

CAMBRIDGE DISCOVERY PARK

APPLICATION TO CAMBRIDGE PLANNING BOARD
FOR MAJOR AMENDMENT NO. 1 TO
PLANNING BOARD MASTER PLAN SPECIAL PERMIT PB#198,
FOR A PARKWAY OVERLAY DISTRICT SPECIAL PERMIT,
AND FOR DESIGN REVIEW OF BUILDING 600



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10 Acorn Park Drive
Cambridge, MA
02140

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Volume I – Narrative Materials

Submitted by

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Summary of Requested Zoning Relief and Approvals

BHX, LLC, as Trustee of Acorn Park Holdings Realty Trust (“Bulfinch”), is embarking on the next step in the phased redevelopment of Cambridge Discovery Park, the former Arthur D. Little Company campus in the northwest corner of Cambridge. Bulfinch now proposes to construct a 150-room hotel with associated amenities including meeting and function space, a restaurant/bar, a fitness facility, and a pool.

For this project, Bulfinch is requesting a Major Amendment to Master Plan Special Permit PB#198 (granted by the Planning Board on October 19, 2004), as amended by Minor Amendment No. 1 (granted by the Planning Board on March 1, 2005), and Minor Amendment No. 2 (granted by the Planning Board on October 20, 2009) (as amended, the “Cambridge Discovery Park Master Plan Special Permit”). This Major Amendment is required to add Hotel to the uses allowed under the Master Plan Special Permit. The applicable Special District 4 zoning already allows hotels by right, because this use is allowed by right in the underlying Office 2 zoning district. The proposed hotel will be built in lieu of the office/laboratory building previously proposed for the Building 600 location.

Bulfinch also seeks a special permit under Section 20.63.7 of the Cambridge Zoning Ordinance, for relief from certain Parkway Overlay District requirements otherwise applicable to the hotel facade facing the Concord Turnpike and the Alewife exit ramp. Specifically, Bulfinch seeks special permit relief from Section 20.64.3(1), to allow the principal entrance of the hotel to face the internal roadway rather than the highway exit ramp, and from Section 20.64.3(2), to allow for reduced facade/rooftop articulation of the side of the hotel facing the highway and exit ramp.

Finally, Bulfinch is requesting Design Review of the proposed hotel building, as required by Condition 2 of the Cambridge Discovery Park Master Plan Special Permit.

Background and History

Arthur D. Little Company's Research Campus

Beginning in 1952, and continuing for more than three decades thereafter, the former Arthur D. Little Company (“ADL”) built a sprawling, utilitarian, office and research campus along Acorn Park Drive. ADL constructed several buildings on the south side of Acorn Park Drive, immediately adjacent to the Little River. Those buildings were barely outside the subsequently-adopted Wetlands Protection Act’s 25-foot Riverfront Area. As such, they were much closer to the river than would now be acceptable from a planning or environmental standpoint. Among these was ADL’s tallest building, the six-story former Building 20.

ADL also leased adjacent land along the eastern side of Acorn Park Drive from the former Metropolitan District Commission (“MDC,” now part of the Department of Conservation and Recreation). With the MDC’s approval, ADL filled wetlands and built a parking lot with 454 surface parking spaces on this MDC land. By the mid-1990s, ADL’s campus had grown to eleven buildings containing approximately 416,000 square feet of gross floor area, with 1,052 surface parking spaces (including the 454 on MDC land).



Aerial view of former ADL Campus, circa 2000

In 1999, ADL sold its campus (including undeveloped land in Cambridge and Belmont), while remaining as the sole tenant. In November 2000, Bulfinch acquired the approximately 26.5-acre Cambridge portion of the former ADL property. At that time, ADL leased and occupied the entire campus.

Shortly thereafter, ADL suffered financial difficulties that resulted in the company filing for bankruptcy. In its bankruptcy proceedings, ADL voided its lease of the campus, leaving Bulfinch without a tenant. Two new companies emerged from ADL's ashes, TIAX, LLC and Nuvera Fuel Cells, Inc. For a few years, these companies remained as tenants, but, together, only occupied about half of the campus. Today, neither company remains at the campus.

Developing a Shared Vision of the Future

When Bulfinch acquired the property, the approximately 26.5-acre campus was zoned as Office 2. By right, the Cambridge Zoning Ordinance allowed a gross floor area of approximately 1,500,000 square feet (more than three times the approximately 416,000 square feet that Arthur D. Little Company had built). Many in the community felt that a tripling of the gross floor area at this location would have been excessive. Bulfinch, the Cambridge City Council, the Community Development Department, the Planning Board, and numerous other interested parties worked together collaboratively to develop a mutually-satisfactory downzoning proposal known as the Alewife Petition.

Many stakeholders wanted to see the surface parking area on the MDC land restored to natural conditions. Many stakeholders also wanted to see the area between Acorn Park Drive and the Little River—the so-called Little River Area—restored to natural conditions. There was widespread acknowledgement that, given the absence of public funding, the funds needed for these restoration efforts would need to be generated through private redevelopment of the campus. Eventually, a consensus vision emerged: the maximum allowed gross floor area for uses other than structured parking would be reduced to 916,000 square feet, and the developed footprint would be constrained to the area north and west of Acorn Park Drive. The Little River Area and MDC parking lot area would be restored to natural conditions. Finally, the maximum number of parking spaces allowed or required (for any mixture of uses) was set at 1,052, the historic number of spaces on ADL's campus and the MDC land. After a public hearing, the Planning Board unanimously recommended adoption of the Alewife Petition. On September 24, 2001, the City Council unanimously enacted the Alewife Petition as Section 17.40 of the Zoning Ordinance.¹

The Special District 4 rezoning established a process for the phased redevelopment of the former Arthur D. Little Company campus. Under this process, increases in the total amount of gross floor area are coupled with specific milestones for the restoration and preservation of certain natural areas. In Phase One, the gross floor area can be increased from the approximately 416,000 square feet present in 2001 to as much as 666,000 square feet, plus up

¹ CZO § 17.40 created two new special districts, Special District 4 encompassing Bulfinch's 26.5-acre property, and Special District 4A encompassing several neighboring properties between Cambridge Discovery Park and the Concord Turnpike.

to 250,000 square feet of structured parking.² During this initial phase, Bulfinch was required to develop and obtain Planning Board approval of a plan to restore to natural conditions the former MDC parking lot area and the Little River Area, such that at least ninety percent of these areas would consist of Green Area Open Space.

In Phase Two, the gross floor area may be increased to as much as 850,000 square feet of gross floor area, plus up to 400,000 square feet of structured parking. During this phase, Bulfinch would be required to restore the former MDC parking lot area, to demolish five of the buildings formerly located in the Little River Area, and to restore to natural conditions at least fifty percent of the Little River Area. In fact, Bulfinch fully restored the former MDC parking lot area to natural conditions in conjunction with the construction of the first new building, Building 100, for Smithsonian Astrophysical Observatory. Building 100 opened in late 2005. Bulfinch also demolished all of the former Arthur D. Little Company buildings in the Little River Area sooner than expected and has restored that area to natural conditions. In conjunction with the construction of Building 200/300, Bulfinch also demolished the remaining former Arthur D. Little Company buildings north and west of Acorn Park Drive. Thus, while Cambridge Discovery Park currently remains within Phase One of the Special District 4 redevelopment process, all of the Phase Two milestones have been met.

In Phase Three, Bulfinch may increase the total gross floor area to as much as 900,000 square feet, plus up to 400,000 square feet of structured parking. Also in this phase, Bulfinch would be required to complete the restoration of the Little River Area, had it not already done so.

Implementation of the Shared Vision Begins

After ADL's collapse, Bulfinch actively sought new tenants for Cambridge Discovery Park. In 2004, Bulfinch signed up the Smithsonian Astrophysical Observatory ("Smithsonian") as the first new tenant. Smithsonian wanted to stay in Cambridge while consolidating several scattered facilities into a purpose-built building to satisfy its particular needs. With a tenant on board, Bulfinch proceeded with implementation of the shared vision codified in Section 17.40 of the Zoning Ordinance.

On August 26, 2004, Bulfinch filed its Cambridge Discovery Park Master Plan Special Permit application with the Planning Board. The application was accompanied by seven volumes of supporting materials including a Flood Storage Report, Drainage Report, and Flood Storage Plan set, all prepared by the BSC Group; Graphics and Renderings prepared by ADD Inc; and a Transportation Impact Study prepared by Vanasse & Associates, Inc. Bulfinch sought several forms of zoning review and relief for the master plan:

- A Project Review Special Permit under Section 19.20 of the Zoning Ordinance,
- A Flood Plain Overlay District special permit under Section 20.73 of the Zoning Ordinance,

² The separate gross floor area limits for structured parking were established in recognition that the high water table and low topography at Cambridge Discovery Park preclude the construction of underground parking.

- Special District 4 yard reduction under Section 17.42.2 of the Zoning Ordinance,
- Special District 4 building height increase (to 80 feet) under Section 17.42.3 of the Zoning Ordinance; and
- Parkway Overlay District Design Review.

On September 21, 2004, the Planning Board held a public hearing on the application. Thereafter, Bulfinch submitted a Supplemental Filing responding to questions raised by the Planning Board. On October 19, 2004, the Planning Board voted to grant the requested zoning reviews and relief. That decision also granted specific approval and design review approval of a new Building 100 (the Smithsonian’s new home) and of Garage A.

On February 25, 2005, after Smithsonian fell short on funding for its Giant Magellan Telescope (GMT) project, Bulfinch requested a Minor Amendment to the decision, to defer construction of the GMT annex to Building 100. Bulfinch also sought permission to defer construction of Garage A until the total gross floor area (excluding parking) at Cambridge Discovery Park exceeded 526,000 square feet. On March 1, 2005, the Planning Board granted the requested Minor Amendment No. 1. Construction of the GMT annex remains deferred unless and until the Smithsonian obtains funding for its GMT project. Construction of Building 100 was completed in late 2005.

In 2009, Bulfinch’s ongoing efforts to attract new tenants to Cambridge Discovery Park were again rewarded. Forrester Research decided to consolidate its scattered Cambridge offices into a new, build-to-suit headquarters. On October 20, 2009, the Planning Board granted Minor Amendment No. 2 for the Forrester Research project, which fixed the locations of conjoined Buildings 200 and 300, shifted the location of a proposed internal connection between Acorn Park Drive and the internal roadway (known as Discovery Way) from between Building 200 and 300 to between Buildings 100 and 200, and allowed up to 731 parking spaces in Garage A and on grade.

Where We Are Today

Bulfinch has removed the surface parking lot from the adjacent Department of Conservation and Recreation land, and has restored that area to natural conditions. With DCR’s approval, Bulfinch created a pedestrian / bicycle path across that area, providing a connection from Cambridge Discovery Park to the MBTA Alewife station. At DCR’s request, Bulfinch also created a small parking lot on DCR’s land with approximately two dozen spaces for visitors to the Alewife Reservation who need a place to park while bird watching, canoeing or kayaking on the Little River, or otherwise enjoying the Reservation.³

The Little River area has been fully restored to natural conditions. That area now includes an open meadow area and a pond, which receives and treats stormwater from the developed

³ These spaces are outside Special District 4, and do not count toward the 1,052 parking spaces allowed within Special District 4 by Section 17.43.1 of the Zoning Ordinance. There is no on-street parking along Acorn Park Drive.

area on the north side of Acorn Park Drive. A smaller pond created just west of Building 100 similarly receives and treats stormwater from that area.

Arthur D. Little Company operated a private, underground, sewer pumping station in the Little River Area, near the edge of the Little River. Bulfinch built a replacement pumping station, located closer to Acorn Park Drive. Bulfinch has agreed to transfer ownership of the new pumping station to the Cambridge Department of Public Works during the next few years.

Bulfinch has worked with an affiliate of Criterion Development Partners, the developer of the 227-unit Vox on Two residential project (formerly known as the Residences at Alewife) on the site of the former Faces discotheque, to coordinate utility infrastructure and pedestrian access. Wastewater from that project will discharge to the City's sewer system via the new pumping station at Cambridge Discovery Park. A pedestrian / bicycle easement allows Vox on Two residents to cross Cambridge Discovery Park to the public sidewalks along Acorn Park Drive, from which they can access the Alewife MBTA station via the path across the DCR land.

Today, Bulfinch has constructed three of the six buildings for which the Planning Board gave conceptual approval in the Cambridge Discovery Park Master Plan Special Permit. Building 100 remains Smithsonian's Cambridge home. Forrester Research occupies Building 200/300. Parking Garage A also has been built. Now, Bulfinch proposes to construct Building 600 as an approximately 82,000 square foot hotel, rather than as the originally-proposed approximately 120,000 square foot office / laboratory building. The remaining master plan elements, Buildings 400 and 500, and Garage B will be built as future tenant opportunities develop.

Master Plan Special Permit Amendment Criteria

As described in Bulfinch's application for the Cambridge Discovery Park Master Plan Special Permit:

The evolving Master Plan for Cambridge Discovery Park envisions that as many as six new occupied buildings will be built, most likely grouped in pairs, separated by access drives between Acorn Park Drive to the south and an internal circulation roadway between the new buildings and the two new parking garages to the north. Starting at the west, Building 100 will be constructed first, for the Smithsonian. . . . This proposed layout and sequence may change over time, depending on future tenant needs. For example, if a future tenant were to require a larger, single-occupant building, such a building might be constructed in the area where Buildings 300 and 400 currently are envisioned. If such a tenant were to materialize in the near future, such a building could precede the construction of Building 200.

Application at 20. The Planning Board's special permit decision expressly recognized that the master plan would evolve over time in response to future tenant demands:

This Decision approves the Master Plan with general size, massing, and locations of buildings and uses established at a conceptual level as described in the application documents. As a prerequisite to the issuance of a Building Permit, each new building shall be subject to design review by the Planning Board to determine conformance with the Design Guidelines, attached as Appendix II to this Decision, and the conditions of this permit.

Cambridge Discovery Park Master Plan Special Permit, Condition No. 2 (emphasis added). To that end, the special permit incorporates the Zoning Ordinance's PUD amendment process for future changes to the Master Plan:

Changes to the master Plan that do not constitute a substantial deviation from the overall project concept approved in this Decision, as determined by the Planning Board with guidance from Section 12.37 of the Zoning Ordinance, may be allowed as a Minor Amendment to this Decision at a regularly scheduled Planning Board meeting, upon an affirmative vote of five members of the [Planning] Board; unless otherwise indicated in this Decision, all other changes shall be considered a Major Amendment to this Special Permit, subject to the requirements of Section 10.40 for the issuance of a new special permit.

Cambridge Discovery Park Master Plan Special Permit, Condition No. 11. A hotel is allowed by right in Special District 4; the use is allowed by the underlying Office 2 zoning. However, the Cambridge Discovery Park Master Plan Special Permit did not contemplate a hotel. Accordingly, Bulfinch sought the Planning Board's advice on whether the proposed repurposing of conceptual Building 600 to a hotel use would require a major amendment to the Special Permit. On November 12, 2013, the Planning Board considered the question and voted to require a major amendment.

The Hotel Project's Compliance with the General Special Permit Criteria

As discussed above, Condition 11 of the Cambridge Discovery Park Master Plan Special Permit provides that major amendments to that approval are subject to the requirements of Section 10.40 of the Zoning Ordinance for the issuance of a new special permit. Section 10.43 of the Zoning Ordinance provides that special permits will normally be granted where specific provisions of the ordinance are met, except when particulars of the location or use, not generally true of the district or of the uses permitted in it, would cause granting of such permit to be to the detriment of the public interest because:

(a) it appears that requirements of this Ordinance cannot or will not be met, or

The proposed hotel use is allowed by right at this location, and is not subject to any particular requirements of the Zoning Ordinance. The proposed hotel building will comply with all the applicable dimensional, parking, and other requirements of the Zoning Ordinance, and with the design review and other applicable requirements of the Cambridge Discovery Park Master Plan Special Permit.

(b) traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character, or

Volume VII of Bulfinch's application for the Cambridge Discovery Park Master Plan Special Permit was a detailed Transportation Impact Study by Vanasse & Associates, Inc., prepared in consultation with the Cambridge Traffic, Parking and Transportation Department. Finding I.b of the Cambridge Discovery Park Master Plan Special Permit states:

As detailed in the application documents, the full development of Cambridge Discovery Park is expected to be associated with a manageable increase in vehicle trips to and from the site with the mitigation measures required by this Decision. The majority of project traffic is expected to be oriented to and from the west on Route 2, with smaller percentages expected from Alewife Brook Parkway north and south of Route 2. It is anticipated that a number of project related trips would be made by transit, bicycling, walking, or other alternative transportation, taking advantage of the site's proximity to the Alewife MBTA Red Line station and the bicycle facilities available in the area.

Review of the Article 19.00 Project Review Special Permit Criteria for evaluation of adverse traffic impacts indicates that the project exceeds all trip generation criteria, level-of-service (LOS) criteria at three locations, the queue criteria at one location and the pedestrian LOS at five locations. These exceedences may be attributed in part to the fact that the traffic generation for multiple buildings proposed in the final build-out of the Master Plan has been evaluated in granting this permit rather than the traffic generated for each individual building separately.

The principal tenant of Building 100, Smithsonian Institution Astrophysical Observatory (Smithsonian), currently employs a variety of measures to reduce the use of single-occupant vehicle trips (SOV), such as subsidies for employees who do not drive alone to work. The nearby presence of the Alewife MBTA Station and bus lines will provide an attractive alternative to single-occupancy vehicle commuting.

The recent rezoning that created Special District 4 limits the total number of parking spaces at Cambridge Discovery Park to the currently-existing number – one thousand fifty-two (1,052). Nevertheless, as a condition of this Decision, as the Master Plan is implemented over the next several years, the parking space ratios for Cambridge Discovery Park will remain relatively constant as the build-out of the project proceeds to an eventual size of approximately 819,916 square feet of gross floor area. Constraining the parking supply will work to limit the amount of vehicle trip generation by the site.

However, even under the aggressive assumptions made in the Traffic Study about the use of non single-occupancy-vehicle modes of travel to the site, demand for parking may exceed the supply of parking permitted in the District, as the Gross Floor Area (GFA) authorized in the Master Plan nears full build-out. Nevertheless, the Planning Board is prepared to approve the Master Plan GFA with the expectation that changes in driving behavior, improved public transportation service, additional transportation demand management measures, infrastructure improvements, or other events will assure adequate adjustment to the current parking demand in the district over the fifteen years the project is anticipated to be constructed. Furthermore, required monitoring of vehicle trips to the site over the life of the Master Plan build-out will provide ample opportunity for the Permittee and the Planning Board to develop adequate responses to any reasonably expected eventuality.

All vehicular access to and from Cambridge Discovery park is via Acorn Park Drive, which runs between Frontage Road in Belmont and the Alewife MBTA Station off-ramp from Route 2, in Arlington. No other public ways of Cambridge (or any other municipality) connect to Acorn Park Drive; the road serves only Cambridge Discovery Park. As part of the Massachusetts Environmental Policy Act (MEPA) process, the proponent will work with the Massachusetts Highway Department to explore alternatives for reducing congestion, increasing capacity, and improving safety at these intersections

At the request of the Traffic, Parking and Transportation Department, Vanasse & Associates prepared a memorandum (included in Volume II of this application) providing supplemental transportation information for the proposed hotel project. That analysis concludes that the hotel “will generate slightly more total daily trips, but fewer vehicle trips during the weekday morning and evening commuter hours” as compared to the previously-proposed office/laboratory use Building 600. The analysis also concluded that the proposed hotel will require fewer parking spaces,

applying the CZO's Office 2 parking ratios, than would the previously-proposed office/laboratory use building.

(c) the continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would be adversely affected by the nature of the proposed use, or

The proposed hotel will not have any adverse effect on the continued operation or future development of Cambridge Discovery Park, or of the adjacent Martignetti properties to the west along the Concord Turnpike. In the near term, the area between the hotel and the nearest Martignetti property (the Lanes & Games site) will remain landscaped. A portion of that area will continue to be used for temporary surface parking. Later, Garage B will be constructed at this location, in conjunction with the construction of Buildings 400 and 500.

The proposed hotel use will not have any adverse effects on the permitted uses of adjacent properties to the east or south of the project site. The land to the east, across Acorn Park Drive, is owned by the Department of Conservation and Recreation. The Alewife Petition rezoned this area to Open Space. Bulfinch has restored this area to natural conditions, as required by the Special District 4 rezoning and the Cambridge Discovery Park Master Plan Special Permit. Future Buildings 400 and 500 will be constructed in the area immediately south of the hotel site, to the north and west of Acorn Park Drive. Rather than adversely affecting the use of those future buildings (or of the existing Buildings 100 and 200/300), the hotel will provide accommodations for multi-day visitors to tenants of those buildings. The hotel also will provide a restaurant within easy walking distance for employees of Cambridge Discovery Park tenants and for residents of the adjacent VOX on Two project (formerly known as the Residences at Alewife).

(d) nuisance or hazard would be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City, or

The proposed hotel will not create any nuisance or hazard detrimental to the health, safety, and/or welfare of the guests or employees of proposed hotel or of the citizens of Cambridge.

(e) for other reasons, the proposed use would impair the integrity of the district or adjoining district, or otherwise derogate from the intent and purpose of this Ordinance, and

The Cambridge Discovery Park Master Plan embodies the redevelopment of the former Arthur D. Little Company campus that the Special District 4 rezoning is meant to facilitate. Far from derogating from intent and purpose of the Zoning Ordinance, the hotel use is allowed by right in Special District 4 and by the underlying Office 2 zoning. Multi-day visitors to tenants of Cambridge Discovery Park will be able to stay at the hotel, rather than commuting to and from other hotels located farther away. Similarly, visitors to Cambridge will be able to stay at the hotel

and use the nearby MBTA Red Line to access destinations in downtown Cambridge or Boston, reducing associated vehicle trips into the City.

(f) the new use or building construction is inconsistent with the Urban Design Objectives set forth in Section 19.30.

Condition I.f of the Cambridge Discovery Park Master Plan Special Permit states:

As detailed below, the proposed Building 100 Project and the Cambridge Park Master Plan are fully consistent with the Urban Design Objectives set forth in Section 19.30 [of the Zoning Ordinance]. In addition, a set of Master Plan Design Guidelines adopted by the Planning Board will ensure that the full build-out of Cambridge Discovery Park will continue to fulfill the Urban Design Objectives in the future.

Appendix II to the Cambridge Discovery Park Master Plan Special Permit sets forth the Cambridge Discovery Park Master Plan Design Guidelines. These design guidelines were adopted as a project-specific implementation of the urban design objectives set forth in Section 19.30 of the Zoning Ordinance. The hotel design complies fully with the applicable requirements of the Cambridge Discovery Park Master Plan Design Guidelines. The final design of the hotel building is subject to Planning Board design review (as discussed below) under Condition 2 of the Cambridge Discovery Park Master Plan Special Permit.

Parkway Overlay District Special Permit

Condition 9 to the Cambridge Discovery Park Master Plan Special Permit anticipated that Bulfinch might request a further special permit altering the dimensional requirements of the Parkway Overlay District. Bulfinch now seeks a Parkway Overlay District special permit under Section 20.63.7 of the Zoning Ordinance, to allow divergence from two of the Parkway Overlay District's dimensional standards governing building facades. First, Bulfinch seeks a waiver of Section 20.64.3(1), which requires that principal building entrances within the Parkway Overlay District face the parkways and boulevards that define the district. Second, Bulfinch seeks a waiver of Section 20.64.3(2), which requires that building facades and rooflines be articulated and that expanses of unbroken wall planes be limited to thirty-five feet for those facades facing public open spaces and/or public roadways.

Section 20.63.7 of the Zoning Ordinance authorizes the Planning Board to grant special permits for divergence from the Parkway Overlay District standards “upon its determination that the development proposed will better serve the objectives of this Section 20.60 than if the standards were followed and that the criteria specified in Section 10.43 will be satisfied.”

Waiver of the principal entrance requirement

The northeastern edge of Cambridge Discovery Park is within the Parkway Overlay District, because it is within 200 feet of the centerline of State Route 2, a/k/a the Concord Turnpike. This overlay district includes most of the proposed Building 600 hotel footprint. The hotel will be separated from the Concord Turnpike by the Arlington portion of Cambridge Discovery Park and by the Alewife exit ramp from the Concord Turnpike. There is virtually no chance that the Massachusetts Department of Transportation would grant a curb cut for direct access between the hotel site and the Concord Turnpike or the Alewife exit ramp.

The Arlington portion of Cambridge Discovery Park is zoned as an OS Open Space district. The Arlington Zoning Bylaw does not allow hotel uses in this district. The Arlington Zoning Board of Appeals is no longer authorized to grant use variances. Consequently, because the hotel use is not allowed on the Arlington portion of Cambridge Discovery Park, that land also cannot be used to provide vehicular or pedestrian access to the proposed hotel. Thus, vehicular and pedestrian access to the hotel must be on the southwest side, from within the Cambridge Discovery Park campus.

One purpose of the Parkway Overlay District is “to enhance public safety by reducing visual confusion and haphazard development.” Zoning Ordinance, § 20.62. Having a principal entrance face the Concord Turnpike at this location would create visual confusion for motorists using the Alewife exit, whether destined for the hotel or not. It could invite taxis or other vehicles dropping off or picking up hotel guests to stop illegally on the Alewife exit ramp, endangering public safety. People arriving at the hotel on foot—*e.g.*, walking from the Alewife Red Line station—would be required to walk along the Alewife exit ramp, next to fast-moving vehicles, rather than crossing through the restored Department of Conservation and Recreation land to sidewalks along Acorn Park Drive.

Another purpose of the Parkway Overlay District is “to encourage development which will protect and enhance the use and enjoyment of public of public open space resources.”

Zoning Ordinance, § 20.62. A principal entrance facing the Concord Turnpike would expose hotel guests to noise and traffic. By contrast, a principal entrance on the hotel's south side will invite hotel guests to experience the restored Department of Conservation and Recreation public open space parkland, and the restored Little River Area. Locating the principal entrance on the south side will encourage hotel guests to visit the DCR land, whether for relaxation, or to use the pathway to the Alewife Red Line station.

Waiver of the facade/roofline articulation requirement

The proposed hotel's northeastern side, facing the Concord Turnpike, will have facade and roofline articulation. Additionally, variations in cladding materials, and between the first and upper floor fenestration patterns, will break up the wall plane. However, further articulation of the facade, to break the wall plane every thirty-five linear feet as otherwise required by Section 20.64.3(2) of the Zoning Ordinance, would disrupt the internal layout and result in an unnecessary proliferation of room sizes with no corresponding public benefit. The principal viewers of this facade of the hotel will be drivers on the Alewife exit ramp, who will need to focus on reducing their speed and preparing for a bend in the road, rather than the hotel's architectural details. The only hotel facade facing public open space, the narrow easterly end, will have the required facade and roofline articulation.

Thus, the proposed hotel project complies with the Parkway Overlay District criteria applicable to the requested special permit. As discussed above, the hotel project also complies with the Zoning Ordinance's general special permit criteria as set forth in Section 10.43.



View of north side of hotel from Route 2 Alewife exit ramp.

Design Review of the Building 600 Hotel

Condition 2 of the Cambridge Discovery Park Master Plan Special Permit establishes the design review process for future buildings.⁴ It states that in granting that Master Plan Special Permit, the Planning Board

approves the Master Plan with general size, massing, and locations of buildings and uses established at a conceptual level as described in the application documents. As a prerequisite to the issuance of a building permit, each new building shall be subject to design review by the Planning Board to determine conformance to the Design Guidelines, attached as Appendix II to this decision, and the conditions of this permit.

...

Design approval shall be granted by the Planning Board for development consistent with the Design Guidelines, the conditions of this Decision, and the applicable requirements of the Zoning Ordinance.

Compliance with the Cambridge Discovery Park Master Plan Special Permit Design Guidelines

The Cambridge Discovery Park Master Plan Design Guidelines recognize that Special District 4 is unlike any other area of the City. The area's proximity to the Alewife Reservation, susceptibility to flooding, and historical pattern of development adjacent to the Little River present unique challenges, and require particular solutions. The transformation of the former ADL campus into Cambridge Discovery Park is reclaiming an urban wild. In doing so, Cambridge Discovery Park presents a much more dynamic interaction between the built and unbuilt environments than is typical elsewhere in the City. This urban edge should be celebrated, and treated appropriately and creatively. The susceptibility of the site to flooding, from upstream stormwater flows and from back flows caused by downstream obstructions, requires compensatory flood storage capacity. The requirement that first floor elevations of all occupied buildings must be kept above FEMA's calculated 100-year flood elevation presents additional design challenges and opportunities. The Cambridge Discovery Park Master Plan Design Guidelines provide a framework within which these issues can be addressed in an aesthetically and functionally-appropriate manner that responds to Special District 4's unique characteristics. The Guidelines' criteria are discussed below.

a. Open space and circulation design

1. Open Space

The creation and restoration of open space areas has been accelerated far beyond what is required by the Special District 4 zoning. The adjacent DCR land is fully restored to natural conditions, several years ahead of schedule. The Special District 4 zoning requires that the demolition of buildings in the Little River Area must begin when the total gross floor area

⁴ Condition 3 of the Cambridge Discovery Park Master Plan Special Permit approved the design of Building 100 and Garage A, and associated site improvements.

(excluding parking garages) exceeds 660,000 square feet, and must be completed before the total gross floor area (excluding parking) exceeds 850,000 square feet. Today, although the redeveloped campus's gross floor area (excluding parking) is only approximately 363,248 square feet⁵, all of Arthur D. Little Company's former buildings have been removed from the Little River Area. The Special District 4 zoning requires that fifty percent of the Little River Area must be restored to urban wild natural conditions when the total gross floor area (excluding parking) exceeds 660,000 square feet. That restoration was fully completed in conjunction with construction of Building 200/300 for Forrester Research, well in advance of the timeframe required under the Special District 4 zoning.

The Design Guidelines call for private development bordering public open space and public thoroughfares to have direct access to the public space, and to present inviting elevations and imagery. Building 200/300 has a central entrance facing Acorn Park Drive, and the restored Little River area beyond. The hotel's principal entrance will face the interior of the Cambridge Discovery Park campus. The hotel's entrance courtyard will be visible from the DCR land to the east and from the restored Little River area to the south. From this entrance courtyard, hotel guests will have view corridors southwest toward the restored Little River Area and southeast toward the restored DCR land. Hotel guests also will have easy pedestrian access to these areas.

2. Transit Shuttle

The Design Guidelines call for efforts to increase the usage of the nearby Alewife MBTA station, including the provision of a shuttle between Cambridge Discovery Park and the station. Paul Revere Transportation operates a shuttle bus between 7:15 a.m. and 9:30 a.m. and between 4:15 p.m. and 6:30 p.m. on weekdays, *i.e.*, during peak periods. The shuttle circulates between Cambridge Discovery Park and Porter Square, via the Alewife station. Hotel guests will be able to use the shuttle bus.

The pedestrian / bicycle pathway across the adjacent, restored DCR land provides convenient pedestrian and bicycle access between Cambridge Discovery Park and the Alewife station. Sixty-six bicycle parking spaces currently are available on the campus. The hotel project will add at least eight additional bicycle spaces, four of which will be under cover in Garage A. When Garage B is built, covered bicycle spaces for hotel guests and employees will be relocated to that garage.

3. Pedestrian and Bicycle Circulation

In 2004, Bulfinch constructed a multi-use pedestrian and bicycle connection between Cambridge Discovery Park and the Alewife MBTA station. The Building 200/300 project shifted the lateral connection between Acorn Park Drive and the internal roadway, to between Buildings 100 and 200, and consolidated the loading areas for Buildings 200/300. This eliminated multiple conflicts among pedestrian/bicycle/vehicle/loading uses from the master plan's interior courtyard area.

⁵ This includes approximately 5,600 square feet of gross floor area allocated to the Giant Magellan Telescope Annex to Building 100, which has not yet been (and may never be) constructed.

4. Parking and Service Facilities

Initially, long-term parking for hotel guests will be provided in the existing Garage A. Later, when the construction of Building 400 and/or Building 500 warrants the construction of Garage B, hotel guest parking will shift to the new, closer garage. Ten short-term surface parking spaces, for luggage drop-off and pick-up, will be provided in the hotel's inner courtyard, along with a guest drop-off area. Loading for the hotel will be provided along the west side. When constructed, Garage B will further screen this area from view.

b. Land use

1. Uses

The proposed hotel use is allowed by right in Special District 4 under the Office 2 use regulations incorporated by Section 17.41 of the Zoning Ordinance. First floor amenities will include meeting and function space, a restaurant/bar, a fitness facility, and a pool.

2. Parking

The 454 surface parking spaces formerly located on the adjacent MDC Lot have been eliminated. Garage A provides approximately 620 structured parking spaces for Cambridge Discovery Park tenants and their visitors. A small amount of temporary surface parking will remain on the north parcel, until future building construction warrants construction of Garage B. At full build-out, almost all of the allowed 1,052 parking spaces will be provided in Garages A & B, with a few short-term surface parking spaces for passenger drop-off, deliveries, and related transient uses.

c. Elements of form

1. Height

The Design Guidelines acknowledge that the redevelopment of Cambridge Discovery Park generally requires a full height build-out of eighty-five feet.⁶ However, the hotel will have a lower height, of only four stories (approximately 50 feet). This will comply with the reduced height restrictions of the Parkway Overlay district (which limit facade height to 55 feet). As anticipated by the Design Guidelines, sloped areas and raised planters will be used to establish the first floor elevation of the hotel above the 100-year flood plain.

2. Scale

The hotel has been designed to have a human scale and provide a sense of intimacy along the bordering public way and internal campus open space. The building will be clad with a variety of materials, textures, and colors. Because it will serve a different principal use, the hotel will look dissimilar from, but will harmonize with, the existing office buildings.

⁶ As provided for in Section 5.23 of the Zoning Ordinance, this height measurement does not include chimneys, water towers, air conditioning equipment, elevator bulkheads, skylights, ventilators and other necessary features appurtenant to buildings which are usually carried above roofs and not used for human occupancy. Any such elements have been designed in a coordinated, distinctive manner in concert with the upper floors of the building.



3. Massing

The hotel will be at the northeast corner of Cambridge Discovery Park; it will not cast shadows on the bordering Reservation. The hotel and future Garage B will form a “block” on the north side of the internal roadway. The combination of an “L” shaped footprint, facade articulation, and a variety of cladding materials will prevent the hotel building from having an overly monolithic appearance. Building 600 will have a distinctive character, but has been designed in an architecturally compatible manner as the next step in the family of buildings that will comprise an integrated urban campus.

4. Setbacks

Section 17.42.2 of the Zoning Ordinance authorizes the Planning Board to waive all yard requirements in Special District 4 other than the front yard requirement in the Parkway Overlay District. Condition 1(iii) of the Cambridge Discovery Park Master Plan Special Permit established the forty foot setback from the centerline of Acorn Park Drive, and certain setbacks for Garage A and Garage B, and provides for the setbacks of future buildings to be approved during the design review process. Building 600 will be set back at least forty feet from the centerline of Acorn Park Drive, as required by the Design Guidelines.

5. Street Wall Patterning/Base, Middle and Top

With a height of only four stories, Building 600 will not require (or support) as strong a tripartite architectural configuration as might be appropriate for taller buildings at Cambridge Discovery Park. Nonetheless, it will have a more transparent, highly-fenestrated first floor, and its fourth floor will be clad in material of a different color and texture. This cladding difference also will be brought down to the top of the ground floor on parts of the east end (facing Acorn Park Drive) and the short wing (facing the interior courtyard). Additional facade details will distinguish the hotel’s main entrance.



East elevation, with Garage A behind and Building 200/300 at left.



South elevation, with future Garage B at left.



North elevation, with Building 200/300 behind on right.

6. Silhouette

The Design Guidelines call for buildings to provide animated, varied silhouettes that create an appropriate identity and enrich views from the Alewife Reservation, nearby areas, and public ways. The hotel silhouette will be shorter than those of Buildings 100 and 200/300, with facade articulation and an “L” footprint, with further animation provided by varied fenestration patterns and cladding colors and materials.

7. Color

The hotel will be clad in warm and inviting colors, principally a pre-cast concrete, with metal ACM panels for the upper floor and accent areas. As recommended by the Design Guidelines, the precast elements, landscaping planters, stone walls, and other elements of the

hotel project will use warm and inviting colors that compliment the Alewife Reservation’s natural range.



Detail interior courtyard with trees and planter wall, walk.

8. Architectural Details

Very little of the hotel building will face the public domain. The north side faces the Alewife exit ramp from the Concord Turnpike. The sidewalk along the exit ramp is little used. The primary viewers of this facade will be passing drivers focusing on traffic and the upcoming bend in the road. Still, this facade will include a variety of fenestration patterns and cladding materials. The south facade and eastern facade of the wing—the two facades defining the interior courtyard—will have the richest architectural details.

As recommended by the Design Guidelines, the building will be faced with an ordered combination of appropriate materials, including precast concrete, metal ACM panels, stone, and glass. Rooftop mechanicals will be set back from the principal building facade, and architecturally screened and integrated within the overall building form and individual elevations.

The exterior walls of the ground floor communal areas—the meeting and function space, restaurant/bar, fitness facility, and pool—will be highly transparent.

The proposed signage includes two hotel name/identification facade signs, one each on the north and west sides of the central core, above the fourth floor level, and a sign above the main entrance awning. There also will be a free-standing, ground-level sign adjacent to the internal roadway, identifying the hotel and temporary parking area to drivers. Consistent with the established Cambridge Discovery Park practice, the building number will be displayed prominently on at least one of the hotel’s facades.

Given the hotel’s location, none of the interior or exterior lights will spill light onto the Alewife Reservation. Bulfinch anticipates that most hotel guests will close the curtains on the

windows in their rooms at night. The security lighting within Garage A was previously approved as part of the Cambridge Discovery Park Master Plan Special Permit.

9. Landscape Architectural Details

Acorn Park Drive's handsome, tree-lined appearance will be preserved. New trees around the interior courtyard will bring the surrounding natural environment into that area. Landscaping plantings will be drought-tolerant, native species that do not require regular pruning or maintenance. The vocabulary of stone-faced landscaping planters, low stone walls topped with seating, stone steps, and new, wider sidewalks with street trees that began with Building 100 and continued with the construction of Building 200/300 will find further expression with the Building 600 hotel. As with Buildings 100 and 200/300, building base planters and retaining walls will employ attractive and coordinated materials to minimize perceived wall heights and to integrate the building's design with the surrounding landscaping.



View of hotel entrance courtyard

Compliance with other Master Plan Special Permit conditions

a. Preliminary submission of building design

Condition 2(ii) of the Cambridge Discovery Park Master Plan Special Permit encourages Bulfinch to present the design of any building, including any “green” building features to the Planning Board at an early schematic stage to permit adequate opportunity to refine and modify the design. To that end, Bulfinch presented the initial design for Building 600 as a hotel to the Planning Board on November 12, 2013.

As discussed below, Bulfinch is committed to constructing the Building 600 hotel to meet at least the requirements of LEED Silver certification. Whether LEED Gold can be achieved will depend on evolving interior design requirements and on the final selection of the hotel operator.

b. Interior courtyard concerns

Condition 2(iii) of the Cambridge Discovery Park Master Plan Special Permit requires that future building proposals must address the Planning Board's concerns, as set out in the special permit's findings, that the Master Plan's interior courtyard space was too heavily dominated by vehicular circulation and delivery functions, poorly defined as an urban space, and inadequate to the needs of pedestrians and bicyclists. In granting the Cambridge Discovery Park Master Plan Special Permit, the Planning Board had found that:

[T]he circulation within the interior courtyard space in the Master Plan (i.e. that entire irregular area contained by and located behind all of the buildings and parking garages that constitute the Master Plan) through which pedestrians and bicyclists will be passing, along with automobiles going to the various parking facilities and trucks heading to the several loading bays, is not resolved in a satisfactory way. The areas paved exclusively for vehicular traffic are too extensive and the green areas devoted to landscaping and pedestrian circulation too amorphous and "residual" in feeling rather than convincing the observer that they are consciously designed. The geometry of the spaces appears cluttered and awkward. More attention needs to be paid to the design of this space with consideration given to reducing the area devoted to vehicular paving, possible consolidation of loading facilities, design of more dual-use pedestrian/vehicle areas, etc.

Cambridge Discovery Park Master Plan Special Permit at 11. Condition 2(iii) of the Cambridge Discovery Park Master Plan Special Permit requires that:

In each instance that a building is presented to the Planning Board, after Building 100, the Permittee shall address the Board's concern, as set forth in the Findings above, that the interior courtyard space in the Master Plan, as illustrated in the application documents, is too heavily dominated by vehicular circulation and delivery functions, poorly defined urban space, and inadequate to the needs of pedestrians and bicyclists who will be traversing it.

The conceptual Master Plan envisioned an internal roadway loop with three connections to Acorn Park Drive. The initial segment of this internal roadway was built in connection with the Building 100 project. This segment starts just west of Building 100 and arcs behind Building 100, between the potential future Giant Magellan Telescope Annex site and Garage A. Originally, this roadway was to have continued eastward, with future Building 300/400 on its south side and Garage B and Building 500/600 to its north. Between future Buildings 200 and 300, the conceptual Master Plan showed a lateral roadway, connecting Acorn Park Drive to the internal roadway, to the east of Garage A. All of the proposed future buildings were to have loading dock access directly off this internal roadway. The Planning Board felt that this interior roadway layout and the associated vehicular circulation patterns warranted further thought.

Minor Amendment No. 2, for the Forrester Research Building 200/300 project, addressed these concerns in several ways. First, much of the conceptual Master Plan's interior courtyard conflict among passenger vehicles, pedestrians, bicyclists, and delivery vehicles

arose from the intersection of the lateral connection from Acorn Park Drive to the internal roadway formerly proposed between future Buildings 200 and 300. Loading access for these buildings was to have been provided just west and east of this intersection. Garage A's entrance/exit drive would have intersected the internal roadway approximately opposite this location. Drivers going to or from Acorn Park Drive via the lateral connection would have perceived theirs as the primary travel path. Drivers traveling west along the internal roadway also would have perceived theirs as the primary travel path. This would have created conflicts at the intersection when drivers from several directions all perceived that they should have the right of way. The pedestrians experience in this area would have been interrupted by a series of street and loading bay access crossings in close proximity. Quite simply, too much would have been going on in too small a space.

Minor Amendment No. 2 detached conceptual Building 200 from Building 100 and moved it to the east, to join conceptual Building 300, which was shifted to the west. The lateral connection formerly shown between Buildings 200 and 300 now is located between Buildings 100 and 200. Staggering the two side intersections of lateral connections with the internal roadway eliminated the crossing conflict at Garage A. Loading bays for Buildings 200/300 are in the northeast corner of the building, away from the lateral connection. This loading area also will serve Building 400 if Forrester Research exercises its option for that building. Pedestrians traveling between Building 100 and Garage A now cross the internal roadway west of the garage driveway. Pedestrians traveling between Building 200/300 and Garage A also cross the internal roadway west of the garage driveway, to a large landscaped area, and then cross the single-lane access to the drop-off area.

The conceptual master plan did not include any passenger drop-off areas for the proposed buildings. The revised master plan includes a drop-off area serving Building 200/300. If, as anticipated, Building 400 is built with an elevated connection to Building 300, that drop-off area also will serve Building 400. The proposed hotel will have a dedicated drop-off area and a small, short-term surface parking area for guests arriving at and departing from the hotel.

c. Pedestrian access to Belmont

Condition 2(iii) of the Cambridge Discovery Park Master Plan Special Permit also requires Bulfinch to report to the Planning Board on a periodic basis on “the opportunities for the provision of pedestrian access from Belmont to the site, either along Acorn Park Drive or via the Concord Turnpike, preferably in cooperation with abutting and similarly impacted property owners.”

Bulfinch has granted to Criterion Development Partners, the developer of the adjacent 227-unit VOX on Two project (formerly known as the Residences at Alewife), an easement for pedestrian access from their property over a portion of Cambridge Discovery Park to Acorn Park Drive. This provides a safer, more pleasant pedestrian connection between VOX on Two and the Alewife Red Line station. Absent this easement, residents and guests of that project would need to use the sidewalks along the south side of the Concord Turnpike and the Alewife exit ramp.

Bulfinch has discussed with O'Neill Properties, the owner of the adjacent Belmont land, the possibility of providing sidewalks along the Belmont portion of Acorn Park Drive. While

Acorn Park Drive is a public way in Cambridge, it becomes a private way at the Belmont line. Consequently, O'Neill Properties' approval would be required for any new sidewalks along the Belmont portion of Acorn Park Drive. The existing pavement is adequate for two-way travel, but adding a sidewalk on either side would require the cutting of numerous trees, and would involve work within land subject to flooding, bordering vegetated wetlands, and other resource areas protected under the Wetlands Protection Act. O'Neill Properties has expressed interest in providing pedestrian access from its property through Cambridge Discovery Park to the Alewife MBTA station and beyond. However, any development of such a connection is on hold at least until appeals related to O'Neill Properties' Belmont land are concluded and construction of that project begins.

d. Efficient use of natural and energy resources

Condition 2(v) of the Cambridge Discovery Park Master Plan Special Permit requires that:

Each time a building is initially presented to the Planning Board for design review, the Permittee shall summarize how construction in the Park to date has employed natural and energy resources efficiently in the construction, maintenance and long-term operation of buildings already constructed and report on how such efforts will be employed in the building currently under consideration. Reference to LEED or other equivalent standards is encouraged.

Building 100 was designed to meet the criteria for LEED Silver certification, although Bulfinch did not elect to go through the certification process. Measures undertaken to meet these criteria included:

- Site location near MBTA station and Minuteman mixed-use path;
- Water efficient landscaping;
- Water use reduction for building fixtures, *e.g.*, low-flow toilets and sinks;
- External sunshades built into design to reduce solar gain and cooling load;
- Building orientation to maximize south-facing glazing;
- Optimized energy performance;
- Construction waste management;
- Thermal comfort systems for building occupants;
- Daylight and views for 75% of occupied spaces; and
- On-site treatment of stormwater through the use of bioswales and detention ponds.

Forrester Research's Building 200/300 was certified as LEED Gold (Core and Shell) in June 2012 and LEED Platinum (Commercial Interiors) in August 2012. Measures undertaken to achieve these ratings included:

- Site location near MBTA station and Minuteman mixed-use path;

- Water efficient landscaping and no use of potable water for irrigation;
- 40% reduction in water use for building fixtures through the use of low volume toilets and urinals and low-flow faucets;
- Selection of refrigerants and HVAC refrigeration that minimize the emission of ozone-depleting compounds;
- Optimizing energy performance of lighting, HVAC, and tenant equipment and appliances to reduce energy consumption;
- Construction waste management (at least 75% of construction debris diverted from landfills through recycling or reuse);
- Use of building materials with recycled content or that have been extracted, harvested or recovered, as well as manufactured, locally;
- Certified wood;
- Use of low VOC-emitting adhesives, sealants, paints and coatings, flooring systems, furniture, and other building components;
- Thermal comfort systems for building occupants;
- Daylight and views for 75% of occupied spaces; and
- On-site treatment of stormwater through the use of bioswales and detention ponds.

The Building 600 hotel will incorporate a variety of environmental and energy-conservation measures, including:

- Site location near MBTA station and Minuteman mixed-use path;
- Water efficient landscaping and no use of potable water for irrigation;
- Reduction in water use for building fixtures through the use of low volume toilets and urinals;
- Selection of refrigerants and HVAC refrigeration that minimize the emission of ozone-depleting compounds;
- Optimizing energy performance of lighting, HVAC, and tenant equipment and appliances to reduce energy consumption;
- Construction waste management (at least 75% of construction debris diverted from landfills through recycling or reuse);
- Use of building materials with recycled content or that have been extracted, harvested or recovered, as well as manufactured, locally;
- Use of low VOC-emitting adhesives, sealants, paints and coatings, flooring systems, furniture, and other building components;
- Thermal comfort systems for building occupants;
- Daylight and views for 75% of occupied spaces; and

- On-site treatment of stormwater through the use of bioswales and detention ponds.

Finalization of the hotel's full portfolio of environmental and energy –conservation measures will occur after the hotel operator has been selected. Several members of the architectural/design team are LEED Accredited Professionals, including the permitting attorney.

e. City Noise Ordinance

Condition 12 of the Cambridge Discovery Park Master Plan Special Permit requires that all authorized development must conform to the requirements of the City of Cambridge Noise Control Ordinance, Chapter 8.16 of the Cambridge Municipal Code. Chapter 8.16 establishes maximum noise levels during the daytime and at other times, as measured from lot lines. The hotel project will comply with these limits.

Discussion of Flood Plain and Floodway Issues

Condition 8 to the Cambridge Discovery Park Master Plan Special Permit requires that there shall be no net loss of flood storage capacity within the Master Plan area at any stage of the construction. Most of Cambridge Discovery Park is in an area that the United States Department of Homeland Security's Federal Emergency Management Agency (FEMA) has designated as being within the 100-year flood plain. Large portions of the campus also are within FEMA's regulatory floodway.⁷ Additionally, much of the development footprint is on bordering land subject to flooding, protected under the Massachusetts Wetlands Protection Act (WPA). Portions also are within the WPA's 100-foot buffer zone. Consequently, the redevelopment of Cambridge Discovery Park also requires a Flood Plain Overlay District special permit from the Planning Board (for activity within the flood plain) and an Order of Conditions from the Cambridge Conservation Commission (for activity within regulated resource areas).

Section 20.72 of the Zoning Ordinance defines the Cambridge Flood Plain Overlay District as all special flood hazard areas designated as Zone A and AE on the Middlesex County Flood Insurance Rate Maps (FIRMs) issued by FEMA, dated June 4, 2010.⁸ The Flood Plain Overlay District's exact boundaries are defined by the special flood hazard area, which is the area subject to flooding by the 1% annual chance flood, also known as the "100-year flood" or "base flood" area. Section 20.73 provides that, "No structure or building shall be erected, constructed, expanded, substantially improved, or moved and no earth or other materials shall be dumped, filled, excavated, transferred or otherwise altered in the Flood Plain Overlay District unless a special permit is granted by the Planning Board." The Cambridge Discovery Park Master Plan Special Permit includes a Flood Plain Overlay District special permit for the overall project.

In October 2004, the Cambridge Conservation Commission issued Order of Conditions No. 123-180 for the multi-year, phased redevelopment of Cambridge Discovery Park. That Order established flood storage and impervious area banking mechanisms for the entire redevelopment project. These mechanisms recognize that the redevelopment will occur in several phases, and that the footprints and corresponding flood storage volumes of buildings being removed and constructed in any particular phase may not match. Thus, as the former ADL buildings were removed, the flood storage volumes they displaced—up to the FEMA 100-year flood elevation—were "banked." Similarly, the impervious areas of these buildings' footprints were banked as the buildings were removed. These banked flood storage volumes and impervious area remain available for Bulfinch to reuse in connection with corresponding or later construction activities. Under the Order, Bulfinch must maintain a "positive balance" for each incremental foot of flood elevation at all times; flood storage capacity

⁷ The regulatory floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved to receive the base flood without cumulatively increasing the water surface elevation by more than a designated amount.

⁸ In 2004, when the Planning Board granted the Cambridge Discovery Park Master Plan Special Permit, the applicable FEMA FIRM was dated July 5, 1982. The change in reference FIRM is of no effect for Cambridge Discovery Park; the development footprint is entirely within 100-year flood plain on either map.

cannot be borrowed from future phases. A similar requirement applies with respect to impervious area. Upon completion, the overall project will result in net gains of flood storage capacity and a net increase in pervious surface area, as compared to the former ADL campus. This banking mechanism is consistent with Cambridge Discovery Park Master Plan Special Permit Condition 8, which provides that, “Any surplus flood storage capacity created by an earlier phase of development may be carried forward and credited to the flood storage capacity required for a subsequent phase of development under the Master Plan.”

Condition 44 of the Order requires that a Notice of Intent (NOI) be filed for each subsequent phase of the redevelopment, to amend the original Order. Each NOI must include an updated Flood Storage Table, stamped by a Massachusetts registered professional engineer, to update the changes to the flood plain at each phase of redevelopment. Each phase must show no net loss of flood storage capacity at each incremental foot up to the FEMA 100-year flood elevation, as compared to the original pre-October 2004 conditions. Condition 48 of the original Order imposes similar requirements with respect to pervious area, and requires that each NOI also must include an updated Pervious Surface Area Table, stamped by a Massachusetts registered professional engineer, to update the changes to the pervious area at each phase of redevelopment. Each phase must show no net loss of pervious area, as compared to the original pre-October 2004 conditions. Notices of Intent with updated flood storage and pervious surface area tables were filed for Building 200/300 and the Building 600 hotel.⁹.

Additionally, the plans for each new building are reviewed by the City Engineer, to ensure that adequate flood storage capacity is provided, and that flood waters will be able to flow freely into and out of the flood storage areas.

In 2004, when Bulfinch applied for the Cambridge Discovery Park Master Plan Special Permit, FEMA was in the process of conducting a flood study for Middlesex County. In anticipation of FEMA’s eventual revision of the Cambridge-area FIRMs, Bulfinch asked FEMA’s consultant for a worst-case estimate of the 100-year flood elevation for the new map and was told that 10.8 feet national Geodetic Vertical Datum of 1929 (NGVD29) was the outside case.¹⁰ Bulfinch then designed and constructed Building 100 with a first floor elevation of 10.8 feet. Ultimately, FEMA’s new FIRM lowered the 100-year flood elevation from 8.2 feet NGVD29 to 6.8 feet NAVD88 (equivalent to 7.6 feet NGVD29). Nonetheless, Bulfinch decided that all occupied buildings at Cambridge Discovery Park will

⁹ A group of Cambridge residents appealed the Amended Order of Conditions for the Building 600 hotel, based on their concerns about the floodway, asking the Massachusetts Department of Environmental Protection to delay all activity at Cambridge Discovery Park until the residents decide that the City has adequately studied climate change. On June 27, 2014, DEP’s Northeast Regional Office issued a Superseding Amended Order of Conditions which states that, “MassDEP has determined that the proposed [Building 600] project meets the performance standards of the Wetlands Protection Act, 310 CMR 10.00.” DEP’s cover letter to the appellants states, in part, that “As this project complies with the performance standards found at [310 CMR] 10.57, there is no regulatory mechanism to delay issuance of this Superseding Amended Order [pending completion of the City of Cambridge’s climate change vulnerability assessment].”

¹⁰ The prior FEMA maps were based on the National Geodetic Vertical Datum of 1929 (NGVD29). FEMA subsequently switched to using the North American Vertical Datum of 1988 (NAVD88); the 2010 FEMA map for Middlesex County uses NAVD88. In the Cambridge area, the elevation of any particular point under the current FEMA NAVD88 datum is approximately 0.8’ less than under the previous NGVD29 datum.

be built with first floor elevations at 10.8 feet NGVD29 (equivalent to 10 feet NAVD88). This means that every occupied building will have approximately three feet of flood storage volume above the calculated 100-year flood level, and be able to withstand flooding conditions more extreme (and rarer) than the 100-year base flood.

The new FIRM also widened the floodway in the area of Cambridge Discovery Park (and in many locations elsewhere in Cambridge). The 2010 FIRM is based on flood modeling with the former Arthur D. Little Company buildings still in place (as they were when FEMA's consultant collected topography and building data to build the model). With those buildings now gone and all development located north of Acorn Park Drive, flood waters will have to travel farther before encountering any buildings. The former ADL buildings had first floor elevations below the 100-year flood elevation and required sandbagging and other active protective measures during severe storms. Thus, during flooding conditions, the former ADL buildings displaced flood waters by preventing water from occupying the building spaces. By contrast, the new Cambridge Discovery Park buildings sit atop storage chambers into and from which the flood waters will flow freely. Bulfinch and its consultants have provided FEMA with improved topographical modeling of the Cambridge Discovery Park area, and with details of the flood storage systems incorporated into existing buildings and that will be included in future occupied buildings. They worked with FEMA for over two years, and provided FEMA with several rounds of flood modeling by AECOM.¹¹ Based on this information, FEMA issued a Conditional Letter of Map Revision (CLOMR) for the further development of Cambridge Discovery Park based on the conceptual master plan configuration with Garage B and Buildings 400, 500, and 600. Thus, FEMA has determined that buildout of the remaining elements of the Cambridge Discovery Park Master Plan will not have an adverse effect on the regulatory floodway. Upon completion of the multi-year, phased redevelopment of Cambridge Discovery Park, FEMA will issue a Letter of Map Amendment reflecting the final building locations and footprints.

¹¹ FEMA hired ENSR International Corp. to prepare the Middlesex County Flood Insurance Study and create the flood models and the FIRM. In September 2005, AECOM acquired ENSR, which now operates as a subsidiary of AECOM.

Dimensional Form – Building 600 Hotel

Project Address: 10 Acorn Park Drive

Application Date: July 22, 2014

	Existing	Allowed or Required (max/min)	Proposed	Permitted
Lot Area (sq ft)	990,317 ^a	5,000	990,317 ^a	
Lot Width (ft)	>170	50	>170	
Total Gross Floor Area (sq ft)		819,916 ^b	82,000	
Residential Base			82,000	
Non-Residential Base				
Inclusionary Housing Bonus	n/a		n/a	
Total Floor Area Ratio		n/a ^c	.083	
Residential Base		n/a	.083	
Non-Residential Base		n/a		
Inclusionary Housing Bonus		n/a	n/a	
Total Dwelling Units	0		0	
Base Units	0		n/a	
Inclusionary Bonus Units	n/a		n/a	
Base Lot Area/Unit (sq ft)	n/a	600	n/a	
Total Lot Area/Unit (sq ft)	n/a		n/a	
Building Height (ft)		65/85 ^d	50	
Front Yard Setback (ft)		40 ^e	> 40 ft.	
Side Yard Setback (ft)		n/a ^f		
Side Yard Setback (ft)		n/a ^f		
Rear Yard Setback (ft)		n/a ^f		
Open Space (% of lot area)		n/a	n/a	
Private Open Space	0	14,856 ^g	>15,000 sf	
Permeable Open Space		n/a	n/a	
Other Open Space (Specify)		n/a	n/a	
Off-Street Parking Spaces		0.5 per sleeping room ^h	716	
Long-Term Bicycle Parking		4	49	
Short-Term Bicycle Parking		10	30	
Loading Bays		1	1	

Notes to Dimensional Form – Building 600

- a Combined lot area of parcels north and west of Acorn Park Drive.
- b The Special District 4 zoning allows up to 900,000 square feet of gross floor area, plus up to 400,000 square feet of structured parking. CZO § 17.42.11. The Cambridge Discovery Park Master Plan Special Permit authorizes up to 819, 916 square feet of gross floor area, plus up to 390,000 square feet of structured parking.
- c No maximum floor area ratio for any lot in Special District 4, per CZO § 17.42.11.
- d The maximum by right building height in Special District 4 is 65 feet, which was increased to 85 feet for nonresidential uses by the Cambridge Discovery Park Master Plan Special Permit, and which can be increased by special permit to 90 feet for residential uses. Within the Parkway Overlay District, the maximum building facade height is 55 feet; upper portions of a building set back from the facade may exceed this height, but are subject to a bulk control plane.
- e Measured from centerline of Acorn Park Drive, per Condition 1(iii) of Cambridge Discovery Park Master Plan Special Permit.
- f CZO § 17.42.2 authorizes the Planning Board to waive minimum yard requirements by special permit, other than the front yard requirement within the Parkway Overlay District. Condition 1(iii) of the Cambridge Discovery Park Master Plan Special Permit waives all yard requirements, other than the front yard requirement within the Parkway Overlay District and a 40 front yard requirement (measured from the street centerline) along Acorn Park Drive.
- g CZO § 17.40 does not establish any open space ratio requirements for Special District 4, but does require that the Little River Area be restored to natural conditions, *i.e.*, returned to and maintained as open space area, and that the Large Wetland Area be left undisturbed, *i.e.*, be maintained as open space area. Except as provided in CZO § 17.40, all requirements and regulations applicable to the Office 2 districts apply to Special District 4. Table 5.2 requires 15% private open space for residential uses, including hotels. The Building 600 hotel private open space requirement was calculated as: $990,317 \text{ sf} * 0.15 * 82,000 \text{ (hotel gross floor area)} / 819,916 \text{ (total allowed gross floor area under Cambridge Discovery Park Master Plan Special Permit)} = 14,856 \text{ sf}$.
- h Additionally, because the hotel will have 150 rooms, a public restaurant in excess of 5,000 square feet requires only 50% of the parking requirement set forth in CZO § 6.36.5 (*e.g.*, 1 per 30 seats, or 1 per 20 seats if alcoholic beverages are sold and consumed) and function room space requires 1 space per 300 square feet of floor area contained in such rooms. CZO § 6.36, Schedule of Parking and Loading Requirements, footnote 5. CZO § 17.43.1 provides that a maximum of 1,052 parking spaces is required for any combination of uses up to 900,000 square feet of gross floor area within Special District 4.

Dimensional Form – Overall Master Plan to Date, with Hotel

Project Address: 10 Acorn Park Drive

Application Date: July 22, 2014

	Existing	Allowed or Required (max/min)	Proposed	Permitted
Lot Area (sq ft)	990,317 ^a	5,000	990,317 ^a	
Lot Width (ft)	>170	50	>170	
Total Gross Floor Area (sq ft)	363,248	819,916 ^b	445,248 ^c	
Residential Base	0		82,000	
Non-Residential Base	363,248 ^c		363,248 ^c	
Inclusionary Housing Bonus	n/a		n/a	
Total Floor Area Ratio	0.315	n/a ^d	0.45	
Residential Base	n/a	n/a	0.083	
Non-Residential Base	0.315	n/a	0.367	
Inclusionary Housing Bonus	n/a	n/a	n/a	
Total Dwelling Units	0		0	
Base Units	0		n/a	
Inclusionary Bonus Units	n/a		n/a	
Base Lot Area/Unit (sq ft)	n/a	600	n/a	
Total Lot Area/Unit (sq ft)	n/a		n/a	
Building Height (ft)	85	65/85 ^e	50-85	
Front Yard Setback (ft)		40 ^f	40	
Side Yard Setback (ft)		n/a ^g	various	
Side Yard Setback (ft)		n/a ^g	various	
Rear Yard Setback (ft)		n/a ^g	various	
Open Space (% of lot area)		n/a	n/a	
Private Open Space	0	14,856 sf ^h	>15,000 sf	
Permeable Open Space		n/a	n/a	
Other Open Space (Specify)		n/a	n/a	
Off-Street Parking Spaces	706	0.5 per sleeping room ⁱ	716	
Long-Term Bicycle Parking	46	3	49	
Short-Term Bicycle Parking	20	10	30	
Loading Bays	4	1	5	

Notes to Dimensional Form – Building 600

- a Combined lot area of parcels north and west of Acorn Park Drive.
- b The Special District 4 zoning allows up to 900,000 square feet of gross floor area, plus up to 400,000 square feet of structured parking. CZO § 17.42.11. The Cambridge Discovery Park Master Plan Special Permit authorizes up to 819,916 square feet of gross floor area, plus up to 390,000 square feet of structured parking.
- c This includes approximately 5,600 square feet of gross floor area of Building 100 for the Giant Magellan Telescope Annex, which has not yet been built.
- d No maximum floor area ratio for any lot in Special District 4, per CZO § 17.42.11. Calculated based on 819,916 square feet of gross floor area authorized by the Cambridge Discovery Park Master Plan Special Permit. Based on Special District 4 maximum gross floor area of 900,000 square feet, the maximum floor area ratio is 0.779. The underlying Office 2 floor area ratio limits are 1.5 for non-residential uses and 2.0 for residential uses.
- e The maximum by right building height in Special District 4 is 65 feet, which was increased to 85 feet for nonresidential uses by the Cambridge Discovery Park Master Plan Special Permit, and which can be increased by special permit to 90 feet for residential uses. Within the Parkway Overlay District, the maximum building facade height is 55 feet; upper portions of a building set back from the facade may exceed this height, but are subject to a bulk control plane.
- f Measured from centerline of Acorn Park Drive, per Condition 1(iii) of Cambridge Discovery Park Master Plan Special Permit.
- g CZO § 17.42.2 authorizes the Planning Board to waive minimum yard requirements by special permit, other than the front yard requirement within the Parkway Overlay District. Condition 1(iii) of the Cambridge Discovery Park Master Plan Special Permit waives all yard requirements, other than the front yard requirement within the Parkway Overlay District and a 40 front yard requirement (measured from the street centerline) along Acorn Park Drive.
- h Please see note g to the Building 600 dimensional form above.
- i Additionally, because the hotel will have 150 rooms, a public restaurant in excess of 5,000 square feet requires only 50% of the parking requirement set forth in CZO § 6.36.5 (e.g., 1 per 30 seats, or 1 per 20 seats if alcoholic beverages are sold and consumed) and function room space requires 1 space per 300 square feet of floor area contained in such rooms. CZO § 6.36, Schedule of Parking and Loading Requirements, footnote 5. CZO § 17.43.1 provides that a maximum of 1,052 parking spaces is required for any combination of uses up to 900,000 square feet of gross floor area within Special District 4.