and,
- Total trip counts at each driveway.

The Proponent should consult with MassDOT regarding potential monitoring data to be collected. MassDOT's comment letter identified the following data collection that is typically required in a monitoring program:

- Simultaneous automatic traffic recorder (ATR) counts at each site driveway for a

continuous 24-hour period on a typical weekday and Saturday;
- Travel survey of employees and patrons at the site (to be administered by the Transportation Coordinator);
- Weekday and Saturday peak hour turning movement counts (TMCs) and operations analysis at "mitigated" intersections, including those involving site driveways; and
- Transit ridership counts.

The FEIR should provide an updated monitoring program and describe how it will be used to evaluate the assumptions made in the DEIR and the adequacy of the mitigation measures, as well as to determine the effectiveness of the TDM program. It should clarify how the results of the monitoring program will be used to document the project's compliance with TDM commitments made to MassDOT and the City.

Wetlands and Stormwater

According to the DEIR, the project will impact approximately 2.1 acres (90,667 sf) of Riverfront Area, including 0.8 acres (34,120 sf) of permanent impacts and 1.3 acres (56,547 sf) of temporary impacts. Activities within the Riverfront Area include restoration of degraded and disturbed areas around South Meadow Brook to remove invasive plant species, enhance wildlife habitat and improve pedestrian conditions. The DEIR did not include a detailed description of restoration activities, but noted that a restoration plan will be developed and submitted to the Newton Conservation Commission for its review and approval. In the ENF, the Proponent indicated that the project may impact up to 5,000 sf of Bordering Vegetated Wetland (BVW); however, the DEIR noted that impacts to BVW are no longer anticipated. The DEIR did not identify demolition or construction of structures that will take place within the Riverfront Area; however, the plans appear to include project components within the Riverfront Area not described in the DEIR. This should be clarified in the FEIR. The project will daylight a section of the culverted portion of South Meadow Brook in the southeast part of the site. The top of the culvert will be removed to create a water feature, but the stream will not be naturalized. According to the DEIR, the daylighting will not impact any wetland resource areas.

According to the DEIR, runoff from impervious areas is directed to either South Meadow Brook or the culverted brook that traverses the site. The existing drainage system does not include any stormwater treatment Best Management Practices (BMP). The project will improve the quality of runoff discharged from the site by reducing impervious area, constructing a stormwater management system with BMPs that meets the requirements of the Massachusetts Stormwater Standards (SMS) and using green infrastructure and Low Impact Design (LID) measures to minimize runoff and promote infiltration. Surface runoff will be collected and treated using BMPs, including above- and below-ground infiltration systems where groundwater conditions permit their use or lined stormwater structures that filter runoff prior to discharge into the drainage system. According to the DEIR, the use of these BMPs will meet the SMS requirements by removing 80 percent of the Total Suspended Solids in runoff prior to discharge, recharge groundwater using infiltration systems and maintain pre-development peak discharge flow rates and volumes. Runoff from rooftops will be conveyed directly to infiltration systems. According to the DEIR, the stormwater management system will comply with the nutrient Total

Maximum Daily Load (TMDL) for the Charles River by using measures to encourage infiltration, such as infiltration systems, bioretention basins and porous pavement.

Water and Wastewater

The project will generate approximately 93,425 gpd of wastewater and use 102,800 gpd of water. The DEIR provided plans of water and sewer infrastructure at the site under existing and proposed conditions. Water service will be provided by the City's water system. An existing 8-inch water main that dead-ends in Tower Street will be extended through the site and connected to an existing 16-inch water main in Oak Street in order to supply water to the site and improve flow through the water distribution system. The site will also be supplied by two connections to the 20-inch water main in Needham Street. According to the DEIR, the City has preliminarily determined that sufficient capacity exists to supply the site. Water conservation measures such as low-flow, high-efficiency plumbing fixtures will be incorporated into the project design. In addition, roof runoff will be captured and used for irrigation and drought-resistant plants will be used in the landscaping.

Wastewater from the site is discharged to the City's sewer system via connections to a 24-inch sewer main in Needham Street and an 8-inch main in Oak Street. The project includes the construction of approximately 0.5 miles of 8-inch sewer mains on the site that will collect wastewater and connect to the sewer main in Oak Street. The drainage systems in the parking garages will discharge into the sanitary system; as required by the Massachusetts Water Resources Authority (MWRA), the garage drainage systems will be equipped with oil/gas separators. The DEIR confirmed that the City believes that adequate capacity exists in the sewer system to accommodate project-generated wastewater flows. The City will require the Proponent to mitigate its wastewater discharge by contributing $1,850,000 to fund project to remove I/I.

Solid/Hazardous Waste

The ENF identified three releases at the site that have been assigned Release Tracking Numbers (RTN) pursuant to M.G.L. c.21E and the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). Two of the releases were located east of Needham Street and are no longer applicable to the project. An investigation of the release on the project site (RTN 3-3658) conducted in the 1990s found low levels of Volatile Organic Compounds (VOC) and petroleum hydrocarbon in soil and groundwater. No remedial actions have been conducted since the 1990s. Investigation of the soil and groundwater were conducted in April and May 2020; according to the DEIR, as a result of these investigations, additional reports will provided to MassDEP and a new RTN will be assigned. According to the DEIR, a Release Abatement Measure (RAM) Plan will be developed to guide the management of contaminated soil and/or groundwater during the construction period. The RAM plan will specify measures necessary to maintain a condition of No Significant Risk to construction workers and off-site receptors, including dust control. If VOCs are present, air monitoring may be required and the buildings may be designed to mitigate potential vapor intrusion. Groundwater encountered during construction may require treatment prior to off-site discharge. According to the DEIR, following completion of RAM activities during construction, a Permanent Solution in accordance with the MCP will be filed, which may include an Activity and Use Limitation (AUL) on part of the site. The FEIR should review recent

data on soil and groundwater contamination and provide additional details on the locations contaminated soil and groundwater and potential impacts on project design.

The DEIR included a commitment to divert 75 percent of the construction and demolition(C&D) debris from disposal facilities for recycling or reuse. Asbestos containing materials (ACM) in existing buildings will be remediated prior to demolition.

Historical Resources

The site includes a complex of 13 buildings known as the Saco-Pettee Machine Shops, which is listed in National and State Registers of Historic Places. The buildings were used for the manufacturing of cotton textile machinery by a company first established at the site in 1831. The Massachusetts Historical Commission (MHC) determined in 2017 that the proposed demolition of seven of the buildings would have an adverse effect on the site. According to the DEIR, a Memorandum of Agreement (MOA) was executed by MHC, MassDOT, the Newton Historical Commission and the Proponent on September 21, 2018. The MOA identifies four mitigation measures that will be implemented by the Proponent, including photographic documentation of the seven buildings to be demolished, installation of interpretive signage at the site that provides information about its history, daylighting of a section of the culverted South Meadow Brook on the site and development of a landscaping plan with historic markers and salvaged architectural elements that enhance the surroundings of the six buildings that will be reused.

Climate Change

The DEIR provided an analysis of stationary- and mobile-source GHG emissions and identified measures to mitigate the project's GHG impacts. It reviewed existing and future site conditions and described design features to improve resiliency to the effects of climate change.

Adaptation and Resiliency

The City is a designated community in the Commonwealth's Municipal Vulnerability Preparedness (MVP) program. The MVP program is a community-driven process to define natural and climate-related hazards, identify existing and future vulnerabilities and strengths of infrastructure, environmental resources and vulnerable populations, and develop, prioritize and implement specific actions a municipality can take to reduce risk and build resilience. In connection with its participation on the MVP program, the City completed a Climate Change Vulnerability Assessment and Action Plan (CCVA) in December 2018 that identifies Newton's vulnerabilities to climate change actions to increase its resiliency.

The DEIR included a review of projected changes in temperature and precipitation in the Charles River Basin based on the CCVA and on data prepared by the Northeast Climate Science Center at the University of Massachusetts at Amherst[2] and information included in the Climate Ready Boston report prepared in 2016. The site is expected to be impacted by increased precipitation in the winter and spring with intense rainfall events that may cause flooding,

[2] This data is available through the Climate Change Clearinghouse for the Commonwealth at www.resilientMA.org

increased drought conditions in the summer and higher temperatures, including more days with temperatures exceeding 90 and 100 degrees Fahrenheit (F). According to the DEIR, the CCVA identifies the site as potentially subject to high temperatures due to its large paved area and lack of vegetation. In addition, the DEIR indicated that the site is not likely to be subject to flooding from South Meadow Brook or the Charles River because the site grades are higher than the 100-year flood elevations associated with those waterbodies; however, the DEIR indicated that increased precipitation intensity may impact the site.

Resiliency measures have been incorporated into the project design to address higher temperatures and potential flooding in the future; these measures include increasing vegetated landscaped open space and street trees, using hardscape materials with less heat-absorbing capacity, capturing roof runoff for irrigation and constructing cool and green roofs. As noted earlier, the project will incorporate LID measures and green infrastructure into the site design to minimize stormwater runoff that could contribute to flooding. The project includes buildings designed to Passivehouse standards that will minimize cooling needs while providing comfortable conditions.

The DEIR reviewed data developed by the cities of Boston and Cambridge that predict that precipitation levels for the 10-year 24-hour storm event will range from 6.08 to 6.65 inches by the year 2100. It is not clear from the DEIR whether the proposed stormwater management system has been designed to accommodate rainfall from a storm of this intensity; this issue should be addressed in more detail in the FEIR.

Greenhouse Gas (GHG) Emissions

The DEIR included a GHG analysis based on the MEPA GHG Policy. The GHG Policy requires projects to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis quantified the direct and indirect CO_2 emissions associated with the project's energy use (stationary sources) and transportation-related emissions (mobile sources). The DEIR outlined and committed to mitigation measures to reduce GHG emissions.

The stationary source GHG analysis evaluated CO_2 emissions for the Base Case and the Design Case. The Base Case was designed to meet the minimum energy requirements of the 9th Edition of the Massachusetts Building Code, which references the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2013. The project has been designed to exceed that baseline energy requirements in the updated Building Code expected to take effect in November 2020. The Design Case included additional energy-efficiency measures proposed in the Preferred Alternative.

The GHG analysis used eQuest modeling software to quantify emissions from the project's stationary sources. The model estimated energy use of 11 buildings and used a prototype to model three residential buildings because of their similarity. The project's overall stationary source CO_2 emissions were estimated at 5,253.6 tons per year (tpy) under the Base Case scenario. According to the DEIR, the mitigation measures included in the Design Case will

reduce GHG emissions to 3,710.8 tpy, a reduction of 1,542.8 tpy (29.4 percent).[3] The FEIR should confirm the expected reduction of GHG emissions in the Preferred Alternative as requested by the Department of Energy Resources (DOER).

The project design includes significant measures that will minimize GHG emissions from the proposed buildings, including:

- Electrification of all space heating in the residential and retail buildings using variable refrigerant flow (VRF) systems;
- Electric water heating systems in the residential and retail buildings;
- Building designs with insulation values above Code requirements, windows with low U-values and the avoidance of curtain walls in any of the buildings;
- Construction of three residential buildings (35 percent of all residential space)to Passivehouse standards;
- Very low energy use for all buildings, with energy use intensity (EUI) values ranging from 18 to 34 kBtu/sf-yr;
- Construction of low-rise residential buildings with Home Energy Rating System (HERS) scores ranging from 48 to 52, which exceeds the updated Building Code requirements;
- Rooftops designed to accept solar photovoltaic (PV) systems; and
- Electric vehicle (EV) charging stations at five percent of all parking spaces and an additional 10 percent of the spaces will be EV-ready.

Three residential buildings will be designed to Passivehouse Institute-U.S. (PHIUS) standards. The DEIR indicated that two other residential buildings may meet the PHIUS standard once their design is finalized. As noted by DOER, the designs of the building envelope and heating, ventilation and air conditioning (HVAC) systems of the two potential Passivehouse buildings, as well as seven of the other residential buildings, are very similar to the buildings that will meet PHIUS standards and will likewise result in low energy use.

The DEIR included an evaluation of the potential energy generation using rooftop solar PV systems. According to the DEIR, the buildings could accommodate a PV system with a capacity of approximately 257 (kW) that could generate that could generate 309,488 kilowatt-hours (kWh) annually. As requested by DOER, the FEIR should clarify the Proponent's commitments to install PV systems and PV-ready rooftops.

[3] According to DOER, the baseline used to establish the Base Case for five low-rise (four stories or less) residential buildings is incorrect and therefore the degree of GHG mitigation offered by the Preferred Alternative cannot be determined.

Mobile Source GHG Emissions

The DEIR analyzed the project's mobile-source CO_2 emissions using the EPA's MOVES emissions model and data from the traffic study. The MOVES model calculates emissions factors for vehicles expressed in a volume per distance travelled. Total emissions of vehicles are estimated by applying Vehicle Miles Travelled (VMT) data to vehicles in the study area and emissions from idling vehicles. The analysis calculated GHG emissions under the Existing 2019, No Build 2027 and Build 2027 scenarios. Regional GHG emissions from mobile sources are expected to decrease from 33,349 tpy under Existing 2017 conditions to 32,075 tpy under No Build 2027 conditions due to anticipated improvements in vehicle engine and emissions technologies. Regional GHG emissions in the 2027 Build condition were estimated as 33,349 tpy, representing an increase of 1,274 tpy due to project-related vehicle trips. The proposed roadway improvements and TDM measures will reduce emissions by 763 tpy (40 percent) from 1,274 tpy to 763 tpy.

Construction Period Impacts

The DEIR reviewed potential impacts and proposed mitigation measures associated with construction of the project. It reviewed measures that will be implemented during the construction period to minimize impacts associated with noise, air emissions, soils management, including contaminated material, sedimentation and erosion, and access to the site by trucks and other construction vehicles. Construction-period mitigation measures will include:

- Compliance with MassDEP's Air Pollution Control regulations pursuant to M.G.L. c.40, §54 and the Massachusetts Air Pollution Control regulations at 310 CMR 7.01, 7.05, 7.09 and 7.11, including anti-idling provisions; and use of vehicles meeting EP A's Tier 4 Emissions Standards;
- Participation in MassDEP's Diesel Retrofit Program;
- Implementation of measures to minimize dust and odors;
- Compliance with MassDEP's noise regulations and the City's noise control ordinance; and,
- Use of sedimentation and erosion controls in compliance with the requirements of the SMS and the NPDES General Permit for Construction Activities;

As noted in the Scope, the draft Section 61 Findings to be provided in the FEIR should include detailed construction-period mitigation commitments.

<u>Conclusion</u>

The DEIR described the project, including revisions to the project design since the ENF and the environmental impacts and mitigation associated with the project consistent with the. Scope included in the ENF Certificate. The Proponent should submit an FEIR that provides updated project information and additional analyses as specified in the limited Scope below.

SCOPE

General

The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, and provide the information and analysis required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent feasible. The FEIR should identify measures the Proponent will adopt to further
1.01 reduce the impacts of the project since the filing of the DEIR, or, if certain measures are infeasible, the FEIR should discuss why these measures will not be adopted.

The Scope should be interpreted in tandem with and in the context of the preceding review of the DEIR. The information and analyses identified in this Scope should be addressed
1.02 within the main body of the FEIR and not in appendices. In general, appendices should be used only to provide raw data, such as drainage calculations, traffic counts, capacity analyses and energy modelling, that is otherwise adequately summarized with text, tables and figures within the main body of the FEIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the FEIR to materials provided in an appendix should include specific page numbers to facilitate review.

Project Description and Permitting

1.03 The FEIR should include a clear and consistent description of the project, including updated plans that identify existing and post-development conditions, including, at a minimum, site grading, buildings, public areas, impervious areas, pedestrian and bicycle accommodations and stormwater and utility infrastructure, at a legible scale. I note this information was previously requested in the Scope for the DEIR as limited information about the project was provided in the ENF due to the conceptual level of design available at that time. The FEIR
1.04 should identify any changes to the project, including construction phasing, since the filing of the DEIR. It should provide detailed information about each building and parking garage, open
1.05 space area, pedestrian and bicycle facilities and wetland resource areas, including cross-sections and profiles as applicable. The FEIR should identify and describe State, federal and local
1.06 permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. It should include a description and analysis of applicable
1.07 statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards.

1.08 The FEIR should provide detailed plans showing site grades under existing and proposed conditions. It should provide volumes of any fill and excavation of soils and identify volumes of
1.09 soil to be reused on site and transported off-site. The FEIR should provide detailed descriptions
1.10 of proposed open space, including the areas of open space consisting of pervious landscaping and hardscaped areas.

As noted above, the DEIR did not provide an update on investigations of soil and
1.11 groundwater conditions and potential mitigation measures or use restrictions that may be

required. The FEIR should provide this information in the context of construction activities and uses proposed in areas where contaminated soil and/or groundwater is present. It should include a map showing the area subject to the current and potential new RTNs and proposed structures 1.12
and activities in the RTN area(s). It should identify any subsurface structures proposed in these 1.13
areas, including utilities, building foundations and garages, estimate the volume of contaminated soil associated with these activities, describe treatment, handling and disposal of these soils and any groundwater remediation that may be necessary. The FEIR should describe changes to the 1.14
development program necessary to comply with AULs that may be placed on the site.

Segmentation

The MEPA regulations include anti-segmentation provisions to ensure that project Proponents do not evade, defer or curtail MEPA review by segmenting one project into smaller ones that, individually, do not meet or exceed MEPA thresholds. The MEPA regulations at 301 CMR 11.01(2)(c) note that the determination as to whether various activities constitute one project should consider "whether the work or activities, taken together, comprise a common plan or independent undertakings, regardless of whether there is more than one Proponent; any time interval between the work or activities; and whether the environmental impacts caused by the work or activities are separable or cumulative." Activities within a five-year span are generally considered in making a determination regarding segmentation.

The project described in the ENF included the development of two parcels on the east 1.15
side of Needham Street that are no longer proposed to be developed in the DEIR. The FEIR should disclose any potential development of those sites. Any projects comprising a common plan proposed on those parcels within, at a minimum, the next five year, may be subject to MEPA review and the cumulative impacts of those projects will be reviewed together.

Transportation

The FEIR should provide the information and analysis requested in MassDOT's 1.16
comment letter, which is incorporated by reference herein. In general, information and analyses provided in response to MassDOT should be incorporated into the main body of the FEIR rather than provided solely in the Response to Comments section. It should provide a revised transit 1.17
analysis of Green Line capacity based on MassDOT's updated passenger comfort metric methodology for rail transit service. The FEIR should review potential measures that could be 1.18
implemented by the Proponent to improve bus operations on Needham Street, including providing land to facilitate construction of "floating" bus stops, installing shelters at each bus stop, and upgrading the Adaptive Traffic Signal system to incorporate Transit Signal Priority equipment. The Proponent should consult with MassDOT and the MBTA prior to completing 1.19
the updated transit analysis and evaluation of transit mitigation measures.

The FEIR should provide additional detail about the potential transportation 1.20
improvements that may be implemented by the City with funding from the Proponent. As 1.21
recommended by MassDOT, the FEIR should review specific mitigation measures, such as implementing safety improvements identified in the RSA, enhancing multimodal access to the Newton Highlands Station, providing bus accommodations at the Newton Highlands Station, bicycle and pedestrian improvements on specific corridors that provide access to the site, and

replacing the former railroad bridge over I-95 north of Highland Avenue to provide an off-road path connecting the site with the Town of Needham.

1.22 The FEIR should clarify whether the free shuttle service will be operated by the 128 Business Council and provide additional details regarding the operation of the service, such as marketing of the shuttle to area residents, potential capacity of the service based on the size and number of buses and frequency of service and selection of additional stops if warranted by
1.23 demand. The FEIR should evaluate the feasibility of running shuttles at 15-minute intervals. It
1.24 should review how the success of the TDM plan will be tracked and evaluate additional measures that may be implemented if necessary to meet TDM goals. The FEIR should address
1.25 how GHG (mobile source) reductions will be estimated for the TDM measures, and what measures will be taken if the target percentage reductions are not achieved. MassDOT
1.26 recommends that the FEIR include commitments to adopt the following additional measures:

- Provide subsidies to local transit providers to increase frequency or length of service during weekend, midday, and evening periods;
- Provide incentives to employees for commuting by alternative modes of travel, including carpool, vanpool, transit, walking or bicycling;
- Provide a guaranteed ride home program for employees;
- Provide a parking cash-out program to employee who use alternative modes of travel;
- Charge higher parking rates and shorter payment periods to reduce use of vehicles;
- Require employees to pay for parking; and,
- Encourage commercial tenants to offer on-site services such as daycare, banking, dry cleaning and cafeteria to reduce off-site trips.

Climate Change

1.27 The FEIR should clarify which storm events, under existing and projected climate conditions, the stormwater management system has been designed to accommodate. The drainage system should be designed and sized to have the capacity for large and intense storm events projected during the likely lifespan of the project. The FEIR should include an analysis of
1.28 the capacity of the drainage system using extreme precipitation data for the region available from the NOAA Atlas 14[4] or the Northeast Regional Climate Center[5] to model 24-hour design storm depths, and should consider climate change data to model future anticipated storm depths to the extent feasible during the design life of the project. The FEIR should evaluate the potential for
1.29 the site to be impacted by flooding from South Meadow Brook under projected climate conditions. The FEIR should address how the project will be made resilient to more intense
1.30 rainfall and storm events.

1.31 The FEIR should provide the information and analysis requested in DOER's comment letter, which is incorporated by reference herein. According to DOER, the baseline used to establish the Base Case for five low-rise (four stories or less) residential buildings is incorrect and therefore the degree of GHG mitigation offered by the Preferred Alternative cannot be

[4] https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ne
[5] http://resilientma.org/resources/resource::1399/extreme-precipitation-in-a-changing-climate

determined. The FEIR should revise the baseline and recalculate the level of mitigation provided 1.32
by the Preferred Alternative. It should confirm the baseline fenestration levels in the modeling of 1.33
the residential buildings, clarify commitments to reducing air infiltration above minimum Code requirements and clarify the Proponent's commitment to install rooftop PV systems and the generating capacity of the systems. The Proponent should consult with DOER to ensure that 1.34
responsive information is provided in the FEIR.

Wetlands and Stormwater

The FEIR should provide a plan clearly showing all project components within the 1.35
Riverfront Area, quantify potential impacts to all wetland resource areas and floodplain and describe mitigation measures. It should provide a detailed restoration plan for South Meadow 1.36
Brook and associated resource areas. Based on existing and proposed site grades, the FEIR should evaluate the extent of flooding onto the site from South Meadow Brook. 1.37

Mitigation and Draft Section 61 Findings

The FEIR should include a separate chapter summarizing proposed mitigation measures, 1.38
including construction-period measures. This chapter should also include detailed draft Section 1.39
61 Findings for each permit or other approval to be issued by State Agencies. The FEIR should contain clear commitments to implement these mitigation measures, estimate the individual costs 1.40
of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation.

The FEIR should include a commitment to provide a GHG self-certification to the MEPA 1.41
Office at the completion of the project. It should be signed by an appropriate professional (e.g. engineer, architect, transportation planner, general contractor) indicating that all of the GHG mitigation measures, or equivalent measures that are designed to collectively achieve identified reductions in stationary source GHG emission and transportation-related measures, have been incorporated into the project. To the extent the project will take equivalent measures to achieve the identified reductions, I encourage the Proponent to commit to achieving the same level of GHG emissions identified in the mitigated (design) case expressed in volumetric terms (e.g., tpy). The FEIR should describe an approach for providing self-certifications to the MEPA 1.42
Office based on project phasing or completion of individual buildings.

Responses to Comments

The FEIR should contain a copy of this Certificate and a copy of each comment letter 1.43
received. It should include a separate chapter that fully and specifically responds to each DEIR 1.44
comment letter without merely referencing a chapter of the FEIR. Failure to provide substantive responses may result in a supplemental review. This directive is not intended to, and shall not be construed to, enlarge the Scope of the FEIR beyond what has been expressly identified in this certificate.

Circulation

1.45 The Proponent should circulate the FEIR to those parties who commented on the NPC and/or DEIR, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. Per 301 CMR 11.16(5), the Proponent may circulate copies of the FEIR to commenters in CD-ROM format or by directing commenters to a project website address. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Proponent
1.46 should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. The FEIR submitted to the MEPA office should include a digital
1.47 copy of the complete document. A copy of the FEIR should be made available for review through the Newton Public Library.[6]

K. Theoharides

October 2, 2020
Date

Kathleen A. Theoharides

Comments received:

09/25/2020 Charles River Watershed Association (CRWA)
09/25/2020 Massachusetts Water Resources Authority (MWRA)
09/25/2020 Department of Energy Resources (DOER)
09/25/2020 Massachusetts Department of Transportation (MassDOT)

KAT/AJS/ajs

[6] Requirements for hard copy distribution or mailings will be suspended during the Commonwealth's COVID-19 response. Please consult the MEPA website for further details on interim procedures during this emergency period: https://www.mass.gov/orgs/massachusetts-environmental-policy-act-office.

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

September 25, 2020

Kathleen Theoharides, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114-2150

RE: Newton: Northland – DEIR
(EEA #15757)

ATTN: MEPA Unit
Alex Strysky

Dear Secretary Theoharides:

On behalf of the Massachusetts Department of Transportation, I am submitting comments regarding the Draft Environmental Impact Report for the Northland mixed-use project in Newton, as prepared by the Office of Transportation Planning. If you have any questions regarding these comments, please contact J. Lionel Lucien, P.E., Manager of the Public/Private Development Unit, at (857) 368-8862.

Sincerely,

David J. Mohler
Executive Director
Office of Transportation Planning

DJM/jll

Ten Park Plaza, Suite 4150, Boston, MA 02116
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cc: Jonathan Gulliver, Administrator, Highway Division
Patricia Leavenworth, P.E., Chief Engineer, Highway Division
John McInerney, District 6 Highway Director
Neil Boudreau, Assistant Administrator of Traffic and Highway Safety
Metropolitan Area Planning Council
City of Newton, Department of Planning & Development
Massachusetts Bay Transportation Authority

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

MEMORANDUM

TO: David Mohler, Executive Director
Office of Transportation Planning

FROM: J. Lionel Lucien, P.E, Manager
Public/Private Development Unit

DATE: September 25, 2020

RE: The Northland – DEIR
(EEA # 15757)

The Public/Private Development Unit (PPDU) has reviewed the Draft Environmental Impact Report (DEIR) for the proposed Northland mixed use project, in Newton. The project site consists of approximately 22.6 acres of land bounded by Needham Street to the east, Oak Street to the south, the Upper Falls Greenway to the west, and existing development to the north. The site presently consists of buildings currently or recently used for commercial purposes and historically used for manufacturing purposes.

The project would entail the construction of approximately 1.4 million square feet (sf) of development space, including 115,114 sf of retail space, 193,200 sf of office space, and 800 residential units, 140 of which will be affordable. The project includes renovating the historic Saco-Pette Mill building, where the office space will be located. Of the other 12 buildings included in the project, one will be exclusively retail and the remainder will be residential, some including a retail component. At the time of the Environmental Notification Form (ENF), the site development consisted of parcels on the east and west sides of Needham Street, but the current development program only includes redevelopment on the west side of Needham Street. Compared to the development program in the ENF, the current development program includes more office sf, less retail sf, and less residential units.

The project includes provisions for 1,600 parking spaces, with 119 spaces located on-street or in a surface lot, and the remainder underground. The parking provisions include 250 valet or tandem spaces. Access to the site would be provided by an internal street network accessed from Needham Street and Oak Street, as well as the extension of Tower Road. Needham Street is a state-owned roadway and a Vehicular Access Permit from MassDOT will be required.

The project is expected to generate 12,984 unadjusted daily vehicle trips, exceeding Massachusetts Environmental Policy Act (MEPA) trip generation for an Environmental Impact Report (EIR) review. An ENF was filed for the project in 2017 for which the Secretary of Energy and Environmental Affairs issued a scope for the preparation of a Draft EIR.

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www.mass.gov/massdot

MassDOT previously provided the Proponent with guidance on the preparation of the DEIR transportation study in a letter dated December 7, 2017 in response to a transportation scoping letter (TSL) submitted by VHB on behalf of the Proponent. The project has been stalled in permitting for some time but received approvals to proceed from the City of Newton in early 2020. In late March 2020, after the COVID-19 pandemic began to change traffic volumes, MassDOT received a letter from VHB on behalf of the Proponent, describing an approach to developing traffic volumes for the 2020 baseline used in the DEIR. In April 2020 MassDOT replied with a letter stating general concurrence with the approach, summarized in the Traffic Operations section below.

The DEIR includes an updated Transportation Impact Assessment (TIA) prepared in general conformance with the current MassDOT/EOEEA *Transportation Impact Assessment Guidelines.* A prior TIA was submitted to the City of Newton in October 2018; however, due to the lapse of time a new study was prepared for the DEIR. The FEIR should address the comments on the current TIA, raised in this letter.

Trip Generation

The TIA includes trip generation rates that were calculated using the Institute of Transportation Engineers (ITE)'s *Trip Generation Manual* (10th Edition). Initial trip generation was calculated based on ITE trip rates for Land Use Codes (LUC) 221 – Multifamily Housing Mid-Rise, LUC 710 – General Office Building, and LUC 820 – Shopping Center.

Mode share rates were developed separately for each land use: the residential split was based on American Community Survey commute mode share, the office split was based on U.S. Census Journey to Work Data, and the retail split was based on the National Household Travel Survey data. Vehicle occupancy rates are provided by the Federal Highway Administration. Mode share and vehicle occupancy rates were used to determine the anticipated number of trips to the project by walking, bicycling, transit, and vehicle. Internal capture and pass-by credits were also applied. Accordingly, the site is expected to generate 7,465 adjusted daily weekday vehicle trips, 7,596 daily weekend vehicle trips, with 517 vehicle trips during the weekday morning peak hour, 586 vehicle trips during the weekday evening peak hour, and 630 vehicle trips during the weekend peak hour.

At the time of the traffic counts, the office and manufacturing buildings were fully vacant, and the retail space was fully occupied. The DEIR states that the office space could be occupied without the completion of the project, therefore, to determine estimated net new trips, the Proponent used ITE trip rates for LUC 710 – General Office and LUC 820 – Shopping Center to estimate trips generated by the existing office and retail space. Subtracting the existing retail and the projected office trip generation, from the proposed project trip generation, results in the net new generation: 3,096 net new daily weekday vehicle trips, 2,829 daily weekend vehicle trips, with 232 vehicle trips during the weekday morning peak hour, 210 vehicle trips during the weekday evening peak hour, and 277 vehicle trips during the weekend peak hour.

The approach for estimating the net new trips above is different from the approach used for the trip assignment. The No-Build scenario includes the retail trips within the existing counts and the office trip generation added based on ITE. The Build scenario also includes the office trip generation, along with the residential trip generation, and the net new retail trip generation. Diverging from the net new trip generation presented above, the net new retail trip generation used for the Build trip assignment was calculated by subtracting driveway counts from the estimated retail trip generation for the project. MassDOT communicated with VHB about this discrepancy and they indicated that ITE projections were used to develop the trip generation above to provide a consistent basis (ITE) for calculating pass-by and internal capture rates with the office use. Additionally, driveway counts were collected only during the peak periods, meaning that daily net trip estimates needed to rely on ITE trip generation, so the same method was applied to the peak hours for consistency.

The Newton City Council issued a board order when the project was approved, that requires a robust TDM program to reduce the office and residential trip generation to 20% below the adjusted trip generation presented above. This reduction, with the existing trips removed, yields the following trip generation: 2,333 net new daily weekday vehicle trips, 2,505 daily weekend vehicle trips, with 155 vehicle trips during the weekday morning peak hour, 150 vehicle trips during the weekday evening peak hour, and 230 vehicle trips during the weekend peak hour. MassDOT asks that the FEIR provide more documentation on how this trip reduction will be achieved, potentially including estimates of TDM effectiveness and comparisons with mode share at sites in Newton or nearby that have similar TDM programs. MassDOT would like to see documentation that this ambitious goal is achievable with the proposed TDM plan. 2.1

Safety

The DEIR obtains and summarizes, as requested by MassDOT, crash data for the continuous five-year period of 2013 through 2017 at all study area intersections and compares crash rates against MassDOT District 6 averages. Eleven of the 27 study area intersections experience crash rates above the MassDOT District 6 averages. Although no comparison was made to statewide averages, the statewide averages are higher than District 6 and therefore such comparison would not reveal any new intersections. Several of the study intersections were reconstructed in or after 2017 and therefore the crash patterns may not be reflective of current conditions. Furthermore, some of the study intersections are expected to be reconstructed soon.

Two of the study intersections are potential HSIP-eligible clusters: Winchester Street at Route 9 Westbound Service Road, and Centre Street at Walnut Street. The Proponent coordinated with the MassDOT Safety Group to determine which locations required a road safety audit (RSA); Centre Street at Walnut Street was identified as the only candidate. The RSA was conducted in May 2020. MassDOT asks that the FEIR include a summary of the recommendations in the Final RSA and a plan for how the recommendations will be implemented. 2.2

Traffic Operations

In the DEIR, the Proponent provides a comprehensive analysis of study area intersections for the 2020 existing, 2027 No-Build, 2027 Build without TDM, and 2027 Build with TDM conditions. The existing 2020 volumes are based on counts collected in 2017, 2018, and 2019, grown by a one percent annual growth rate to 2020. The 2027 No-Build analysis uses an annual growth rate of 0.5% and incorporates background projects and roadway improvements.

The Build without TDM scenario was used as a basis for the impact analysis. Five of the signalized study intersections and five of the unsignalized study intersections degrade in level-of-service (LOS) between the 2027 Build and No Build scenarios.

The DEIR includes a traffic signal warrant study (TSWS) for the project driveway on Oak Street demonstrating that this location does not warrant a signal. The MassDOT project to reconstruct Needham Street already evaluated the need for signalization at study intersections along Needham Street and identified several locations for new signals.

Site Access Improvements

As requested in the ENF comment letter, the Proponent has coordinated with MassDOT regarding the project to redesign the Highland Avenue/Needham Street/Winchester Street corridor (Project No. 606635) and incorporated these changes into the future scenario analysis. This MassDOT project started preliminary construction in 2020 and the construction project at Needham Street at Oak Street/Christina Street is substantially complete. The Proponent has committed to realigning the project site's northern Needham Street driveway with Charlemont Street to create a four-way intersection. The Proponent should coordinate
2.3 with MassDOT regarding the development potential of the parcel on the east side of Needham Street, to ensure that corridor design would accommodate future development on those parcels. To the extent possible, MassDOT recommends that the Construction Management
2.4 Plan stage work on or along Needham Street to coincide or precede MassDOT's construction effort, thus avoiding any reconstruction of a new facility. The Proponent should continue to coordinate with MassDOT on construction phasing.

In addition to the MassDOT project on the Needham corridor, the City of Newton is also considering improvements proximate to the project site. With these existing improvements off-site, the project proposes no off-site roadway mitigations. The Proponent has agreed to give $5,000,000 to the City of Newton for off-site traffic mitigations to be determined as the site becomes permitted and occupied. The DEIR lists the following potential uses for these funds: transportation alternatives analysis, bicycle and pedestrian improvements, village enhancement, traffic calming, and traffic safety and coordination
2.5 improvements. MassDOT asks that the FEIR include a more detailed explanation of how these funds will be used to mitigate transportation impacts and if any is intended for improvements on MassDOT facilities. Potential uses, in addition to those listed in the DEIR,

include implementing the improvements identified in the RSA, improved multimodal access to the Newton Highlands Station, bus accommodations at the Newton Highlands Station, and bicycle and pedestrian improvements on specific corridors that provide access to the site.

Parking

The DEIR explains the derivation of the proposed parking supply for the project. The number of proposed spaces is compared to the amount required based on the local zoning codes. The retail and office parking supply was estimated using a shared parking model based on ITE, the National Parking Association (NPA), and the Urban Land Institute (ULI)'s *Shared Parking* (3rd Edition), published in February 2020. The residential parking is provided at a rate of one parking space per unit, consistent with the rate set as a goal in *Newton 2040.*

Transit

The DEIR includes a transit analysis for the MBTA bus Route 59 and the Green Line (D Branch). The transit analysis was conducted using the scenario with TDM transit trip generation, that is with more trips assigned to the transit network. On bus route 59, the capacity analysis indicates that sufficient capacity currently exists to accommodate the additional transit trip generation associated with the project. Additionally, analysis of passenger comfort also indicates that bus route 59 would meet the MBTA's standard for this metric. The capacity analysis indicates that the Green Line will experience crowding levels above the MBTA thresholds for certain off-peak times occurring before and after peak, in the "shoulder" of the peak period when peak service ramps down. This is partly the result of the MBTA running fewer trains as it transitions to off-peak service. The MBTA is undergoing a long-term program, Green Line Transformation, to enhance the Green Line capacity through the implementation of larger vehicles and increasing the frequency of trains. MassDOT asks that the FEIR use the most updated methodology for transit analysis on the Green Line. 2.6

As part of the MassDOT project on Needham Street, MBTA and MassDOT will relocate some of the bus stops along the corridor to maximize safety, accessibility, and transit operations; therefore, MassDOT does not recommend any further changes to bus stop locations, nor providing any bus turn-outs on this corridor. However, the Proponent should consult with MassDOT and the MBTA during the preparation of the FEIR on potential transit mitigations on the project frontage including, providing land to facilitate construction of "floating" bus stops, as applicable, installing shelters at each bus stop, and upgrading the Adaptive Traffic Signal system to incorporate Transit Signal Priority equipment. 2.7

Multimodal Access and Facilities

The site plan includes internal circulation that will accommodate pedestrian access and circulation throughout the site. Internal sidewalks will connect to the sidewalks along Oak Street and the redesigned sidewalks on Needham Street, being reconstructed by MassDOT. The project includes two new connections from Needham Street to The Upper Falls Greenway, which runs adjacent to the site.

Bicycle circulation through the site will be provided on the internal roadway network, plus a separated bicycle facility between the Upper Falls Greenway and the new separated bicycle facilities on Needham Street. The project will provide a bikeshare station and a minimum of 1,100 bicycle parking spaces, including secured and unsecured spaces.

2.8 MassDOT asks that the Proponent commit to designing the connection to the Upper Falls Greenway at Mechanic Street as a welcoming ADA-compliant pathway for people walking and bicycling between the Upper Falls neighborhood and Needham Street.

2.9 MassDOT also asks that the Proponent assess the utility of replacing the former railroad bridge over I-95 north of Highland Avenue, to provide an off-road path connecting the site with the Town of Needham.

Transportation Demand Management Program

To reduce site trip generation, the TIA includes a robust Transportation Demand Management (TDM) program. An initial TDM work Plan was submitted to the City of Newton with a plan for how TDM measures will be phased in. The Proponent details the following TDM measures in the DEIR with the goal of reducing vehicle trips by employees, residents, and visitors of the project:

- Designation of a TDM Coordinator for the site to:
  - Assist residents and employees with transportation planning and ride-matching;
  - Disseminate information on transit and active modes of transportation;
  - Develop a website, marketing and educational materials on transportation options;
  - Host transportation-related events;
  - Distribute transit maps and passes; and
  - Monitor TDM effectiveness.
- Construction of a Mobility Hub on site including the following components at a minimum:
  - TDM Coordinator;
  - Connected shuttle stop;
  - Bus shelter;
  - Maps to MBTA bus system and the private shuttle, described below;
  - Digital sign with transportation choices and real-time transit information;
  - Sofa benches and seating;
  - Restroom; and

  - Café space.
- Free shuttle service, developed in coordination with the 128 Business Council TMA, with the following characteristics:
  - Connection between the Mobility Hub and the Newton Highlands MBTA Green Line Station;
  - Runs 7 days a week for 16 hours spans; and
  - Free to Site residents, employees, visitors, and area residents.
- Provision of subsidized T-Passes for residents and employees without cars;
- Provision of carpool and carpool parking;
- Provision of an emergency ride home program for carpool and vanpool participants;
- Provision of spaces for car sharing services (e.g. ZipCar);
- Provision of a bike share station (e.g. Blue Bike);
- Provision of secure bicycle parking (1,100 spaces);
- Provision of a bicycle repair station;
- Provision of showers for office tenants;
- Provision of shared parking opportunities and reduced parking ratios;
- Unbundling of parking costs from renting/leasing to discourage car ownership, for market-rate units;
- Parking limitations for commercial tenants.

Additional TDM elements are listed for possible implementation at the discretion of the TDM coordinator and based on applicability to the eventual tenants. MassDOT encourages the Proponent to more strongly commit to some of the potential TDM measures as definitive measures. These measures include: 2.10

- Provision of subsidies to local transit providers to increase frequency or span of service during weekend, midday, and evening periods;
- Provision of incentives to commute by carpool, vanpool, transit, or active modes of transportation;
- Provision of a guaranteed ride home program;
- Provision of convenient electric car/low emission vehicle parking;
- Provision of a parking cash-out program;
- Charging of higher parking rates and shorter payment periods to reduce high turnover in congested portions of the project site to reduce vehicle usage;

- Charging of parking fees directly to employees; and
- Encourage retail uses that offer on-site services such as daycare, banking, dry cleaning, coffee shop, etc. to reduce off-site trips.

2.11 MassDOT requests more clarity about the 128 Business Council's role regarding the free shuttle. The DEIR notes that they were consulted on the development of the shuttle, including preparing a report on alternative route alignments. MassDOT recommends considering the 128 Business Council as the operator of the service and opening the shuttle to the general public. MassDOT also recommends a frequency of 15 minutes or fewer to situate
2.12 the shuttle as a convenient alternative to driving.

Transportation Monitoring Program

The Proponent would be required to conduct an annual traffic monitoring program for a period of five years, beginning six months after occupancy of the full-build project. It would include:

- Simultaneous automatic traffic recorder (ATR) counts at each site driveway for a continuous 24-hour period on a typical weekday and Saturday;
- Travel survey of employees and patrons at the site (to be administered by the Transportation Coordinator);
- Weekday AM and PM and Saturday peak hour turning movement counts (TMCs) and operations analysis at "mitigated" intersections, including those involving site driveways; and
- Transit Ridership counts.

The goals of the monitoring program would be to evaluate the assumptions made in the EIR and the adequacy of the mitigation measures, as well as to determine the effectiveness of the TDM program. It should be noted that the monitoring program described in the DEIR does not exactly reflect the monitoring program described in MassDOT's comment on the
2.13 ENF. The FEIR and the revised Section 61 findings should reflect the monitoring program described above. Requirements imposed by the City of Newton state that if the project exceeds the agreed upon trip generation, reflective of the 20% trip reduction, the Proponent must update their TDM Work Plan and invest additional funds in TDM. MassDOT also
2.14 requires the Proponent to commit to additional investment in TDM if the trips identified in the transportation monitoring exceed the agreed upon trip generation.

Section 61 Finding

The DEIR includes a Draft Section 61 Finding, outlining the mitigation measures the
2.15 Proponent has committed to implementing in conjunction with this project. The FEIR should include a revised draft Section 61 Finding prepared in consultation with MassDOT and the

MBTA. The revised Draft Section 61 Finding will be the basis for MassDOT to issue a final Section 61 Finding for the project.

The Proponent should continue consultation with appropriate MassDOT units, including PPDU and the District 6 Office, to discuss preparation of the FEIR. If you have any questions regarding these comments, please contact me or Catrina Meyer at *Catrina.Meyer@dot.state.ma.us*. 2.16

COMMONWEALTH OF MASSACHUSETTS
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Karyn E. Polito
Lt. Governor

Kathleen A. Theoharides
Secretary

Patrick C. Woodcock
Commissioner

25 September 2020

Kathleen Theoharides, Secretary
Executive Office of Energy & Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02114
Attn: MEPA Unit

RE: The Northland Newton Development, Newton, Massachusetts, EEA #15757

Cc: Maggie McCarey, Director of Energy Efficiency, Department of Energy Resources
Patrick Woodcock, Commissioner, Department of Energy Resources

Dear Secretary Theoharides:

We've reviewed the Draft Environmental Impact Report (DEIR) for the above project. The proposed project consists of a 1.14M sf of residential (800 housing units), 0.12M sf of retail, and 0.19M sf of office. All buildings will be new construction except for the 0.19M sf of office which will be renovation.

Executive Summary

The project is proposing significant mitigation measures which embrace the DOER's energy efficiency priorities, including focusing on improved envelope, Passivehouse, and efficient electrification. These measures will help Massachusetts achieve required emissions reductions set forth in the Global Warming Solutions Act.

In summary, the project is committing to the following:

- Efficient electrification (electric air source heat pumps) of all space heating in the residential and retail buildings;
- Electrification of water heating in the residential and retail buildings;
- No use of curtain walls in any of the buildings;

- Passivehouse commitment for 3 buildings (395,000-sf total, 35% of all planned residential);
- Very low energy use for all buildings (EUI range from 18 to 34 kBtu/sf-yr, average 25);
- HERS for low rise residential beyond code (HERs range from 48 to 52, average 49);
- Carefully planned PV readiness on rooftops;
- Electric vehicle charging stations for 5% of all parking spaces and EV readiness for 10% of parking spaces.

Mitigation Level

The currently-proposed Mitigation Level[1] is not possible to estimate at this time due to incorrect baselines used for some of the buildings in the DEIR. The baseline for 9/10/11, 12, and 14, which are low-rise residential (residential buildings 4 stories or less), should be set to HERS 55. In the DEIR, however, the baselines for these buildings are set to between HERS 74 to 81. This baseline needs to be corrected for these buildings. (Building 7 is five stories and thus not subject to the HERs requirements. In the DEIR, a HERs rating was performed for this building.)

Note, however, as evidenced by the relatively low EUIs and/or HERs ratings for all the proposed buildings, the project is proposing significant improvements over minimum code requirements.

Codes and Baseline

Massachusetts' energy efficiency codes are adopted from Energy Rating Index (ERI, also known as "HERs" ratings), IECC, and ASHRAE codes and contain many amendments, unique to Massachusetts, to further strengthen minimum requirements.

In addition, Massachusetts allows local cities and municipalities to adopt a "stretch code" which further strengthens code requirements. Many buildings in this project would be subject to Massachusetts Stretch Code as Newton has adopted stretch code improvements.

Below contains a summary of minimum code requirements (and the various "pathways" available) beginning in November 2020 when the next updates to the energy code go into effect.

Buildings equal to or more than 100,000-sf, including low rise residential (Buildings 1, 3, 4, 5a/b, 6a, 6b/c, and 8):

- Each building shall show a 10% reduction from the baseline established by ASHRAE 90.1-2013-Appendix G. The baseline shall include three C406.1 measures and shall comply with C401.2.4 (24% fenestration limit for Multifamily). Massachusetts amendments include: C402.1.5 (envelope), C405.3 and C405.4 (lighting), C405.10 (EV charging), and aforementioned C406 (additional efficiency measures).

[1] Mitigation Level is the percent GHG reduction beyond the reduction that would occur as a result of following state and local building codes. A Mitigation Level of 0% means that no mitigation is proposed.

Buildings less than 100,000-sf, including low rise buildings (Building 2, 7, 9/10/11, 12, and 14)

Each building shall comply with one of the three pathways below:

- ASHRAE 2016 Prescriptive Pathway with Massachusetts Amendments C402.3 (Solar Readiness), C405.3 (interior lighting), C405.4 (exterior lighting), C405.10 (EV ready wiring), C406 (choose 3 out of list of 10 efficiency measures)

  Or

- ASHRAE 2016 Appendix G Performance Path with following modifications
  - Base case shall comply with C401.2.4 (24% fenestration limit for Multifamily)
  - Proposed building is improved using a Building Performance Factor of 0.76 per ASHRAE 90.1 Section 4.2.1.1
  - Proposed building shall comply with C402.1.5 (envelope), C402.3 (Solar Readiness), C405.3 (interior lighting), C405.4 (exterior lighting), C405.10 (EV ready wiring), C406 (choose 3 out of list of 10 efficiency measures)

  Or

- IECC 2018 Prescriptive Pathway with Massachusetts Amendments C402.2.4 (slab on grade exception), C402.3 (Solar Readiness), C402.5 (air leakage), C402.6 (CommCheck) C405.2.3 (daylight controls), C405.3.2 (interior lighting), C405.10 (EV ready wiring), C406 (choose 3 out of list of 10 efficiency measures).

Dwelling units:

In addition to above, all proposed dwelling units in any building four stories or less (Buildings 9, 10, 11, 12, and 14) shall individually comply with Section R-406 of the Massachusetts building code (plus amendments) which requires compliance with one of the following:

- R-406.1.1 part 1: Energy Star Homes v3.1; or
- R-406.1.1. part 2: Passivehouse (PHIUS or PHI standard); or
- R-406.3: Energy Rating Index (ERI) of 55 or less

In addition:

- Each dwelling unit shall comply with R406.2 which establishes mandatory requirements, including mandatory envelope, air leakage, controls, duct testing, pipe insulation, 100% LED lighting provisions; and

- Each unit shall comply with R406.3 (ERI exceptions), R406.4 (PV and heat pump tradeoff allowances), R406.5 (third party verification), R406.6 (documentation),;and

- Each unit shall comply with R407 (additional efficiency packages, choose 2 out of 3 choices).

The project appears to be exceeding Code requirements above. There are two items to confirm, however:

- The project is using C406.5 (solar PV) as one of the three additional measures. This measure can only be chosen if the proponent is actually committing to the requisite solar. Please clarify if the solar PV is a being committed, or, choose a different C406 pathway. It appears that, with the efficient electrification strategy being pursued, the project could alternatively pursue C406.10 (renewable space heating).

- For MEPA purposes, the baseline for Buildings 9/10/11, 12, and 14 should be set to HERs 55 (code minimum) rather than set to the reference buildings which have HERs ranging between HERS 74 to 81

Building Envelope Performance

High-performing envelope is essential to successful GHG mitigation. Key strategies for maintaining integrity of envelope are:

- Continuous insulation;
- Reducing air infiltration;
- Reducing thermal bridges;
- Limiting or eliminating use of glass "curtain wall" and spandrel assemblies;
- Maximizing framed, insulated walls sections;
- Maintaining window aperture at code levels and improving window U value.

As noted above, beginning in November 2020, Massachusetts energy code amendments require conformance with 2018 IECC Section C402.1.5 which mandates that the aggregate performance of all above-grade surfaces conform to the wall performance factors in IECC Table C402.1.4 and C402.4 and fenestration values in C402.4.1 and C402.4.3. It appears that the buildings will conform to this requirement.

Also beginning in November 2020, Massachusetts amendments require that baseline Appendix G residential building models set maximum fenestration to 24% from current 40%. The project should confirm that it is conforming to this requirement.

In general, the project is committing to vertical envelope performance which exceeds Code.

In the next submission, the proponent should clarify commitments to air-infiltration and compare commitments to air infiltration to code requirements.

Passivehouse - Residential

The project is committing to Passivehouse for Buildings 3, 4, and 8 which total 394,000-sf. We commend the proponent for committing to this significant mitigation measure.

The proponent should conduct analyses to confirm that these buildings as currently proposed would achieve Passivehouse standards (PHI and PHIUS) and provide this confirmation in the next submission. One potential concern is the proposed use of electric resistance water heating which could make achieving total energy limit challenging without the use of solar PV.

In addition to the three Passivehouse-committed buildings, other residential buildings (5a/b, 6a, 6bc, 7, 9/10/11, 12, and 14) are proposing significant envelope and HVAC improvements which also yield low energy use building such that there is not necessarily a large gap between proposed performance and Passivehouse performance.

As noted above, air infiltration commitments should be noted for each building, comparing proposed air infiltration to code requirements. There are significant differences between Passivehouse and code air infiltration limits.

Fossil-Fuel Reduction and Efficient Electrification

Electrification of space and water heating is a key mitigation strategy with significant short- and long-term implications on GHG emissions. Massachusetts grid emissions rates continue to decline with the implementation of clean energy policies that increase renewable electricity sources. The implication is that efficient electric space and water heating with cold climate air source heat pump and VRF equipment have lower emissions than other fossil-fuel based heating options, <u>including best-in-class condensing natural gas equipment</u>. Currently, efficient electric heating has approximately **50% lower emissions** than condensing natural gas heating and, by 2050, efficient electric heating is expected to have approximately **85% lower emissions** than condensing natural gas heating.

The project has maximized electrification, committing to full electrification of space heating with efficient air-source heat pumps/VRF. The project is also proposing electric resistance water heating for all project domestic water heating.

We commend the project for adopting forward-thinking emissions reduction strategy.

External Shading and Solar Heat Gain Coefficient (SHGC)

External shading and solar heat gain coefficient (SHGC) have not been analyzed yet, consistent with the level of design of the project at this time. As the project moves forward, we encourage examination of building self-shading, external shading, and varying SHGC as a function of exposure. (For example, targeting lower SHGC-rated glass for building sides and areas more exposed to sun and/or less shaded.)

Rooftop Solar PV

Rooftop PV can provide significant GHG benefits as well as significant financial benefits. The proponent completed a detailed analysis for rooftop PV space, identifying 17,000-sf on the roof that could be set aside for solar PV. This area would support about 257 kW of PV.

The Northland Newton Development, EEA #15757
Newton, Massachusetts

The FEIR should finalize solar readiness, explicitly distinguishing between solar required by Code or deployed to meet C406 requirements (which would not be considered a mitigation measure) and beyond code solar readiness (which would be considered a mitigation measure).

Electric Vehicle (EV) Charging

The project is making a substantial commitment to EV charging, committing to installing EV chargers for 5% of the total parking spaces and committing to be EV-ready for 10% of the total parking spaces.

Recommendations for Subsequent Submissions

We recommend the following:

3.1 1. Correct the baseline for Buildings 9/10/11, 12, and 14 to HERs 55.

3.2 2. The project is using C406.5 (solar PV) as one of the three additional measures. This measure can only be chosen if the proponent is actually committing to the requisite solar. Please clarify if the solar PV is a commitment, or, choose a different C406 pathway.

3.3 3. Confirm that the baseline Appendix G residential building models set maximum fenestration to 24%.

3.4 4. Clarify commitments to air-infiltration reduction and compare commitments to minimum code standards.

3.5 5. Finalize solar readiness, explicitly distinguishing between solar required by Code (which would not be considered a mitigation measure) and beyond code solar readiness (which would be considered a mitigation measure).

Sincerely,

Paul F. Ormond, P.E.
Energy Efficiency Engineer
Massachusetts Department of Energy Resources

Brendan Place
Clean Energy Engineer
Massachusetts Department of Energy Resources

MASSACHUSETTS WATER RESOURCES AUTHORITY
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September 25, 2020

Kathleen A. Theoharides, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge St, Suite 900
Attn: MEPA Office, Erin Flaherty
Boston, MA 02114

Subject: EOEEA #15757– Draft Environmental Impact Report
Northland, Newton, MA

Dear Secretary Theoharides,

The Massachusetts Water Resources Authority (MWRA) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) submitted by Northland Development, LLC (the "Proponent") for the Northland Newton Development, previously known as Needham Street Redevelopment, (the "Project). The Project site is located on Needham and Oak Streets in Newton and currently contains an aging, obsolete industrial complex. The Project involves redevelopment of the Project site with a 1.4 million square foot mixed-use building program, including renovation of a large historic mill building. The Project will contain approximately 115,114 gross square feet of retail and commercial space, 800 housing rental units, underground parking, and 10 acres of new publicly accessible open space.

MWRA previously commented on the Project Environmental Notification Form (ENF) on September 21, 2017. MWRA's comments on the DEIR continue to focus on issues related to wastewater and the need for infiltration and inflow (I/I) removal as well as discharge permitting from the Toxic Reduction and Control Department (TRAC).

Wastewater

MWRA's comments on the ENF stated the need to ensure that the Project's wastewater flow does not increase sewer system surcharging and overflows in the City's or MWRA's sewer systems in large storms, and the Proponent should fully offset the Project's wastewater flows with infiltration and inflow ("I/I") removal in accordance with MassDEP regulations and the City of Newton's policy. The DEIR adequately addresses these comments. Specifically, Section 4.3.4 of the DEIR states that the Project will result in an improvement to the regional wastewater system by providing wastewater I/I removal (mitigation) in accordance with MassDEP and City of Newton requirements. Section 4.3.4. of the DEIR states that per Special Condition 11 of the

December 4, 2019 Recorded Board Order ("Special Permit") issued to the Project, the Proponent will pay $1,850,000.00, an amount that was deemed satisfactory to the City of Newton's Engineering Division, for funding municipal infrastructure improvements to address I/I mitigation. Special Permit Condition 12 requires that within sixty days after the Project reaches 95 percent residential occupancy, the Proponent must undertake a post-occupancy measurement of the sewer flow from the Project (excluding any sewer flow associated with the spray park), at its sole expense, to compare the actual sewer flow to the flow estimated in Special Permit Condition 11 (93,425 gpd).

TRAC Discharge Permitting

MWRA prohibits the discharge of groundwater and stormwater into the sanitary sewer system, pursuant to 360 CMR 10.023(1) except in a combined sewer area when permitted by the Authority and the local community. The Project site has access to separate sewer and storm drain systems and is not located in a combined sewer area. Therefore, the discharge of groundwater or stormwater to the sanitary sewer system associated with this Project is prohibited.

Any gas/oil separators in parking garages associated with the Project must comply with 360 C.M.R. 10.016 and State Plumbing Code. Installation of the proposed gas/oil separator(s) may not be back filled until inspected and approved by the MWRA and the Local Plumbing Inspector. For assistance in obtaining an inspection, the Proponent should contact John Feeney, Source Coordinator, in the TRAC Department at 1 (617) 305-5631. The DEIR acknowledges this requirement and states that the Project will comply.

On behalf of the MWRA, thank you for the opportunity to provide comments on this Project. Please do not hesitate to contact me at 1 (617) 788-4958 with any questions or concerns.

Sincerely,

Bethany Card
Director
Environmental and Regulatory Affairs

cc: John Viola, DEP
Lou Taverna, City of Newton

CRWA
Saving the Charles River since 1965

September 25, 2020

Kathleen A. Theoharides, Secretary
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Northland Newton Development DEIR EEA No. 15757

Dear Secretary Theoharides,

The Charles River Watershed Association (CRWA) has reviewed the Draft Environmental Impact Report (DEIR) filed by Northland Development, LLC (Proponent) for the Northland Newton Development and submits the following comments as part of the MEPA review process. Our comments reflect our organizations' perspectives on the impacts of this development in Newton.

CRWA acknowledges and appreciates this project's support for climate resilience, sustainability, and urban greening. We especially appreciate the DEIR's commitment to green stormwater infrastructure (GSI) and the reduction of impervious surface in response to our comments as described in Chapter 6.

5.1 CRWA also supports increased public open space and urges the Proponent to incorporate a variety of GSI systems such as rain gardens, stormwater planters, tree trenches in addition to permeable pavement on walkways. These GSI systems should be sized and sited to most efficiently capture and treat stormwater runoff before it enters the South Meadow Brook and then eventually the Charles River. We specifically suggest the use of native plant species that can withstand periods of drought and can be used to capture and treat stormwater runoff.

5.2 The proposed stormwater management strategy requires further design and documentation in the Final Environmental Impact Review (FEIR). We are concerned with the heavy use of permeable pavement to meet TMDL reduction requirements. Vegetated systems like bioretention areas can provide additional co-benefits such as reduced urban heat island effect as well as habitat and biodiversity enhancement. Also, if permeable pavement does not perform overtime, due to lack of maintenance, the overall project impervious surface could increase by 3-6% which would have substantial impacts on stormwater.

Additionally, while the project fulfills the requirement of performing a drainage analysis for the 100-year storm event, there is not adequate documentation of stormwater retention on site. This information should be included as part of Table 1-4, so stormwater retention volumes can be compared between scenarios. We expect that the FEIR will include this documentation. 5.3

Finally, given that the project includes work proposed in the 200 ft. Riverfront Area (RA) of the daylighted section of the South Meadow Brook, the FEIR should contain more details regarding the nature of the work. While the Proponent has committed to improving the RA by reducing the area of pavement and by planting a diverse selection of native trees, shrubs, and other plants, the FEIR should include a much more comprehensive stream restoration plan and supporting details. CRWA is happy to be involved in ongoing conversations and collaboration on RA design and stream restoration. 5.4

We appreciate the opportunity to provide comment on the DEIR and hope that our remaining concerns will be addressed in the FEIR. Please feel free to contact us should you have any questions.

Sincerely,

Madeline E. Gorchels
Environmental Planning Intern

Pallavi Kalia Mande
Director of Watershed Resilience

Appendix B: Newton Special Permit/Board Order

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January 8, 2020

BY HAND

David A. Olson
City Clerk
Newton City Hall
1000 Commonwealth Avenue
Newton, MA 02459-1449

Re: #426-18 Order - Northland

Dear David,

Enclosed please find a copy of the above-referenced Order which was filed with the Southern Middlesex County District of the Land Court as Document No. 1833639 and recorded with the Middlesex County (Southern District) Registry of Deeds in Book 73956, Page 1.

Please feel free to contact me if you have any questions.

Very truly yours,

Alan J. Schlesinger

AJS/dc
Enclosure
cc: John Lojek, Commissioner of Inspectional Services (by hand)
Michael Gleba, Senior Planner
Department of Planning and Development (by hand)

TAKE

2020 01833639
Bk: 00913 Pg: 173 Cert#: 156723
Doc: TAKE 01/07/2020 02:12 PM

#426-18

2019 DEC -4 PM 5:22

BOTH WAYS

CITY OF NEWTON

CITY COUNCIL

December 2, 2019

ORDERED:

That the Council, finding that the public convenience and welfare will be substantially served by its action, that the use of the Site will be in harmony with the conditions, safeguards and limitations set forth in the Zoning Ordinance, and that said action will be without substantial detriment to the public good, and without substantially derogating from the intent or purpose of the Zoning Ordinance, grants approval of the following SPECIAL PERMIT/SITE PLAN APPROVAL for a mixed use development consisting of approximately 115,114 square feet of retail and commercial space, approximately 193,200 square feet of office space, not more than 800 residential units, and various public open spaces, all in accordance with the recommendation of the Land Use Committee and the reasons given by the Committee therefore, through its Chairman, Councilor Gregory R. Schwartz.

Care= Owners pg. 13

Land Reg

Lot 18

Procedural Background

The proposed development (the "Project") for 156 Oak Street, 55 Tower Road and 275-281 Needham Street (the "Site") was submitted by Northland Development LLC on behalf of three affiliated entities which own the Site (the "Petitioner). The Project reflects efforts to diversify Newton's housing stock, provide affordable housing choices, encourage pedestrian-oriented development with a mix of residential and business uses, and enhance the quality of life in Newton Upper Falls, all in accordance with Newton's *Comprehensive Plan* and specifically in accordance with the Mixed Used Center Amendment and the Needham Street Area Vision Plan.

The Petitioner filed a request to re-zone the Site from MU-1 to BU-4 and simultaneously filed a special permit/site plan application for the Project with the City Clerk on August 3, 2018 (the "Application"). Notice of the public hearing of the Application was published on September 11, and September 18, 2018 in *The Boston Globe* and on September 19, 2018 in the *Newton Tab*. The Application was amended on August 26, 2019 to include additional relief, and further notice of the Application as amended was published on September 10, and September 17, 2019 in *The Boston Globe* and on September 18, 2019 in the *Newton Tab*. Notices of the Application and the amended Application were mailed to all parties in interest in compliance with the Newton Zoning Ordinance and M.G.L. c. 40A, § 11. The Land Use Committee ("LUC") of the City Council opened the public hearing on the Application on September 25, 2018 and continued the public hearing on November 13, 2018, December 11, 2018, January 15, 2019, March 12, 2019, April 9, 2019, May 14, 2019, June 18, 2019, August 6, 2019, September 11, 2019 and September 24, 2019.

Title ref: 55 Tower Road Book 41513, Page 557
156 Oak Street Book 43334, Page 129
241-281 Needham Street Book 13585, Page 437
and Document 578175 Certificate of Title 156723
913/173

Land Reg — 156723 913-173

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Over the course of the public hearings, presentations were made by the Petitioner and its Project team, including its attorney, Alan Schlesinger of Schlesinger and Buchbinder, LLP; Lawrence Gottesdiener and Peter Standish of Northland Development LLC; the Project architects, Brian O'Connor and Michelle Quinn of Cube 3 LLC, Jeff Sauser of Stantec, Inc., its transportation consultants, Randy Hart, Matthew Duranleau, Federico Tallis and Curt Quitzau of Vanasse Hangen Brustlin Inc. (VHB) and Monica Tibbits-Nutt of 128 Business Council; its sustainability consultant, Michelle Lambert of Lambert Sustainabililty; Keith O'Connor of Skidmore, Owings and Merrill; Robert Andrews of AHA Consulting Engineers; Mark Fougere of Fougere Planning and Development, Inc.; Jon Trementozzi of Landwise Advisors; Josh Safdie of KMA Architects; and Dylan Martello of Steven Winter Associates. Presentations were also made by City staff including members of the Planning and Development Department and the Transportation Division of the Department of Public Works; the City's transportation consultant and peer reviewer, BETA Group; Master Plan peer reviewer Horsley Witten, Inc.; fiscal peer reviewer, RKG Inc.; and design guidelines consultant, Form + Place.

The LUC received extensive oral and written testimony from the public and written reports from the City's professional consultants and various City boards, commissions and departments, including the Planning and Development Department, the Engineering Department, the Fire Department, the Newton Council on Aging, the Commission on Disabilities, the Urban Design Commission, the Economic Development Commission, the Conservation Commission, the Newton Highlands Area Council and the Newton Upper Falls Area Council, as well as various public interest groups including the Newton Citizens Commission on Energy, the Newton Conservators, Newton-Needham Regional Chamber, Green Newton, Livable Newton and the League of Women Voters. During the review process, supplemental materials and testimony have been submitted in response to requests by the Council and public. All testimony, written reports and supplemental materials prepared by the Petitioner and its consultants, and the City and its staff, consultants, boards, commissions and departments, as well as public testimony and supplemental materials submitted by the public, are included in the record of the Council's proceedings and provide factual and technical background for the Findings and Conditions set forth within the body of this Order.

Following a final presentation by the Petitioner and City staff, as well as public testimony, the public hearing was closed on September 24, 2019. On November 12, 2019, the LUC voted to recommend approval of the Project to the Council as follows:

Finding that all applicable provisions of the Zoning Ordinance have been complied with and taking into consideration the testimony and evidence provided by all interested parties, the Council GRANTS approval of this Special Permit/Site Plan Approval based on the following findings, as recommended by the LUC of the Council.

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SPECIAL PERMIT FINDINGS

The Council finds that the Project meets the requirements of §7.3.3.C.1-5 for those uses or waivers requiring special permits in that:

1. The Site is an appropriate location for the Project (§7.3.3 C.1) because:

    a. The proposed structures and uses are consistent with the uses and dimensions provided for the BU-4 district.

    b. The site plan benefits the Needham Street corridor and is proximate to the Newton Upper Falls Village Center.

    c. The Project provides a pedestrian-oriented development that expands needed housing choices, offers diverse commercial options, and adds public open spaces.

    d. The proposed structures and uses are consistent with and in furtherance of the Newton *Comprehensive Plan,* including the Mixed Use Centers Element adopted in November 2011, and the Needham Street Area 2018 Vision Plan.

2. The Project as developed and operated, will not adversely affect the neighborhood (§7.3.3.C.2) because:

    a. The Site will be open for pedestrian and bicycle access to Newton Upper Falls, and will provide options for residential and commercial uses that will enhance the neighborhood uses.

    b. The Project replaces a large, paved and currently underutilized site.

    c. The Project will provide various open spaces and parks available to the public, including a public splash park to be operated by the City's Department of Parks and Recreation.

    d. The Project will enhance the public amenity of the Upper Falls Greenway by providing connections to the Greenway, including a bike path from the Greenway to Needham Street.

    e. There will be significant and long-term mitigation plans to lessen the traffic impacts of the Project.

    f. The Project is outward facing and open to the public.

3. The Project will not be a nuisance or serious hazard to vehicles or pedestrians (§7.3.3.C.3) because:

    a. The Project is pedestrian-centric, and the design promotes the safety of pedestrians.

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b. The Project, by providing land to MassDOT, facilitates MassDOT improvements to the intersection of Charlemont and Needham streets, including the addition of a new traffic light at the Charlemont Street entrance and a crosswalk for bicycles and pedestrians.

c. The Project relocates the current Oak Street entrance to a safer location with improved visibility.

d. The Project improves safety for vehicles and pedestrians through traffic calming and directional controls within the Site.

e. The Project reduces the number of access points to Needham Street and consolidates driveways to improve pedestrian safety, while also diffusing traffic flow to the Charlemont Street, Tower Road and Oak Street entrances to the Site.

4. Access to the Site over streets is appropriate for the types and numbers of vehicles involved (§7.3.3.C.4) because:

   a. The Project will provide four vehicular accesses to Needham Street, Tower Road and Oak Street including enhancing the existing entrance from Tower Road, and an aligned four-way intersection entrance at Charlemont Street with a new traffic light.

   b. The parking for the Project has been limited to a ratio significantly lower than otherwise required under the Zoning Ordinance.

   c. The Petitioner will implement and maintain a robust transportation demand management plan.

   d. Both the Petitioner's and the City's peer review studies conclude that the mix of uses and TDM measures required by this Special Permit/Site Plan Approval will reduce the Project's impact on surrounding roadways.

5. The site planning, building design, construction, maintenance and long term operation of the Site will contribute significantly to the efficient use and conservation of natural resources and energy (§7.3.3.C.5) because:

   a. The master planning of the Project, the mix of uses, the open spaces provided and the elements of the Petitioner's sustainability plan, including site and building design, open spaces, stormwater control, and the Petitioner's transportation demand management plan all contribute significantly to the efficient use and conservation of natural resources and energy.

   b. The Project will be constructed to achieve LEED Neighborhood Development v.3 Certification at the Silver Level.

   c. The Saco-Pettee Mill building at 156 Oak Street will be renovated to achieve LEED Core and Shell v.3 Certification at the Silver Level.

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d. All new buildings within the Site will be designed to achieve a LEED Gold certifiable standard.

e. The Petitioner is constructing the residential portions of three buildings to achieve Passive House certification.

f. The Petitioner has committed to a detailed Sustainability Plan that includes many elements required by this Special Permit/Site Plan Approval.

g. The Project will redevelop a previously developed industrial/commercial parcel with no existing green spaces into a new mixed use environment with significant new publicly accessible green spaces that will enhance the adjacent Upper Falls Greenway.

h. Water quality will be improved by installation of a new drainage system.

ADDITIONAL FINDINGS

6. The Council finds that the Project is consistent and in furtherance of the purposes of the Newton *Comprehensive Plan* in that:

   a. The Project will allow the development of buildings and uses appropriate to the BU-4 District and the Needham Street corridor as described in the *Comprehensive Plan*.

   b. The Project will better connect the Newton Upper Falls Village Center and the Upper Falls Greenway with the Needham Street corridor through permeability of the site.

   c. The Project will allow sufficient density and intensity of uses through the mixture of housing and commercial uses to promote a vibrant pedestrian environment and streetscape throughout the day and week.

   d. The Project will expand the quantity and diversity of housing options available in the City by providing 800 residential rental units, of which 140 will be affordable units in accordance with the City's Inclusionary Zoning Ordinance, with proximity to a variety of services.

   e. The Project is designed to accommodate multiple modes of transportation.

7. The Council finds that the Project is consistent with the Newton Leads 2040 Housing Strategy 2015 which identified the Site as "Potentially suitable for medium/high density mixed-use/multifamily residential development."

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8. The Council finds that the Project is consistent with the findings and vision of the Needham Street Area 2018 Vision Plan, which was adopted by the City to guide in the evaluation of Needham Street projects.

9. The Council finds that the development of several public park areas with open space comprising approximately 40% of the site will provide significant public amenities and areas for active and passive recreation; that the proposed Village Green will provide a public meeting space and a focal point of the residential, commercial and public activities, that the proposed splash park to be built by the Petitioner and operated by the City will provide a new public facility, and that all of the public benefits are contemplated with solely private funding.

10. The Council finds that all residential units will conform to the Massachusetts Architectural Access Council (MAAB) requirements for "Group 1" units and are accessible by those in a wheelchair. In addition, per MAAB guidelines, 44 of the units will conform to "Group 2A" unit requirements and will be designed for immediate use and occupancy by anyone in a wheelchair, and with the ability to adapt additional components of the units upon need, at the Petitioner's sole cost and expense. This will add to the diversity of Newton's housing stock, thereby increasing housing choices and opportunities in the City.

11. The Council finds that Building 8 will be designated as an "all age friendly" building in that the building design shall incorporate a variety of universal design elements.

12. The Council finds that the Petitioner will dedicate not less than 10,000 square feet of the commercial space for lease to "non-formula" commercial tenants.

13. The Council finds that the Project will provide 120 affordable residential units to households earning at or below 80% of Area Median Income (AMI) and 20 affordable residential units to households earning greater than 80%, but at or below 110% of AMI in accordance with the City's Inclusionary Zoning Ordinance.

14. The provision of 140 affordable units will provide needed affordable housing in Newton. By including two tiers of affordability, there will be potential for upward mobility within the Project, as residents may be afforded the option to transition from one tier to the next, where they would have otherwise been required to relocate or pay market rate rents if their income exceeded the cap on the Inclusionary Units.

15. The Council finds that to the extent allowed by the Massachusetts Department of Housing and Community Development (DHCD) the Petitioner will seek permission to set aside 70% of the Deed Restricted Units as Local Preference Units.

16. The Council finds that the renovation and preservation of the Saco-Pettee Mill building at 156 Oak Street will be undertaken in accordance with a Memorandum of Agreement between the Petitioner and the Massachusetts Historic Commission.

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TRAFFIC FINDINGS

17. The Council notes that transportation planning has played a significant role in the Council's deliberations of the Project. The mix of uses proposed on the site, facilitated by the rezoning, reduces the number of parking stalls otherwise necessary. The Council notes that a development built under existing zoning could exacerbate weekday peak hour traffic conditions on Needham Street beyond what the Project anticipates. The Council recognizes the existence of significant congestion on Needham Street existing under current conditions and has reviewed studies of the Project's impact on traffic including:

    a. Traffic Impact and Access Study by Vanasse Hangen Brustlin, Inc. (VHB), dated October, 2018.

    b. Transportation Implementation Plan by 128 Business Council, dated October 16, 2018.

    c. Transportation Engineering Peer Review by BETA Group Inc. dated, December, 2018.

    d. Response Memorandum by VHB, dated February 22, 2019.

    e. Response Peer Review Memorandum as to Revised Building Program by BETA Group, dated March 6, 2019.

    f. Additional Comments Memorandum by BETA Group, dated March 7, 2019.

    g. Oak Street Alternatives Access Evaluation by BETA Group, dated March 15, 2019.

    h. Transportation Demand Management Plan, dated March 28, 2019.

    i. Response Memorandum of VHB, dated April 16, 2019.

    j. Petitioner letter altering the proposed shuttle system, dated June 11, 2019.

    k. Consolidated List of Councilor Questions and Responses appended at Attachment C to the Planning Department report, dated June 14, 2019.

    l. Northland Newton Development Draft Transportation Demand Management Plan, dated July 26, 2019.

18. The Council finds that the Petitioner has proposed an array of flexible and measurable transportation demand management ("TDM") techniques and has made a significant financial commitment to TDM measures to mitigate the effect of additional traffic on Needham Street. In particular the Council finds that traffic impacts of the Project will be mitigated by:

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a. The mixed use nature of the Project will lead to integration of residential, commercial and retail uses, allowing residents to live, work and shop in the same development reducing the need for trips off-site.

b. The provision of connections from and through the site for pedestrian and bicycle traffic, including connections across Charlemont Street to Needham Street and connections to the Upper Falls Greenway, to encourage residents, employees and shoppers to use alternative means of transportation to the site.

c. Provision of over 1100 bicycle parking spaces, bicycle maintenance stations, the availability of shared bicycles and shared car services, as well as such additional transit options as may become available in the future.

d. The alignment of Charlemont Street and the Project entrance and the installation of a four-way traffic light and bicycle/pedestrian crossing at Charlemont Street and the closing of one curb cut from the Site onto Needham Street.

e. Separate unbundled charges for parking for residential tenants and limitations on parking availability for commercial and retail tenants.

f. Provision of a last mile connection to public transit.

g. Provision of a Mobility Hub for a center of information and services as to transportation services, public transportation, and a waiting area with information boards and Wi-Fi for the convenience of commuters and other passengers.

h. Provision of a transit coordinator to be responsible for executing the Project's TDM program.

i. A robust program of monitoring and reporting the effectiveness of the transportation demand management program including tracking of shuttle usage, if implemented, and the peak hour vehicle trips generated from residential and office portions of the Project.

19. The Council finds that the Petitioner has provided a projection of project-generated traffic that has been reviewed and validated by the City's peer-reviewer. The Petitioner has agreed to implement and further supplement and/or revise a traffic demand management plan that will reduce the projected amount of traffic.

20. The Council finds that the Petitioner's traffic studies and implementation plan have been appropriately prepared and have been reviewed by the City's peer reviewer and Planning Department.

21. The Council finds that in addition to the traffic demand management plan proposed by the Petitioner, the Petitioner will contribute $5,000,000 towards a program of offsite traffic

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mitigation as suggested by the Planning Department and referred to in the conditions to this Order, which program will enhance traffic planning within the area of the Project.

PARKING FINDINGS

With regard to special permits to reduce the number of required parking stalls, pursuant to §5.1.4.A and §5.1.13:

22. The Council finds that a waiver of 1,737 required parking stalls, resulting in a total of 1350 lined parking stalls for the Project with an additional capacity for 250 parking spaces available for use by valet, is in the public interest or in the interest of safety, or protection of environmental features for the following reasons:

    a. Based upon the Petitioner's proposed parking plan, shared parking capability, and the robust TDM plan, the reduction in parking to provide 1350 striped parking spaces with an additional capacity for 250 parking spaces available for use by valet is warranted and consistent with the City's goals to reduce single-occupancy vehicular trips and to incentivize alternative modes of transportation.

    b. The Petitioner's shared parking plan together with the centrality of parking within the Site and limited pedestrian access through Building 1 to the site will lead vehicles to the on-site parking facilities rather than neighborhood streets.

    c. The Petitioner has put almost all of the Project parking underground and the reduced parking requires that the Petitioner closely coordinate parking supply, parking demand and the Petitioner's transportation demand management plan.

    d. The parking for the market rate residential units will be charged separately and in addition to the rent so as to encourage reduced car ownership and parking demand while encouraging increased transit usage.

    e. Based on the mix of uses, the Project design that promotes one-car living and parking on-site, and the Petitioner's transportation demand management plan, the redevelopment of the Site will not adversely affect the future parking availability in Newton Upper Falls.

    f. The commercial and residential uses are complementary and will allow for shared usage of the garage at different times. The Petitioner has prepared a shared parking analysis to allow office, retail, and residential users to share parking on the Site. The shared parking analysis has predicted that at certain hours and days the Petitioner may require valet or tandem parking in its parking structure.

With regard to special permits to allow exceptions to the various design and dimensional requirements for parking facilities in the BU4 district, pursuant to §5.1.8.B.1, §5.1.8.B.2, §5.1.8.B.6, §5.1.9.A, §5.1.9.B.1, §5.1.9.B.2, §5.1.9.B.3, §5.1.9.B.4, §5.1.10, §5.1.12, and §5.1.13:

23. The Council finds that exceptions to certain design and dimensional requirements of the Zoning Ordinance, to locate parking within five feet of a residential structure, to allow the

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dimensional requirements for some parking stalls, to waive the screening requirements for parking lots, to waive the interior landscaping requirements, and to waive the off-street loading requirements, are in the public interest or in the interest of safety, or protection of environmental features for the following reasons:

a. The location of parking within five feet of a residential structure makes for the most efficient layout of the underground parking facility and helps to maximize the number of stalls that will be available.

b. The allowance for reduced length of parking stalls (from 19 feet to 18 feet) and or/width as shown on the Master Project Plans where the aisle widths meet or exceed standards of the Zoning Ordinance will not create a nuisance or hazard to pedestrians or vehicles and will accommodate parking spaces in the underground garage.

c. The Petitioner will dedicate at least four stalls to Zipcar or other similar services and have covered bike storage for at least 1100 bicycles in the various convenient areas of the Project.

d. The waiver for some parking lot interior landscape screening helps maximize the number of parking stalls, and that a sufficient number of trees and open space will be added to the Site so as to improve the streetscape, perimeter screening, and public open space areas.

e. That provisions for on-street and off-street loading facilities are sufficient to service the buildings and related uses on the site. Adequate provision is made for deliveries through the garages, streets and laneways.

f. The waiver to allow for reduced parking lot lighting is in the public interest and in the interest of the residential portions of the Project.

g. The waiver for curbing, wheel stops, guard rails and bollards is appropriate given the proposed layout of the parking lot and garage facilities.

OTHER SPECIAL PERMIT CRITERIA FINDINGS

With regard to the special permit to allow residential use on the ground floor, retail sales establishments over 5,000 square feet, restaurants with more than 50 seats, schools or other educational purposes, stand-alone ATMs, , open air businesses, , accessory or non-accessory multi-level parking facilities, places of amusement, radio or TV broadcasting studios, and laboratory or research facilities, pursuant to §4.4.1:

24. The Council finds that the Site is an appropriate location for said uses as the uses are appropriate for a mixed use project and encourage an active, pedestrian-oriented streetscape throughout the day and week, the proposed uses fill a demonstrated need for

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the uses within the vicinity, and the proposed uses are not inconsistent with the purposes of the BU-4 district or the City's *Comprehensive Plan*.

With regard to the special permit to allow a building in excess of 20,000 square feet of gross floor area, pursuant to §4.2.2.B.1:

25. The Council finds that the size of the Site being 22.6 acres is appropriate for several buildings in excess of that scale.

With regard to the special permit to allow a building heights up to 96 feet and up to 8 stories:

26. The Council finds that the BU-4 District allows buildings of up to 8 stories and 96' in height by special permit and that the Site and the Project are an appropriate location for such buildings because:

    a. The Project is designed to focus height at the center of the site and to step down the building heights towards the edges of the site.

    b. The buildings at the edges of the Site are compatible in height to nearby and adjacent buildings, such as the six-story Village Falls Condominiums across Oak Street and the six-story Paragon office building at 233 Needham Street.

    c. The maximum height of the Project buildings is located at the center of the Site, at the intersection of Main Street, Tower Road and the Village Green, not less than 200 feet from Needham Street and from the Upper Falls Greenway.

    d. The 8 story and 96 feet height sections of the Project comprise approximately 11% of the roof area of the buildings of the Project, and the balance of approximately 89% of the roof area is lower than 8 stories and 96 feet.

    e. The Project buildings at the east, west and south perimeter of the Site are lower in scale particularly where abutting the Upper Falls Greenway and the Upper Falls village where the buildings are 3 stories and along Needham Street where Building 7 is 5 stories and Building 2 is 2 stories.

With regard to the special permit to waive the number, size, location, and height of signs, pursuant to §5.2.13:

27. The Council finds that the nature of the use of the Site, the architecture of the buildings, and the Project's location at the intersection of Needham Street, Oak Street and Tower Road, justifies exceptions to the limitations imposed by §5.2 on the number, size, location, and height of signs. The Petitioner will submit a Comprehensive Sign Package for all signage to the Urban Design Commission for review.

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SITE PLAN APPROVAL CRITERIA FINDINGS

With regard to the site plan approval criteria, pursuant to under §7.4.5.B.1-7:

28. The Project has been designed to ensure the safety of vehicular, bicycle and pedestrian movement within the Site and in relation to adjacent streets, properties, and improvements, including regulation of the number, design and location of access driveways and the location and design of handicap parking. The access driveways include a full traffic light control at Charlemont Street to be installed by the Commonwealth of Massachusetts Department of Transportation as part of its Needham Street reconstruction, an appropriate and improved sight line at Oak Street and appropriate distances and viewing lines from driveway intersections. (§7.4.5.B.1)

29. The methods for disposal of sewage, refuse and other wastes, and the methods of regulating surface water drainage are adequate because Preliminary plans have been reviewed by the City Engineering Division and the Petitioner will be making a $1,850,000.00 contribution to the City for municipal sewer Inflow and Infiltration improvements based upon a projected daily sewer flow of 93,425 gallons. The Engineering Division will also review all final plans submitted for building permits for compliance with City of Newton Engineering Division design standards prior to the issuance of any building permits. (§7.4.5.B.2)

30. The provisions for on-street and off-street loading facilities are sufficient to service the buildings and related uses on the site. (§7.4.5.B.3)

31. The screening of parking areas and structures on the site from adjoining premises is sufficient based on the landscape plans referenced in Condition #1. (§7.4.5.B.4)

32. The Project avoids unnecessary topographical changes. (§7.4.5.B.5)

33. All utility service lines on the Site will be undergrounded. The Council finds that by its letter of June 11, 2019 the Petitioner has proposed to re-route or place underground significant utility lines in the vicinity of the Site. Petitioner's proposal will require consent of third parties including abutters, utilities, the State DOT and the City. If the Petitioner is successful in these efforts, the result will create a substantial visual enhancement to the Needham Street area and be of benefit to the entire neighborhood. (§7.4.5.B.6)

34. The Council finds that that the proposed site design and massing is appropriate in the context of the Needham Street and Newton Upper Falls location. The site plan is based upon connectivity to and permeability through the Site, that the mixed uses within the Project will serve to improve connections between Upper Falls and Needham Street through connections to the Greenway with an active pedestrian streetscape designed to invite the public into the Site from all directions and by various means. The highest massing of the buildings is appropriately located in the middle of the Site so as to limit the impact on adjacent properties. (§7.4.5.B.6)

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35. The Council finds that the Project will protect and enhance the historic Saco-Pettee Mill building at 156 Oak Street, a property which is listed on the National Register of Historic Properties, while permitting the removal of buildings that have been deemed not preferably preserved by the Newton Historical Commission or that have no historic significance. (§7.4.5.B.7)

36. In light of the findings set forth above and the following conditions imposed by this Council Order, the City Council finds that the public convenience and welfare of the City will be served, and the criteria of §4.2.1.C.1-5; §4.2.2.B.1; §4.2.5.A; §4.2.5.A.1-4 and 6; §5.1.4.A; §5.1.4.C; §5.1.8.A; §5.1.8.B.1-2; §5.1.9.B; §5.1.10; §5.1.12; §5.1.13; and §7.4.5.B.1-8 for granting special permit/site plan approval will be satisfied.

PETITION NUMBER:	#426-18
PETITIONERS:	Northland Development LLC, Northland Oak Street, LLC, Northland Tower Road Investors, LLC, Needham Street Associates, and all their successors and assigns (collectively, the "Petitioner")
LOCATION:	156 Oak Street, Newton, on the land known as SBL 51/28/5A, containing 237,832 sq. ft. 55 Tower Road, Newton on the land known as SBL 51/28/5, containing 483,583 sq. ft. Lot 18 – 275-281 Needham Street, Newton, on the land known as SBL 51/28/6 containing 265,232 sq. ft.
OWNER:	As to 156 Oak Street: Northland Oak Street, LLC As to 55 Tower Road: Northland Tower Road Investors, LLC As to 275-281 Needham Street: Needham Street Associates – Land Reg
ADDRESS OF OWNER:	c/o Northland Investment Corporation 2150 Washington Street Newton, MA 02462
TO BE USED FOR:	A mixed use development containing approximately 193,200 s.f. office space, approximately 115,114 s.f. of retail or commercial or restaurant space, not more than 800 residential units, and surface and underground parking providing approximately 1,350 striped spaces and including approximately 250 additional valet/tandem spaces, and open spaces or park spaces available for public use as shown on the plans referred to herein, with uses including retail of more than 5,000 square feet, personal service of more than 5,000 square feet, restaurants over 50 seats, standalone ATMs, health club establishments at or above ground floor, animal service, and street level office.

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CONSTRUCTION: Various, steel frame, wood frame, and masonry structure, over a structural steel and concrete podium base.

EXPLANATORY NOTES: References to the Zoning Ordinance above: Special Permit under §7.3.3 and Site Plan Approval under §7.3.4 with reference to §4.1.2.B.1 to allow a structure in excess of 20,000 s.f.; §4.1.2.B.3 for a building of more than 3 stories; §4.1.3 to allow a height in excess of 36'; §4.4.1 for uses allowed by special permit including (a) residential use on the ground floor, (b) restaurant, (c) restaurants of over 50 seats, (d) school or other educational purposes, for-profit, (e) standalone ATMs, (f) open air business, (g) parking facility- accessory multi-level, (h) parking facility-non-accessory single level, (i) parking facility-non accessory multi-level,; (j) place of amusement, (k) radio or TV broadcasting studio, and (l) laboratory and research facility; §5.1.13 for exceptions to the parking requirements to allow the Project to include 1,350 striped parking spaces in addition to approximately 250 valet/tandem spaces; §5.1.5.A to waive the requirement for a parking plan; §5.1.8.A to locate parking within 5 feet of a residential structure; §5.1.8.B to waive the dimensional requirements for parking stalls; §5.1.8.B.6 to waive certain end stall maneuvering requirements; §5.1.8.E to allow assigned and/or valet/tandem spaces; §5.1.9.A.1 to waive the screening requirements for parking lots; §5.1.9.B.1-3 to waive the interior landscaping, planting area and tree requirements for parking lots; §5.1.9.B.4 to waive of bumper overhang requirements; §5.1.10 to waive certain lighting, surfacing and maintenance requirements; §5.1.12 to waive the off-street loading requirements; all pursuant to §7.4.5. B. 1-8.; and §7.3.3. C. 1-5.

ZONING: BU- 4

Approved Subject to the Following Conditions:

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GENERAL CONDITIONS

1. All buildings, parking areas, driveways, walkways, landscaping and all other site features associated with this Special Permit/Site Plan Approval shall be located and constructed consistent with the Plan Set entitled "The Northland Newton Development" dated April 12, 2019 and as amended September 3, 2019, and the image and map set entitled "Select Design Elements from Submitted Documents and Hearing Presentations" dated October 24, 2019 (collectively the "Project Master Plans") which are more particularly identified in Exhibit A and are hereby incorporated by reference. No changes to the Project are permitted unless they are consistent with the Project Master Plans as set forth in Conditions #7 through 10.

2. All buildings, parking areas, driveways, walkways, landscaping and all other site features associated with this Special Permit/Site Plan Approval shall be located and constructed consistent with the City of Newton Design Guidelines for the Northland Newton Development, dated September 11, 2019 (the "Design Guidelines"), which are on file with the Department of Planning and Development, the Inspectional Services Department, and the City Clerk.

3. The Petitioner shall merge the three existing lots into one new lot no later than thirty (30) days after the issuance of the first building permit (other than a demolition permit or renovation permit for 156 Oak Street). Proof of recording a plan of merger with the Middlesex South District Registry of Deeds shall be submitted to the Department of Planning and Development, the Inspectional Services Department, and the City Solicitor's office.

4. This Special Permit/Site Plan Approval shall be deemed to have been vested, for the purposes of utilizing the benefits of the change of zone authorized by Council Order #425-18, upon the issuance of a building permit (other than a demolition permit) for all or any portion of the Project.

5. Pursuant to Zoning Ordinance §7.3.2.E, the time for exercise of this Special Permit/Site Plan Approval is extended to grant a period of three years for the exercise hereof without the necessity of a further public hearing. This Special Permit/Site Plan Approval shall be deemed to have been exercised upon the issuance of a building permit (other than a demolition permit) for all or any portion of the Project.

6. If within five (5) years from the date of this Special Permit/Site Plan Approval, which shall not include such time required to pursue or await the determination of an appeal pursuant M.G.L. c. 40A, § 17, the Petitioner has not applied for all building permits necessary to complete construction of the Project, then further construction under this Special Permit/Site Plan Approval is not authorized unless the Petitioner seeks and receives an amendment to this Special Permit/Site Plan Approval that extends the time for fulfilling this condition.

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DESIGN REVIEW & MASTER PLAN CONSISTENCY CONDITIONS

7. Preliminary Submission Of All Building Permit Plans

   a. Prior to any application for a building permit (other than a demolition permit or renovation permit for 156 Oak Street or tenant improvement permits), the Petitioner must file the following with the Director of Planning and Development, the Commissioner of Inspectional Services, the Director of Public Works, and the City of Newton's Urban Design Commission (UDC):

      i. a copy of all plans necessary for the permit or determination being sought ("Request Plans");

      ii. a signed certificate from the Petitioner's architect and/or civil engineer certifying that the Request Plans are consistent and in full compliance with the Project Master Plans (the "Compliance Certificate");

      iii. a completed Evaluation Template in accordance with and in the form required by the Design Guidelines.

8. Preliminary Review Of All Building Permit Plans

   a. Within sixty (60) days of receipt of a complete submission of the materials set forth in Condition #7, the Director of Planning and Development will review and provide an opinion as to whether the Request Plans are in full compliance with the Project Master Plans and consistent with the Design Guidelines. If the Director of Planning and Development's review requires the input or assistance from a peer review consultant, the Petitioner shall pay the reasonable fees for such peer review. The Director of Planning and Development's opinion shall be submitted in writing to the Petitioner and the Commissioner of Inspectional Services. If it is the Director's opinion that the Request Plans are not compliant with the Project Master Plans or inconsistent with the Design Guidelines, such inconsistencies shall be expressly identified.

   b. Within sixty (60) days of receipt of a complete submission of the materials set forth in Condition #7, the UDC will provide an opinion as to whether the Request Plans are in full compliance with the Project Master Plans and consistent with the Design Guidelines. The UDC's opinion shall be submitted in writing to the Petitioner and the Commissioner of Inspectional Services. If it is the UDC's opinion that the Request Plans are inconsistent with either the Project Master Plans or the Design Guidelines, such inconsistencies shall be expressly identified.

   c. Upon reception of the written opinions, the Petitioner may file a formal building permit application with the Commissioner of Inspectional Services, which shall include a copy of the opinions. Alternatively, the Petitioner may revise the request

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Plans and resubmit them for a preliminary review in accordance with Conditions #7 and 9.

9. Formal Submission Of Building Permit Application

   a. Upon receipt of a complete building permit application, the Commissioner of Inspectional Services shall make a final determination, with due consideration given to the written opinions of the Director of Planning and Development and the UDC, as to whether the plans filed with such application are in full compliance with the Project Master Plans and consistent with the Design Guidelines.

   b. In making the final consistency determination, the Commissioner of Inspectional Services may elect to refer the matter to the Land Use Committee for the Committee's review and recommendation, provided however that referral to the Land Use Committee is required for any modifications or changes to the Project Master Plans concerning the following: (i) building locations; (ii) building massing or relative heights of building elements; (iii) footprints of buildings and other structures; (iv) program; (v) driveway and parking stall locations; (vi)interior road network; (vii) open space; (viii) increase in floor area; and (ix) significant changes to design elements. The Land Use Committee shall not be required to vote or to approve any matter referred to it in accordance with this condition.

   c. If the Commissioner determines that the application plans are inconsistent with either the Project Master Plans or the Design Guidelines, no building permit will be issued, and the Petitioner must either: (i) submit revised plans which the Commissioner deems to be consistent, or (ii) seek an amendment to this Special Permit/Site Plan Approval.

   d. Any increase to the maximum building heights, number of units, total floor area of the Project, total floor area of any building greater than ten (10) percent, any increase or decrease to the number of parking stalls, or any material decrease to the amount of open space of the Project from what is shown on the Project Master Plans shall not be eligible for a consistency determination and such modification can only be done through amendment of this Special Permit/Site Plan Approval.

10. The procedure for preliminary review of building permit plans set forth in Conditions #7-8 may be utilized by the Petitioner earlier in the design process for one (1) or more buildings or public spaces in order to receive initial opinions on the consistency of schematic/architectural drawings. If the opinions of both the Director of Planning and Development and the UDC after such an initial schematic review are that the schematic drawings are in full compliance with the Project Master Plans and consistent with the Design Guidelines, the Commissioner of Inspectional Services may accept final building permit plans without further preliminary review so long as they do not include any additional design elements or change any design elements governed by the Design Guidelines as confirmed by the Director of Planning and Development.

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CONDITIONS REQUIRING COMMUNITY BENEFITS

11. The Petitioner shall make payments in the aggregate amount of $1,850,000.00 to the City for municipal infrastructure improvements, which amount shall be deemed to be in satisfaction of the request of the Engineering Division for funding for infrastructure improvements for inflow and infiltration (I&I). The amount is calculated based on a projected 93,425 gallons of daily sewer flow with a charge of $19.77 per gallon for a transportation and treatment cost in accordance with the City's I&I Mitigation Policy, dated March 7, 2019, rounded up to $1,850,000.00. Payments shall be made as follows:

    a. $925,000.00 at the first building permit for a residential building in the Project.

    b. $925,000.00 at the first residential unit occupancy permit (temporary or final) in the Project.

12. The Petitioner shall, within sixty days after the Project reaches 95% residential occupancy, undertake a post-occupancy measurement of the sewer flow from the Project (excluding any sewer flow associated with the spray park), at its sole expense, to compare the actual sewer flow to the flow estimated in Condition #11. The post-occupancy measurement shall be taken at a time and in a manner approved by the City Engineer to provide for typical conditions. In the event the sewer flow from the Project exceeds 93,425 gallons under typical conditions, then the Petitioner shall pay to the City an amount equal to the excess sewer flow beyond 93,425 gallons, multiplied by 4 and by $19.77 per gallon. Such payment shall be made within sixty (60) days from the date the City provides the Petitioner with written notification of the excess sewer flow amount.

13. The Petitioner shall make payments in the aggregate of $5,000,000.00 to the City for offsite traffic mitigation and improvements. A description of categories for possible projects for offsite mitigation is attached hereto as Exhibit B, and the Director of Planning and Development, after consultation with the Commissioner of Public Works and the Petitioner, shall recommend projects for funding to the Mayor and the City Council. The Petitioner's payments shall be made as follows:

    a. $2,500,000.00 at the first building permit for a residential building in the Project.

    b. $2,500,000.00 at the first residential unit occupancy permit (temporary or final) in the Project.

14. The Petitioner shall make payments in the aggregate amount of $1,500,000.00 to the City for improvements to or replacement of the Countryside School. The Petitioner's payments shall be made to a municipal account designated for improvements to the Countryside School as follows:

    a. $1,000,000.00 at the first building permit for a residential building in the Project.

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b. $500,000.00 at the first residential unit occupancy permit (temporary or final) in the Project.

15. The Petitioner shall design and construct, at a cost to the Petitioner not to exceed $1,000,000.00 (except as provided below), a public splash park located on a 7,000 - 8,000 square foot portion of the Project located in the southwest corner of the Site adjacent to the Upper Falls Greenway and the Depot building, as shown on the Plan Sheet C-5.4 dated September 3, 2019 and labeled "Approximate Location of Splash Park."

    a. The Petitioner shall provide sewer, water, and electricity lines to the public splash park at its own cost.

    b. The Petitioner shall submit final design plans for review and approval by the City's Department of Parks and Recreation prior to the Petitioner's first application for a building permit (other than a demolition permit or renovation permit for 156 Oak Street). Final design plans must include a minimum of ten (10) water features and seating elements. Prior to submission of final design plans for review and approval, the Petitioner shall periodically meet with, update, and solicit input and feedback from the City of Newton during the feasibility, schematic, design, design development, and construct document phases. The Petitioner shall not spend more than $120,000.00 on the design of the splash park, which amount shall be applied against the $1,000,000.00 contribution of the Petitioner.

    c. The Petitioner shall perform the construction of the splash park in accordance with the approved final design plans. The Petitioner shall be responsible for any cost overruns in constructing the splash park as approved, which may require the Petitioner to pay more than the $1,000,000.00 contribution required by this condition. The City shall pay the costs of any change orders it requests after approval of the plans. The Petitioner shall assign to the City any warranties or guaranties of construction or of equipment installed in the splash park.

    d. The Petitioner shall license the Splash Park Area to the City for $1.00, subject to a license agreement mutually agreed upon by Petitioner and the City. The license agreement shall provide the following terms: the City shall operate the splash park, maintain the license area and all splash park facilities in good and safe condition, bear responsibility and pay for all operating, water, sewer and utility costs, future improvements, and user safety, provided however that the City shall not be required to provide insurance coverage or an indemnification agreement and the Petitioner shall have the benefit of M.G.L. c. 21, § 17C as to its liability.

    e. Construction of the splash park shall be completed, the license agreement shall be executed, and custody and control of the splash park shall be turned over to City prior to the issuance of the first residential unit occupancy permit (temporary or final) in the Project, provided that the Commissioner of Inspectional Services

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may determine that delivery should be deferred to a later date due to the construction and safety conditions on the Site.

16. All open spaces shown in the Project Master Plans shall be open to the public, at no cost to the public or the City, from at least dawn to dusk every day. The Petitioner's obligation to maintain the open spaces and to allow public access as required by this condition shall continue for so long as the Project authorized by this Special Permit/Site Plan Approval or any amendment thereto is in effect.

    a. The construction of the Village Green and Mill Park open spaces, as shown and labeled on the Plan Sheet L1.2, shall be substantially completed and fit for use before the issuance of the occupancy permit (temporary or final) for the 400th residential unit. The construction of all remaining open spaces shall be completed before the issuance of an occupancy permit (temporary or final) for the first unit in the final residential building.

    b. All open spaces must be accessible to persons with disabilities.

    c. The Petitioner shall provide appropriate/adequate lighting of the open spaces and shall provide electricity lines/connections to the Village Green and Mill Park.

    d. The Petitioner shall maintain the landscape, lawns and plantings on the open spaces in good, healthy condition.

    e. The Petitioner and the City shall work together for programming for the open spaces for public events. The City shall be responsible for the cost to set-up, clean up and operate such public events, but will not be charged rent for use of the open spaces.

    f. The Petitioner may promulgate reasonable rules and regulations that govern use of the open spaces, which must be reviewed and approved by the Commissioner of Parks, Recreation and Culture Department. The open spaces may be closed by the Petitioner, at periodic and reasonable times, for private events or for the minimum extent necessary to prevent the establishment of prescriptive easements.

17. The Petitioner shall ensure the availability of a public bathroom facility at the Mobility Hub for public users of the open spaces and splash park at reasonable times.

18. The Petitioner is required to reserve (i.e., whether leased or vacant and available for lease) at least 10,000 rentable square feet of space within the ground floor only, to non-formula retail, restaurant, or personal service use tenants.

    a. For the purposes of this condition, formula retail, restaurant, and personal service use is defined as "Any establishment, which along with nine or more other businesses regardless of ownership or location worldwide, does or is required as a franchise, by contractual agreement, or by other agreement to maintain two (2) of the following features:

        i. A standardized menu;

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ii. A standardized facade;

iii. A standardized décor and/or color scheme;

iv. A standardized uniform;

v. A standardized sign or signage; or

vi. A standardized trademark or service mark.

b. In the event that a non-formula tenant disqualifies itself in accordance with the criteria referenced in this condition, thereby decreasing the total rentable square feet reserved for non-formula tenants to below 10,000 square feet, the tenant may remain and the Petitioner shall dedicate the next available tenant space or spaces (unless such space is deemed inappropriate for a non-formula tenant by the Director of Planning and Development) to other non-formula tenants until the Project is compliant with this condition.

c. Prior to the issuance of any Building Permit for the ground floor of each building, the Petitioner shall provide documentation indicating whether the proposed retail, restaurant, or personal service use is a non-formula use in accordance with this condition. The Petitioner is not entitled to a building permit if such permit would prevent the Project from complying with this condition.

CONDITIONS RELATED TO AFFORDABILITY

19. In accordance with the City's Inclusionary Zoning Ordinance, §5.11.4, the Project shall include 140 affordable housing units (the "Inclusionary Units"), as follows:

    a. 120 of the residential units in the Project shall be made available to households earning at or below 80% of Area Median Income (AMI), as designated by the U.S. Department of Housing and Urban Development, adjusted for household size for the Boston-Cambridge-Quincy, MA-NH HMFA ("Tier 1 Units"). The AMI used for establishing rent and income limits for the Tier 1 Units must average no more than 65% AMI. Alternatively, at least 50% of the Tier 1 Units may be priced for households having incomes at 50% of AMI and the remaining Tier 1 Units priced for households at 80% of AMI.

    b. 20 of the residential units in the Project shall be affordable to households earning greater than 80%, but at or below 110% of AMI, as designated by the U.S. Department of Housing and Urban Development, adjusted for household size for the Boston-Cambridge-Quincy, MA-NH HMFA ("Tier 2 Units").

20. The Petitioner, the Project, and the Inclusionary Units shall comply with all applicable provisions of the City's Inclusionary Zoning Ordinance, §5.11, in effect as of the date of this Special Permit/Site Plan Approval, regardless of whether such requirements are set forth herein. The Project is not required to comply with the City's Inclusionary Zoning Ordinance provision, effective January 1, 2021, changing the requirements for projects with 100 or more residential units.

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21. The bedroom mix of the Inclusionary Units shall be equal to the bedroom mix of the market-rate units in the Project. The proposed mix of the Inclusionary Units is:

	Studio	1BR	2BR	3BR
Tier 1 Units Inclusionary Units	12	54	48	6
Tier 2 Inclusionary Units	2	9	8	1

The final bedroom mix shall be reviewed and approved by the Director of Planning and Development prior to the issuance of a building permit for the Project.

22. Monthly housing costs (inclusive of rent, utility costs for heat, water, hot water and electricity, 1 parking space and access to all amenities offered to tenants in the building), must not exceed 30% of the applicable household income limit for that Inclusionary Unit and shall be consistent with Inclusionary Zoning Ordinance, § 5.11.4.D.1.

23. For the initial lottery, 70% of the Inclusionary Units shall be designated as Local Preference units, as permitted and defined by the Massachusetts Department of Housing and Community Development (DHCD).

24. Prior to the issuance of any building permits for the vertical construction of the Project, the Petitioner shall provide an updated Inclusionary Housing Plan and Affirmative Fair Marketing and Resident Selection Plan (AFHMP) for review and approval by the Director of Planning and Development in accordance with §5.11.8 of the Inclusionary Zoning Ordinance. The Inclusionary Housing Plan and Affirmative Fair Housing Marketing and Resident Selection Plan must meet the requirements of DHCD's guidelines for Affirmative Fair Housing Marketing and Resident Selection and be consistent with §5.11.8. of the Inclusionary Zoning Ordinance. In accordance with DHCD's current guidelines, the units will be affirmatively marketed and leased through a lottery.

25. Prior to the issuance of any temporary or final occupancy certificates for the Project, the Petitioner, the City, and DHCD will enter into a Regulatory Agreement and Declaration of Restrictive Covenants, in a form approved by the City of Newton Law Department, which will establish the affordability restriction for the Tier 1 Inclusionary Units in perpetuity.

26. Prior to the issuance of any temporary or final occupancy certificates for the Project, the Petitioner and the City will enter into a Regulatory Agreement and Declaration of Restrictive Covenants, in a form approved by the City of Newton Law Department, which will establish the affordability restriction for the Tier 2 Inclusionary Units in perpetuity.

27. To the extent permitted by applicable regulations of DHCD, the Tier 1 Inclusionary Units shall be eligible for inclusion on the State's Subsidized Housing Inventory (SHI) as Local Action Units through DHCD's Local Initiative Program.

28. The Inclusionary Units shall be designed and constructed subject to the provisions of the Inclusionary Zoning Ordinance, §5.11.7.

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29. Inclusionary Units, and their associated parking spaces, shall be proportionally distributed throughout the Project and be sited in no less desirable locations than the market-rate units, and the locations of such units and parking spaces shall be reviewed and approved by the Director of Planning and Development prior to the issuance of a building permit for the Project.

30. No residential unit or building shall be constructed to contain or be marketed and/or sold as containing more bedrooms than the number of bedrooms indicated for said unit in the Project Master Plans referenced in Condition #1.

31. Any room that meets the minimum dimensional and egress requirements to be considered a bedroom under the state building code and Title 5 regulations shall be counted as a bedroom for purposes of determining the required bedroom mix of the Inclusionary Units in accordance with the Inclusionary Zoning Ordinance.

32. Any guest suites or temporary housing that meet the definition of a Dwelling Unit under the Zoning Ordinance shall be counted as a bedroom for purposes of calculating the Project's inclusionary zoning requirement.

CONDITIONS RELATED TO CONSTRUCTION

33. The Petitioner shall pay the reasonable fees of the City's consultants for review of the building permit plans or documents described herein or for inspections required herein during the construction phase.

34. All construction activity shall be limited to 7:00AM-7:00PM Monday through Friday and 8:00AM-7:00PM on Saturdays, excluding holidays, unless waived by the Mayor in accordance with Newton Ordinances, §20-13. Interior work may occur at times outside of the hours specified above, but only after the building is fully enclosed.

35. The Petitioner shall comply in all material respects with the final Construction Management Plan to be submitted for review and approval to the Commissioner of Inspectional Services, in consultation with the Director of Planning and Development, the Fire Department, the Commissioner of Public Works, and the City Engineer. The Final Construction Management Plan shall include, but not be limited to, the following provisions:

    a. The proposed schedule of the Project, including the general sequencing of the construction activities.

    b. Site plans showing the proposed location of contractor and subcontractor parking, on-site material storage areas, on-site staging areas for delivery vehicles, and location of any security fencing.

    c. Proposed truck routes that minimize travel on local streets.

    d. Proposed methods for dust control including, but not limited to: covering trucks for transportation of excavated material; minimizing storage of debris on-site by

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using dumpsters and regularly emptying them; using tarps to cover piles of bulk building materials and soil; hosing during demolition and earth work where appropriate; and locating a truck washing station to clean muddy wheels on all truck and construction vehicles before exiting the Site.

e. Proposed methods of noise control, in accordance with the City of Newton's Ordinances. Staging activities should be conducted in a manner that will minimize off-site impacts of noise. Noise producing staging activities should be located as far as practicable from noise sensitive locations.

f. Proposed methods of vibration control.

g. A plan for rodent control during construction.

h. 24-hour contact information for the general contractor of the Project. This contact information shall be provided to the Commissioner of Inspectional Services and to the Newton Police Department, shall be posted on a construction activity website to be established by the Petitioner, and shall be posted on the job site.

i. Offer to provide a pre-construction survey at no charge to the owners of the properties abutting the Site.

36. The Petitioner shall submit final engineering, utility, and drainage plans, and an Operations and Maintenance plan for Stormwater Management, for review and approval by the City Engineer for consistency with the Memorandum of Curtis Quitzau P.E., dated June 6, 2019, on file with the Engineering Department and the Planning Department.

37. The Petitioner shall be responsible for securing and paying police details that may be necessary for traffic control throughout the construction process as required by the Police Chief.

38. The Petitioner shall be responsible for repairing any damage to public ways and public property caused by any construction vehicles traveling to or from the Site. All repair work shall be done prior to the issuance of final Certificate of Occupancy, unless the Commissioner of Public Works determines either: (a) that the damage to the public way is so extensive that it limits the use of the public way; (b) that the damage interferes with traffic flow; or (c) that the damage poses a threat to public safety. In such cases, the repair work must be initiated within one month of the Commissioner making such determination and shall be conducted consistent with City Construction Standards, and shall be completed within an appropriate time frame, as determined by the Commissioner.

39. The Petitioner shall implement a Community Engagement Plan during the construction period of the Project in order to predict, preempt and address issues which may arise affecting the general community. The Community Engagement Plan shall provide, without limitation, a communication plan and schedule for regular construction updates and

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advisories, point contacts for Petitioner and Petitioner's primary contractors, engagement plan with the Upper Falls and Newton Highlands Area Councils and local businesses, and communications with Ward councilors and any other interested councilors. The Petitioner shall designate a single individual to communicate with the neighbors, the Ward 5 and Ward 8 City Councilors, and the Newton Upper Falls and Newton Highlands Neighborhood Area Councils via email. The designated individual shall send updates of any changes of the construction schedule to the established distribution list.

40. Not less than two (2) months prior to the commencement of any Site work and/or other construction activities related to the work approved through this Special Permit/Site Plan Approval, a Construction Liaison Committee shall be established consisting of two (2) designees of the Petitioner, four (4) residents from the neighborhood surrounding the Project, one (1) representative of the Needham Street commercial community or the Newton-Needham Regional Chamber, one (1) Ward 5 City Councilor and one (1) Ward 8 City Councilor. The President of the City Council shall appoint the resident neighborhood members and the City Councilors. Meetings of the Liaison Committee will be open to the public, and the Liaison Committee will establish such agenda and procedures as it shall see fit.

    a. The purposes of the Liaison Committee shall be:

        i. To enhance and ensure communication as to the status and progress of the construction of the Project by the Petitioner.

        ii. To provide a forum for initial presentation of a construction schedule and any significant changes to schedule or changes of plans for which public review is appropriate.

        iii. To receive and deal with construction-specific issues including, without limitation, noise, dust, parking and traffic; to monitor implementation of the final Construction Management Plan; and to receive notices and communications from the Department of Inspectional Services and the Planning and Development Department.

    b. The Liaison Committee shall meet regularly (monthly for the first six (6) months of the construction period, and thereafter, every three (3) months, unless there is consensus within the Liaison Committee that no meeting is necessary, until at least six (6) months after the initial occupancy of the final building to be completed). The first meeting shall be convened jointly by the Petitioner and the Ward 5 and 8 City Councilors. The Liaison Committee shall work by consensus, but nothing in the establishment of the Liaison Committee shall inhibit any member, including the Petitioner, from engaging in any lawful activities.

    c. The Liaison Committee shall, at a minimum, give written notice to the City Clerk, the Commissioner of Inspectional Services, and the Director of Planning and

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Development of its meetings, and such notice shall be posted on the construction activity website that the Petitioner shall be required to establish pursuant to its Construction Management Plan.

41. Any portions of the Site subject to the jurisdiction of Conservation Commission must receive an Order of Conditions from the Conservation Commission prior to the issuance of any building permit for work on the Project subject to such jurisdiction.

42. The Petitioner shall comply with the terms of the Petitioner's Memorandum of Agreement with the Massachusetts Historical Commission, dated September 21, 2018.

43. Building 8 shall be designated as an "all age friendly" building in that the building design shall incorporate a variety of universal design elements, including intentional color schemes, contrasting materials for visibility, supplemental corridor and common space lighting and all-age friendly amenities and common spaces. The Petitioner has submitted a memorandum dated October 9, 2019, prepared by Project architect Michele Quinn of Cube 3 LLC , that sets forth a series of "all age friendly" design elements which the Petitioner has agreed to incorporate into Building 8, and which must be provided.

44. All residential units will conform to the Massachusetts Architectural Access Board (MAAB) requirements for "Group 1" units. In addition, per MAAB guidelines, 44 units shall be designed as "Group 2A" units, which are designed spatially for immediate wheelchair use and with the ability to adapt additional components of the units upon need, at the Petitioner's sole cost and expense. 22 of the Group 2A units shall be Inclusionary Units.

45. All internal roadways shall be designed as shown on the Project Master Plans and, except as otherwise provided for herein, shall be open to the public. The Petitioner is responsible for maintaining and plowing all internal roadways and sidewalks, ensuring they are clean, well-kept and in good and safe working order.

46. All sidewalks and handicapped ramps shall be ADA compliant unless a variance for noncompliance is granted. A letter of compliance prepared by a professional engineer registered in the state of Massachusetts shall be submitted prior to issuance of an occupancy permit (temporary or final).

47. The Petitioner shall locate all utility service lines on the Site underground.

48. The Petitioner shall make best efforts to diligently obtain all necessary municipal, utility and private party approvals to relocate all overhead utility service lines along the Project's frontage on Needham Street and Oak Street, Christina Street, Tower Road and Charlemont Street underground as shown on the Utility Infrastructure Undergrounding Plan, dated June 10, 2019 and on file with the City Clerk and the Planning Department. If such approvals are received, the Petitioner shall relocate the utility service lines at its own expense as soon as practically feasible and in no event later than the issuance of the last temporary residential unit occupancy permit in the Project. In the event approvals for any sections cannot be

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obtained or are obtained on conditions that are not commercially reasonable, as confirmed by the Director of Planning & Development, the Petitioner may complete only such portions of the underground as may be approved on conditions that are commercially reasonable.

49. The Petitioner shall daylight a portion of the South Meadow Brook between Buildings #1 and #2 as shown on the Project Master Plans, subject to any required Order of Conditions by the Conservation Commission. The Petitioner shall not be required to undertake such "daylighting" if an Order of Conditions is denied. The Petitioner shall make all reasonable efforts to visually represent the South Meadow Brook where located underground as shown in the Project Master Plans.

50. The Petitioner shall construct a bike path through the Site from the Greenway to Needham Street as shown on the Project Master Plans.

51. The Site shall be open to the Greenway without fencing or screening, with the exception of fencing if necessary to enclose the splash park and low hedges behind the townhouse units. Such fencing and hedging shall be subject to review and approval by the Director of Planning and Development.

52. The Petitioner shall prepare and submit a final Site circulation plan for review by the Fire Department that confirms the Fire Department will have sufficient access to all buildings, confirms that a bus 45 template for fire access will function safely, and shows all hydrants and fire connections, and other features as may be required for Fire Department approval.

CONDITIONS RELATED TO SUSTAINABILITY

53. The Petitioner shall design and construct high R-value, durable, environmentally sensitive buildings. All new buildings shall be designed for modern energy and resource conservation. Mechanical, electrical and plumbing systems shall be chosen and sized to meet reduced heating and cooling loads and to ensure occupant comfort. Proper commissioning, optimization, and education for building management and tenants shall be conducted to operate the building at the designed level of performance. The Petitioner shall make diligent efforts to utilize durable building materials, high performance building envelopes and energy-efficient appliances.

54. The Project shall be constructed to achieve, and the Petitioner shall pursue LEED Certification for Neighborhood Development v3 at the Silver Level. The Saco-Pettee Mill building at 156 Oak Street shall be renovated to achieve and pursue LEED Core and Shell (CS) v3 Certification at the Silver Level.

55. All new buildings within the Site shall be designed to achieve either: (i) a LEED v.3 Gold certifiable standard, or (ii) a LEED v.4 Gold for Building Design and Construction Multifamily Midrise certifiable standard. Because buildings #9, 10, 11 and 14 are smaller scale residential buildings, such buildings may utilize either: (i) LEED for Homes, (ii) LEED v.4 for Multifamily

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Low-rise, or (iii) subject to approval by the Director of Planning and Development, an alternative recognized green building standard appropriate for such building types.

56. The Petitioner shall construct the residential portions of Buildings #3, 4 and 8 to achieve Passive House certification in accordance with the requirements of the Passive House Institute US (PHIUS), the Passive House Institute (PHI) or other recognized passive house certification organization. The commercial portions of such buildings shall not be obligated to meet such standards and shall be excluded from the certification.

57. The Petitioner has committed to achieve and/or implement the following sustainability strategies which shall be incorporated into the Project:

    a. The Petitioner will conduct Passive House feasibility studies, incorporating energy modeling, for buildings #5a/b, 6a, 6b/c, 7 and 12.

    b. The Petitioner will utilize electric heat pumps for heating and cooling in all buildings in order to reduce fossil fuel use unless another technology becomes available that is at least as equally efficient and environmentally sustainable.

    c. For all residential units, and in all other spaces where applicable, the Petitioner will utilize electric "Energy Star" appliances (or functional equivalent), except that domestic hot water equipment may utilize natural gas as an energy source.

    d. All building roofs that are not essential locations for mechanical systems (which Petitioner will make every effort to consolidate) and not desirable for residential outdoor space shall be solar ready. To the greatest extent feasible, the Petitioner will utilize such building roofs for actual installation and implementation of sustainable strategies including photovoltaic panels, green roofs and/or reflective roof materials. A final roof mapping plan for the Project shall be submitted to the Director of Planning and Development for review and approval prior to the issuance of the first building permit for any new vertical construction.

    e. Bicycle parking/storage will be provided for at least 1,100 bicycles.

    f. Electric car charging stations will be provided for 5% (66 spaces) of the striped parking with expansion built in to double the amount (to 10%, 132 spaces) of charging stations.

    g. A rain harvesting system will be utilized to capture some roof rainwater for irrigation.

    h. Drought tolerant and indigenous plants will be the predominant species installed in the landscape.

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i. Low Impact Design (LID) strategies will be employed in the design of the stormwater management system.

j. Permeable pavement and pavers will be utilized as part of the LID strategy.

58. The Petitioner has committed to analyze, review and discuss with the Director of Planning and Development the following sustainability strategies, prior to the issuance of any building permit for the Project, in order to determine their feasibility and the possible return on investment if they were to be implemented:

a. Depending on the results of the Passive House feasibility studies for Buildings 5a/b, 6a, 6b/c, 7 and 12 noted in Condition #57(a) above and Petitioner's return on investment analysis, the Petitioner will seek to achieve Passive House Certification similar to those contemplated in Condition #56 for the residential portions of some or all of these buildings to the fullest extent feasible.

b. The Petitioner's design teams will utilize the best available information to assess embodied carbon in building materials and incorporate that information into the design process so that low embodied carbon materials can be incorporated when cost, availability and performance is feasible.

c. The Petitioner will seek to achieve LEED Gold Certification (LEED ND v3 and LEED CS v3) for the buildings in Condition #54 above.

d. Depending on the future utilization of the electric car charging stations and the level of future potential demand, the Petitioner will explore the feasibility of securing increased electrical service to provide charging stations for up to 90% (1,215) of the striped parking spaces as the market demand for charging stations increases.

e. The Petitioner will monitor and evaluate the feasibility of incorporating new technologies for electric domestic hot water equipment and either incorporate such technologies into the Project or make provisions to facilitate their installation in the future.

CONDITIONS RELATED TO TRAFFIC

59. Petitioner's Trip Reduction Obligation

a. The Petitioner is required to reduce the number of the projected residential and office trips that will be generated by the Project, as set forth herein as the Maximum Trip Count, in order to mitigate the traffic impacts of the Project.

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b. The Petitioner shall not exceed the ***Maximum Trip Count*** as follows:

   i. The total Maximum Trip Count for all office and residential uses within the Project is 289 vehicles during the weekday morning peak hour and 220 vehicles during the weekday evening peak hour.

c. The Petitioner shall prepare, submit and implement a ***Transportation Demand Management Work Plan*** (the "TDM Work Plan"), in accordance with Condition #64, that includes strategies and measures necessary to comply with the Maximum Trip Count.

d. The Department of Planning and Development shall be responsible for verifying compliance with the Maximum Trip Count. Trip counts shall be conducted by a qualified professional in accordance with the Trip Count Methodology set forth in Condition #63. The Petitioner shall be responsible for the cost of all trip counts, surveys, and required analysis.

e. If the Petitioner fails to achieve the Maximum Trip Count, the Petitioner will be required to revise its TDM Work Plan and invest the ***TDM Investment Amount*** of $1,500.000, plus additional funds in accordance with the ***Additional Investment Amount*** set forth in Condition #65, in implementing its TDM Work Plan.

f. The Petitioner shall pay the reasonable fees of any consultants/peer reviews as necessary for the Director of Planning and Development or the Commissioner of Public Works to review and analyze any submitted TDM Work Plans or TDM Monitoring Reports.

60. <u>Commencement of Petitioner's Trip Reduction Obligation</u>

a. The Petitioner must comply with the Maximum Trip Count beginning on the date of the issuance of a Certificate of Occupancy (temporary or final) for the 400th residential unit.

b. Prior to full occupancy of the Project, the Maximum Trip Count shall be proportionally adjusted to reflect current occupancy levels, subject to reasonable allowances for internal capture and mode split and consideration of the current mix of uses and construction on Site as determined by the Director of Planning and Development.

61. <u>Monitoring</u>

a. <u>Initial Trip Count</u>

   i. The first trip count shall be conducted within six (6) months after the issuance of a Certificate of Occupancy (temporary or final) for the 400th residential unit.

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ii. The trip count must be conducted in accordance with the Trip Count Methodology set forth in Condition #63.

iii. The Department of Planning and Development shall share the results of the initial trip count with the Petitioner as soon as is feasible.

b. Subsequent Monitoring

i. Following the initial trip count, the Department of Planning and Development shall perform additional trip counts every six (6) months from the date of the initial trip count.

ii. The monitoring period shall change to once per year only after the Petitioner/Project has been fully compliant with the Maximum Trip Count for two (2) consecutive six (6) month reporting periods following 80% occupancy of the residential units and office building. Once the Petitioner/Project has been in full compliance with the Maximum Trip Count for five (5) consecutive years following full residential occupancy, the reporting and monitoring requirements will cease, provided that any changes to the TDM Work Plan after such full compliance must be approved by the Director of Planning and Development in accordance with Condition #64(c), who may require the submission of additional monitoring reports. The Director of Planning and Development shall also have authority to require trip counts after the Petitioner's reporting and monitoring requirements have ceased if the Director determines that there have been significant changes to the regional or local transportation landscape that impact the Project.

62. Results of TDM Monitoring

a. The Department of Planning and Development shall share the results of trip counts with the Petitioner as soon as is feasible.

b. The timing of trip counts may be adjusted slightly at the discretion of the Director of Planning and Development to accommodate counts and surveys being conducted during a typical week.

c. The results of the trip counts shall contain the results of the required trip counts and surveys, a description of methodology, and the qualifications of the consultant(s) performing the counts and surveys.

d. Upon receipt of the trip count results, the Petitioner has thirty (30) days to submit an updated TDM Work Plan to the Director of Planning and development for the upcoming monitoring period. The TDM Work Plan must include a comprehensive

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list of the measures proposed for the upcoming reporting period and, if required by Condition #65, proposed expenditures.

e. In the event the Petitioner fails to comply with the Maximum Trip Count, pursuant to Condition #65, subsequent TDM Work Plans must include a certified financial accounting of how the TDM Investment Amount and the Additional Investment Amount were allocated and spent on implementing the approved TDM Work Plan during the prior monitoring period.

63. Trip Count Methodology

a. Trip counts shall be done by a qualified professional firm, to be hired and overseen by the Director of Planning and Development and to be paid for by the Petitioner.

b. Trip counts shall measure residential and office trips during the weekday morning and evening peak hours.

c. Trip counts shall include the following:

i. A count of the resident and office vehicles entering and exiting at all residential and office garage entries during the weekday and evening peak hours.

ii. Intercept surveys taken at every residential and office building entry/exit point to capture residential and office visitors, deliveries, and pick-up and drop-off trips. The Director of Planning has discretion to require additional surveys as necessary.

iii. Sitewide Total Trip Counts shall be taken at every driveway.

d. Trip counts and surveys shall be conducted over three (3) consecutive weekdays (Tuesday through Thursday) during a typical week with no holidays or school vacations.

e. The time period for all trip counts, the peak hours, methodology and intercept survey questions shall be determined by the Director of Planning in advance.

f. The Petitioner shall utilize technology to track real time counts of residential and office vehicles entering and exiting at all garage entries. This data shall be included in every TDM Monitoring Report and shall at all times be made available to the Director of Planning and Development upon request.

64. Approval of the TDM Work Plan

a. Prior to the issuance of the first building permit for any new vertical construction, the Petitioner shall submit any changes or updates to its initial TDM Work Plan

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dated October 24, 2019 and on file with the Planning and Development Department, the Inspectional Services Department, and the City Clerk, to the Director of Planning and Development and Commissioner of Public Works for review and approval.

i. The Initial TDM Work Plan shall include a detailed plan for the phase-in of TDM measures.

ii. Public transit subsidies and incentives shall begin with initial occupancy permits.

iii. The full-time TDM Coordinator shall start no later than the issuance of a Certificate of Occupancy for 25,000 square feet of office space, or twelve (12) months after the issuance of the first residential building permit, whichever comes first.

iv. Full implementation of the TDM Work Plan shall begin no later than the issuance for a Certificate of Occupancy for 400 residential units.

v. The Initial TDM Work Plan shall also include an analysis of locating a shuttle stop along Needham Street.

b. The TDM Work Plan shall set forth sufficient Transportation Demand Management (TDM) strategies and measures necessary to comply with the Maximum Trip Count, including, but not limited to, last-mile connections to mass transit, subsidies for transit passes for employees and residents, a full-time TDM coordinator, on-site support facilities and information, marketing and awareness programs, financial incentives, and car and bike share programs.

c. The TDM Work Plan may change over time to respond to changing transportation needs and circumstances, with the objective of meeting the trip reduction goal through compliance with the Maximum Trip Count. All changes must be reviewed and approved by the Director of Planning and Development prior to implementation.

d. A TDM Work Plan shall be submitted within thirty (30) days of the Petitioner receiving the results of the trip count monitoring from the Department of Planning and Development. The TDM Work Plan must include a comprehensive list of the measures proposed for the upcoming reporting period, and shall be based on best practices, results of prior counts and surveys, and additional data collected by the Petitioner.

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65. Enforcement

a. If a TDM Monitoring Report shows that the Petitioner/Project exceeded the Maximum Trip Count, the Petitioner shall be required to invest funds into implementation of its TDM Work Plan as follows:

   i. The Petitioner shall spend the ***TDM Investment Amount*** of $1,500,000.00 in implementing its TDM Work Plan during the twelve (12) month period following submission of the TDM Work Plan where the Maximum Trip Count was exceeded. The TDM Investment Amount shall be adjusted annually from the date of commencement of Petitioner's trip reduction obligation based upon the Consumer Price Index.

   ii. In addition to the TDM Investment Amount, during the same time period the Petitioner shall also expend an ***Additional Investment Amount*** which shall be calculated as a percentage of the TDM Investment Amount (adjusted per the CPI) equal to the percentage of trips reported over the Maximum Trip Count.

   > *Example: if the number of actual trips was 20% more than the Maximum Trip Count, the Petitioner shall create a TDM Work Plan for the upcoming reporting period that costs at a minimum $1.5 million + 20% of $1.5 million, for a total investment of $1.8 million (prior to CPI adjustment).*

   iii. There is no maximum cap on the Petitioner's additional investment.

   iv. The TDM Investment Amount and the Additional Investment Amount shall be expended annually until the Director of Planning and Development verifies compliance with the Maximum Trip Count.

b. If the Maximum Trip Count is exceeded, the Petitioner must submit a revised TDM Work Plan for the next Reporting Period that shall include a narrative of how the changes to the TDM Work Plan for the upcoming reporting period will reduce the number of vehicular trips during peak hours and a detailed proposal of how the TDM Investment Amount and the Additional Investment Amount will be spent. The TDM Work Plan and the proposal for TDM expenditures shall be reviewed and approved by the Director of Planning and Development. The TDM Work Plan shall set forth a plan to spend the TDM Investment Amount and Additional Investment Amount over a twelve (12) month period. If the monitoring period is six (6) months, the TDM expenditures at the end of the six month period shall be pro-rated.

c. The Petitioner agrees to and shall embody these financial commitments in a contractual agreement with the City to be entered into prior to the issuance of the

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first building permit for a residential building in the Project, which agreement shall allow for the remedy of specific performance.

d. Failure to comply with the Maximum Trip Count by more than ten (10) percent for four (4) consecutive Reporting Periods will constitute a violation of this Special Permit/Site Plan Approval and no further occupancy permits of any kind will be issued until the Petitioner submits a TDM Monitoring Report demonstrating compliance with the Maximum Trip Count.

e. So long as the Petitioner complies with the Maximum Trip Count, there is no minimum TDM Investment Amount required.

66. In addition to the Maximum Trip Count Obligation, the Petitioner shall monitor, count and report a Sitewide Total Trip Count in accordance with Conditions #61-64 herein. The Sitewide Total Trip Count for weekday peak hours shall be the total of the Maximum Trip Count plus the unadjusted retail trips set forth in the Expanded Revised Building Program Traffic Generation Memorandum submitted by VHB on behalf of the Petitioner, dated March 28, 2019. The Sitewide Total Trip Count for the Saturday midday peak hour shall be the total of the unadjusted trips for office, residential, and retail from the March 28, 2019 Memorandum. If any Monitoring Report submitted determines that the Sitewide Trip Count exceeds either of these maximums by more than 20 percent (to account for variations in commercial uses and trips generated by public spaces), the Petitioner shall meet with the Director of Planning and Development and make reasonable good faith efforts to jointly develop and implement modified TDM measures in order to reduce the Sitewide Total Trip Count.

PARKING CONDITIONS

67. All lined parking stalls must be a minimum of eight feet, six inches (8'6") in width. In addition, 60% of all lined parking stalls must be a minimum of nine (9) feet in width. All parking stalls that have a width of 8'6" must not be located immediately adjacent to any vertical obstruction.

68. The cost of residential tenant parking for market-rate units shall be charged separately from residential tenant rents, with the same rental period for both the units and the parking. One (1) parking stall shall be provided for the household of each Inclusionary Unit without charge to the tenant of such unit.

69. Managed or valet parking is permitted pursuant to a professionally-prepared Parking Management Plan, which shall be maintained on file and available for review upon request by the Director of Planning and Development or the Director of the Transportation Division of Public Works. Valet parking must be located within the Site.

70. The Petitioner shall provide a minimum of five (5) percent of all parking as EV parking with car charging stations, with expansion built in to double the amount of charging stations to ten (10) percent.

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71. The Petitioner is prohibited from utilizing offsite locations for parking for any uses within the Site. The Petitioner cannot establish any non-accessory parking on any parcel that is not included within the Site.

OTHER CONDITIONS

72. All landscaping associated with this Special Permit/Site Plan Approval shall be installed and maintained in good condition. Any plant material that becomes diseased or dies shall be replaced on an annual basis with similar material.

73. The Petitioner shall be responsible at its sole cost for trash and recycling disposal for the Project.

74. A Comprehensive Sign Package including all tenant signage shall be submitted for review by the Urban Design Commission.

75. Petitioner may store snow on the Site to the extent that it does not impede parking and circulation and pedestrian movements. To the extent snow removal is necessary, such removal will be conducted pursuant to a Snow Removal Plan, which shall be maintained on file at the Project and be available for review upon request by the Director of Planning and Development. The Petitioner shall remove snow along the sidewalks abutting the Site in accordance with the City's snow removal ordinance. Petitioner shall not use salt as part of its removal of snow or maintenance of roadways or sidewalks.

76. Nothing in this Special Permit/Site Plan approval shall prevent the Petitioner from submitting a building(s) to a condominium property regime, provided that the land on which such condominium is located shall not be subdivided. In no event shall the submission of the buildings to a condominium property regime relieve the Petitioner of any applicable requirements of this Special Permit/Site Plan Approval. The violation of the conditions of this Special Permit/Site Plan Approval by an owner or occupant of a single condominium unit within the Project shall not be deemed to be a violation by any other owner or occupant within the Project, but shall be deemed to be a violation by the owner or occupant of the condominium unit(s)/premises violating the conditions of this Special Permit/Site Plan Approval. The City may, at the election of the Commissioner of Inspectional Services, look to the applicable condominium association, or in the event of a lease-hold condominium, the applicable lessor, in connection with such violation. Nothing herein shall limit the rights of a condominium association against a violating owner or occupant.

77. In the event the Petitioner subjects the Site to a condominium form of ownership under G.L. c. 183A, prior to the exercise of this Special Permit as defined in Condition #5, an organization of all owners of land within the Site shall be formed. The Organization of Owners will be governed by this Special Permit/Site Plan Approval, with the authority and obligation to act on behalf of all such owners in contact with the City or its representatives regarding compliance with the Zoning Ordinance. The Organization shall serve as the liaison between the City and any owner, lessee, or licensee within the Site. Such Organization shall be the

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primary contact for the City in connection with any dispute regarding violations of the Zoning Ordinance and, in addition to any liability of individual owners (with regard to matters specifically related to the individual owners' parcels and not those related to the overall Project or Site), shall have legal responsibility for compliance of the Project with the terms of this Special Permit/Site Plan Approval and/or other applicable provisions of the Zoning Ordinance.

CONDITIONS PRECEDENT TO THE ISSUANCE OF ANY BUILDING PERMITS

78. No building permit shall be issued pursuant to this Special Permit/Site Plan Approval (other than a renovation permit for 156 Oak Street or tenant improvement permits) until the Petitioner has:

    a. Recorded a certified copy of this Council Order with the Registry of Deeds for the Southern District of Middlesex County.

    b. Filed a copy of such recorded Council Order with the City Clerk, the Department of Inspectional Services, and the Department of Planning and Development.

    c. Complied with all applicable sections of the Design Review and Master Plan consistency procedure set forth in Conditions #7 through 10 and obtained a written statement from the Department of Inspectional Services that confirms the final building permit plans and façade elevations are consistent with the Master Project Plans and Design Guidelines approved in Conditions #1 and 2.

    d. Submitted a final Inclusionary Housing Plan for review and approval by the Director of Planning and Development that is certified as compliant by the Director of Planning and Development with the information required to be included in such Plan pursuant to §5.11.8. of the Zoning Ordinance.

    e. Submitted engineering, utility and drainage plans, and an Operations and Maintenance plan for Stormwater Management (O&M), for review and approval by the City Engineer. Once approved, the O&M must be adopted by the petitioner and recorded at the Middlesex South District Registry of Deeds. A copy of the recorded O&M shall be filed with the Engineering Division of Public Works, the City Clerk, the Commissioner of Inspectional Services, and the Director of Planning and Development.

    f. Submitted a final Construction Management Plan (CMP) for review and approval by the Commissioner of Inspectional Services in consultation with the Director of Planning and Development, the Fire Department, the Commissioner of Public Works, and the City Engineer in accordance with Condition #35.

    g. Submitted sample building facade materials as provided in Conditions #7 and 8.

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h. Submitted a final Community Engagement Plan for review and approval by the Director of Planning and Development in accordance with Condition #39.

i. Submitted a final Site circulation plan for review and approval by the Fire Department in accordance with Condition #52.

j. Submitted any payments required under Conditions #11, 13 and 14.

k. With respect to the splash park and in accordance with Condition #15, submitted (i) plans for construction of the splash park approved by the Commissioner of Parks and Recreation and (ii) a mutually agreed upon form of license vesting rights in the splash park to the City.

l. Obtained a written statement from the Newton Historical Commission that confirms the final building permit plans are consistent with the Petitioner's Memorandum of Agreement in accordance with Condition #42.

m. Submitted a narrative and plans prepared and certified by a licensed architect to the Director of Planning and Development demonstrating the universal design elements in units and common areas and all-age friendly amenities to be included in Building 8 in accordance with Condition #43.

n. Submitted a LEED Checklist prepared and certified by a LEED Accredited Professional to the Director of Planning and Development, indicating which points the Project intends to realize in order to achieve LEED certification in accordance with Conditions #54-55.

o. Submitted a Passive House narrative and/or checklist prepared and certified by a licensed architect to the Director of Planning and Development, indicating standards that will be achieved for Buildings 3, 4 and 8 in order to achieve Passive House certification in accordance with Condition #56.

p. Submitted an analysis of sustainability strategies, in accordance with Condition #58, for review and approval by the Director of Planning and Development.

q. Prior to a building permit for a residential building, entered into a contractual agreement with the City embodying its TDM commitments and the City's enforcement rights in accordance with Condition #65.

CONDITIONS PRECEDENT TO THE ISSUANCE OF ANY OCCUPANCY PERMITS

79. No occupancy permit of any kind for the use covered by this Special Permit/Site Plan Approval shall be issued until the Petitioner has:

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a. Filed with the City Clerk, the Department of Inspectional Services, and the Department of Planning and Development a statement by a registered architect and engineer certifying compliance with Conditions #1 and 2.

b. Submitted to the Department of Inspectional Services, and the Department of Planning and Development, and the Engineering Division, final as-built survey plans in digital format for the portion of the Project for which an occupancy permit is requested.

c. Submitted any payments required under Conditions #11, 13 and 14.

d. Filed with the Department of Inspectional Services and the Department of Planning and Development a statement by the City Engineer certifying that all engineering details for the portion of the Project for which an occupancy permit is requested have been constructed to standards of the City of Newton Public Works Department.

e. Filed with the Department of Inspectional Services and the Department of Planning and Development a plan recorded with the Middlesex South Registry of Deeds showing the merger of the three existing lots on the Site in accordance with Condition #3.

f. Submitted to the Law Department copies of fully executed Regulatory Agreements and Affordable Housing Restriction for all Inclusionary Units, in accordance with Conditions #25-26.

g. Provided evidence satisfactory to the Law Department that the Regulatory Agreements for all Inclusionary Units have been recorded at the Southern Middlesex District Registry of Deeds, as appropriate.

h. Inclusionary Units shall be completed and occupied no later than the completion and occupancy of the Project's market-rate units. If the Inclusionary Units are not completed as required within that time, temporary and final occupancy permits may not be granted for the number of market-rate units equal to the number of Inclusionary Units that have not been completed.

i. Completed all landscaping in compliance with Conditions #1-2 related to or for the portion of the project for which an occupancy permit is requested.

j. Filed with the Department of Inspectional Services a statement by the Director of Planning and Development approving final location, number and type of plant materials, landscape features, fencing and parking areas related to or for the portion of the project for which an occupancy permit is requested.

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k. Completed the construction of the Village Green and Mill Park open spaces prior to the issuance of an occupancy permit (temporary or final) for the 400th residential unit, in accordance with Condition #16.

l. Filed with the Department of Planning and Development and the Newton Historical Commission, for review and approval, a written statement that confirms compliance with the Memorandum of Agreement with MHC and provides evidence that the four stipulations have been completed in accordance with the terms outlined in the Memorandum of Agreement: (1) Photography; (2) Interpretive Program; (3) Daylighting the Mill Rock Feature; and (4) Site Plan.

m. Prior to a Certificate of Occupancy for Building 8, filed with the Department of Inspectional Services and the Department of Planning and Development a certificate from a licensed architect certifying that the all-age friendly design elements have been constructed in Building 8 in accordance with Condition #43.

n. Filed with the Department of Inspectional Services and the Department of Planning and Development a certificate from a licensed architect certifying that all residential units have been constructed to conform to the MAAB requirements for "Group 1" units and that 44 additional units meet the requirements for "Group 2A"in accordance with Condition #44.

o. Filed with the Department of Inspectional Services and the Department of Planning and Development a letter of compliance prepared by a professional engineer certifying that all sidewalks and handicapped ramps are ADA compliant in accordance with Condition #46.

p. Filed with the Department of Inspectional Services and the Department of Planning and Development evidence that the undergrounding of utilities has been completed to the extent required by Conditions #47-48.

q. Filed with the Department of Inspectional Services and the Department of Planning and Development evidence that LEED certification has been achieved for the Site and 156 Oak Street, and that the criteria for further certifiability of other buildings have been satisfied in accordance with Conditions #54-55. The Petitioner shall have twelve (12) months from the issuance of the Project's final certificate of occupancy to receive its final LEED certificate.

r. Filed with the Department of Inspectional Services and the Department of Planning and Development evidence that the Passive House standards have been achieved in accordance with Condition #56.

s. The Commissioner of Inspectional Services may issue one or more certificates of temporary occupancy for all or portions of the buildings to be constructed subject to this Special Permit/Site Plan Approval and may issue final certificates of

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occupancy for portions of the Project prior to installation of landscaping or exterior hardscape improvements of the entire Project as required by the Master Project Plans, provided that the Commissioner of Inspectional Services, in consultation with the Director of Planning and Development and the Commissioner of Public Works, concludes that the level of completion of the improvements is sufficient to permit temporary occupancy of the buildings without harm to public safety or convenience. Prior, however, to issuance of any temporary certificate of occupancy pursuant to this condition, the Commissioner of Inspectional Services shall require that the Petitioner first file a bond, letter of credit, cash or other security in the form satisfactory to the City Solicitor's Office in an amount not less than 135% of the value of the aforementioned remaining Site Improvements to ensure their completion. As the Project contains multiple buildings built in sequences the Commissioner shall have the authority to segment the requirements of this section to allow certificates of occupancy for various buildings upon receipt of security for the areas adjacent to or appurtenant to each such building.

80. Notwithstanding any of the above conditions, the by-right renovation of the building located 156 Oak Street (the Mill Building), may be issued an occupancy permit upon completion of construction so long as all applicable parking requirements of the Newton Zoning Ordinance are met.

Under Suspension of Rules
Readings Waived and Approved
17 Yeas 7 Nays (Councilors Baker, Ciccone, Gentile, Kalis, Markiewicz, Norton, Schwartz)

The undersigned hereby certifies that the foregoing copy of the decision of the Newton City Council granting a SPECIAL PERMIT/SITE PLAN APPROVAL is a true accurate copy of said decision, the original of which having been filed with the City Clerk on December 4, 2019. The undersigned further certifies that all statutory requirements for the issuance of such SPECIAL PERMIT/SITE PLAN APPROVAL have been complied with and that all plans referred to in the decision have been filed with the City Clerk.

ATTEST:

(SGD) DAVID A. OLSON, City Clerk
Clerk of the City Council

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I, David A. Olson, as the Clerk of the City Council and keeper of its records and as the City Clerk and official keeper of the records of the CITY OF NEWTON, hereby certify that twenty days have elapsed since the filing of the foregoing decision of the Newton City Council in the Office of the City Clerk on December 4, 2019 and that NO APPEAL of said decision pursuant to G.L. c. 40A, §17 has been filed thereto.

ATTEST:

Patricia A. Schiavoni

(SGD) ~~DAVID A. OLSON, City Clerk~~ Patricia A. Schiavoni, Assistant City Clerk

~~Clerk of the Council~~
Assistant City Clerk

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EXHIBIT A

PROJECT MASTER PLANS

1. Site Plans Issued for Zone Change/Special Permit Issued August 6, 2018, amended April 12, 2019 and further amended September 3, 2019 containing:

No.	Drawing Title	Latest Issue
C-1	Legend	April 12, 2019
C-2	Area Plan	April 12, 2019
C-3	Zoning Change Plan	April 12, 2019
C-4	Overall Site Plan	September 3, 2019
C-5.1	Zoning Assessment Plan (Building 1)	April 12, 2019
C-5.2	Zoning Assessment Plan (Building 2, 3, & 7)	April 12, 2019
C-5.3	Zoning Assessment Plan (Building 4 & 14)	April 12, 2019
C-5.4	Zoning Assessment Plan (Building 5a, 5b, &12)	September 3, 2019
C-5.5	Zoning Assessment Plan (Building 6a & 6b)	April 12, 2019
C-5.6	Zoning Assessment Plan (Building 8 & 9)	April 12, 2019
C-6.1-6.3	Layout and Materials Plan	April 12, 2019
C-7.1-7.3	Grading and Drainage Plan	April 12, 2019
C-8.1-8.3	Utility Plan	April 12, 2019
C-9	Erosion and Sediment Control Plan	April 12, 2019
C-10.1-10.2	Site Details	April 12, 2019
Sv-1	Existing Conditions Plan of Land	June 4, 2018
Sv-2	Existing Conditions Plan of Land	June 4, 2018
Sv-3	Existing Conditions Plan of Land	June 4, 2018
L-1.1	Layout and Materials Plan Enlargement 1	April 12, 2019
L-1.2	Layout and Materials Plan Enlargement 2	April 12, 2019
L-1.3	Layout and Materials Plan Enlargement 3	April 12, 2019
L-2.1	Grading Plan Enlargement 1	April 12, 2019
L-2.2	Grading Plan Enlargement 2	April 12, 2019
L-2.3	Grading Plan Enlargement 3	April 12, 2019
L-3.1	Planting Plan Enlargement 1	April 12, 2019
L-3.2	Planting Plan Enlargement 2	April 12, 2019
L-3.3	Planting Plan Enlargement 3	April 12, 2019
L-4.1	Landscape Details 1	April 12, 2019
L-4.2	Landscape Details 2	April 12, 2019
L-4.3	Landscape Details 3	April 12, 2019
L-4.4	Landscape Details 4	April 12, 2019
A-2.01	Building 2 – Basement & First Floor Plans	April 12, 2019
A-2.02	Building 2 – Conceptual Elevations	April 12, 2019
A-3.01	Building 3 – P1 Parking Level Plan	April 12, 2019
A-3.02	Building 3 – First Floor Plan	April 12, 2019

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A-3.03	Building 3 – Second Floor Plan	April 12, 2019
A-3.04	Building 3 – Third Floor Plan	April 12, 2019
A-3.05	Building 3 – Fourth Floor Plan	April 12, 2019
A-3.06	Building 3 – Fifth Floor Plan	April 12, 2019
A-3.07	Building 3 – Sixth Floor Plan	April 12, 2019
A-3.08	Building 3 – Conceptual Elevations	April 12, 2019
A-4.01	Building 4 – Parking Level 2 Plan	April 12, 2019
A-4.02	Building 4 – Parking Level 1 Plan	April 12, 2019
A-4.03	Building 4 – First Floor Plan	April 12, 2019
A-4.04	Building 4 – Second Floor Plan	April 12, 2019
A-4.05	Building 4 – Third Floor Plan	April 12, 2019
A-4.06	Building 4 – Fourth Floor Plan	April 12, 2019
A-4.07	Building 4 – Fifth Floor Plan	April 12, 2019
A-4.08	Building 4 – Sixth Floor Plan	April 12, 2019
A-4.09	Building 4 – Conceptual Elevations	April 12, 2019
A-4.10	Building 4 – Conceptual Elevations	April 12, 2019
A-5.01	Building 5 – Parking Leven 2 Plan	April 12, 2019
A-5.02	Building 5 – Parking Level 1 Plan	April 12, 2019
A-5.03	Building 5 – First Floor Plan	April 12, 2019
A-5.04	Building 5 – Second Floor Plan	April 12, 2019
A-5.05	Building 5 – Third Floor Plan	
A-5.06	Building 5 – Fourth Floor Plan	April 12, 2019
A-5.07	Building 5 – Fifth Floor Plan	April 12, 2019
A-5.08	Building 5 – Sixth Floor Plan	April 12, 2019
A-5.09	Building 5 – Seventh Floor Plan	April 12, 2019
A-5.10	Building 5 – Conceptual Elevations	April 12, 2019
A-5.11	Building 5 – Conceptual Elevations	April 12, 2019
A-6.01	Building 6A/6B – P2 Parking Level Plan	April 12, 2019
A-6.02	Building 6A/6B – P1 Parking Level Plan	April 12, 2019
A-6.03	Building 6A/6B – First Floor Plan	April 12, 2019
A-6.04	Building 6A/6B – Second Floor Plan	April 12, 2019
A-6.05	Building 6A/6B – Third Floor Plan	April 12, 2019
A-6.06	Building 6A/6B – Fourth Floor Plan	April 12, 2019
A-6.07	Building 6A/6B – Fifth Floor Plan	April 12, 2019
A-6.08	Building 6A/6B – Sixth Floor Plan	April 12, 2019
A-6.09	Building 6A/6B – Seventh Floor Plan	April 12, 2019
A-6.10	Building 6A/6B – Conceptual Elevations	April 12, 2019
A-6.11	Building 6A/6B – Conceptual Elevations	April 12, 2019
A-7.01	Building 7 – First Floor Plan	April 12, 2019
A-7.02	Building 7 – Second Floor Plan	April 12, 2019
A-7.03	Building 7 – Third Floor Plan	April 12, 2019
A-7.04	Building 7 – Fourth Floor Plan	April 12, 2019
A-7.05	Building 7 – Conceptual Elevations	April 12, 2019
A-8.01	Building 8 – Floor Plans	April 12, 2019

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A-8.02	Building 8 – Floor Plans	April 12, 2019
A-8.03	Building 8 – Floor Plans	April 12, 2019
A-8.04	Building 8 – Floor Plans	April 12, 2019
A-8.05	Building 8 – Conceptual Elevations	April 12, 2019
A-8.06	Building 8 – Conceptual Elevations	April 12, 2019
A-9.01	Building 9 – Floor Plans	April 12, 2019
A-9.02	Building 9 – Conceptual Elevations	April 12, 2019
A-10.01	Building 10 – Floor Plans	April 12, 2019
A-10.02	Building 10 – Floor Plans	April 12, 2019
A-10.03	Building 10 – Conceptual Elevations	April 12, 2019
A-11.01	Building 11 – Floor Plans	April 12, 2019
A-11.02	Building 11 – Conceptual Elevations	April 12, 2019
A-12.01	Building 12 – First and Second Floor Plans	April 12, 2019
A-12.02	Building 12 – Third and Fourth Floor Plans	April 12, 2019
A-12.03	Building 12 – Conceptual Elevations	April 12, 2019
A-14.01	Building 14 – Floor Plans	April 12, 2019
A-14.01	Building 14 – Conceptual Elevations	April 12, 2019
A-15.01	Shadow Studies	April 12, 2019
G1	Circulation and Decision Points	April 10, 2019
G2	Wayfinding Signage	April 10, 2019

2. Select Design Elements from Submitted Documents and Hearing Presentations, October 24, 2019 (31 pages)

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EXHIBIT B

OFF-SITE TRANSPORTATION MITIGATION FUND

The Petitioner shall pay $5,000,000 to the City of Newton to be placed in a fund for off-site transportation mitigation improvements designed to address traffic/transportation issues in the vicinity of the project, as set forth in Condition 13. Improvements shall be consistent with the City's Complete Streets policy.

1st Priority:

- Transportation Alternatives Analysis – an overarching transit improvement study. This feasibility analysis will evaluate options for improved and faster public transportation along with potential costs and allow the City to prioritize funding and advocacy work with the MBTA.

Categories for Improvements:

- Bicycle and Pedestrian Improvements – the goal for these improvements shall be to improve and expand bicycle and pedestrian connections in the vicinity of the project site. Examples include but are not limited to extending the Greenway to Newton Highlands and/or Elliot Stations, and studying and providing access across and to/from the Christina Street bridge.
- Village Enhancements and Traffic Calming – the goal for these improvements shall be study the effects of the project and provide traffic calming as necessary in nearby neighborhoods and to provide streetscape enhancements and beautification in the Upper Falls and Newton Highlands villages.
- Traffic Safety and Coordination Improvements – the goal for these improvements shall be to address safety issues in the vicinity of the project and to improve efficiency on existing roadways where possible. Examples include but are not limited to installing new traffic signals, providing signal coordination and the technology to control signals along Needham Street remotely, and studying traffic operations at the Newton Highlands MBTA Station.

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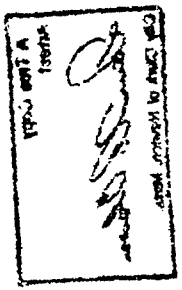

Appendix C: Transportation Supporting Documentation

City of Newton Planning and Development Department **Attachment B**
June 14, 2019

Northland Transportation Off-Site Mitigation Funds

Type	Description	Notes
Bike/Ped	Extend Greenway to New. Highlands	Design and construct extenstion of existing Greenway bicycle and pedestrian path to Newton Highlands. The likely plan extends the current path in its current form to Curtis Street. The path then becomes a 2 way PBL or sidepath on the north side of Curtis and west side of Winchester, before connecting under Rt 9 to a bicycle boulevard/neighborway on Floral Street.
Bike/Ped	Extend Greenway to Eliot Station	Design and construct Greenway spur to Eliot Station. The likely plan creates a path through either the DPW yardor Eversource property, then creates a bicycle boulevard/neighborway on Frances Street, Margaret Road and Suban Place. Plan requires improving both sides of access to the pedestrian overpass over Rt 9.
Bike/Ped	Oak/Christina St ped bridge study	Feasibility study of creating public pedestrian and bicycle route over pedestrian bridge at 27 Christina Street with an eye towards extending public access via a path parallel to Needham Street to Industrial Place and Tower Road.
Complete Streets	Upper Falls Village Enhancement Project	Design for Upper Falls village enhancement project to improve roads, sidewalks, lighting and signals in Upper Falls Commercial area at Oak and Christina
Traffic	Provide Traffic Management System	Creation of a traffic management system to enable City transportation staff to remotely collect, review and react to traffic conditions in real time. Includes closed circuit video equipment, roadside count stations, computer work station for office and staffing.
Traffic	Install New Signal Equipment	Upgrade Chestnut/Rt 9 traffic signal equipment with associated improvements to signal timing
Traffic	Upgrade Signal Equipment	Upgrae Chestnut/Oak/Eliot signal equipment and make any necessary improvements to signal timing
Traffic	Study and Install Traffic Calming	Plan, design and implement traffic calming on Chestnut Street. Analyze and prioritize streets for improvements based on vehicle speeds, crash history, pedestrian trip generation rates and traffic volumes. Design and implement improvements including geometric changes, instalation of RRFB equipment, speed humps and/or other approved techniques to increase safety and reduce speeds.
Traffic	Study and Install Traffic Calming	Plan, design and implement traffic calming on Upper Falls roadways. Analyze and prioritize streets for improvements based on vehicle speeds, crash history, pedestrian trip generation rates and traffic volumes. Design and implement improvements including geometric changes, instalation of RRFB equipment, speed humps and/or other approved techniques to increase safety and reduce speeds.
Traffic	Provide Signal Coordination	Coordinate timing of signals Rt 9 / Winchester and Centre/Walnut
Traffic	Install TSP Upgrades	Design and install upgrades to Needham St signals to enable transit signal priority for MBTA buses and/or approved shared vehicles/shuttles. Design changes to signal timing. Install equipment.
Traffic	Study - Road Safety Audit	Conduct road safety audit on Centre/Walnut
Traffic	Study - Traffic operations	Review traffic operations for Newton Highlands MBTA including reviewing pedestrian and bicycle safety access and concerns, shuttle bus drop off/pick up, general passenger pick up and drop off. Make recommendations as per study.
Traffic	Study - traffic queue	Review traffic queuing and operations at Oak/Needham and recommend improvmeents.
Traffic	Study - emergency vehicle access	Study emergency vehicle access to Needham Street via Mechanic St
Transit/Shuttle	Transportation Alternatives Analysis, overarching transit improvement study	Feasibilty study of improved/faster transit for Upper Fallsof multiple options: 1. Infrastructure improvements @ Winchester for bus lane, 2. Greenway shuttle, 3. Green line extension to Needham, with new stop @ Greenway, 4. Move Eliot Station to CVS @ Rt 9. Study should include cost estimates and potential timeline, key stakeholders, as well as comparative advantages and disadvantages of each option.

Appendix D: Air Quality & Greenhouse Gas Analysis Documentation

Environmental Performance Analysis

Northland Newton Development

December 18, 2020

Prepared for: Northland Investment Corporation| VHB

Prepared by: AHA Consulting Engineers

Table of Contents

Introduction

The purpose of this energy study is to evaluate the impact of architectural, mechanical, and other building systems on the project overall energy use and cost as well as the impact on greenhouse gas emissions. The minimum requirements ASHRAE 90.1-2013 with three (03) additional efficiency packages (Stretch Energy Code Baseline), as well as the proposed design assumptions for each building, are listed in the Energy Modeling Assumptions tables. As the project is still in a very early stage of design, we made assumptions on design case based on what has been recommended as a minimum to comply with passive house certification.

As demonstrated in this report, in order to reduce the annual energy consumption and mitigate the effects of GHG emissions of each building, the design team will implement several ECMs including a high-performance envelope, high efficiency HVAC, energy recovery, reduced lighting power density, water conservation and efficient hot water equipment.

This energy analysis shows that all Proposed Design buildings meet and exceed MA Stretch Energy Code requirements and reduce GHG emissions.

Methodology

The DOE II based energy simulation program, eQUEST 3.65, has been used in this analysis to generate the estimated annual energy savings associated with proposed design for each building. The building geometries are based on the special use permit response plan "2019.04.12 Special Use Permit Response Plan (COMPLETE SET)". The Code maximum allowed window-to-wall ratio for Mid and High-rise residential buildings is 24% per IECC 2018 as amended by Massachusetts.

Please note that the proposed estimated energy performance and cost are not predictions of actual energy consumption or costs for the proposed design after construction. The actual energy use will differ from these estimates due to the variations in occupancy patterns and schedules, weather conditions, and building operation and maintenance, but the energy modeling results should serve as an accurate comparison tool.

For each building, the following energy models were generated:

- Stretch Energy Code Baseline: Following the Appendix G – Performance Rating Method, the envelope, HVAC, lighting, and service water heating systems are modified to meet the minimum requirements of ASHRAE 90.1-2013. Additionally, 3 ECMs among the 8 efficiency packages of section C406 will be included. These ECMs are as follows: 10% more efficient HVAC performance over ASHRAE 90.1-2013, 10% reduction in lighting power density over ASHRAE 90.1-2013 as well as Enhanced Envelope Performance in accordance with section C406.8. This model is used as the baseline for MA Stretch Energy Code analysis.

- Proposed model

The energy use profile of the Baseline and Proposed Design are summarized in Section 1 - Energy Analysis, under each specific building.

Energy Performance Analysis

AHA Consulting Engineers conducted an energy analysis for buildings of the Northland Newton Development project.

In this analysis, the proposed design is benchmarked against the minimum requirements of baseline for Massachusetts Stretch Energy Code. The Proposed Design reflects the energy and cost performance of each building including all energy efficiency measures. The models' inputs and results are given below in this section.

The energy analysis indicates that the proposed design meets and exceed the requirements of Massachusetts Stretch Energy Code. As indicated earlier, the presented energy efficiency measures and HVAC system types are those that are most applicable to the early stages of design. As design evolves, the project team will reevaluate the proposed options and energy efficiency measures.

Below is the summary of combined energy consumption, energy savings, cost savings and CO2 emissions for buildings 1-2-3-4-5-6a-6bc-7-8 and details of energy modeling inputs and outputs for each building are given in the next section.

	Baseline Design	Proposed Design	Savings	% Savings
Annual Energy Consumption (MBTU)	61,495	37,367	24,127	39.2%
Annual Energy Cost($)	2,279,904	2,109,111	170,793	7.5%
Annual CO2 Emissions(Kg)	5,612,538	4,629,239	983,298	17.5%

Building 1 | Energy Performance Analysis

The total program for this building consists of approximately 193,200 SF of gross conditioned area consisting of one existing office building.

	Building	Program Use	Area
Project Information	Office building 1	Office	193,200

	Office	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.38; SHGC-0.40
	Window-To-Wall Ratio	34%	34%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.032
	Slab-on-grade	Existing F-0.73	Existing F-0.73
	Exterior Walls (steel-framed)	Existing U-0.42	Existing U-0.42
Interior Loads	Occupancy	Office : 250 SF/ Person	Same as baseline
	Interior Lighting	Detail below	Detail below
	Plug Load	As proposed	Office: 0.75 W/SF
	Elevator Load	As Proposed	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	40% reduction
	Water Heater type & Efficiency	Gas water heater, 80%	Gas water heater, 95%
Primary HVAC System	System Type	System #7: VAV with reheat; Chilled water; Hot water	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Water-cooled Centrifugal. ≥ 300 and <400 tons: 0.560 FL, 0.520 IPLV ≥ 400 and <600 tons: 0.560 FL, 0.500 IPLV	DX Cooling, SEER: 16
	Heating Type & Efficiency	Gas-fired Boiler; 82% efficiency	Hot water boiler, 93%
	HW Supply Temperature &	180˚ F; OA Temperature Control	150˚ F; OA Temperature Control
	Hot Water ΔT	50˚ F	30˚ F
	HW Pump Control	Primary only; variable speed	Primary/ Secondary; variable speed
Secondary System	System Type	System #9: Heating and Ventilation	Heating unit
	Cooling Type & Efficiency	NA	NA
	Heating Type & Efficiency	Furnace, 80%	HW boiler, 93%
	Supply Fan Control	Constant volume	Constant volume
	Areas Served	Mechanical spaces, loading dock, vestibules	Same as baseline
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	VAV Constant Volume	VAV Constant Volume

	Energy Code Baseline	Proposed Design
Interior Lighting	Office-Open Plan 1.1 W/SF Stairs-Active 0.6 W/SF Active Storage 0.8 W/SF Electrical/Mechanical 1.5 W/SF Lobby 1.3 W/SF Parking Garage-Garage Area 0.2 W/SF Food Preparation 1.2 W/SF Gymnasium/Exercise Center-Exercise Area 0.9 W/SF Corridor/Transition 0.5 W/SF Dining Area 0.9 W/SF Restrooms 0.9 W/SF	Office-Open Plan 1.1 W/SF Stairs-Active 0.69 W/SF Active Storage 0.63 W/SF Electrical/Mechanical 0.42 W/SF Lobby 0.84 W/SF Parking Garage-Garage Area 0.47 W/SF Food Preparation 1.21 W/SF Gymnasium/Exercise Center-Exercise Area 0.72 W/SF Corridor/Transition 0.66 W/SF Dining Area 0.65 W/SF Restrooms 0.98 W/SF

Energy Simulation Results

End Use		Baseline Case	Design Case
Interior Lighting	Energy use(kWh)	82,755	82,755
	Demand (kW)	54.88	54.88
Space Heating	Energy use(kWh)	0	73,508
	Demand (kW)	0.00	110.25
Space Heating	Energy use (Therms)	11,468	0
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	149,525	104,723
	Demand (kW)	127.08	88.63
Pumps	Energy use(kWh)	8,026	7,915
	Demand (kW)	2.38	2.00
Heat Rejection	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Fans- Interior	Energy use(kWh)	270,531	161,275
	Demand (kW)	37.27	28.24
Service Water Heating	Energy use (Therms)	8,318	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		134,236
	Demand (kW)		50.39
Receptacle Equipment	Energy use(kWh)	527,841	527,841
	Demand (kW)	163.69	163.69
Elevator	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Heat Pumps	Energy use(kWh)	0	28,710
	Demand (kW)	0.00	0.00
Total Energy Cost ($)			
Electricity		$207,735.75	$224,193.00
Fuel		$29,679	$0
Building Total		$237,415	$224,193
Total Electricity	Energy use(kWh)	1,078,997	1,271,635
Total Gas	Use(Therms)	74,934	7,839
Total Energy	Use(MBtuh)	11,176	5,124
Annual Emissions End Use	(kg-CO2)	859,485	585,861
Site EUI	(KBTU/SF/Year)	63.3	29.0
Savings		COST	**5.57%**
Savings		ENERGY	**54.2%**
GHG Emissions Reduction		GHG Emissions	**31.8%**

Building 2 | Energy Performance Analysis

The total program for this building consists of approximately 5,300 SF of gross conditioned area consisting of one space on the ground floor.

	Building	Program Use	Area
Project Information	Basement	Storage/Mech	1,178
	Level 1	Restaurant	5,361

	Retail	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.17; SHGC-0.40
	Window-To-Wall Ratio	24%	84%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.032
	Floor	Wood Framed R-30 ; U-0.033	U-0.033
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.064
Interior Loads	Occupancy	Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail	Same a baseline
	Plug Load	As proposed	Retail: 0.7 W/SF
	Elevator Load	NA	NA
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Electric resistance storage water heater	Electric Heater
Primary HVAC System	System Type	System #3; Packaged Single Zone	VRF multisplit system with heat recovery, 84% Eff
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling, SEER: 16
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Electric, COPh: 3.48
	HW Supply Temperature &		
	Hot Water ΔT		
	HW Pump Control		
Secondary System	System Type		
	Cooling Type & Efficiency		
	Heating Type & Efficiency		
	Supply Fan Control		
	Areas Served		
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Constant volume

Energy Simulation Results

End Use		Baseline Case	Design Case
Interior Lighting	Energy use(kWh)	14,481	14,481
	Demand (kW)	3.15	3.15
Space Heating	Energy use(kWh)	0	2,633
	Demand (kW)	0.00	5.78
Space Heating	Energy use	572	0
	Demand (Therm/hr)	130.00	49.00
Space Cooling	Energy use(kWh)	4,626	14,210
	Demand (kW)	4.93	8.33
Pumps	Energy use(kWh)	0	556
	Demand (kW)	0.00	0.21
Fans- Interior	Energy use(kWh)	12,591	2,172
	Demand (kW)	2.58	0.65
Service Water Heating	Energy use (kWh	16,405	11,718
	Demand (kW)	7.34	3.80
Receptacle Equipment	Energy use(kWh)	12,419	12,419
	Demand (kW)	2.70	2.70
Heat Pumps	Energy use(kWh)	0	11
	Demand (kW)	0.00	0.00
Total Energy Cost ($)			
Electricity		$7,500.00	$9,453.00
Fuel		$1,309	$0
Building Total		$8,809	$9,453
Total Electricity	Energy use(kWh)	44,116	55,605
Total Gas	Use(Therms)	1,091	0
Total Energy	Use(MBtuh)	260	190
Annual Emissions End Use	(kg-CO2)	24,669	23,799
Site EUI	(KBTU/SF/Year)	60.5	44.2
Savings		COST	**-7.32%**
Savings		ENERGY	**26.9%**
GHG Emissions Reduction		GHG Emissions	**3.5%**

Building 3 | Energy Performance Analysis

The total program for this building consists of approximately 135,000 SF of gross conditioned area consisting of one retail space on the ground floor plus 5 residential floors.

	Building	Program Use	Area
Project Information	Level P1	Parking	41,000
	Level 1	Retail/Parking	39,000
	Levels 2-6	Residential	114,000

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.13; SHGC-0.37
	Window-To-Wall Ratio	24%	42%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.025
	Floor	Wood Framed R-30 ; U-0.033	U-0.033
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.04
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential; 0.18*0.9 W/SF Parking	Same as baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery, 84% Eff
	Cooling Type & Efficiency	Direct expansion; 9.5*1.1 ≤ EER ≤ 11.9*1.1	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	System #3; Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace;1.1* 80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline Case	Design Case
Interior Lighting	Energy use(kWh)	100,370	100,370
	Demand (kW)	66.56	66.56
Exterior Lighting	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Space Heating	Energy use(kWh)	0	14,288
	Demand (kW)	0.00	56.04
Space Heating	Energy use (Therms)	12,248	0
	Demand (Therm/hr)	130.00	49.00
Space Cooling	Energy use(kWh)	136,286	105,984
	Demand (kW)	117.02	70.81
Pumps	Energy use(kWh)	9,100	5,694
	Demand (kW)	2.09	1.44
Heat Rejection	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Fans- Interior	Energy use(kWh)	219,499	160,109
	Demand (kW)	31.18	33.50
Service Water Heating	Energy use (Therms)	9,650	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		157,098
	Demand (kW)		58.31
Receptacle Equipment	Energy use(kWh)	394,877	394,877
	Demand (kW)	100.00	100.00
Elevator	Energy use(kWh)	69,532	69,532
	Demand (kW)	36.09	36.09
Heat Pumps	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Total Energy Cost ($)			
Electricity		$185,932.75	$201,591.00
Fuel		$32,848	$0
Building Total		$218,781	$201,591
Total Electricity	Energy use(kWh)	929,665	1,007,954
Total Gas	Use(Therms)	21,899	0
Total Energy	Use(MBtuh)	5,363	3,440
Annual Emissions End Use	(kg-CO2)	514,112	431,404
Site EUI	(KBTU/SF/Year)	39.6	25.4
Savings		COST	**7.86%**
Savings		ENERGY	**35.9%**
GHG Emissions Reduction		GHG Emissions	**16.1%**

Building 4 | Energy Performance Analysis

The total program for this building consists of approximately 183,200 SF of gross conditioned area consisting of one retail space on the ground floor plus 5 residential floors.

	Building	Program Use	Area
Project Information	Levels P1-P2	Parking Garage	118,000
	Level 1	Retail/Residential amenity/Storage	40,000
	Levels 2-6	Residential	143,600

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.13; SHGC-0.37
	Window-To-Wall Ratio	24%	42%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.025
	Floor	Wood Framed R-30 ; U-0.033	U-0.033
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.04
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential; 0.18*0.9 W/SF Parking	Same as baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Direct expansion; 1.1*9.5 ≤ EER ≤ 1.1* 11.9	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	System #3; Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline	Design Case
Interior Lighting	Energy use(kWh)	147,151	147,151
	Demand (kW)	97.59	97.59
Space Heating	Energy use(kWh)	0	270,235
	Demand (kW)	0.00	248.64
Space Heating	Energy use (Therms)	48,288	
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	101,431	76,567
	Demand (kW)	133.09	103.29
Pumps	Energy use(kWh)	8,317	10,082
	Demand (kW)	1.76	3.00
Fans- Interior	Energy use(kWh)	377,441	367,923
	Demand (kW)	50.61	55.88
Service Water Heating	Energy use (Therms)	9,428	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		148,289
	Demand (kW)		55.67
Receptacle Equipment	Energy use(kWh)	626,006	626,006
	Demand (kW)	190.00	190.00
Elevator	Energy use(kWh)	69,532	69,532
	Demand (kW)	38.65	38.65
Heat Pumps	Energy use(kWh)	0	421
	Demand (kW)	0.00	0.00
Total Energy Cost ($)			
Electricity		$265,975.50	$343,241.00
Fuel		$86,575	$0
Building Total		$352,550	$343,241
Total Electricity	Energy use(kWh)	1,329,877	1,716,204
Total Gas	Use(Therms)	57,717	0
Total Energy	Use(MBtuh)	10,310	5,857
Annual Emissions End Use	(kg-CO2)	875,489	734,535
Site EUI	(KBTU/SF/Year)	56.3	32.0

Savings	COST	**2.64%**
Savings	ENERGY	**43.2%**
GHG Emissions Reduction	GHG Emissions	**16.1%**

Building 5 | Energy Performance Analysis

The total program for this building consists of approximately 228,000 SF of gross conditioned area consisting of one retail space on the ground floor plus 5 residential floors.

	Building	Program Use	Area
Project Information	Levels P1-P2	Parking Garage	164,000
	Level 1	Retail	39,500
	Levels 2-7	Residential	191,400

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.12; SHGC-0.40
	Window-To-Wall Ratio	24%	34%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.032
	Floor	Wood Framed R-30 ; U-0.033	U-0.033
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.048
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential; 0.18*0.9 W/SF Parking	Same as Baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Direct expansion;1.1*9.5 ≤ EER ≤ 1.1*11.9	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	System #3; Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline	Design Case
Interior Lighting	Energy use(kWh)	180,458	180,458
	Demand (kW)	119.68	119.68
Space Heating	Energy use(kWh)	0	83,478
	Demand (kW)	0.00	167.09
Space Heating	Energy use (Therms)	21,823	0
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	247,968	193,742
	Demand (kW)	326.13	192.44
Pumps	Energy use(kWh)	12,727	13,187
	Demand (kW)	3.28	3.72
Fans- Interior	Energy use(kWh)	496,074	353,010
	Demand (kW)	66.86	52.44
Service Water Heating	Energy use (Therms)	15,563	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		251,649
	Demand (kW)		58.31
Receptacle Equipment	Energy use(kWh)	794,900	794,900
	Demand (kW)	236.00	236.00
Elevator	Energy use(kWh)	69,532	69,532
	Demand (kW)	38.00	38.00
Heat Pumps	Energy use(kWh)	0	156
	Demand (kW)	0.00	0.00
Total Regulated Energy Cost ($)			
Electricity		$360,331.50	$388,023.00
Fuel		$56,079	$0
Building Total		$416,410	$388,023
Total Electricity	Energy use(kWh)	1,801,658	1,940,113
Total Gas	Use(Therms)	37,386	0
Total Energy	Use(MBtuh)	9,888	6,622
Annual Emissions End Use	(kg-CO2)	969,516	830,368
Site EUI	(KBTU/SF/Year)	43.3	29.0
Savings		COST	**6.82%**
Savings		ENERGY	**33.0%**
GHG Emissions Reduction		GHG Emissions	**14.4%**

Building 6a | Energy Performance Analysis

The total program for this building consists of approximately 162,000 SF of gross conditioned area consisting of one retail space on the ground floor plus 6 residential floors.

	Building	Program Use	Area
Project Information	Levels P1-P2	Parking Garage	202,000
	Level 1	Retail/Residential	32,400
	Levels 2-7	Residential	141,300

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.14; SHGC-0.40
	Window-To-Wall Ratio	24%	53%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.032
	Floor	Wood Framed R-30 ; U-0.033	U-0.033
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.05
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential; 0.18*0.9 W/SF Parking	Same as baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Direct expansion;1.1*9.5 ≤ EER ≤ 1.1*11.9	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline	Design Case
Interior Lighting	Energy use(kWh)	143,555	143,555
	Demand (kW)	95.20	95.20
Space Heating	Energy use(kWh)	0	50,646
	Demand (kW)	0.00	117.25
Space Heating	Energy use (Therms)	15,042	
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	232,002	177,304
	Demand (kW)	182.93	165.59
Pumps	Energy use(kWh)	12,404	8,616
	Demand (kW)	3.27	2.39
Fans- Interior	Energy use(kWh)	398,251	294,606
	Demand (kW)	52.12	47.78
Service Water Heating	Energy use (Therms)	13,078	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		209,744
	Demand (kW)		58.31
Receptacle Equipment	Energy use(kWh)	578,680	578,680
	Demand (kW)	165.00	165.00
Elevator	Energy use(kWh)	69,532	69,532
	Demand (kW)	38.00	38.00
Heat Pumps	Energy use(kWh)	0	59
	Demand (kW)	0.00	0.00
Total Regulated Energy Cost ($)			
Electricity		$286,884.75	$306,549.00
Fuel		$42,180	$0
Building Total		$329,065	$306,549
Total Electricity	Energy use(kWh)	1,434,423	1,532,743
Total Gas	Use(Therms)	28,120	0
Total Energy	Use(MBtuh)	7,708	5,231
Annual Emissions End Use	(kg-CO2)	763,166	656,014
Site EUI	(KBTU/SF/Year)	47.6	32.3
Savings		COST	**6.84%**
Savings		ENERGY	**32.1%**
GHG Emissions Reduction		GHG Emissions	**14.0%**

Building 6b-6c | Energy Performance Analysis

The total program for this building consists of approximately 141,800 SF of gross conditioned area consisting of one retail space on the ground floor plus 6 residential floors.

	Building	Program Use	Area
Project Information	Level 1	Retail/Residential	24,600
	Levels 2-7	Residential	117,250

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.12; SHGC-0.40
	Window-To-Wall Ratio	24%	39%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.032
	Slab-on-grade	Unheated: R-15 for 24 inch	Unheated: R-20 for 24 inch
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.048
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential	Same as baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Direct expansion;1.1*9.5 ≤ EER ≤ 1.1*11.9	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline Case	Design Case
Interior Lighting	Energy use(kWh)	89,671	89,671
	Demand (kW)	59.47	59.47
Space Heating	Energy use(kWh)	0	71,323
	Demand (kW)	0.00	111.29
Space Heating	Energy use (Therms)	21,214	0
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	154,940	133,501
	Demand (kW)	174.61	124.44
Pumps	Energy use(kWh)	10,885	9,090
	Demand (kW)	2.42	2.62
Fans- Interior	Energy use(kWh)	340,779	236,687
	Demand (kW)	41.50	34.77
Service Water Heating	Energy use (Therms)	12,401	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		198,984
	Demand (kW)		58.31
Receptacle Equipment	Energy use(kWh)	494,020	494,020
	Demand (kW)	137.40	137.4
Elevator	Energy use(kWh)	69,532	69,532
	Demand (kW)	38.00	38.00
Heat Pumps	Energy use(kWh)	0	167
	Demand (kW)	0.00	0.00
Total Energy Cost ($)			
Electricity		$231,965.75	$260,595.00
Fuel		$50,423	$0
Building Total		$282,388	$260,595
Total Electricity	Energy use(kWh)	1,159,829	1,302,976
Total Gas	Use(Therms)	33,615	0
Total Energy	Use(MBtuh)	7,320	4,447
Annual Emissions End Use	(kg-CO2)	674,800	557,674
Site EUI	(KBTU/SF/Year)	51.6	31.4
Savings		COST	**7.72%**
Savings		ENERGY	**39.2%**
GHG Emissions Reduction		GHG Emissions	**17.4%**

Building 7 | Energy Performance Analysis

The total program for this building consists of approximately 83,351 SF of gross conditioned area consisting of one retail space on the ground floor plus 3 residential floors.

	Building	Program Use	Area
Project Information	Level 1	Retail/Residential lobby/ Bike storage	22,418
	Levels 2-4	Residential	60,934

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.14; SHGC-0.40
	Window-To-Wall Ratio	24%	57%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.032
	Slab-on-grade	Unheated: R-15 for 24 inch	Unheated: R-20 for 24 inch
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.048
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential	Same as baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Direct expansion;1.1*9.5 ≤ EER ≤ 1.1*11.9	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline	Design Case
Interior Lighting	Energy use(kWh)	56,490	56,490
	Demand (kW)	37.46	37.46
Space Heating	Energy use(kWh)	0	42,283
	Demand (kW)	0.00	72.08
Space Heating	Energy use (Therms)	6,493	0
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	118,349	96,374
	Demand (kW)	89.62	71.78
Pumps	Energy use(kWh)	5,722	5,196
	Demand (kW)	1.67	1.33
Fans- Interior	Energy use(kWh)	204,726	162,733
	Demand (kW)	24.07	24.07
Service Water Heating	Energy use (Therms)	4,850	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		62,923
	Demand (kW)		23.62
Receptacle Equipment	Energy use(kWh)	274,873	274,873
	Demand (kW)	65.00	65.00
Elevator	Energy use(kWh)	69,532	69,532
	Demand (kW)	38.00	38.00
Heat Pumps	Energy use(kWh)	0	230
	Demand (kW)	0.00	0.00
Total Regulated Energy Cost ($)			
Electricity		$145,938.25	$154,127.00
Fuel		$17,015	$0
Building Total		$162,953	$154,127
Total Electricity	Energy use(kWh)	729,691	770,634
Total Gas	Use(Therms)	11,343	0
Total Energy	Use(MBtuh)	3,625	2,630
Annual Emissions End Use	(kg-CO2)	372,505	329,831
Site EUI	(KBTU/SF/Year)	43.5	31.6
Savings		COST	**5.42%**
Savings		ENERGY	**27.4%**
GHG Emissions Reduction		GHG Emissions	**11.5%**

Building 8 | Energy Performance Analysis

The total program for this building consists of approximately 129,482 SF of gross conditioned area consisting of one retail space on the ground floor plus 5 residential floors.

	Building	Program Use	Area
Project Information	Basement	Parking/Mech Room	40,000
	Level 1	Retail/Residential/Parking	38,700
	Levels 2-6	Residential	110,828

	Retail-Residential	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design
Envelope	Windows	Metal framing (fixed): U-value of 0.42; SHGC-0.40	U-value of 0.14; SHGC-0.37
	Window-To-Wall Ratio	24%	33%
	Roof	Insulation entirely above deck; R-30 c.i.; U-value of 0.032	U-0.025
	Floor	Wood Framed R-30 ; U-0.033	U-0.033
	Exterior Walls	Wood-framed: R-13 + R-7.5 c.i.; U-0.051	U-0.043
Interior Loads	Occupancy	Residential: number of people per unit = number of bedrooms + 1 Retail: 67 SF/ Person	Same as baseline
	Interior Lighting	Whole Building Method:0.84*0.9 W/SF Retail; 0.45*0.9 W/SF Residential; 0.18*0.9 W/SF Parking	Same as baseline
	Plug Load	As proposed	Residential: 1.42 W/SF Retail: 0.7 W/SF
	Elevator Load	30 KW	30 KW
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	Assume >20% reduction
	Water Heater type & Efficiency	Gas storage water heater, efficiency 0.82	Electric Heater
Primary HVAC System	System Type	System #1: Packaged terminal AC	VRF multisplit system with heat recovery
	Cooling Type & Efficiency	Direct expansion;1.1*9.5 ≤ EER ≤ 1.1*11.9	DX Cooling, SEER: 16
	Heating Type & Efficiency	Hot-water fossil fuel, Gas-fired Boiler with 1.1*82% efficiency	Electric, COPh: 3.48
	HW Supply Temperature &	180˚ F; OA Temperature Control	
	Hot Water ΔT	50˚ F	
	HW Pump Control	Primary only; variable speed	
Secondary System	System Type	System #3; Packaged Single Zone	Packaged Single Zone
	Cooling Type & Efficiency	DX Cooling; 1.1*14 SEER	DX Cooling; 16 SEER
	Heating Type & Efficiency	Gas-Furnace; 1.1*80%	Heat pump, HSPF 10.2
	Supply Fan Control	Constant Volume	Constant Volume
	Areas Served	Retail	Retail
Air-Side HVAC	Ventilation	ASHRAE 62.1-2013	ASHRAE 62.1-2013
	Supply Fan Control	Constant Volume	Variable /Constant volume

Energy Simulation Results

End Use		Baseline	Design Case
Interior Lighting	Energy use(kWh)	82,755	82,755
	Demand (kW)	54.88	54.88
Space Heating	Energy use(kWh)	0	73,508
	Demand (kW)	0.00	110.25
Space Heating	Energy use (Therms)	15,757	0
	Demand (Therm/hr)	130.00	
Space Cooling	Energy use(kWh)	126,157	104,723
	Demand (kW)	123.33	88.63
Pumps	Energy use(kWh)	8,937	7,915
	Demand (kW)	2.31	2.00
Heat Rejection	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Fans- Interior	Energy use(kWh)	261,383	161,275
	Demand (kW)	36.30	28.24
Service Water Heating	Energy use (Therms)	8,318	
	Demand (Therm/hr)	0.20	
Service Water Heating	Energy use (kWh		134,236
	Demand (kW)		50.39
Receptacle Equipment	Energy use(kWh)	527,841	527,841
	Demand (kW)	163.69	163.69
Elevator	Energy use(kWh)	0	0
	Demand (kW)	0.00	0.00
Heat Pumps	Energy use(kWh)	0	28,710
	Demand (kW)	0.00	0.00
Total Energy Cost ($)			
Electricity		$201,414.75	$224,193.00
Fuel		$36,113	$0
Building Total		$237,528	$224,193
Total Electricity	Energy use(kWh)	1,007,074	1,120,964
Total Gas	Use(Therms)	24,076	0
Total Energy	Use(MBtuh)	5,845	3,826
Annual Emissions End Use	(kg-CO2)	558,796	479,773
Site EUI	(KBTU/SF/Year)	45.1	29.5
Savings		COST	**5.61%**
Savings		ENERGY	**34.5%**
GHG Emissions Reduction		GHG Emissions	**14.1%**

C402.1.5 Component Performance Alternative

Building : 2

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	4,177	0.153	Vertical Assemblies
			UxA
Window	3,523	0.17	598.9
Wall	654	0.064	41.9
Roof	4,292	0.032	137.3
	-		
Slabs on grade	402	0.54	217.1
Below grade wall	1,572	0.119	187.1

Whole Building 10,443

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	4,177	0.190	Vertical Assemblies	
			UxA	WWR
Window	1,671	0.38	634.90	0.4
Wall	2,506	0.064	160.40	
Roof	4,292	0.032	137.34	
Slabs on grade	402	0.54	217.08	
Below grade wall	1,572	0.119	187.07	

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	598.91	634.90		
Wall	41.86	160.40		
Roof	137.34	137.34		
A		**-154.53**		
UA Improvement	778.11	932.64	**16.57%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **0**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	1,852
UV	0.17
Uwall	0.153
D	**30.7**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-123.79**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 3

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	59,657	0.078	Vertical Assemblies
			UxA
Window	25,056	0.13	3257.3
Wall	34,601	0.04	1384.0
Roof	39,306	0.025	982.7
	-		
Slabs on grade	-	0.54	0.0
Below grade wall	51,023	0.119	6071.7

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	59,657	0.159	Vertical Assemblies	
			UxA	WWR
Window	17,897	0.38	6,800.90	0.3
Wall	41,760	0.064	2,672.63	
Roof	39,306	0.032	1,257.79	
Slabs on grade	-	0.54	-	
Below grade wall	51,023	0.119	6,071.74	

Whole Building 149,986

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	3,257.28	6,800.90		
Wall	1,384.04	2,672.63		
Roof	982.65	1,257.79		
A		**-5,107.35**		
UA Improvement	5,623.97	10,731.32	**47.59%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **0**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	7,159
UV	0.13
Uwall	0.078
D	**373.7**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-4,733.66**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 4

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	87,344	0.078	Vertical Assemblies
			UxA
Window	36,685	0.13	4769.1
Wall	50,659	0.04	2026.4
Roof	40,000	0.025	1000.0
	-		
Slabs on grade	-	0.54	0.0
Below grade wall	18,355	0.119	2184.2

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	87,344	0.159	Vertical Assemblies	
			UxA	WWR
Window	26,203	0.38	9,957.22	0.3
Wall	61,141	0.064	3,913.01	
Roof	40,000	0.032	1,280.00	
Slabs on grade	-	0.54	-	
Below grade wall	18,355	0.119	2,184.25	

Whole Building 145,699

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	4,769.05	9,957.22		
Wall	2,026.36	3,913.01		
Roof	1,000.00	1,280.00		
A		**-7,354.82**		
UA Improvement	7,795.41	15,150.23	**48.55%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **0**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	10,482
UV	0.13
Uwall	0.078
D	**547.1**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-6,807.67**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 5

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	130,871	0.072	Vertical Assemblies
			UxA
Window	44,496	0.12	5339.5
Wall	86,375	0.048	4146.0
Roof	39,500	0.032	1264.0
	-		
Slabs on grade	-	0.54	0.0
Below grade wall	21,368	0.119	2542.8

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	130,871	0.159	Vertical Assemblies	
			UxA	WWR
Window	39,261	0.38	14,919.29	0.3
Wall	91,610	0.064	5,863.02	
Roof	39,500	0.032	1,264.00	
Slabs on grade	-	0.54	-	
Below grade wall	21,368	0.119	2,542.79	

Whole Building 191,739

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	5,339.52	14,919.29		
Wall	4,146.00	5,863.02		
Roof	1,264.00	1,264.00		
A		**-11,296.79**		
UA Improvement	10,749.52	22,046.31	**51.24%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **0**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	5,235
UV	0.12
Uwall	0.072
D	**248.8**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-11,048.04**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 6a

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	90,833	0.098	Vertical Assemblies
			UxA
Window	48,142	0.14	6739.9
Wall	42,691	0.05	2134.6
Roof	32,400	0.032	1036.8
	-		
Slabs on grade	-	0.54	0.0
Below grade wall	23,505	0.119	2797.1

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	90,833	0.159	Vertical Assemblies	
			UxA	WWR
Window	27,250	0.38	10,354.96	0.3
Wall	63,583	0.064	4,069.32	
Roof	32,400	0.032	1,036.80	
Slabs on grade	-	0.54	-	
Below grade wall	23,505	0.119	2,797.10	

Whole Building 146,738

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	6,739.88	10,354.96		
Wall	2,134.55	4,069.32		
Roof	1,036.80	1,036.80		
A		**-5,549.85**		
UA Improvement	9,911.23	15,461.08	**35.90%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **0**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	20,892
UV	0.14
Uwall	0.098
D	**883.7**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-4,666.13**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 6bc

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	90,817	0.076	Vertical Assemblies
			UxA
Window	35,418	0.12	4250.2
Wall	55,398	0.048	2659.1
Roof	23,800	0.032	761.6
	-		
Slabs on grade	907	0.54	489.8
Below grade wall	-	0.119	0.0

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	90,817	0.159	Vertical Assemblies	
			UxA	WWR
Window	27,245	0.38	10,353.14	0.3
Wall	63,572	0.064	4,068.60	
Roof	23,800	0.032	761.60	
Slabs on grade	907	0.54	489.78	
Below grade wall	-	0.119	-	

Whole Building 115,524

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	4,250.22	10,353.14		
Wall	2,659.11	4,068.60		
Roof	761.60	761.60		
A		**-7,512.41**		
UA Improvement	7,670.93	15,183.34	**49.48%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **NA**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	8,173
UV	0.12
Uwall	0.076
D	**359.0**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-7,153.43**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 7

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	41,620	0.100	Vertical Assemblies
			UxA
Window	23,723	0.14	3321.2
Wall	17,897	0.048	859.1
Roof	22,418	0.032	717.4
	-		
Slabs on grade	587	0.54	317.0
Below grade wall	-	0.119	0.0

Whole Building 64,625

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	41,620	0.159	Vertical Assemblies	
			UxA	WWR
Window	12,486	0.38	4,744.68	0.3
Wall	29,134	0.064	1,864.58	
Roof	22,418	0.032	717.38	
Slabs on grade	587	0.54	316.98	
Below grade wall	-	0.119	-	

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	3,321.22	4,744.68		
Wall	859.06	1,864.58		
Roof	717.38	717.38		
A		**-2,428.98**		
UA Improvement	4,897.65	7,326.63	**33.15%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **0**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **NA**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	11,237
UV	0.14
Uwall	0.100
D	**444.5**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-1,984.43**
A+B+C+D+E<= Zero?		**Passed**

C402.1.5 Component Performance Alternative

Building : 8

Proposed Design			
	Area(SF)	U-value	
Windows + Wall	89,104	0.075	Vertical Assemblies
			UxA
Window	29,404	0.14	4116.6
Wall	59,700	0.043	2567.1
Roof	38,700	0.025	967.5
	-		
Slabs on grade	-	0.54	0.0
Below grade wall	8,713	0.119	1036.8

IECC 2018				
	Area(SF)	U-value		
Windows + Wall	89,104	0.159	Vertical Assemblies	
			UxA	WWR
Window	26,731	0.38	10,157.86	0.3
Wall	62,373	0.064	3,991.86	
Roof	38,700	0.032	1,238.40	
Slabs on grade	-	0.54	-	
Below grade wall	8,713	0.119	1,036.85	

Whole Building 136,517

A- Calculation **THERMAL ENVELOPE**

A= Sum of the (UA dif) values for ach distinct assembly type of the building thermal envelope, other than slabs on grade and below grade walls

	UA proposed	UA Table		
Window	4,116.56	10,157.86		
Wall	2,567.10	3,991.86		
Roof	967.50	1,238.40		
A		**-7,736.96**		
UA Improvement	7,651.16	15,388.12	**50.28%**	**C406.1 Option #7**

B- Calculation **SLAB ON GRADE**

B-= Sum of the (FL Diff) for each distinct slab-on grade perimeter condition of the building thermal envelope

B **NA**

C- Calculation **CONDITIONED BELOW GRADE WALLS**

C= Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal enevelope

C **0**

D- Calculation **EXCESS VERTICAL GRADING**

D= (DA*UV) -(DA*Uwall), but not less than zero

DA	2,673
UV	0.14
Uwall	0.075
D	**173.7**

E- Calculation **SKYLIGTS**

E=(EA*US) - (EA*Uroof), but not less than 0

NA (No skylight)

A+B+C+D+E		**-7,563.25**
A+B+C+D+E<= Zero?		**Passed**

Performance Report

Property
Needham St / Oak St
, MA 02462

Weather:Boston, MA
Bldg12 BASE
Bldg12_baseline_v16.0.2.blg

Organization
Steven Winter Associates, Inc.
203-857-0200
Karla Butterfield

Builder

HERS
Projected Rating
Rater ID:2617109

Annual Load	MMBtu/yr
Heating	16.2
Cooling	10.8
Water Heating	8.2
Water Heating w/out Tank Loss	7.8

Annual Consumption	MMBtu/yr
Heating	8.9
Cooling	2.7
Water Heating	8.1
Lights & Appliances	15.0
Photovoltaics	-0.0
Total	**34.8**

Annual Energy Cost	$/yr
Heating	522
Cooling	156
Water Heating	477
Lights & Appliances	880
Photovoltaics	-0
Service Charges	0
Total	**2035**

Design Loads	kBtu/hr
Space Heating	17.0
Space Cooling	10.3

Utility Rates

Electricity	CambridgeElec

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Home Energy Rating Certificate

Property

Needham St / Oak St
, MA 02462

HERS

Rating Type: Projected Rating
Rating Date:
Registry ID:

Certified Energy Rater: Karla Butterfield
Rating Number:

Projected Rating: Based on Plans - Field Confirmation Required.

HERS Index: 64

General Information

Conditioned Area	1021 sq. ft.	House Type	Apartment, inside unit
Conditioned Volume	11027 cubic ft.	Foundation	Apartment above cond. space
Bedrooms	2		

Mechanical Systems Features

Air-source heat pump:	Electric, Htg: 8.0 HSPF. Clg: 15.0 SEER.
Water Heating:	Conventional, Electric, 0.95 EF, 40.0 Gal.
Duct Leakage to Outside	153.15 CFM25
Ventilation System	Balanced: ERV, 45 cfm, 54.0 watts.
Programmable Thermostat	Heat=Yes; Cool=Yes

Building Shell Features

Ceiling Flat	NA	Slab	None
Sealed Attic	NA	Exposed Floor	NA
Vaulted Ceiling	R-25.0	Window Type	U-Value: 0.350, SHGC: 1.000
Above Grade Walls	R-20.5	Infiltration Rate	Htg: 0.15 Clg: 0.15 CFM50/sf sh
Foundation Walls	NA	Method	Blower door

Lights and Appliance Features

Interior Fluor Lighting (%)	0.0	Range/Oven Fuel	Electric
Interior LED Lighting (%)	100.0	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	655	Clothes Dryer CEF	2.62
Dishwasher Energy Factor	0.46	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost

Use	MMBtu	Cost	Percent
Heating	6.3	$370	20%
Cooling	2.0	$117	6%
Hot Water	8.2	$481	26%
Lights/Appliances	15.3	$898	48%
Photovoltaics	0.0	$0	0%
Service Charges		$0	0%
Total	**31.9**	**$1866**	**100%**

Criteria

This home meets or exceeds the minimum criteria for the following:

TITLE
Company
Address
City, State, Zip
Phone #
Fax #

REM/Rate - Residential Energy Analysis and Rating Software v16.0.2
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The Home Energy Rating Standard Disclosure for this home is available from the rating provider.
Steven Winter Associates, Inc.
Improving the Built Environment Since 1972

Performance Report

Property
Needham St / Oak St
, MA 02462

Weather:Boston, MA
Bldg12_2Br
Bldg12_2br_v16.0.2.blg

Organization
Steven Winter Associates, Inc.
2038570200
Karla Butterfield

Builder

HERS
Projected Rating
Rater ID:2617109

Annual Load	MMBtu/yr
Heating	5.7
Cooling	6.1
Water Heating	7.2
Water Heating w/out Tank Loss	6.8

Annual Consumption	MMBtu/yr
Heating	3.2
Cooling	1.3
Water Heating	7.2
Lights & Appliances	11.5
Photovoltaics	-0.0
Total	**23.2**

Annual Energy Cost	$/yr
Heating	189
Cooling	74
Water Heating	419
Lights & Appliances	675
Photovoltaics	-0
Service Charges	0
Total	**1357**

Design Loads	kBtu/hr
Space Heating	7.2
Space Cooling	5.7

Utility Rates

Electricity	CambridgeElec

REM/Rate - Residential Energy Analysis and Rating Software v16.0.2
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Home Energy Rating Certificate

Property

Needham St / Oak St
, MA 02462

HERS

Rating Type:	Projected Rating	Certified Energy Rater:	Karla Butterfield
Rating Date:		Rating Number:	
Registry ID:			

Projected Rating: Based on Plans - Field Confirmation Required.

HERS Index: 48

General Information

Conditioned Area	1021 sq. ft.	House Type	Apartment, end unit
Conditioned Volume	11027 cubic ft.	Foundation	Apartment above cond. space
Bedrooms	2		

Mechanical Systems Features

Air-source heat pump:	Electric, Htg: 10.9 HSPF. Clg: 19.0 SEER.
Water Heating:	Conventional, Electric, 0.95 EF, 40.0 Gal.
Duct Leakage to Outside	40.00 CFM25
Ventilation System	Balanced: ERV, 45 cfm, 40.5 watts.
Programmable Thermostat	Heat=Yes; Cool=Yes

Building Shell Features

Ceiling Flat	NA	Slab	None
Sealed Attic	NA	Exposed Floor	NA
Vaulted Ceiling	R-39.9	Window Type	U-Value: 0.142, SHGC: 0.340
Above Grade Walls	R-35.0	Infiltration Rate	Htg: 0.60 Clg: 0.60 ACH50
Foundation Walls	NA	Method	Blower door

Lights and Appliance Features

Interior Fluor Lighting (%)	0.0	Range/Oven Fuel	Electric
Interior LED Lighting (%)	100.0	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	358	Clothes Dryer CEF	3.71
Dishwasher (kWh/yr)	270	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost

Use	MMBtu	Cost	Percent
Heating	5.2	$302	21%
Cooling	0.8	$47	3%
Hot Water	7.3	$425	29%
Lights/Appliances	11.5	$674	47%
Photovoltaics	0.0	$0	0%
Service Charges		$0	0%
Total	**24.7**	**$1448**	**100%**

Criteria

This home meets or exceeds the minimum criteria for the following:

TITLE
Company
Address
City, State, Zip
Phone #
Fax #

REM/Rate - Residential Energy Analysis and Rating Software v16.0.2
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The Home Energy Rating Standard Disclosure for this home is available from the rating provider.
Steven Winter Associates, Inc.
Improving the Built Environment Since 1972

Performance Report

Property
Needham St / Oak St
, MA 02462

Weather:Boston, MA
Bldg9 BASE
Bldg9_baseline_v16.0.2.blg

Organization
Steven Winter Associates, Inc.
203-857-0200
Karla Butterfield

Builder

HERS
Projected Rating
Rater ID:2617109

Annual Load	MMBtu/yr
Heating	13.3
Cooling	17.5
Water Heating	8.1
Water Heating w/out Tank Loss	7.7

Annual Consumption	MMBtu/yr
Heating	7.5
Cooling	4.3
Water Heating	7.9
Lights & Appliances	14.9
Photovoltaics	-0.0
Total	**34.6**

Annual Energy Cost	$/yr
Heating	436
Cooling	253
Water Heating	463
Lights & Appliances	873
Photovoltaics	-0
Service Charges	0
Total	**2026**

Design Loads	kBtu/hr
Space Heating	15.9
Space Cooling	12.0

Utility Rates

Electricity	CambridgeElec

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Steven Winter Associates, Inc.
Improving the Built Environment Since 1972

Home Energy Rating Certificate

Property

Needham St / Oak St
, MA 02462

HERS

Rating Type: Projected Rating
Rating Date:
Registry ID:

Certified Energy Rater: Karla Butterfield
Rating Number:

Projected Rating: Based on Plans - Field Confirmation Required.

HERS Index: 59

General Information

Conditioned Area	989 sq. ft.	House Type	Apartment, inside unit
Conditioned Volume	11176 cubic ft.	Foundation	Apartment above cond. space
Bedrooms	2		

Mechanical Systems Features

Air-source heat pump:	Electric, Htg: 8.0 HSPF. Clg: 15.0 SEER.
Water Heating:	Conventional, Electric, 0.95 EF, 40.0 Gal.
Duct Leakage to Outside	148.35 CFM25
Ventilation System	Balanced: ERV, 45 cfm, 54.0 watts.
Programmable Thermostat	Heat=Yes; Cool=Yes

Building Shell Features

Ceiling Flat	NA	Slab	None
Sealed Attic	NA	Exposed Floor	NA
Vaulted Ceiling	R-25.0	Window Type	U-Value: 0.350, SHGC: 1.000
Above Grade Walls	R-20.5	Infiltration Rate	Htg: 0.15 Clg: 0.15 CFM50/sf sh
Foundation Walls	NA	Method	Blower door

Lights and Appliance Features

Interior Fluor Lighting (%)	0.0	Range/Oven Fuel	Electric
Interior LED Lighting (%)	100.0	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	655	Clothes Dryer CEF	2.62
Dishwasher Energy Factor	0.46	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost

Use	MMBtu	Cost	Percent
Heating	2.0	$119	7%
Cooling	4.5	$262	15%
Hot Water	8.0	$466	27%
Lights/Appliances	15.2	$889	51%
Photovoltaics	0.0	$0	0%
Service Charges		$0	0%
Total	**29.6**	**$1736**	**100%**

Criteria

This home meets or exceeds the minimum criteria for the following:

TITLE
Company
Address
City, State, Zip
Phone #
Fax #

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The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

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Northland Newton

Building 9 (2-bed) Projected

* Applicable to Buildings 10 and 11

Performance Report

Property
Needham St / Oak St
, MA 02462

Weather:Boston, MA
Bldg9
Bldg9_2br_v16.0.2.blg

Organization
Steven Winter Associates, Inc.
203-857-0200
Karla Butterfield

Builder

HERS
Projected Rating
Rater ID:2617109

Annual Load	MMBtu/yr
Heating	4.4
Cooling	10.7
Water Heating	7.1
Water Heating w/out Tank Loss	6.7

Annual Consumption	MMBtu/yr
Heating	2.7
Cooling	2.2
Water Heating	6.9
Lights & Appliances	11.5
Photovoltaics	-0.0
Total	**23.4**

Annual Energy Cost	$/yr
Heating	161
Cooling	129
Water Heating	407
Lights & Appliances	675
Photovoltaics	-0
Service Charges	0
Total	**1371**

Design Loads	kBtu/hr
Space Heating	6.7
Space Cooling	7.0

Utility Rates

Electricity	CambridgeElec

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Home Energy Rating Certificate

Property

Needham St / Oak St
, MA 02462

HERS

Rating Type: Projected Rating
Rating Date:
Registry ID:

Certified Energy Rater: Karla Butterfield
Rating Number:

Projected Rating: Based on Plans - Field Confirmation Required.

HERS Index: 39

General Information

Conditioned Area	989 sq. ft.	House Type	Apartment, end unit
Conditioned Volume	11176 cubic ft.	Foundation	Apartment above cond. space
Bedrooms	2		

Mechanical Systems Features

Air-source heat pump:	Electric, Htg: 10.9 HSPF. Clg: 19.0 SEER.
Water Heating:	Conventional, Electric, 0.95 EF, 40.0 Gal.
Duct Leakage to Outside	40.00 CFM25
Ventilation System	Balanced: ERV, 45 cfm, 40.5 watts.
Programmable Thermostat	Heat=Yes; Cool=Yes

Building Shell Features

Ceiling Flat	NA	Slab	None
Sealed Attic	NA	Exposed Floor	NA
Vaulted Ceiling	R-39.9	Window Type	U-Value: 0.140, SHGC: 0.500
Above Grade Walls	R-35.0	Infiltration Rate	Htg: 0.60 Clg: 0.60 ACH50
Foundation Walls	NA	Method	Blower door

Lights and Appliance Features

Interior Fluor Lighting (%)	0.0	Range/Oven Fuel	Electric
Interior LED Lighting (%)	100.0	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	358	Clothes Dryer CEF	3.71
Dishwasher (kWh/yr)	270	Ceiling Fan (cfm/Watt)	0.00

Estimated Annual Energy Cost

Use	MMBtu	Cost	Percent
Heating	0.9	$52	4%
Cooling	1.7	$101	8%
Hot Water	7.0	$410	33%
Lights/Appliances	11.7	$686	55%
Photovoltaics	0.0	$0	0%
Service Charges		$0	0%
Total	**21.3**	**$1248**	**100%**

Criteria

This home meets or exceeds the minimum criteria for the following:

TITLE
Company
Address
City, State, Zip
Phone #
Fax #

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