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**City of Newton, Massachusetts**
Department of Planning and Development
1000 Commonwealth Avenue Newton, Massachusetts 02459

Ruthanne Fuller
Mayor

Barney S. Heath
Director

# PUBLIC HEARING MEMORANDUM

DATE: May 28, 2020

MEETING DATE: June 3, 2020

TO: Zoning Board of Appeals

FROM: Barney Heath, Director of Planning and Development
Neil Cronin, Chief Planner for Current Planning
Katie Whewell, Senior Planner

COPIED: Mayor Ruthanne Fuller
City Council

In response to questions raised at the Zoning Board of Appeals public hearings on February 5, 2020, April 1, 2020, and May 6, 2020 the Planning Department is providing the following information for the upcoming continued public hearing/working session. This information is supplemental to staff analysis previously provided at the public hearings.

**PETITION #01-20** **15 Riverdale Avenue**

CPC Land Acquisition Company, LLC applying to the Zoning Board of Appeals, pursuant to Massachusetts General Laws Chapter 40B, for the issuance of a Comprehensive Permit authorizing the applicant to construct a 204 unit residential development, which will include 51 affordable housing units and approximately 22,382 square feet of, office and retail space, all on approximately 3.4 acres of land located in a Manufacturing Zoning District at 15 Riverdale Avenue in Newton, Massachusetts "Residences on the Charles". 51 of the units (25%) will be deed restricted to remain permanently affordable to households earning up to 80 percent of Area Median Income.

## EXECUTIVE SUMMARY

The Applicant, CPC Land Acquisition Company, LLC, is seeking a Comprehensive Permit pursuant to Massachusetts General Laws Chapter 40B, Sections 20 through 23, for the construction of a mixed-use project consisting of two buildings of up to five stories, containing 204 dwelling units, and approximately 627 square feet of retail, 2,046 square feet of community space, and 1,177 square feet of neighborhood amenity space on Riverdale Avenue in Nonantum. The subject property comprises approximately 128,887 square feet on one lot in a Manufacturing ("MAN") zoning district (the "Project").

The Zoning Board of Appeals (the "Board") opened the public hearing on this petition on February 5, 2020, which was held open for the petitioner to respond to questions and concerns raised in the Planning Department's Memorandum and at the public hearing by the Board as well as by members of the public. At that meeting the Board authorized peer reviews of the Project.

On April 1, 2020, the public hearing addressed issues related to stormwater, civil engineering, and site design as presented by the Applicant and reviewed by the City's consultant. On May 6, 2020, the public hearing addressed transportation related issues and parking as presented by the Applicant and reviewed by the City's consultant.

## I. SITE DESIGN

The applicant submitted revised civil and architectural plans and written responses to the questions raised by the City's consultant, The Horsley Witten Group ("Horsley Witten") as well as from the Board and from the Planning Department. Horsley Witten, reviewed the revised plans and responses and found many of the responses adequate with no further action required (**Attachment A**).

Horsley Witten initially identified site design concerns such as the visitor experience, access and activation of the courtyard and access to open space at the rear of the site. The applicant's responses indicate that public access will always be provided through the site from Midland Avenue to the pedestrian concourse and to the Charles River. Additionally, the applicant's sign package is intended to provide wayfinding and increase visibility of areas available to the public. On-street wayfinding signs are provided that indicate tenant areas, visitor space and amenity spaces such as the café. Other measures that add to the user experience include the installation of additional bike racks and the pick-up/drop off parking stalls along Midland Avenue. Regarding indoor spaces, the applicant stated that indoor spaces such as the community space and tenant amenity space will be managed by on-site property management staff. The applicant's sign package shows signs for each of the amenity spaces as well as multiple signs for the Community Room from all entrances at Los Angeles Street, Midland Avenue, and Building 2's parking facility. The two live/work units are highlighted with blade signs that will draw attention to the artists' spaces where work can be displayed. The applicant indicates signs for kayak rental and is currently in talks with the Department of Conservation and Recreation ("DCR") to create a launch for kayaks to the Charles River. The

applicant also stated they will provide public bathrooms for the retail and community space

The applicant stated that the DCR trails will be open to the public at all times and these connections for bicyclists and pedestrians will be signed. The sign package does not include signs specific to the DCR trail connections to the site. The applicant should provide clarification on the signage of the connections to the DCR trail connections they were referring to.

Horsley Witten recommends narrower travel lanes be considered to meet the Newton Street Design Guide recommendations of ten-foot travel lanes. The current widths of the lanes are 12 feet at Midland Avenue and 13 feet at Los Angeles Street. Narrowing the lanes would allow added space dedicated to pedestrians and a raised intersection at the intersection of Los Angeles Street and Midland Avenue could increase placemaking. Horsley Witten believes the stormwater concerns could be alleviated if the applicant were to consider raising this intersection. The Planning Department will confer with the Transportation Division of Public Works regarding these measures because even though these roads are private, emergency vehicles still require access; the Planning Department will provide the Board with an update at the public hearing. Lastly, the staff suggests the applicant provide an update on the proposed sidewalk along the eastern side of Los Angeles Street.

## II. **BUILDING DESIGN**

The Planning Department and Urban Design Commission provided feedback to the applicant to redesign the bridge connecting the wings of Building 1 so as not to create a visual barrier between the neighborhood and pedestrian concourse which leads to the Charles River. The Planning Department suggested the residential units be removed from the bridge and the bridge be redesigned from four to three stories. The Applicant submitted revised bridge elevations that show units only partially in the bridge and internal corridor space that provides a visually open connection through the bridge. The applicant reduced the massing at the fifth floor by removing units within the fifth-floor level of the bridge and narrowing the span to just the internal corridor.

The Planning Department commented on the lobbies of Building 1 that border the pedestrian concourse and suggested a similar treatment as Building 2 to create a more prominent corner. The Applicant revised the design to highlight the corners of the sides of Building 1 in metal and the combination of recessed corners, building materials and colors, canopies, and storefront glazing create an inviting entry and provide a similar treatment of the corners as Building 2.

The Planning Department previously requested detailed elevations of Building 1B along the eastern elevation and more information on the courtyard space shown there. The applicant provided a detailed elevation showing green spaces and balconies overlooking the courtyards. Access to these outdoor spaces will be limited to those units on the second floor that are adjacent to the courtyards.

At the April 1, 2020 public hearing, a member of the committee inquired about bird strikes, also known as window strikes, a leading cause of death among migratory birds. Horsley Witten prepared a memorandum (**Attachment B**) with more information on bird-building collisions and measures

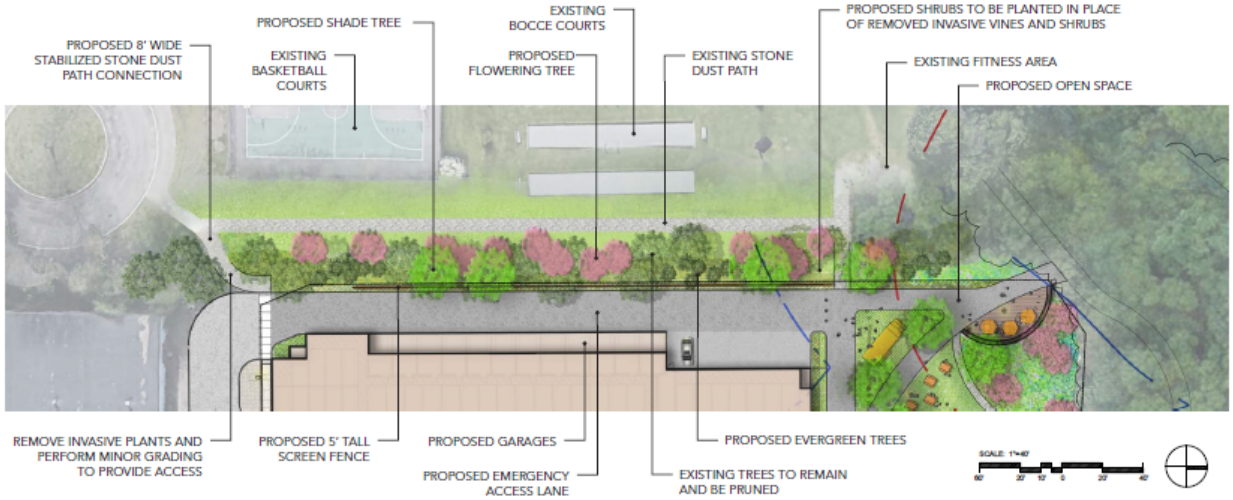
that can be taken to incorporate bird friendly design. The applicant has committed to studying several alternatives to mitigate the chance of birds flying into the glass connectors along the pedestrian bridge that connects the wings of Building 1.

Overall, the building has not changed, however when reviewing the most recent plans with City's Americans with Disabilities Act Coordinator, other considerations should be reviewed in accordance with Architectural Access Board (AAB) standards such as stackable washer and dryers, reasonable accommodations where this cannot be met, and the ceiling height of the garage, which needs to be at least 98 inches. The Planning Department would like to know the width of the access aisle next to the van accessible spaces. Planning Staff observed there is no trash room shown on the floor plans for Building 2. The applicant should clarify where the trash is in Building 2 and how the trash operations will work in conjunction with Building 1. City staff recommends the applicant review the plans with the Inspectional Services Department to ensure compliance with AAB standards.

## III. FORTE PARK IMPROVEMENTS

The Applicant proposes many improvements to the western property line that borders Forte Park to enhance the area and provide pedestrian and bicycle connections between the Project and the park. The Applicant proposes to remove the existing chain link fence and install a new five-foot tall dark green vinyl fence. The applicant will remove invasive species and provide landscaping on the Forte Park side of the fence that will screen the garages of Building 1a. The plans show two points of access from the property to the park, an eight-foot-wide stabilized stone dust path connection south of the proposed fence with a crosswalk. The other connection is provided north of the fence, dimensions and materials are not provided. This connection provides access to the Project's open space adjacent to the DCR path and the Charles River.

*Image 1. Forte Park Improvements*



The applicant is also proposing substantial contributions to new lighting at Forte Park, to be coordinated with the City. The applicant should continue to work with the City and specifically the Parks and Recreation Department regarding the proposed park enhancements.

## IV. SUSTAINABILITY

The project is subject to the Sustainable Development Design provisions of the Newton Zoning Ordinance, which were adopted by the City Council in December 2019. The provisions require projects of this size to be designed in accordance with one of the following: LEED Gold certifiable, Passive House certified, or Enterprise Green Communities certifiable. The applicant has requested a waiver from this provision; however, the applicant's sustainability narrative indicates that Building 1 will be designed to achieve LEED v4 Residential Certifiability at the Silver Level, with the hope to achieve the Gold level. The applicant is also committing to Passive House certifiability for the residential portions of Building 2. In conjunction with these commitments, the Project will feature electric heating and cooling systems and the applicant will investigate electric hot water. Lastly, the Sustainable Design provisions require 10% (24) of all parking stalls to include electric vehicle ("EV") charging stations and an additional 10% of all stalls be EV ready, for a total of 48 parking stalls with EV infrastructure. The applicant has stated that the Project will comply with this criterion, but the plans do not reflect this commitment. The applicant should provide more detail. The Planning Department is supportive of the applicant's sustainability measures and suggests that conditions be included in the Board's decision to require the applicant to investigate achieving LEED Gold for Building 1 and all electric hot water for both buildings.

## V. SIGNAGE

As mentioned in the Site Design section of this memorandum, the applicant submitted a sign package for review. The sign package includes 17 signs total and contains a mix of directional, free standing, and wall signs.

From the materials submitted, the café, bike repair room, and kayak rental spaces associated with Building 1 each have two wall signs. Each of these spaces occupy a corner of the structure, and each sign will provide visibility for that space to draw visitors from the opposite end of the courtyard. There are two blade signs proposed for the live/work units, one for each unit. They measure three feet by two feet for a total sign area of six feet. There are 13 wall signs proposed, ten for Building 1, and three for Building 2.

There are three directional signs proposed. Two are proposed for the pedestrian courtyard between the two wings of Building 1 and the other is proposed along the Los Angeles elevation of Building 2. The example provided shows the wayfinding sign with a total height of 6.5 feet. The sign area measures two feet wide, and approximately one foot ten inches in long for a total sign area of 3.6

feet. The Planning Department will consult with city staff to determine the types of signs proposed under the Ordinance.

One free standing sign is shown on the sign legend, at the entrance to the pedestrian courtyard nearest Midland Avenue, however the sign details are not included in the sign package. The applicant should provide information on the proposed free-standing sign.

*Image 2. Sign Legend*


Additional information should also be provided on the illumination of the proposed wall signs, as some of these signs face residential units. Illustrations for the signs are provided, however dimensions are not provided for all the signs in the package. The Planning Department requests dimensions of all the proposed signs as well as the total sign area for each sign.

## VI. I&I/MITIGATION

The City Council passed Ordinance B-45 in November of 2019 to codify the City's policy regarding infiltration and inflow ("I&I") as it relates to State requirements and the City's permit with the Massachusetts Water Resource Authority. Such permit requires the City to improve its sewer infrastructure to remove extraneous infiltration and inflow at a ratio of four gallons to one gallon using a rate of $22.02 per gallon. According to the City Engineer, the Project will add an average of 20,238 gallons per day to the City's sewer system resulting in a fee of $1,782,563 **(Attachment C)**. The City Engineer suggests that 25 percent ($445,641) of the fee be applied to sewer work in the area of the Project, while the Planning Department suggests the remaining 75 percent

($1,336,922) be allocated to other mitigation.

The Applicant has proposed improvements to Forte Park, to the intersections of California Street at Bridge Street and California Street at Los Angeles Street, and other improvements as noted below. These commitments equal $1,530,000. When added to the I&I payment of $445,641, the total mitigation equals $1,994,000. The Planning Department is supportive of these commitments and believes that the Applicant has complied with the City's Ordinance, B-45.

*Table 1. Mitigation Measures*

| Type | Description | Applicant's Estimated Cost |
|---|---|---|
| Inclusionary Zoning | One two-bedroom dwelling unit available to households earning up to 65% of AMI and one three-bedroom dwelling unit available to households earning up to 50% of AMI | $270,000 |
| Open Space | Contribution to new light fixtures as well as new landscaping, pedestrian paths, and fencing along the eastern side of Forte Park | $278,000 |
| Open Space | Granite monuments and improvements to southern side of the Charles River | $40,000 |
| Sustainability | Passive House certification for the residential portions of all buildings | $410,000 |
| Transportation Demand Management | Membership in the Watertown Transportation Management Association in perpetuity | $6,000 per year |
| Transportation Demand Management | Transit Reimbursement for all dwelling units the first year, then only for new dwelling units in the second and third years | $150,000 |
| Transportation Demand Management | Purchase and maintain a 20-bicycle fleet and 10 saddlebags for use by tenants | $10,000 |
| Infrastructure | Full-depth reconstruction of Los Angeles Street with installation of granite curbing and sidewalk along easterly edge | $210,000 |
| Infrastructure | Sidewalk expansion in northeast and southeast corners of the California and Bridge Streets intersection with new pavement markings, and pavement overlay | $96,000 |
| Pedestrian Improvements | Installation of crosswalks, sidewalk, rapid reflectorized flashing beacons, signage, and curb bumpouts at the intersection of California and Los Angeles Streets | $60,000 |

## VII. STORMWATER MANAGEMENT

Horsley Witten was largely satisfied with the applicant's responses to stormwater and Massachusetts Stormwater Management Standards (MASWMS). The only outstanding item is the clay pipe that discharges in the Charles River. The applicant noted that this pipe cannot be observed because it is completely submerged. As such, the pipe will be inspected with closed circuit television equipment prior to the issuance of a building permit. At that stage, the Applicant will undertake any repairs necessary. Horsley Witten is also satisfied with many of the changes to the Operations and Maintenance Plan (O&M) the applicant is proposing, which includes relocation of snow storage, and inspections of catch basins, detention systems, and proprietary separators.

## VIII. SHADOWS AND LIGHTING

Horsley Witten noted that the pedestrian courtyard would be dark most of the year and suggested that the area include movable furniture to allow for sun exposure. In the applicant's response dated April 22, 2020 they stated that the pedestrian concourse will have sunshine from mid-morning to midafternoon and that the reduction in height of the live/work building to two stories will allow additional sunlight into the courtyard. The applicant should clarify where exactly this reduction in height is. The applicant has revised the lighting plan to show illumination in the pedestrian courtyard and exterior parking spaces. The applicant has also stated that light fixtures will be dark sky compliant.

## IX. LANDSCAPING

As stated previously, the Project features a robust landscaping plan to the rear of Building 1 that is meant to complement the DCR path and be utilized as a public space with a seating area, sculpture, and picnic area. The applicant is also proposing street trees along Midland Avenue and Los Angeles Street in front of Building 2 and has added street trees in front of Building 1 along Midland Avenue in response to suggestions from the Planning Department as well as from Horsley Witten.

The tree mitigation plan indicates that 132 caliper inches will be removed from the site, most of which are located on the Project's eastern boundary along Riverdale Avenue. The applicant's responses state that these trees will be removed for parallel parking and that the applicant will discuss additional plantings with the abutter to screen the parallel parking from the abutter's property. In total, the plan indicates that 133 caliper inches will be planted on site, therefore complying with the City's Tree Preservation and Protection Ordinance.

## X. TRANSPORTATION

In advance of the May 6, 2020 public hearing, the applicant submitted a revised Traffic Impact and Access Study (the "TIAS"), prepared my MDM Transportation Consultants ("MDM") dated

March 23, 2020 which reflected the removal of the innovation space from Building 2 and added three new intersections in the study area. The City's consultant, Green International, Affiliates ("Green"). reviewed the TIAS and presented their findings at the May 6, 2020 hearing. The City received the applicant's responses to Green's comments as well as information requested in response to concerns raised at the hearing which can be found in the response (**Attachment D**). Many of the applicant's responses were adequate and did not require further review.

In the initial review, Green recommended conducting an updated review of the crash history at the initial five study intersections and using that information to evaluate potential impacts and improvements. MDM responded that the recalculated crash rate is still below the national average and no immediate safety countermeasures are warranted at the study locations. Green also noted a discrepancy between crash rate worksheets, MDM updated and noted that there were no material changes in crash rates.

Areas where further study were required consist of speed data, intersection sight distance (the "ISD"), and turning templates. Green raised the issue of the limited sample of speed data collected by MDM, and still recommends collecting additional speeds to provide a larger sample size. Green also noted that the ISD when looking left from Riverdale Avenue was restricted to less than 500 feet due to parked cars and vegetation. While MDM points out the improvements to Los Angeles Street and California Street intersection, it does not address the ISD at Riverdale Avenue and California Street looking east towards Watertown Yard. The Planning Department will confer with the Transportation Division of Public Works and will provide the Board with an update at the public hearing. The applicant provided turning templates of a small passenger vehicle within the garage, Green notes that measures should be taken to communicate discouraging larger vehicles, such as signage. Green recommends additional review of the location of the wheelchair ramp transition length due to potential vehicle encroachment.

MDM also clarified the Transportation Demand Management commitments made by the applicant which include transit subsidies, unbundled parking, bike rooms, shared bikes and saddlebags, Watertown TMA membership, and shuttle funding. Green recommends a traffic monitoring program to ensure the development does not exceed trip projections. The City will reach out to the Transportation Division and provide more information at the public hearing.

## XI. PARKING

The applicant submitted a Parking Stall inventory that provides a breakdown of the dimensions and number of stalls sitewide.

*Table 2. Parking Stall Inventory*

| *Type* | *Perpendicular* | | *Parallel* | |
|---|---|---|---|---|
| | Number | Size | Number | Size |
| *Full Size* | 195 | 8.5' x 18' | 8 | 8' x 20' |
| *Compact* | 20 | 8.5' x 16' | | |
| *Compact* | 5 | 8' x 16' | | |
| *Handicap* | 8 | 8.5' x 18' | 1 | 8' x 20' |
| *Total* | **228** | | **9** | |

All the stalls require waivers from the Ordinance which states parking stalls must have dimensions of 9 feet by 19 feet. Green noted the maneuverability of the drive aisles and the turning templates provided only considered a small passenger vehicle. The applicant should consider areas to accommodate larger vehicles such as an SUV or pick-up truck. The Planning Department suggests that the applicant provide an explanation of how parking stalls will be allocated to accommodate a variety of vehicle sizes.

The applicant is proposing bike file style bicycle racks. In this design, bicycles are stored vertically to maximize space. The standard length of the bike file bike rack is 96 inches and accommodates nine bicycles. The most effective racks support the bicycle, are securely anchored, cannot be dismantled, and allow the bike to be locked with a common U-lock to allow both wheels to be secured to the rack with a cable. The applicant should ensure and demonstrate that the proposed bike racks can accommodate the 144 bikes intended to be parked at the bike rooms for Buildings 1 and 2. City Staff is looking into whether the proposed bike racks can accommodate a variety of bicycle models.

## XII. ADDITIONAL INFORMATION AND MATERIALS

The applicant should be prepared to respond to all of the peer reviewers comments and questions at the public hearing and subsequently in writing for appropriate review by the peer reviewer, City staff, and the Board in advance of future meetings.

## XIII. CONCLUSION AND NEXT STEPS

The Planning Department will continue to review the proposal and, where appropriate and authorized, coordinate reviews of the project by City agencies and consultant peer reviewers and provide updated and expanded memoranda in advance of future Board hearings.

**ATTACHMENTS**

**Attachment A:** Revised Horsley Witten Response, Stormwater, Site Design and Open Space, dated May 22, 2020

**Attachment B:** Bird Strike Memorandum, prepared by Horsley Witten, dated April 13, 2020

**Attachment C:** City of Newton Engineering Memorandum, dated May 27, 2020

**Attachment D:** Revised Green International Response, Transportation, dated May 27, 2020

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# MEMORANDUM

**To:** Katie Whewell, Neil Cronin – City of Newton

**From:** Janet Carter Bernardo, PE, Hannah Carlson, RLA, Jonathan Ford, PE, and Gemma Kite, PE – Horsley Witten Group, Inc.

**Date:** March 25, 2020, **Revised May 22, 2020**

**Re:** 15 Riverdale Avenue Peer Review

The intent of this memorandum is to provide the City of Newton with a second peer review of the Residences on the Charles proposed redevelopment located at 15 Riverdale Avenue, Newton, MA. CPC Land Acquisition Company, LLC (Applicant) is proposing to develop two separate buildings located to the north and south of Midland Avenue. HW reviewed the open space and building massing, sustainability, and drainage report.

The existing 3.41-acre parcel is mostly impervious, occupied by two buildings and a large parking area. Approximately 0.5 acres of the parcel is currently lawn or vegetated. The larger building is approximately 52,033 square feet (sf) and the smaller building is approximately 1,136 sf. The Project Site is within the 200-foot Riverfront Area of the Charles River and a portion of the site is considered Bordering Land Subject to Flooding (BLSF). Presently, stormwater is collected by catch basins within the parking lot, Midland Avenue, and Riverdale Avenue and is discharged into the Charles River via an 18-inch clay pipe.

The Applicant proposes to demolish both existing buildings and the parking lot. The proposed project includes the development of two separate buildings, one five-story 57,819 sf building with 166 apartment units and a second four-story 13,403 sf building with 38 apartment units. Parking will be located on the first-floor level of both buildings. The proposed development as designed will result in a decrease of approximately 10,331 sf of impervious cover, and therefore qualifies as a redevelopment under the Massachusetts Stormwater Management Standards (MASWMS) as detailed in the Massachusetts Stormwater Handbook (MSH). The Applicant proposes to install a new drainage network of catch basins and manholes, Hydro-dynamic Separators, a Contech StormFilter stormwater filter, an underground detention basin, and porous pavement.

HW has received the following additional documents in response to our initial peer review:

- Letter to Zoning Board of Appeals, regarding ZBA #01-20, Residences on the Charles, 15 Riverdale Avenue, prepared by Criterion Development Partners, dated April 22, 2020.

- Sustainability Report, Residences on the Charles, ZBA #01-20, 15 Riverdale Avenue, Newton, MA, prepared by Lambert Sustainability, LLC, dated April 22, 2020.
- Drainage Report, Proposed Residences on the Charles, Newton, MA, prepared by Allen & Major Associates, Inc., dated December 11, 2019, revised thru April 17, 2020.
- Existing and Proposed Flood Plain Calculations Figures, prepared by Allen & Major Associates, dated March 19, 2019 (10 pages).
- Landscape Maintenance specification (10 pages).
- Architectural Plans, 15 Riverdale Avenue, Newton, MA, CPC Land Acquisition Company, LLC, prepared by ICON Architecture, issued on April 21, 2020, which includes:
    - Cover
    - Shadow Study – Spring — Sheet G-003
    - Shadow Study – Summer — Sheet G-004
    - Shadow Study – Fall — Sheet G-005
    - Shadow Study – Winter — Sheet G-006
    - Locus Map — Sheet A-100
    - Ground Floor & Parking Plan — Sheet A-101
    - 2nd Floor Plan — Sheet A-102
    - 3rd Floor Plan — Sheet A-103
    - 4th Floor Plan — Sheet A-104
    - 5th Floor Plan — Sheet A-105
    - Roof Plan — Sheet A-106
    - Building Elevations — Sheet A-201
    - Perspectives — Sheet A-202
    - Perspectives — Sheet A-203
    - Perspectives — Sheet A-204
    - Perspectives — Sheet A-205
    - Perspectives — Sheet A-206
    - Context — Sheet A-207
    - Context Manufacturing — Sheet A-208
    - Context – Mill Buildings — Sheet A-209
    - Materials – Street Side — Sheet A-210
    - Materials – Courtyard — Sheet A-211
    - Building Sections — Sheet A-301
    - Enlarged Unit Plans — Sheet A-501
    - Enlarged Unit Plans — Sheet A-502
- Site Development Plans for Residences on the Charles, 15 Riverdale Avenue, Newton, MA, prepared by Allen and Major Associates, Inc., Issued for Review on April 17, 2020, which includes:
    - Cover
    - Existing Conditions Plan — Sheet V-101
    - Abbreviations & Notes — Sheet C-001
    - Site Preparation Plan — Sheet C-101
    - Layout Plan Building 1 — Sheet C-102A
    - Layout Plan Building 2 — Sheet C-102B
    - Street Cross Sections — Sheet C-102C
    - Materials Plan Building 1 — Sheet C-103A
    - Materials Plan Building 2 — Sheet C-103B

| | |
|---|---|
| o Grading & Drainage Plan | Sheet C-104 |
| o Spot Grade Plan – Building 1 | Sheet C-105A |
| o Spot Grade Plan – Building 2 | Sheet C-105B |
| o Utilities Plan | Sheet C-106 |
| o Site Electrical Plan | Sheet C-107 |
| o Erosion Control Plan | Sheet C-108 |
| o Snow Storage Plan | Sheet C-109 |
| o Details | Sheet C-501 – C-505 |
| o Tree Protection/Removal Plan | Sheet L-000 |
| o Tree Mitigation Plan | Sheet L-001 |
| o Landscape Plan | Sheet L-100 |
| o Lighting Plan | Sheet E-101 |

The following comments corelate with our March 25, 2020, initial peer review memorandum. Follow up comments are noted in **bold** font:

*General*

1. The proposed project appears to be consistent with the City's Comprehensive Plan goals for excellence in place-making and Smart Growth. The project adds residential density within proximity of transportation options, revitalizes a highly impervious and underutilized site, and increases public access to the adjacent Department of Conservation and Recreation (DCR) path and the Charles River.

   **No further action required.**

2. The site is one block removed from California Street. Creation of a welcoming pedestrian-friendly Los Angeles Street streetscape and view corridor to and through Building 1 is critical to full activation of the site and to success of pedestrian/bicycle connections to Bridge Street, Watertown Street/Nonantum, and Watertown Square via California Street or the DCR Path. HW concurs with the general proposed site strategy to meet this goal by opening a view corridor and creating smaller blocks by adding the proposed pedestrian courtyard connection from the terminus of Los Angeles Street to the riverfront active space and DCR Path.

   **No further action needed.**

3. One-half mile is typically an upper limit for walking as a frequent transportation choice. Given the site's location approximately one-half mile from Bridge Street, Watertown Street, and Watertown Square, design details that maximize the convenience and comfort of these pedestrian and bicycle connections will help to reduce single-occupancy vehicle trips and parking demand. See additional comments regarding path connectivity, sidewalk design, and street design.

   **See comments regarding path connectivity, sidewalk design, and street design.**

*Stormwater Management*

This review of the drainage report and site plans is based on the Massachusetts Stormwater Management Standards (MASWMS), as well as standard engineering practices. As noted previously the proposed development is considered a redevelopment with the reduction of

impervious area. As noted by the Applicant, a redevelopment project is required to meet the following MASWMS only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Based on the materials submitted to date, HW offers the following comments related to Stormwater Management:

4. MASWMS Standard #1: *Standard 1 states that no new untreated stormwater conveyances may cause erosion in wetlands of the Commonwealth.*

    a. The proposed development will utilize an existing 18-inch clay pipe to discharge stormwater to the Charles River. The existing site manages stormwater with a closed drainage system consisting of catch basins and manholes. It does not appear that the existing site provides any treatment prior to discharging into the River. The Applicant has proposed to manage the runoff from the roof and parking lot of Building 2 as well as the parking area of Building 1, a portion of Midland Avenue and a portion of Riverdale Avenue through a closed drainage system that flows into a subsurface detention basin. The detention basin discharges the stormwater through proprietary separators which provide water quality treatment prior to flowing into the Charles River via the 18-inch clay pipe.

        **The Applicant noted that stormwater treatment also includes the use of a Contech StormFilter® to remove pollutants prior to discharging into the existing 18-inch clay pipe. No further comment.**

        The Applicant has proposed to discharge a portion of the roof runoff from the western portion of building 1 to a bioretention system located along the northern property boundary. Two 4-inch pipes will discharge roof runoff into the bioretention area, while allowing the overflow to discharge to the 18-inch clay pipe. The roof runoff from the eastern portion of building 1 also discharges to the existing 18-inch clay pipe.

        The Applicant has not noted if the existing discharge pipe is currently causing erosion at the discharge point. HW recommends that the Applicant confirm that the existing discharge pipe is not causing erosion and that the proposed velocity will in turn not cause erosion in wetlands of the Commonwealth.

        **The Applicant noted that the existing outfall pipe is submerged and will be assessed using a video camera prior to construction and any necessary repairs will be made. A note has been added to Sheet C-104. No further comment.**

        It appears that the Applicant complies with Standard 1 if no erosion is occurring at the outlet of the 18-inch clay pipe.

        **The Applicant complies with Standard 1.**

5. MASWMS Standard #2: *Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.*

   The Applicant has described the existing (pre-development) and the proposed (post-development) watershed areas, drainage conditions, and discharge values in the Drainage Report. HydroCAD calculations were included in Sections 3 and 4. HW has the following comments to verify compliance with Standard 2.

   a. It appears that drainage from subcatchments P7 and P8 drain to DMH7 and/or CB1. The HydroCAD model indicates that CB1 discharges to the bioretention system, however the plans do not illustrate this. HW recommends that the Applicant review the drainage network in this area and revise the plans and/or calculations accordingly.

      **The Applicant clarified subcatchment P7 and P8 and how they are connected to the porous pavement stormwater practice. CB1 is a secondary collection system to allow for maintenance as needed. The HydroCAD model indicates that the porous pavement has capacity to contain the stormwater from a 100-year storm event. In the event the porous pavement overtops it will flow towards the bioretention area.**

      **The Applicant complies with Standard 2.**

6. *MASWMS Standard #3: Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*

   a. The Applicant has reduced impervious surface with the proposed redevelopment project and has noted that no infiltration practices are being proposed due to the site limitations of high groundwater and the 100-foot wetland buffer. To provide recharge to the maximum extent practical the Applicant has utilized the proposed permeable pavement surfaces located to the west and north of Building 1.

      The Applicant complies with Standard 3.

      **No further action needed.**

7. MASWMS Standard #4: *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids and to treat 1.0-inches of volume from the impervious area for water quality.*

   a. The Applicant has proposed deep sump catch basins, proprietary separators, and a Contech Jellyfish filter system to treat a portion of the proposed stormwater runoff prior to discharging to the 18-inch clay pipe. HW was not able to confirm the proposed impervious area listed by the Applicant as 52,357 sf. HW recommends that the Applicant clarify how the 52,357 sf value was determined and if necessary adjust the size of the proposed water quality device.

      **The Applicant provided a clarification to how the proposed impervious area was determined. The subcatchment areas being treated adjusted slightly and a new impervious area was calculated. The Applicant adjusted the water quality unit and detention system sizes accordingly.**

b. The Applicant has indicated that the proposed proprietary device will provide 4,368 cf of treatment below the weir. HW was not able to confirm this value with the documentation provided. HW recommends that the Applicant provide the HydroCAD stage storage summary sheet to verify the value provided.

**The Applicant provided the stage storage summary to verify the volume of stormwater being treated prior to discharging to the Charles River.**

c. The Applicant has provided Treatment Train #2 for the stormwater flowing through CB1 and the permeable pavement. It is unclear how CB1 connects to the permeable pavement to provide the treatment train as outlined. HW recommends that the Applicant clarify proposed Treatment Train #2.

**The Applicant clarified how the stormwater is being captured by the permeable pavement.**

d. The Applicant has provided a Water Quality Flow Rate spreadsheet prepared by Contech solutions. The spreadsheet includes WQUs 1-5. The Plan set appears to include WQU1 - CDS2015-4 Grated Inlet, WQ2 - STC 450i grated inlet, and WQU3 - Jellyfish JF4-2-1. HW recommends that the Applicant clarify the numbering system on the spreadsheet to correspond with the Grading and Drainage Plan (Sheet C-104).

**The Applicant provided revised documents for the proposed Contech solutions.**

**The Applicant complies with Standard 4.**

8. MASWMS Standard #5: *Standard 5 is related to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*

a. The Applicant has stated that the proposed project is considered a LUHPPL because it anticipates over 1,000 vehicle trips per day. In accordance with Standard 4 the Applicant intends to treat 1 inch of precipitation over the impervious area, which is a requirement under Standard 5. Once the Applicant adequately responds to HW's comments under Standard 4, Standard 5 should also be complied with.

**The Applicant provided adequate documentation verifying that it is treating 1" of runoff over the impervious surface.**

**The Applicant complies with Standard 5.**

9. MASWMS Standard #6: *Standard 6 is related to projects with stormwater discharging into a critical area, a Zone II or an Interim Wellhead Protection Area of a public water supply.*

a. The proposed redevelopment project is not located within a critical area therefore Standard 6 is not applicable to this site.

**No further action required.**

10. MASWMS Standard #7: *Standard 7 is related to projects considered Redevelopment.*

    a. As noted previously the proposed site is considered a redevelopment. The Applicant is reducing impervious area, placing the majority of parking spaces beneath the buildings and providing water quality for the stormwater runoff which can be considered an improvement over the existing condition. Once the Applicant has adequately responded to HW's comments under Standards 1-10, Standard 7 should be complied with.

       **The Applicant complies with Standard 7.**

    b. In accordance with Section 2.3.6.a.ii.4 of the MS4 Permit held by the City of Newton, redevelopment sites will also improve existing conditions by retaining the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site AND/OR removing 80% of the average annual post-construction load of TSS and 50% of the average annual total phosphorus (TP) generated from the impervious surface. HW recommends that the Applicant confirm it is meeting the MS4 TSS and TP reduction requirements for this development.

       **The Applicant provided documentation verifying that it will meet the TSS and TP reduction requirements required for a redevelopment project. No further comment.**

11. MASWMS Standard #8: *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation or other pollutant sources.*

    a. The Applicant has stated that it will provide a Stormwater Pollution Prevention Plan (SWPPP) prior to construction. HW reminds the Applicant that the 2018 MS4 Permit requires specific erosion control measures be implemented as part of the SWPPP.

       **No further action needed at this time.**

12. MASWMS Standard #9: *Standard 9 requires a Long-Term Operation and Maintenance Plan to be provided.*

    a. The Applicant has provided an Operation and Maintenance Plan (O&M) in Section 2 of the Drainage Report. HW recommends that the Conservation Commission reference the O&M Plan for any condition as necessary during its review process.

       **No further action by the Applicant.**

    b. It appears that the Snow Storage Plan (Sheet C-109) indicates snow storage areas near the porous pavement areas. Snow melt that is packed full of sediment can eventually lead to clogging of the porous pavement. HW recommends that the Applicant consider adjusting the snow storage plans in light of the maintenance considerations for porous pavement areas.

       **The Applicant adjusted the areas where snow will be storage as recommended.**

c. The O&M Plan does not appear to include training for staff or personnel or documentation that stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharge to or near critical areas. HW recommends that the applicant include these provisions.

**The Applicant revised the O&M Plan to address the procedure for containing potential spills.**

d. The Applicant states that deep sump catch basins shall be inspected and cleaned two times per year. Per the Massachusetts Stormwater Handbook (MSH) Volume 2, Chapter 2, deep sump catch basins shall be inspected and cleaned four times every year.

**The Applicant revised the O&M Plan to require inspection of catch basins four times per year.**

e. The Applicant does not include maintenance procedures for the oil/water separator. Per MSH Volume 2, Chapter 2. HW recommends that the Applicant revise the O&M Plan to call for proprietary separators to be inspected after every major storm but at least monthly and cleaned twice a year.

**The Applicant revised the O&M Plan to include inspection and maintenance of the proprietary separators as requested.**

f. The Applicant describes maintenance operations for the underground detention chamber. Per MSH Volume 2, Chapter 2, HW recommends that the Applicant revise the O&M Plan to call for the underground detention chamber to be inspected at least twice per year.

**The Applicant revised the O&M Plan to require inspection of the detention system twice per year.**

g. The Stormwater O&M Plan does not include a Log Form, except for the CDS unit and Jellyfish filter. HW recommends that the Applicant include a Log Form for all operation and maintenance related activities for all stormwater management system components, including the underground detention chamber, bioretention area, and porous pavement.

**The Applicant revised the O&M Plan to include a Log Form with all stormwater practices listed.**

h. The Applicant has not provided product information for the proposed proprietary Contech Stormceptor within the Stormwater O&M Plan. HW recommends that the Applicant include information on how to maintain this proprietary device.

**The Applicant revised the O&M Plan to include the information from the vendor regarding the water quality units proposed.**

i. The Stormwater O&M Plan has not been signed by property owner. HW recommends that the plan is signed prior to any commencement of work.

**The Applicant noted that the O&M Plan will be signed by the property owner prior to construction.**

13. MASWMS Standard #10: *Standard 10 requires an Illicit Discharge Compliance Statement be provided.*

    a. Due to this project site being within Wetlands jurisdiction, the Applicant must demonstrate compliance with Standard 10 by submitting to the City an Illicit Discharge Compliance Statement verifying that no illicit discharges exist on the site and by including in the SWPPP measures to prevent illicit discharges to the stormwater management system. It appears that the Applicant is aware of this requirement. The Conservation Commission may choose to make receipt of the illicit discharge statement a Special Condition.

       **An illicit discharge compliance statement has been prepared and is provided in the Drainage Report. HW recommends that the statement be signed prior to land disturbance.**

14. The Checklist for Stormwater Report indicates that the project does not disturb a Wetland Resource Area, however part of the project site is within bordering land subject to flooding and Riverfront Area. HW recommends that the Applicant review the Checklist and adjust accordingly.

    **The MA Checklist for Stormwater Report has been revised as requested.**

*Phosphorus Removal*

15. The Applicant has noted on page 1-3 of the Drainage Report narrative that Phosphorus Removal is required and that the calculations were provided in the appendices. However, HW was not able to find the Phosphorus Removal Calculations. In accordance with the MS4 permit, the City of Newton is required to reduce its phosphorus load to the Charles River by 50%. Furthermore, the CRWA prepared a technical report (CN 272.0) for MassDEP, “Total Maximum Daily Load for Nutrients in the Upper/Middle Charles River, Massachusetts”, dated May 2011. The document established targeted percent annual phosphorus load reductions for High Density Residential land uses to be 65%. It appears that the Applicant has provided the mass loading calculations for the Contech Jellyfish, but it is not clear how the Contech Jellyfish obtains the required 65% phosphorus removal. HW recommends that the Applicant provide additional information to clarify how this requirement is being met.

    **The Applicant provided the Phosphorus Removal calculations and the documentation prepared by Contech regarding the removal efficient of the StormFilter device. No further comment.**

*Grading and Utilities*

16. The Applicant has indicated proposed grading for Buildings 1 and 2, and surrounding areas including Midland Avenue, Riverdale Avenue, and the open space area along the Charles River. The Grading and Drainage Plan (Sheet C-104) appears to generally follow the existing topography. Proposed grading does not extend into the proposed parking lots below Buildings 1 and 2. It is unclear if drainage for the Buildings 1 and 2 garages all drain to the oil/water separators and not towards the exterior stormwater management system. Specifically, it appears that Area Drain #3 may collect stormwater

that falls on the exposed part of the garage under Building 1. In addition, subcatchment P1B shows exposed parking. HW recommends that the Applicant review the proposed grading for the building garages and clarify that all drainage within the garage flows to the oil/water separator. Finally, the Site Plan (Sheet A-100a) shows this area in Building 1 as a courtyard instead of exposed parking, HW recommends that the Applicant clarify if this area is open or covered.

**The Applicant adequately adjusted the drainage flow paths within the garages of Buildings 1 and 2. No further comment.**

17. In accordance with Section 10.09 of 248 CMR 10.00, the Uniform Plumbing Code, separation systems are required in all commercial motor vehicle facilities which house more than 6 vehicles. The separation system, such as floor drains discharging into a gas, sand and oil separator shall be connected to a municipal sewer system. HW recommends that the Applicant confirm that the stormwater design in the parking garage complies with the Massachusetts Uniform Plumbing Code.

    **The Applicant confirmed that all flow from the parking garage entering the municipal stormwater sewer system will comply with the Massachusetts Uniform Plumbing Code.**

18. The Applicant has proposed three fire hydrants closest to Building 1 and proposes to maintain an existing fire hydrant on Riverdale Avenue. HW recommends that the Applicant confirm that the Fire Department has reviewed the plans and is satisfied with the proposed locations.

    **The Applicant stated it will meet with the Fire Department to confirm that the locations of the fire hydrants are acceptable.**

19. The Site Electrical Plan (Sheet C-107) does not appear to show the lighting conduit or light fixtures as is indicated in the legend. HW recommends the Applicant update Sheet C-107 with this information as needed. Also, it does not appear to show the connection to the existing electrical lines. HW recommends that the Applicant note these connections.

    **The Applicant revised the plan set and the electrical connections are noted.**

20. The Utilities Plan (Sheet C-106) does not appear to include the tie-in to the existing gas line. HW recommends that the Applicant note these connections.

    **The Applicant added a note to the revised plans as requested.**

*Compensatory Flood Storage*

21. The Project Site appears to be within the 100-year flood plain in accordance with the FEMA flood map. HW recommends that the Applicant document how it complies with the Wetlands Protection Act, 310 CMR 10.57. Furthermore, HW recommends that the Applicant provide the conversion for the topography listed as City of Newton base datum on the existing conditions plan to be consistent with the NAVD 1988 Datum listed on the FEMA flood map and profile.

**The datum conversion was added to the Existing Conditions Plan as requested. No further comment.**

22. In accordance with 310 CMR 10.57(4)(a)1. “Compensatory storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation up to and including the 100-year flood elevation, which would be displaced by the proposed project.” HW recommends that the Applicant clearly demonstrate the volume of storage provided under existing conditions and proposed conditions per foot up to the 100-year flood plain elevation of approximately 13 to 14 feet as noted on the FEMA Flood Profile. HW is aware that the Newton Conservation Commission has stated that the compensatory flood storage has been provided and is satisfactorily. HW has not received these calculations to verify.

    **The Applicant provided HW with the compensatory flood storage calculations, the compensatory flood storage proposed is adequate. No further comment.**

23. The Applicant has located the soil stockpile and the snow storage within the BLSF. HW recommends that these practices, which will reduce available flood storage within the BLSF, are relocated.

    **The Applicant relocated the soil stockpile and snow storage outside of the BLSF.**

24. The proposed bioretention area has a 12” grate overflow structure, however the height of this structure is not provided. Furthermore, no emergency spillways are proposed for the bioretention area. HW recommends that the Applicant show how the proposed bioretention area was sized for flood mitigation, so it does not overflow and cause damage to the adjacent pedestrian path and seating area.

    **The Applicant provided HW with the compensatory flood storage calculations and clarified how the bioretention area was sized. No further comment.**

*Open Space and Site Framework*

25. “Engaging uses” are envisioned for the courtyard, and activation of the rear open space including a food truck pad and active lawn is proposed. Additional information is needed to verify public access to the courtyard and open space will be accepted and encouraged. Will any limits to public access be proposed, either certain areas of the project or certain times of day? How will this access be managed?

    **The Applicant stated that signage will be used to encourage usage of public areas and outdoor spaces will be unrestricted. Indoor spaces will be secured and managed by on-site property management staff.**

26. Additional information is needed to evaluate visitor arrival experience by vehicle, pedestrian, and bicycle for various uses (i.e. residential visitors, café visitors, visitors to the open space, etc.). Additional on-street parallel parking as well as strategically located bicycle parking, and clear wayfinding will improve this experience.

    **The Applicant provided additional details on pedestrian and bicycle visitor access, including the addition of signage.**

27. HW recommends that the Applicant work with the City and abutters as possible to create sidewalk extensions and clarify bicycle access on Los Angeles Street and Riverdale Avenue to California Street to increase safe pedestrian and bicycle circulation throughout the neighborhood.

    **The Applicant is amenable to these improvements and will work with abutters and others as needed. Additional detail should be provided as part of future review.**

28. The "main" path connection to the DCR trail northwest of Building 1 should be confirmed to provide public access at all times, and additional information should be provided regarding detailed design and signage/wayfinding intent, especially given the possibility for pedestrian and bicycle travel both through the courtyard and also east or west of Building 1 through the parking lane and fire access path. The parking lanes do not include a separate dedicated sidewalk. HW concurs with this approach to design the lanes, as long as pedestrian and bicycle circulation through the site courtyard is clear.

    **The Applicant confirmed that access will be available at all times and connections will be signed accordingly.**

29. What is the intent for the proposed path connection to the DCR path northeast of Building 1? If it will be open and accessible to the public, it should be of adequate width to comfortably accommodate two-way pedestrian and bicycle traffic and conformance with ADA access requirements should be confirmed.

    **The Applicant responded that the proposed path provides secondary connection to the DCR Bike Path. Its width has been increased to accommodate two-way traffic and will be graded to be ADA compliant.**

30. Street cross sections should be provided to evaluate street design for Los Angeles Street and Midland Avenue.

    **The Applicant provided the requested street cross-sections in the revised plan set. Proposed travel lane width is 12-feet (Midland Avenue) and 13-feet (Los Angeles Street). HW recommends narrower travel lanes be considered meeting Newton Street Design Guide recommendations (generally 10-foot lanes). This space can be allocated to widen and improve the pedestrian realm.**

31. It appears that the width of Los Angeles Street may accommodate on-street parallel parking in front of Building 2. Has this been considered?

    **The Applicant responded that the 40-foot right of way cannot accommodate the existing on-street parking on the westerly side of Los Angeles Street in the vicinity of Building 2 and additional on-street parking and still offer pedestrian and other amenities on the easterly side. Pedestrian and landscape amenities are enhanced adjacent to Building 2. See response to comment #30.**

32. HW recommends that the entries/aprons at garage and parking access entries from Los Angeles Street and Midland Avenue be detailed as concrete aprons with 6-inch reveal near the curb, carrying the concrete sidewalk flush across the garage access rather than the proposed painted crosswalks dropped to street pavement level. This approach would prioritize pedestrian safety and comfort at these locations and ensure contiguous public

sidewalk. Traffic/transportation peer reviewers should review and comment as necessary.

**The Applicant noted that the entrance to Building 2 from Los Angeles Street has been converted to a concrete apron with raised crossing. At Building 1, the Applicant stated that the setback limits the addition of a flush crossing and provide reasonable grade to the proposed elevations.**

33. Raising the pedestrian crosswalk from Los Angeles Street across Midland Avenue flush with the sidewalk elevation as a speed table, or potentially raising the entire intersection as an extension of the courtyard, would increase pedestrian safety and improve placemaking value.

    **The Applicant responded that the area is a low point and if raised, stormwater will be forced into the abutter's property. HW notes that it appears that the proposed drainage system could be modified in this location without significant additional cost to include a raised intersection or crosswalk at a low point. Even better, the raised intersection could be designed to include highly visible green stormwater infrastructure in this location at a low point, greatly improving the streetscape value at this focal point.**

34. There are no plantings shown along Midland Avenue in front of the residential development. There is currently a concrete sidewalk, parallel parking, and stamped concrete. The Applicant should investigate addition of trees and other plantings to the streetscape to create a more welcoming curb-side experience. Trees on the street would also be on the south side of the building which would also help to create shade in the summer that could offset energy costs.

    **The Applicant revised the plan to include trees along Midland Avenue where setbacks allow.**

35. There is a curb along Midland Avenue in front of the building and opening into the pedestrian concourse. The Applicant should consider also placing bollards along the curb edge to ensure no vehicles can drive into the concourse, especially if a "shared street" intersection condition is proposed.

    **The Applicant has added decorative bollards at the back curb of Midland Avenue and will review with the Fire Department.**

36. Based upon review of the surrounding context, the proposed building massing appears to be generally appropriate.

    a. The proposed buildings properly face Los Angeles Street and Midland Avenue to define the streetscape. The ratio of building height to street width (building face to building face) is approximately 1.1, which will define a comfortable and enclosed public realm.

    b. The east wing of Building 1 is proposed to step back at the second level facing the courtyard, which should help the courtyard feel more open from ground level.

c. Building 1 as proposed is a very large footprint. Breaking the building into two elements with the courtyard and skybridge will provide great benefit in breaking up the overall building massing. Façade articulation, variation in materials, and step-back of higher levels as proposed will provide visual interest and mitigate feeling of a long monotonous façade from ground level.

d. The Building 1 façade on Midland Avenue measures approximately 300 feet, including the courtyard. Even with regular variation of materials and articulation of the façade as noted above, the building still presents as a single aesthetic style along its length. HW recommends the City consider further discussion of whether provision of some variation in style and/or addition of special visual elements may help the building feel more like multiple buildings from Midland Avenue and Los Angeles Street.

**No further action needed at this time.**

37. HW recommends that the Applicant clarify who will be responsible for maintenance of the open spaces, including the bioretention system, permeable pavement, and landscaping. HW recommends that the Applicant communicate with the future maintenance entity to ensure that the materials, furnishings, and landscaping choices fall under the umbrella of their capabilities and potential scope of work.

    **The Applicant prepared a Landscape Maintenance Manual which covers general landscape maintenance, and an O&M plan for the stormwater practices. The Applicant should confirm that the maintenance of the stormwater management areas and any hardscaping, etc. falls under the purview of the property management team.**

38. There are discrepancies in the plans between where the café is shown on the Ground Floor and Parking Plan and the Landscape Plan. The Applicant should confirm the location and clarify the reasoning. A café looking out on the open space with view of natural vegetation and potentially the Charles River, would likely bring DCR path users as well as people from the adjacent neighborhood.

    **The Applicant updated the Landscape Plan and provided reasoning for locating the café where it is.**

39. To create an open space where the public feels welcomed into the outdoor area as well as through the pedestrian concourse, public amenities as well as wayfinding are critical. The various materials show a café but other amenities are not clear. The Applicant should clarify the intended users and programs for the pedestrian concourse and lawn area (i.e. will there be bike and kayak rentals, play spaces and public bathrooms for use). The Applicant should also clarify if there will be wayfinding, such as signage, directing people to the amenities, either on the DCR path or on California Street.

    **The Applicant revised the plan set to identify public spaces and tenant areas. Signage will be provided at both ends of the courtyard. Additional detail should be provided for future review.**

40. The Applicant should clarify why the vista clearings are shown to be at the two corners of the site where the path connections are and if there are particular viewsheds they are trying to open up. Vista clearings in these two locations appear to only open up views from the pathways and not from the area where people would generally be expected to congregate. Coordination with DCR on vegetation management for the development construction and for future viewshed management is critical for creating a maintenance plan.

    **The Applicant responded that it has walked the site with DCR and will coordinate with the agency.**

41. If there are kayaks available, as shown in the material reviewed, the Applicant should clarify where the closest kayak launch(es) is(are) and how far one can navigate along the river before hitting a dam.

    **The Applicant noted that it has spoken with DCR about creating a launch in the vicinity of the project and will coordinate with a third-party to operate kayak rentals.**

42. There is limited information on landscape materials on the plans. Site furnishings and surface materials will make a big impact on the vehicular, pedestrian and bicyclist safety, circulation and wayfinding and aesthetics of the development. HW recommends that the Applicant submit data sheets for the various site amenities to demonstrate design intent.

    **The Applicant provided additional details on the proposed materials; however the information does not include the concrete pedestrian concourse paving, the stamped concrete or the movable bench seating. The Applicant should provide information to the City of Newton for these site elements as well.**

43. There are planting beds proposed on the north side of the building and within the pedestrian concourse that would typically use mulch as a groundcover. Massachusetts Comprehensive Fire Safety Code (527 CMR 1.00) requires that mulch not be newly applied within 18 inches of any combustible portion of any building. The Applicant should confirm whether this regulation applies to these planting beds. If it does, HW recommends that the Applicant look at redesigning the areas to increase the size of the planting beds or relocate them as needed.

    **The Applicant stated that the landscape beds immediately adjacent to building faces will contain noncombustible stone mulch.**

44. HW recommends clarification be provided regarding fire/emergency access and truck turning movements for the rear fire access path. HW recommends that the Applicant confirm that the Fire Department has reviewed the plans and is satisfied with the layout.

    **The Applicant stated that it will coordinate with the Fire Department.**

45. Proposed seating is called out for the areas between the pedestrian concourse and lawn area. This creates a barrier that appears to force pedestrians to turn right or left to access the lawn. To create a more welcoming sightline through the concourse and invite users to move through the spaces more freely, HW recommends opening up that area

for pedestrian passage. The Applicant should clarify the intention of the seating and update as needed.

**The Applicant revised the plan set which shows some access through the benches. They also stated that seating is intended to be movable. The Applicant should provide details or information on the proposed seating to clarify.**

46. There are currently no bicycle racks shown on the landscape plans. To welcome users of the DCR path and bicyclists in the neighborhood, HW recommends that the Applicant specify areas for public bicycle racks.

    **The Applicant added bike racks to the revised plan set.**

*Planting and Improvements along the Charles River*

47. The trees listed in the replacement plan range in tolerance of conditions. The Applicant should confirm that the soil and moisture conditions are suitable for the specific plants, especially in the bioretention area (sandy soils) that has a high seasonal water table.

    **The Applicant revised the Landscape Plan and plant lists. HW generally agrees with the planting strategy and species chosen. There are a few species that typically grow in wetland conditions such as: Chamaecyparis thyoides, Lindera benzoin, Acorus americanus, Junus effusus, and Scirpus atrovirens. The Applicant should confirm these species will thrive in the proposed conditions, especially the Chamaecyparis that is located as part of a buffer planting with more drought tolerant species.**

48. The Applicant should ensure adequate soil volumes for the trees to grow to maturity, in particular in the pedestrian concourse and along the streets. HW recommends at least 1 cubic foot of soil for every square foot of crown projection of the mature tree. The Applicant should submit details of the various conditions that explain how this volume will be accommodated.

    **The Applicant revised the Landscape Plan to include include minimum soil volume requirements and show where structural soil is required. However, there are no details and the areas for structural soil are not called out on the plans. The Applicant should confirm they can accommodate the referenced soil volumes. In particular, the trees in the pedestrian concourse are called out to require 2,000 sf of soil but it is not clear if the planting beds accommodate that volume and there is no structural soil called out under the concrete paving. The Applicant should confirm as needed and provide details for both the proposed paving and soil conditions.**

49. Will the proposed trees shown in the center of the courtyard impede views and/or circulation through the spaces?

    **The Applicant addressed this comment adequately. The trees specified are a canopy tree and will be pruned per the specifications as noted on the Landscape Plan.**

50. To ensure adequate soil volume for the pedestrian concourse and street trees, the Applicant should consider using structural soil and permeable pavers and/or other methods of maximizing and connecting the soil underneath the surface to meet the volume required for the particular tree species. See comment above about soil volume.

    **The Applicant revised the Landscape Plan to include minimum soil volume requirements and show where structural soil is required. However, there are no details and the paving material for the pedestrian concourse is not specified. The Applicant should provide details for the surfaces and structural soil underneath as needed.**

51. To better connect with and enhance the ecology along the Charles River, the use of plants native to the river's edge should be incorporated into the design. The Applicant should confirm the intention of the chosen plantings and any applicable sources used in plant selection.

    **The Applicant did not reference any sources used for plant selection nor describe a design intention. However, the Applicant does propose native plantings.**

52. The plant list on the landscape plan is relatively general and does not specify where the species will be planted around the site. HW recommends that the Applicant group the plants into categories (e.g. stormwater practice, pedestrian concourse, street trees, open lawn area) to help convey the intention and aesthetics of the plant choices.

    **The Applicant revised the Landscape Plan accordingly.**

53. Placement of evergreen trees compared to deciduous ones is not indicated on the landscape plan. HW recommends that the Applicant show the trees as deciduous or evergreen to help clarify where screening is intended.

    **The Applicant revised the Landscape Plan to include an evergreen symbol for those trees. The symbols is currently about 7-8 feet wide. HW recommends increasing the size of these symbols to reflect the size of the trees specified.**

54. There are no species listed for the seed mix for the stormwater/flood management area. Applicant should specify the stormwater/flood management planting seeding species for review.

    **The Applicant revised the Landscape Plan to include a specific planting list for the stormwater management area. According to the legend, this area will also be seeded. The Applicant should list the typical species in the seed mix.**

55. It is not clear if the lawn area will be seeded or sodded, or what the species will be. The landscape notes state that the tree and shrub planting areas will be irrigated. HW recommends that the Applicant confirm the lawn species and specify areas that will be irrigated versus not. This information will help convey the aesthetic intention for the lawn and will be relevant to the lawn details to ensure drainage and to establish clear expectations.

    **The Applicant has not revised the plans to clarify the design of the lawn area or specify the species in the seed mixes. HW recommends the Applicant add**

**landscape details and list the typical species in the seed mixes or specify if the lawn will be sod.**

56. There is a large stand of invasive Japanese Knotweed on the development side of the DCR path. The Applicant should include an invasive management plan as part of the plan set and should coordinate with DCR and contractors on long-term management plans to ensure existing or new invasive species are controlled.

    **The Applicant responded that it is amendable to working with DCR to address invasive species management. HW recommends the Applicant provide more detail to ensure the planting area within their limit of work is free of invasive species and provide a plan for long-term management to ensure the stormwater management area does not become a larger stand of Knotweed. Additional detail regarding coordination with DCR should be provided when it is available.**

57. The landscape plant schedule includes trees that can form thickets and that could require regular maintenance depending on where they are sited. The plan for landscape maintenance should be coordinated prior to design completion to ensure ongoing maintenance capabilities will be suited to the intention of the landscape design.

    **The Applicant commented that its property management team will be responsible for ongoing maintenance of the landscaped areas. If there are particular requirements for certain plant species, those should be included in the Landscape Maintenance specification.**

58. Sweet autumn clematis and catmint are not native and the clematis can spread and be weedy. HW recommends that the Applicant consider alternative plants that are native to the area.

    **The Applicant has revised the plan accordingly.**

59. HW recommends that the Applicant consider geese management while the plants establish.

    **The Applicant responded that it will use geese management to protect emerging vegetation. There are no landscape details in the plan set. The Applicant should show relevant details or address this in their specification.**

60. The Applicant has provided improvements along the Charles River, including use of permeable pavement, landscaping, and a stormwater flood/management area. HW recommends that the Applicant review whether these site improvements need to be compliant with the American's with Disabilities Act (ADA) requirements for pathway surface and sizing specifically for the proposed stabilized soil path.

    **The Applicant has addressed this comment adequately. The porous pavement and stabilized path areas are designed to meet ADA regulations.**

*Lighting, Photometrics and Shadows*

61. It appears that based on the shadow study the pedestrian concourse space will be relatively dark throughout the year. HW recommends that the Applicant clarify how they are addressing this and potentially investigate ways to introduce more light or adapt to

the limited light besides adding lighting such as: further stepping the buildings to allow more sunlight into the concourse, using moveable site furnishings so that users can adjust where they sit within the space.

**The Applicant responded that the shadow study shows that the concourse will have light mid-morning to mid-afternoon throughout the year. The reduction in height of the Live/Work building will bring additional light into the courtyard. The northern recreational area will have sun all day.**

62. The photometrics plan shows no light on the exterior parking spaces to the northwest of the building.

    **The Applicant has revised the Lighting Plan to show building-mounted lighting to illuminate these areas.**

63. The photometrics plan shows light straying into the front of the adjacent property on Los Angeles Street. The Applicant should ensure the street lighting does not stray into the adjacent residential property.

    **The Applicant has addressed this comment adequately. There is negligible light spill over in the location from the pole-top lighting being used to light the pedestrian crossing at the driveway of Building 2.**

64. The Applicant should clarify how any lights on the building or in the windows of the Innovation Building will affect the adjacent neighbor on Los Angeles Street and Riverdale Avenue.

    **The Applicant has addressed this comment adequately. Building 2 is now a residential building with public and tenant uses on the ground floor. Typical residential lighting will be used on the building that faces Los Angeles Street and Riverdale Avenue and should not affect neighbors. Any building lighting will be at low levels.**

65. The Applicant should specify any light fixtures on the building that would uplight the building and potentially impact the surrounding area. The pole fixtures are dark sky compliant and the cable lighting is within the concourse. Ideally there would be very limited or no light pollution that would adversely affect the wildlife in this area.

    **The Applicant concurs with the comment and all fixtures will be dark sky compliant.**

*Connections and Improvements to Nearby Open Space Resources.*

66. The Applicant should confirm whether a vehicular and/or pedestrian and bicycle connection at the end of Midland Avenue to Gates Street and Forte Park on the other side of the fence has been discussed with the City. If there will not be a vehicular connection between Midland Avenue and Gates Street, the Applicant should consider pedestrian/bicycle path(s) to increase connectivity throughout the neighborhood.

    **The Applicant revised the plans and now shows a proposed bike and pedestrian connection between Midland Avenue and Forte Park. The Applicant states that they propose improvements to street crossings at California Street to enhance**

**bicycle and pedestrian safety. These crossings are not shown on the plans. HW recommends clarification of the location of those crosswalks be provided.**

67. The existing fence west/Forte Park side of the property is an actual and aesthetic barrier between the development and the park. It also restricts the space for planting between the road and the fence. The Applicant should coordinate with the City to discuss the removal of the fence paired with tree removal and plantings. If fence removal is not desired than the Applicant should consider discussing replacing it with a more aesthetically pleasing and welcoming fence. This would allow unhealthy or unwanted trees growing into the existing fence to be removed as needed.

    **The Applicant addressed this comment by calling out the proposed fence in the Landscape Plan. However, on the Site Prep Plan the existing chain link fence is called out to be maintained. If a new fence is erected adjacent to the existing fence, an area will be created between the two that will be almost impossible to maintain.  he Applicant stated that a detailed plan for this area has been presented to the City that includes removal of existing trees and fencing and the installation of a new fence and landscape. The Applicant noted that the plan was in the Appendices of their response narrative, but it appears to be missing. The Applicant should clarify what has been approved in regards to tree and fence removal and protection and update the plans accordingly.**

68. Two Norway Maple trees are called out to be protected (trees labeled S and T). The plans state that these trees are partially growing into the existing fence. These are invasive species and, unless they greatly enhance the aesthetics of the area, could be removed and replaced with native species that add diversity to the surrounding plantings. See comment above regarding fence removal.

    **The Applicant addressed this comment by stating that these particular trees provide biomass, shade, and habitat benefits as a result of their size and that the trees will be pruned and preserved. HW agrees that there is a benefit to protecting large shade trees. The Applicant should confirm the species and health of the trees prior to finalizing the plans. In photos and Google Street view it appears these are not Norway Maples and the plans list them as growing into the fence.**

69. The section view of the tree protection detail calls out for fencing to be at the drip line of the tree but shows the fencing to be within the dripline. The Applicant should update the detail to clarify where the dripline is.

    **The Applicant revised the detail and responded that tree protection will be reviewed in the field which HW considers the best practice.**

70. There are no trees shown between the development and the parcel to the east. Invasive and damaged trees will be removed there. A visual screen between the properties would be environmentally and aesthetically beneficial. The Applicant should consider how to fit tree plantings along that edge and potentially a new fence, depending on the adjacent use.

    **The Applicant responded that it will discuss with the abutter if additional landscaping can be installed without impeding its use of the right-of-way.**

*Sustainability*

71. Proposed development in this location is consistent with the City's objectives to encourage walkable redevelopment in proximity to transit and reduce single occupancy vehicle trips. HW assumes the transportation peer reviewer will provide comment regarding parking requirements and trip reduction in this regard.

    **No further action required at this time.**

72. The project appears to propose a reduction in impervious area, addition of trees and landscaped areas, and an improvement in water quality treatment on the currently highly impervious site. The site has limited existing tree cover and is currently within a "hot spot" with extreme temperatures as defined by the City Climate Action Plan. Significant opportunity exists to utilize green infrastructure and resilient building design to reduce heat island effect and extreme heat risks. More detailed drainage and landscape design information will be required as design development continues.

    **The Applicant provided more information about how the project will reduce the heat island affect. Additional street trees have been added to the Midland Avenue design, though green infrastructure practices have not been added.**

73. Design to meet the standards of an authorized green building rating system is required per Zoning Section 5.12. Additional information is required for review. A Sustainability Report has not been provided.

    **The Sustainability Report dated April 22, 2020 states Building 1 will be LEED v4 Residential "Certifiable" at Silver level, and three residential floors of Building 2 will be designed to Passive House standards. The Sustainability Report notes a commitment to meet the intent of the City's sustainability goals though a waiver from these provisions has been requested. Expectations for additional study and certification requirements should be clarified.**

74. EV stations are required for 10% of the project parking spaces and provision of an additional 10% of parking spaces to be EV ready. Additional information is required for review.

    **The Applicant has stated intent to meet this requirement, but the final locations have yet to be determined. More information should be provided as part of future review.**

75. Will buildings have green roofs and/or be solar or solar-ready? Additional information is required for review.

    **The Applicant responded that buildings will have green roofs and solar PV panels. Locations will be determined as the design progresses.**

76. Investigation of other opportunities to provide green infrastructure practices within streets consistent with the City's Complete Streets Policy is encouraged.

    **The Applicant noted that Los Angeles Street and Midland and Riverdale Avenues are private rights-of-ways and it has limits on what it can propose, but they will**

**endeavor to implement measures. Additional detail is required for clarification of the proposed approach. Also see HW response to comment #33.**

77. The Hazard Mitigation Plan recommends incorporating more stringent stormwater standards and future precipitation projections. The rainfall depths used in the drainage analysis should be based on NOAA Atlas 14 precipitation depths. HW has no objection to depths utilized in the provided drainage report.

    **No further action needed.**

78. We encourage a commitment to conducting embodied carbon analyses as part of the design process, and encourage the selection of materials, products, and wall assemblies that minimize the overall embodied carbon and maximize high thermal performance throughout the project.

    **The Applicant acknowledged the importance of embodied carbon analyses and new tools that have been developed within the last several years. Its team will use these tools as the design progresses.**

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# MEMORANDUM

**To:** Katie Whewell, Neil Cronin – City of Newton

**From:** Janet Carter Bernardo, PE and Gemma Kite, PE – Horsley Witten Group, Inc.

**Date:** April 13, 2020

**Re:** 15 Riverdale Avenue, Bird-Building Collision Mortality

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The intent of this memorandum is to provide the City of Newton with research data regarding bird strikes associated with glass walls. The proposed development at 15 Riverdale Avenue is proposing a glass bridge that connects the second, third, and fourth floors of the five story buildings. During its April 1, 2020 hearing the Zoning Board of Appeals (ZBA) requested that HW provide information to the ZBA for use in its deliberations regarding the Comprehensive Permit application for the development. HW recommends that the Applicant consider bird-friendly design elements for the proposed development in light of the close proximity to natural bird habitat along the Charles River corridor, the design of the glass walkway bridge connecting the two sides of Building 1, and the proposed use of a landscaped courtyard as a gathering place for residents and visitors. As this memo highlights, there are many bird-friendly design options that can be considered that have successfully been used throughout the world[1].

**Bird-Building Collisions**

According to the American Bird Conservancy (ABC), approximately 1 billion birds (1-5% of all birds) die each year due to collisions with glass on buildings, also called window strikes. Window strikes are the leading cause of death for migratory birds. Research indicates that bird-building collisions occur day and night at any height of building at any time of the year (Mass Audubon, 2020).

A study done in 2014 found that window strikes is one of the leading anthropogenic threats to birds (Loss et al., 2014). The 2014 study reviewed 23 existing case studies[2] to quantify bird-building collision mortality and understand if there are species-specific vulnerabilities. The study estimated that 44% of bird mortality occurs at residences (1-3 stories tall), 56% at low-rise buildings (4-11 stories tall), and less than 1% at high-rise buildings (>12 stories tall). The study

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[1] To see examples of how bird-friendly design has been used in buildings around the world, visit: http://collisions.abcbirds.org/pdf/buildingsslideshow.pdf

[2] These studies had combined over a 92,000 fatality records, which was the largest building collision dataset to date.

also identified that the most vulnerable species include the Golden-winged Warbler (Vermivora chrysoptera), Painted Bunting (Passerina ciris), Canada Warbler (Cardellina canadensis), Wood Thrush (Hylocichla mustelina), Kentucky Warbler (Geothlypis formosa), and Worm-eating Warbler (Helmitheros vermivorum). As most studies have been done during migration season and in the eastern U.S., these five species identified may reflect seasonal and regional biases in currently available data and case studies. Further studies need to be conducted across all seasons and regions to determine if there are additional species-specific vulnerabilities and to reduce bias.

The majority of bird collisions with buildings occur during the day when birds are the most active (Sheppard and Phillips, 2015). Birds are unable to see window glass as a barrier. Often, birds strike windows that reflect habitat (vegetation) or the sky that is attractive to birds. The area of glass on a facade is the strongest predictor of threat to birds (Sheppard and Phillips, 2015).

Many birds migrate by night using a special sense that allows them to see magnetic fields through the presence of dim blue light. Artificial light can disrupt their orientation. Mist or cloud cover can further exacerbate the situation, causing birds to fly closer to the artificial light sources. According to the ABC, the amount of light a building emits is a stronger predictor of the number of bird-building collisions it will cause than building height (Sheppard and Phillips, 2015).

Boston is on the migratory bird route, making this information and resulting recommendations important to new development projects in the City and surrounding suburbs. Mass Audubon initiated the Avian Collision Team to monitor bird-building collisions in downtown Boston. It is unclear if data analysis or resulting recommendations from this citizen science initiative will be available in the near future.

**Predictors of Mortality Rates**

The following main factors have been identified through research as contributors to bird-building collision mortality:

- Total glass window area. A 2009 study performed by Klem et al. on several buildings in Manhattan concluded that both the proportion and absolute amount of glass on a building façade best predict mortality rates and calculated that with every increase of 10% in the expanse of glass correlated to a 19% increase in bird mortality in spring and 32% in fall. However, how this total glass on a façade is separated by number of pieces, size of pieces, and separation distance contributes to bird-building collision mortality has not been studied (Sheppard and Phillips, 2015).

- Adjacent habitat. Multiple studies show that increased vegetation close to the building is associated with more bird-building collisions. One study performed in 2012 confirmed that the mortality rate varied by location (e.g., urban versus rural, home versus apartment, with or without bird feeders, and age of neighborhood) and increased with the age of the neighborhood and presence of mature trees. The Klem 2009 study in Manhattan found that a ten percent increase in tree height and the height of vegetation

corresponded to 30% and 13% increases in collisions in the fall, whereas a 10% increase in tree height corresponded to a 22% increase in collisions in the spring. Vegetation presumably increases the risk of bird-building collisions by attracting more birds to the area and reflections of the vegetation in the window glass (Sheppard and Phillips, 2015).

- Building design and features. Research shows that vegetation perceived as habitat inside buildings that can be seen through glass can lure birds. In addition, glass walkways or bridges can trick birds into thinking they have an unobstructed path through to habitat on the other side (Sheppard and Phillips, 2015). Landscaped courtyards can also be problematic as they contain corners that may be confusing to birds and limit escape routes (Audubon Minnesota, 2010). The landscaping and prospect of food from pedestrian activity lures birds into the courtyard. Nearby window glass reflecting the sky can be perceived as an escape route.

**Regulations and Policy**

Massachusetts and the City of Boston do not have any ordinance or laws mandating bird-friendly design for new buildings. A few cities including San Francisco, Oakland (CA), and Toronto, as well as the State of Minnesota, have passed laws for bird-safe building standards[1] and provide voluntary bird-friendly development guidelines[2].

In 2008, Boston initiated a voluntary "Lights Out Boston!" program to encourage urban buildings to turn off the lights at night, specifically during peak migration periods. A study on one office building in Chicago indicated that bird mortality reduced by 80% when architectural and window lighting was turned off during migration periods (Mass Audubon, 2009).

**Bird-Friendly Design**

Incorporating bird-friendly design into new buildings can help reduce the potential hazard to birds. According to the ABC, there is no perfect solution that provides a 100% reduction in bird-building collision mortality, however, the industry should be implementing achievable actions now rather than wait for the perfect solution or not take any action (Sheppard and Phillips, 2015). Buildings can get certified through the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program for bird collision deterrence. The program assigns ratings to buildings that reduce bird-building collision mortality through the following categories:

- building façade and site structures,
- exterior lighting, and
- performance monitoring plan.

[1] https://sfplanning.org/standards-bird-safe-buildings
[2] https://web.toronto.ca/wp-content/uploads/2017/08/8cd7-Bird-Friendly-Development-Guidelines.pdf

More information about their bird collision deterrence rating requirements is located here: https://www.usgbc.org/credits/core-shell-existing-buildings-healthcare-new-construction-retail-nc-schools/v2009/pc55.

The ABC conducts research to quantify the relative threat of different materials and possible solutions. ABC provides ratings for products/materials that help reduce bird collision on glass based on testing that they have conducted or based on other peer-reviewed research (https://abcbirds.org/get-involved/bird-smart-glass/). They have also published the Bird-Friendly Building Design document, which provides solutions for both new and existing buildings, available here: https://abcbirds.org/wp-content/uploads/2015/05/Bird-friendly-Building-Guide_LINKS.pdf.

Research shows the following solutions can help reduce bird-building collisions:

Glass

- Patterned glass. Any visible markings (e.g., stripes, dots) to break up the transparency or reflective nature of glass must be small enough so birds cannot perceive that they can fly through the perceived obstacle. Extensive research performed on the songbird shows that if a stripe pattern is used, the lines should be a ¼ inch thick and a maximum horizontal spacing of two inches and maximum vertical spacing of four inches, also known as the "2 x 4 rule" (Sheppard and Phillips, 2015; U.S. Fish and Wildlife, 2016). Visible markings should be of a color that contrasts well with the glass, such as white (U.S. Fish and Wildlife, 2016). UV patterned glass, which is invisible to the human eye but visible to birds, may be another option. However, as of 2015, not many UV patterned glass products existed and research may indicate that this is not an effective solution for all species of birds (Sheppard and Phillips, 2015).
- Angled glass. A 2004 study found glass at a 20 to 40 degree angle had less bird collisions than vertical glass, which may be a result of the angled glass reflecting ground cover instead of habitat or the sky (Sheppard and Phillips, 2015).
- Opaque and translucent glass. There are many options to create opaque and translucent glass, including etched, stained, or frosted glass. Any patterns used in these types of glass should follow the "2 x 4 rule" mentioned above (Sheppard and Phillips, 2015).
- Physical obstructions. Netting, screens, exterior shades, shutters and other architectural features not only help to control light and temperature in the building, it also can prevent bird-building collisions (Sheppard and Phillips, 2015; U.S. Fish and Wildlife, 2016). Several companies sell products that can be affixed to the window using suction cups or eye hooks to allow for temporary solutions during times of the year when birds are most active.
- Films and decals. Exterior and interior films and decals can be used to reduce the transparency and provide a visible obstacle to birds. Designers can be creative and use artwork to provide visible markings on glass.
- A full list of glass products rated and recommended by ABC is available here: https://abcbirds.org/get-involved/bird-smart-glass/.

Lighting

- Eliminate or reduce unnecessary lighting. Reducing and/or eliminating unnecessary lighting in both the interior and exterior of the building, especially during peak bird migration periods, will help reduce bird-building collisions (U.S. Fish and Wildlife, 2016).
- Use fully shielded exterior lights. Fully shielded exterior lights, also known as zero up lights or dark sky compliant, do not put out any light skyward. U.S. Fish and Wildlife provide a list of light fixtures that are fully shielded compliant (U.S. Fish and Wildlife, 2016).
- Where appropriate, install motion activated lights.

Landscaping

- If habitat is adjacent to or reflected in building windows, treat the glass (e.g., patterned glass, opaque glass, films and decals).
- Avoid any interior landscaping or portrayal of natural habitat that is visible from the outside of the building through a window.
- If indoor trees, plants, or vegetation is to be used, treat the glass next to the vegetation to reduce the transparency (e.g., patterned glass, opaque glass, films and decals).

**Resources**

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Mass Audubon. 2020. Bird Window Collisions. Website. https://www.massaudubon.org/learn/nature-wildlife/birds/bird-window-collisions.

Mass Audubon. 2009. Kill the Lights, Save the Birds. *Connections: A newsletter for the members of Mass Audubon*. January – March 2009. https://www.cityofboston.gov/images_documents/Mass%20Audubon%20Connections_tcm3-39501.pdf.

S. R. Loss, T. Will, S. S. Loss, and P. P. Marra. 2014. Bird–building Collisions in the United States: Estimates of Annual Mortality and Species Vulnerability. *The Condor: Ornithological Applications.* January 2014. http://www.audubon.org/sites/default/files/documents/loss_et_al_bird-building_collisons_condor_2014.pdf.

U.S. Fish and Wildlife Service. 2016. Reducing bird collisions with buildings and building glass best practices. January 2016. https://www.fws.gov/migratorybirds/pdf/management/reducingbirdcollisionswithbuildings.pdf

City of Newton

**DEPARTMENT OF PUBLIC WORKS**
**ENGINEERING DIVISION**
OFFICE OF THE CITY ENGINEER
1000 Commonwealth Avenue
Newton Centre, MA 02459-1449

Ruthanne Fuller
Mayor

**DATE:** May 27, 2020

**TO:** Zoning Board of Appeals

**FROM:** Louis M. Taverna, P.E., City Engineer

**RE:** **Comprehensive Permit under Chapter 40B**
**15 Riverdale Ave, Residences on the Charles**
**Sewer Infiltration/Inflow Mitigation Calculation - Revised**
**General Ordinance, Chapter 29, §§ 167-174**

The City recently adopted a general ordinance that requires sewer infiltration/inflow mitigation for all projects that include more than four residential units. In accordance with this ordinance, the City Engineer has calculated the infiltration/inflow mitigation fee cost for this project. See calculations below. The total mitigation fee, based on the proposed usage of low flow fixtures throughout the project, is $1,782,563.

The general ordinance allows the Zoning Board of Appeals (the "Board") to waive, in whole or in part, the infiltration/inflow fee for a particular development upon a showing of good cause. This memorandum sets forth the City Engineer's analysis of the applicant's waiver request for this project.

Waiver request:

a) *The expected impact of the development on sewer infiltration/inflow.* The development will propose to add an average of 21,060 gallons per day to the existing city sewer system (assuming low flow fixtures). The existing sewer flow from the site is due to existing facilities, now closed. Estimated sewer flows on the entire site is estimated to be 822 gallons per day, and this amount was subtracted from the proposed sewer flow.

b) *Whether infiltration/inflow mitigation has previously been conducted in the general area and to what extent.* This project lies in sewer area 6. This sewer project area is currently undergoing sewer system improvements. Sewerage from this area flows to the MWRA interceptor sewer along the Charles River. Upstream of the project is sewer area 7, which has not yet undergone sewer system improvements. Sewer flows upstream of the project have a direct effect on the sewer flows from the project area. The estimated cost of design and construction of improvements in sewer area 7 approaches $5,900,000.

c) *Whether the abatement will benefit the health and well-being of the public and is reasonably in the best interest of the city.* In evaluating the waiver request, the Board should consider whether a waiver will benefit the public and the City. While the mitigation of infiltration/inflow constitutes a significant local concern, a partial waiver may be appropriate where the developer is proposing other forms of mitigation or benefits. In this instance, a waiver of up to 75% of the infiltration/inflow mitigation fee is acceptable to the City Engineer. This would allow the remaining 25% of the fee, or $445,641 to be used toward construction of sewer improvements related to the project. Therefore a waiver of 75% of the fee is recommended by the City Engineer so long as the Board determines that the overall level of mitigation and benefits being proposed for the project is in the best interest of the City and the public.

Calculation of sewer infiltration/inflow mitigation.

Low flow fixtures:
324 bedrooms x 65 gal/bedroom/day = 21,060 gals/day
Existing avg daily flow = 822 gal/day (based on previous water meter usage, 3-year average)
Net flow = 20,238 gal/day x 4 x $22.02 = $1,782,563

Sincerely,

Louis M. Taverna, P.E.
City Engineer

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May 27, 2020

Ms. Katie Whewell
Senior Planner
Planning and Development Department
Newton City Hall
1000 Commonwealth Ave
Newton, MA 02459

Subject: **Review of Responses to Comments**
**Proposed Mixed-Use Development at**
**15 Riverdale Avenue,**
**Newton, Massachusetts**

Dear Ms. Whewell:

On behalf of the City of Newton (the City), Green International Affiliates, Inc. (Green) is submitting this letter of review of MDM's responses to the original comments submitted by Green to the City on April 30, 2020 from our engineering peer review of the application package for the proposed residential development at Riverdale Avenue and Los Angeles Street. This supplemental review included an examination of the two documents provided with MDM's responses:

- Memorandum titled "Response to Comments Issued by Green International Affiliates, Inc.", prepared by MDM Transportation Consultants, dated May 19, 2020.
- Document titled "(15 Riverdale Ave Parking Management 5.18.20) The Residences on the Charles, 15 Riverdale Avenue, Newton, MA", prepared by Criterion Development Partners (CDP), dated May 18, 2020.

What follows are the original comments submitted by Green, followed by the corresponding MDM response in italicized text, followed by Green's latest comments in bold text.

## December 2019 and March 2020 Traffic Impact and Access Reviews

1. Green's original comment: The two memorandums included the following eight study intersections:

   **December 2019 TIA**
   - California Street at Bridge Street
   - California Street at Los Angeles Street
   - California Street at Riverdale Avenue
   - California Street at 5th Avenue
   - California Street at Watertown Street (Route 16)

   **March 2020 TIA**
   - California Street at Jasset Street
   - California Street at Rustic Street
   - California Street at Faxon Street

   Green concurs with the study area used in the TIA documents.

*MDM Response: No further response necessary.*

Green Response**: We concur with the Applicant's response.**

2. Green's original comment: Traffic count data were collected in January of 2019 for the first five study intersections observed previously, and in the first week of March 2020 for the latter three intersections. Seasonal data suggests below-average annual conditions during each of those months, hence, revisions to volumes were made according to the month. Automatic Traffic Recorders (ATRs), including 24-hour counts and speed data were collected on Wednesday, January 2nd, 2019. Turning Movement Counts (TMCs) were collected on Tuesday, December 18th, 2018; Thursday, January 17th, 2019; and Thursday, March 5th, 2020. Green concurs with using seasonally adjusted data to perform the analysis.

   *MDM Response: No further response necessary.*

   Green Response: **We concur with the Applicant's response.**

3. Green's original comment: Crash data were presented from information provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the years 2014-2016 for the first five study intersections and the years 2017-2019 for the latter three study intersections. During the three-year periods that were examined, the California Street at Bridge Street intersection was stated to have experienced 17 crashes, the California Street at Watertown Street (Route 16) intersection was stated to have experienced 3 crashes, and each of the other intersections were stated to have each experienced 0-4 crashes.

   Green reviewed the numbers of crashes with data available from the MassDOT IMPACT Crash Query and Visualization tool, and identifies 4 crashes as being reported at the California Street at Watertown Street intersection in the same three-year crash period. This is anticipated to increase the crash rate at this intersection, though the rate will still be below average.

   Considering that the tools used to review crash data for the March 2020 TIA were available when the December 2019 TIA was being prepared, Green recommends conducting an updated review of crash history at the initial five study intersections and taking the updated information into consideration when evaluating potential impacts and improvements.

   *MDM Response: MDM recalculated the crash rate at the initial five study intersections using the most recent crash data obtained from MassDOT for the five-year period 2015 through 2019. The updated crash rates at the study intersections remains well below the average crash rate for the intersections within the MassDOT District 6 area. Therefore, no immediate safety countermeasures are warranted based on the crash history at the study locations. Crash data for the study intersections is summarized in Table R1 with detailed data provided in the Attachments.*

   Green Response: **We concur with the Applicant's response.**

4. Green's original comment: Green notes that the traffic volumes used to calculate the crash rate worksheets for the first five intersections in the December 2019 TIA are close to, but do not match, the afternoon peak hour volumes used in the figures or the unadjusted TMC data. Green recommends reviewing and explaining the discrepancy in traffic volumes used.

*MDM Response: Response: The crash rate worksheets have been updated to be consistent with the traffic volumes as shown in the Baseline weekday evening traffic volume network. The worksheets also include the expanded crash data as shown in Table R1. The crash rate worksheets are provided in the Attachments. No material changes in crash rates are noted; all crash rates are well below averages for communities in the area including Newton.*

Green Response: **We concur with the Applicant's response.**

5. Green's original comment: The speed data utilized for calculating the required Stopping Sight Distance and Intersection Sight Distance is very limited. The data consists of 43 vehicle speeds measured by MDM in the field. There is no information regarding the time of day, or the period of measurement. This is a very limited sample size that could have been highly impacted by the timing of the measurement. The industry practice is to collect speed data along with the ATR counts for a 48-hour period. While spot speed studies such as those conducted in this instance are acceptable in certain circumstances, the state of MA recommends a sample size of 100 vehicles in each direction, which was not provided. Revised speed data with a larger sample size should be provided.

   *MDM Response: The spot speed study was conducted on January 11, 2019 using a radar device after 10:30 AM to reflect only those vehicles traveling at "free flow" speeds along California Street. These data show a maximum travel speed of 37 mph in both travel directions relative to the posted speed limit of 30 mph. The submitted data presents a reasonable basis for purposes of determining required sight lines, noting that sufficient Stopping Sight Distance (SSD) is provided at Los Angeles Street and at Riverdale Avenue for travel speeds in excess of 50 mph. Supplemental data would include the slower speed "peak periods" on California Street and would not present additional useful information (in fact are likely to show lower average and 85th percentile speeds than reported).*

   *As noted under Response to Comment 6 and under Mitigation responses, sight lines at both intersections with California Street will be improved by virtue of Proponent-sponsored improvements including curb "bump outs" along California Street and/or vegetative clearing and potential parking space adjustments that are subject to detailed engineering design review by the City. Resulting sight lines will be enhanced over existing conditions and will meet or exceed applicable criteria for regulatory speed limits on California Street.*

   Green Response: **While we concur with the time of day the data was collected; we still recommend collecting additional vehicle speeds to provide a larger sample size. Although available minimum SSD is exceeded for even relatively high speeds, minimum and desirable ISD are also affected by vehicle travel speeds and were observed to be restricted by parking and landscaping.**

6. Green's original comment: Intersection sight distance (ISD) was listed in the December 2019 TIA as having exceeded 500 feet in each direction at the intersection of Riverdale Avenue and Los Angeles Street. However, Green's review indicated that ISD was restricted to less than this by parked vehicles in the daytime (looking to the left from Riverdale Avenue) and by landscaping. Green recommends that the Applicant further review sight distances as relates to on-street parking and landscaping along California Street. Stopping sight distances were satisfied at this location.

   *MDM Response: Proponent-sponsored intersection improvements at Los Angeles Street and at Riverdale Avenue as described in more detail under Mitigation will address pre-existing sight line limitations. As noted under Response to Comment 6 and under Mitigation responses, sight lines at both intersections with California Street will be improved by virtue of Proponent-sponsored improvements including curb "bump outs" along California Street and/or vegetative clearing and*

*potential parking space adjustments that are subject to detailed engineering design review by the City. Resulting sight lines will be enhanced over existing conditions and will meet or exceed applicable criteria for regulatory speed limits on California Street.*

Green Response: **Exhibit R2 does not include any proposed parking restrictions east of Riverdale Avenue where ISD was the most restricted.**

7. Green's original comment: The background growth data was calculated based on four MassDOT count stations. However, three of these count stations are located outside of the city of Newton in Quincy, Abington, and Weymouth. The one count station located in the City of Newton reflected a background growth rate of 0.6% per year, while the Abington and Weymouth traffic growth was negative during that time period. Taking the average of these locations does not reflect the Newton experience. The background growth should be adjusted upwards to 0.6% per year, or additional count data from the vicinity of the site should be provided to accurately reflect average conditions in the area.

   *MDM Response: Peak-hour count data for California Street for the years 2016, 2018 and 2019 were tallied (see Attachments) to determine a more precise peak hour growth trend for area intersections. These data indicate an average yearly growth rate of approximately 0.2% or less. Likewise, historical daily count data collected in 2018 and 2019 along California Street near Los Angeles Street when adjusted to average season indicates a flat growth rate. While the single permanent count station at I-95/Route 128 to the south of I-90 shows a marginally higher rate (0.6%) than used in the submitted studies, the use of localized peak hour data is a more accurate barometer of growth during peak hours for the study intersections. Therefore, the 0.5% annual growth rate is approximately twice that of localized intersection data and represents a conservative analysis assumption.*

   *In summary, the applied growth rate of 0.5% represents a conservatively high assumption based on localized intersection count data for the California Street corridor and as such accounts for any small fluctuation in hourly traffic that may occur in the study area including the nominal traffic volumes associated with smaller projects such as the 20-unit multi-family building proposed at 184 California Street and the 6 unit residential building under construction on Dalby Street. No further analysis is warranted, and no material change in results would result from the submitted studies.*

   Green Response: **We concur with the peak hourly volume data, although not the daily data since the two dates are approximately only one year apart and may not represent longer-term growth trends. This being stated, we concur with the choice of percentage used given the seasonally-adjusted local data.**

8. Green's original comment: The future conditions were evaluated for a seven-year horizon which is consistent with MassDOT TIA guidelines which require a minimum of seven years, and with regional general practice. The background growth is indicated to be 0.5% per year, with two specific planned developments in the area consisting of one 20-unit multi-family building proposed at the Los Angeles Street study intersection and a 6-unit residential building proposed approximately one-quarter mile from the site. Considering the proximity of the 20-unit site to the project site, the moderate size of the 20-unit site, and the low background growth rate used, Green recommends separately incorporating the expected number of trips from the Los Angeles Street development from the background growth rate.

   *MDM Response: See response to comment 7, not further analysis is required.*

Green Response: **We concur with the Applicant's response.**

9. Green's original comment: Green concurs that the trip generation land use code 221 is appropriate for this site. However, the trip generation is only provided for the AM and PM peak hours in the report. While the daily trip generation is provided in the Appendix it should also be discussed in the trip generation section as it relates to the existing traffic. In addition, the trip generation rates in the Appendix do not reflect the latest 10th edition trip generation rates given by ITE for dwelling units. The trip generation rates should be updated to reflect the 10th edition ITE trip generation for Land Use Code 221 vs. dwelling units. The rates used are "occupied units" rather than "dwelling units". While this would appear to represent a more conservative condition, the rates provided are lower during the PM and daily peak hours. This is likely a reflection of the much more limited sample size for that variable and as a result should not be utilized for this project.

   *MDM Response: A comparison between the trips presented in the TIA using the ITE rates based on occupied dwelling units and ITE dwelling units is provided in Table R2.*

   *In summary, use of LUC 221 trip rates for total units (rather than occupied units) results in trips that are less than those used in the submitted studies. Accordingly, the submitted studies tend to slightly overstate likely trip impacts of the project. This conservatively high trip basis more than offsets trips from area growth including other smaller projects in the area as described in Response to Comments 7 and 8.*

**TABLE R2**
**TRIP-GENERATION COMPARISON**

| Peak Hour/Direction | LUC 221 (March 2020 TIA)[1] | LUC 221 (Revised)[2] | Difference (Δ) |
|---|---|---|---|
| *Weekday Morning Peak Hour:* | | | |
| Entering | 22 | 18 | -4 |
| Exiting | 64 | 50 | -14 |
| Total | 86 | 68 | -18 |
| *Weekday Evening Peak Hour:* | | | |
| Entering | 55 | 54 | -1 |
| Exiting | 31 | 34 | +3 |
| Total | 86 | 88 | +2 |
| *Weekday Daily (24 hours)* | 992 | 1,110 | +118 |

[1]Based on ITE LUC 221 – Multifamily Housing (Mid-Rise) (by Occupied Units) applied 204 Units.
[2]Based on ITE LUC 221 – Multifamily Housing (Mid-Rise) (by Dwelling Units) applied 204 Units.

Green Response: **We concur with the Applicant's response.**

10. Green's original comment: Green notes a typographical error. The footnote to Table 1 in the March 2020 TIA states that the previous plan had proposed to include of 217 residential units, but the previous TIA and plan state 204 units. Please clarify the discrepancy.

    *MDM Response: The previous plan that was include in the previous TIA included 204 units; therefore, the 217-unit reference in Table 1 of the March 2020 TIA was an inadvertent typo.*

    Green Response: **We concur with the Applicant's response.**

11. Green's original comment: The intersection capacity analysis for the unsignalized intersections in the December 2019 TIA was conducted using the *Highway Capacity Manual 2010* rather than using the latest HCM reference that was published in MassDOT's *TIA Guidelines* and MassDOT's *Traffic and Safety Engineering 25% Design Submission Guidelines*. Although it may provide similar results, the applicant should have performed the analyses using *Highway Capacity Manual 6th Edition* to be consistent with the analyses performed for the March 2020 TIA intersections. Any updates to the analysis, given the network updates requested above, should utilize the latest HCM and the available tools that are based on that version.

*MDM Response: Capacity analysis results using the HCM6 delay values for unsignalized intersections have been printed and compared to the HCM 2010 delay results as summarized in Table R3 and Table R4. There is no material difference in results for the analyses. Detailed analysis results provided in the Attachments.*

*As summarized in Table R3 and Table R4, the HCM6 results are the same as the HCM 2010 results, therefore, the TIAS remains valid under the latest version of the HCM and no further analysis is warranted.*

**TABLE R3**
**INTERSECTION CAPACITY ANALYSIS RESULTS**
**WEEKDAY MORNING PEAK HOUR**

| | | 2026 Build Condition | | | | | |
|---|---|---|---|---|---|---|---|
| | | TIA | | | HCM 6th Edition | | |
| Period | Approach | v/c[1] | Delay[2] | LOS[3] | v/c | Delay | LOS |
| *Los Angeles Street at* | Eastbound | 0.01 | <5 | A | 0.01 | <5 | A |
| *California Street* | Westbound | 0.00 | <5 | A | 0.00 | <5 | A |
| | NB Exit | 0.04 | 19 | C | 0.04 | 19 | C |
| | SB Exit | 0.09 | 22 | C | 0.09 | 22 | C |
| *California Street at* | Eastbound | 0.03 | <5 | A | 0.03 | <5 | A |
| *Riverdale Avenue* | Westbound | 0.00 | <5 | A | 0.00 | <5 | A |
| | SB Exit | 0.25 | 25 | C | 0.25 | 25 | C |
| *Fifth Avenue at* | Eastbound | 0.00 | <5 | A | 0.00 | <5 | A |
| *California Street* | Westbound | 0.01 | <5 | A | 0.01 | <5 | A |
| | NB Exit | 0.53 | 34 | D | 0.53 | 35 | D |

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

**TABLE R4**
**INTERSECTION CAPACITY ANALYSIS RESULTS**
**WEEKDAY EVENING PEAK HOUR**

| | | 2026 Build Condition | | | | | |
|---|---|---|---|---|---|---|---|
| | | TIA | | | HCM 6th Edition | | |
| Period | Approach | v/c | Delay | LOS | v/c | Delay | LOS |
| *Los Angeles Street at* | Eastbound | 0.01 | <5 | A | 0.01 | <5 | A |
| *California Street* | Westbound | 0.01 | <5 | A | 0.01 | <5 | A |
| | NB Exit | 0.06 | 23 | C | 0.06 | 23 | C |
| | SB Exit | 0.14 | 28 | D | 0.14 | 28 | D |
| *California Street at* | Eastbound | 0.03 | <5 | A | 0.03 | <5 | A |
| *Riverdale Avenue* | Westbound | 0.00 | <5 | A | 0.00 | <5 | A |
| | SB Exit | 0.28 | 31 | D | 0.28 | 31 | D |
| *Fifth Avenue at* | Eastbound | 0.00 | <5 | A | 0.00 | <5 | A |
| *California Street* | Westbound | 0.01 | <5 | A | 0.01 | <5 | A |
| | NB Exit | 0.43 | 34 | D | 0.44 | 34 | D |

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

Green Response: **We concur with the Applicant's response.**

12. Green's original comment: The transportation demand management program (TDM) included by the proponent contains the statement that the plan "may include the following", before describing the proposed TDM measures. The proponent should clarify which of these items will be implemented. In addition, a traffic monitoring program should be included to ensure that the proposed development does not exceed the trip projections, with the potential for an expanded TDM in the event that the projections are not met.

*MDM Response: The Proponent has agreed to include TDM measures as formal commitments. The TDM program will include the following:*

- *Unbundled Parking (Separate Parking Lease)*
- *Charlie Card Subsidy*
- *Secure Bike Rooms*
- *Shared Bikes & Saddlebags (20)*
- *Watertown TMA membership*
- *Shuttle Funding*

*The Proponent is also amenable to providing a monitoring program to the extent the City requires one, noting that relative trip impacts of the project are inconsequential to area traffic operations and are likely to be slightly overstated in the submitted traffic studies. The Proponent is open to discussing details of traffic monitoring with City staff if such monitoring is deemed necessary or appropriate.*

Green Response: **We concur with the Applicant's response; per our original comment we still recommend that the Applicant implement a traffic monitoring program.**

## Site Plan Review

1. Green's original comment: The site plans generally conform to the City of Newton regulations.

   *MDM Response:* *No further response necessary.*

   Green Response: **We concur with the Applicant's response.**

2. Green's original comment: The plans depict 237 total parking spaces: 75 spaces at/underneath Building 1A, 107 spaces at/underneath Building 1B, 46 spaces at Building 2, and 9 parallel spaces along Midland Avenue and Riverdale Avenue. The proposed development includes 324 bedrooms in 204 units. This results in a parking demand of approximately 243 spaces during the weekday, and 250 spaces during the weekend. The proponent is suggesting a reduction of 10% based on census transit data. Green concurs with this approach. The resulting demand is 219 spaces during the weekday, and 225 spaces during the weekend. This is very similar to the 1.1 ratio utilized by the proponent to develop their residential parking calculation, and as a result is considered reasonable. Of this total:

   - 204 spaces are assigned to residential units, corresponding to one space per unit. Note that the TDM proposed in the December 2019 TIA states that "[t]he Proponent will unbundle residential parking" from unit rental, Green concurs with this approach.
   - 16 additional spaces at Buildings 1A and 1B available for additional rent, corresponding to approximately 10% of the units. This includes 4 spaces proposed to be used as tandem. These spaces should be available for rent only as a single entity; they should not be purchased separately to ensure that they are utilized within a single unit.

   *MDM Response:* *MDM concurs, no further response necessary.*

   Green Response: **We concur with the Applicant's response, including the parking management document prepared by CPD.**

3. Green's original comment: The locations provided for electric vehicle (EV) charging parking spaces have not been provided in the latest plans. It is stated in the Parking Summary and Sustainability Report that 24 EV spaces will be provided, corresponding to 10% of total spaces. An additional 10% of spaces is also stated to be proposed to be accommodate for "future conversion to EV charging spaces". The locations for these vehicles should be depicted in the plans and preferential locations should be considered.

   *MDM Response:* *The locations of the EV spaces will be determined later in the design process to ensure coordination with the Electrical plans. Preferential locations will be considered.*

   Green Response: **We concur with the Applicant's response.**

4. Green's original comment: The plans depict an enclosed "Bike Room" at Building 1B with capacity for 90 bicycles with abutting room for bicycle repair and stated exterior capacity for parking 70 bicycles at four locations around Building 1B. At Building 2 there is now shown an enclosed "Bike Room" with stated capacity for 54 bicycles, and exterior parking for 5 bicycles is shown adjacent to Building 2. Thus, there is a shown capacity of 1.1 bicycle parking capacity per residential unit, or 0.7 enclosed bicycle parking capacity per residential unit. However, details of the type and width / spacing of bicycle racks is not provided in either plan set, so it cannot be determined at this time if the stated bicycle storage capacities can actually fit within the depicted locations.

*MDM Response: The bike room detail provided by Icon Architecture that was used to calculate the bike room capacity is include in the Attachments.*

Green Response: **We concur with the Applicant's response.**

5. Green's original comment: The site plans do not clearly depict if/where there is a loading area for the proposed cafe. The Applicant should depict the location of the loading zone for the cafe. While there is a loading zone depicted on Riverdale Avenue for trash pick-up this is not an ideal location for deliveries to the amenity areas. There is a flush vertical curb in front of the Café, it is not clear what the intention of that space is. If it is for loading it should be designated as such. The proposed bollards separating this area from the pedestrian environment is a critical improvement and should be maintained going forward.

   *MDM Response: The loading area for the café will occur in this flush stamped concrete area. Given the small size of the café, it is anticipated that the loading area will be used only briefly to unload goods. We do not believe that delineating this area with pavement markings is necessary.*

   Green Response: **We concur with the Applicant's response.**

6. Green's original comment: The December 2019 TIAS mentions that as part of TDM measures, preferential parking will be allotted for carpools, vanpools, and car sharing. The site plans do not depict the locations of these features. The Applicant should depict the location of the preferential parking spaces.

   *MDM Response: The Proponent has indicated that there will be no carpool, vanpool, or car sharing spaces. The parking spaces on Midland Ave will be used for pick-up drop off and a future shuttle van.*

   Green Response: **We concur with the Applicant's response.**

7. Green's original comment: It is not clear from the plans whether any of the proposed handicap parking spaces will be allocated for visitor parking. There should be at least one handicap accessible visitor parking space.

   *MDM Response: There will be one handicap parking provided for visitors on Midland Avenue and one handicap space provided in Building 2, both to be identified on the final site plan prepared by Allen and Major Associates.*

   Green Response: **We concur with the Applicant's response.**

8. Green's original comment: The proposed parking aisle width to the east of Building 2 is only 20 feet, less than industry standard practice. Although the plans state that relief is sought from the City of Newton, the Applicant should demonstrate that vehicles are able to efficiently enter and exit parking spaces along this aisle utilizing AutoTurn.

   *MDM Response: An AutoTurn exhibits indicating ample maneuvering area at the 20-foot aisle and below Building 1 and Building 2 are include in the Attachments. MDM notes that a 20-foot wide cross-section is consistent with the AASHTO design criteria for very low volume local roadways, which is in line with likely low-volume characteristics of Midland Street and within the parking areas.*

Green Response: **While the Applicant has shown that a small passenger vehicle is able to enter and exit the stated aisles, a means to discourage larger passenger vehicles such as pick-up trucks and SUVs from accessing the narrow areas should be implemented such as signage and/or rental agreements.**

9. Green's original comment: There is one visitor/short-term parking space on Midland Avenue within 20 feet from the pedestrian crossing on Midland Avenue at Los Angeles Street. Parking spaces shall be located a minimum of 20 feet from the nearest crosswalk and from the Midland Avenue / Los Angeles Street intersection per the 2000 Uniform Vehicle Code and the MUTCD. Green recommends either shifting the parallel parking spaces further east or removing the parking space closest to the crosswalk.

   *MDM Response: A conceptual plan for the shift in the parallel parking spaces is provided in the Attachments. The first space will be set back 30' as requested; spaces will be 8 feet wide with the first space designated at an accessible (HP) space. The identified parking space will be adjusted on the final site plan set to be prepared by Allen and Major Associates.*

   Green Response: **We concur with the Applicant's response.**

10. Green's original comment: The location of the trash pick-up on Riverdale Avenue is in a reasonable location relative to the trash room in Building 1. Clarification should be provided as to how the trash pick-up for the Café will operate and whether it will be combined with the residential units.

    *MDM Response: The café trash will be combined with the residential trash pickup to facilitate refuse pickup/processing.*

    Green Response: **We concur with the Applicant's response.**

## Mitigation

1. Green's original comment: The proposed wheelchair ramp shown in Figure 11 in the March 2020 TIA, at the northeast corner for the California Ave / Bridge Street intersection adjacent to the driveway entrance appears to have a ramp transition length immediately next to the transition piece for the driveway entrance. Please review this location further to see if it is possible to provide level walking areas between ramps for providing ADA-accessible facilities. In the event that the ramp remains flush with the driveway, a barrier should be provided, similar to existing conditions, to prevent vehicles from exiting the property through the ramp.

   *MDM Response: An updated conceptual intersection improvement plan for the California Street/Bridge Street intersection has been developed based on preliminary input from City staff and is presented in Figure R1. Specific design details for the improvement at the California Avenue/Bridge Street intersection will be reviewed during the engineering design review process and through consultation with the City Transportation Division and will be based on field survey of the intersection to ensure compliance with applicable ADA requirements for ramp layouts.*

   *The key features of the updated concept improvement plan include geometric modification of curb lines and radii at the northeast and southeast corners of the intersection to substantially reduce pedestrian crossing length and improve lane alignment on California Street. This will enhance*

*pedestrian safety, allow reduced pedestrian signal crossing time, and optimized vehicle green time to offset project traffic impacts. Specific signal timing adjustments to improve traffic flow at the intersection are subject to ongoing review between the Town of Watertown and the City of Newton that are funded by others.*

*Modification of curb lines and curb radii at the intersection will accommodate larger commercial vehicles and emergency apparatus as tested by AutoTurn analysis that are included in the Attachments. Modification of design as required to meet these vehicle turn requirements will be made during the formal engineering design review process.*

Green Response: **In addition to conducting turning movements (as stated in the above response), Green still recommends reviewing the wheelchair ramp transition length immediately next to the transition piece for the driveway entrance. While these transitions are now shown in a different location the potential for vehicle encroachment onto the wheelchair ramp (if the transition lengths are flush between ramp and driveway) or angled vertical points in the sidewalk (if the transition lengths are both raised above roadway grade) remains.**

2. Green's original comment: In Figure 12 in the March 2020 TIA there are RRFB units are proposed approximately where there are existing street lamp posts. The Applicant should consider removing and replacing/relocating the lamp posts to avoid sign clutter or blocked visibility.

*MDM Response: An updated conceptual intersection improvement plan for the California Street/Los Angles Street intersection and California Street/Riverdale Avenue intersection have been developed based on preliminary input from City staff and is presented in Figure R2. Specific design details for the improvements at these locations will be reviewed during the engineering design review process and through consultation with the City Transportation Division and will be based on field survey of the intersection to ensure compliance with applicable ADA requirements and relocation of utilities as appropriate.*

*The key features of the updated concept improvement plan include geometric modification of curb lines for "bump-outs" at Los Angeles Street to reduce crossing length and additional sidewalk improvements at Riverdale Avenue. These improvements will enhance pedestrian safety, allow reduced pedestrian crossing visibility, and will bring sidewalks and crossings to current ADA compliance.*

*Modification of curb lines and curb radii at the intersection will accommodate larger commercial vehicles and emergency apparatus as tested by AutoTurn analysis will be conducted during the formal engineering design review process to ensure these vehicle types are properly accommodated.*

Green Response: **We concur with the revised concept improvement plan. Green recommends showing curb along the north edge of sidewalk in the northwest corner of the California Street / Los Angeles Avenue intersection to separate the sidewalk area from the parking area.**

If either the City staff or the Applicant's engineer would like to discuss any of these comments further, please feel free to contact me at ctobias@greenintl.com.

Sincerely,
Green International Affiliates, Inc.

Corinne Tobias, P.E., PTOE
Transportation Planning Group

cc: W. Wong, Green
W. Scully, Green

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