Fostering Good Design

Site Plan and Design Review Toolkit for Public Hearings

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SNAPSHOT

Town of Brookline Recent Chapter 40B Projects

2014 – 2019

12 projects approved with conditions
Over 800,000 sf (25,000 sf commercial)
729 units (199 affordable)
Project range: 8 units to 250 units
• Some located on corridors abutting single- and two-family zones
• Affordable units permanently deed restricted
• After designs revised to meet ZBA Charge, mitigation and public benefits were agreed upon. Include pedestrian, accessibility, bike share, roadway, traffic signal improvements; street trees—over $750,000 secured
• So far, no developer has appealed a Brookline ZBA decision to the HAC.

2020 – 2021

6 projects proposed
481 units (96 - 120 affordable)
## Toolkit Contents

### 6 Design Principles Applied on Projects in Different Neighborhood Contexts

<table>
<thead>
<tr>
<th>Site configuration</th>
<th>Scale and massing</th>
<th>Site circulation + access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil engineering</td>
<td>Open space / landscape</td>
<td>Site operations</td>
</tr>
</tbody>
</table>

Slide 3…………Catalyst for Toolkit Method: Town of Brookline c.40B Volume (1 minute)

Slides 4 – 11….Site Plan and Design Review Tools (2 minutes)

Link to Toolkit available at [CHAPA.org](http://CHAPA.org)
What is design?

Why does good design matter?
Design is experienced.

“Architecture means shapes formed around [people], forms to be lived in [and among], not merely to be seen [or blocked] from the outside.”

With apologies to Steen Eiler Rasmussen, *Experiencing Architecture*

“Design is a process for making things right, for shaping what people need.”

Ralph Caplan, *By Design*

Good design is practiced.

- It is judged by how well it is integrated into its context—and in turn how inclusive its context is.
- It gets utilized. It functions well within the site and within its context.
- It is an opportunity to add value—to the project and to the community.
Criteria: How can you shape a 40B?

Parameters set forth in M.G.L.c.40B, Sec. 20

"Consistent with local needs", requirements and regulations shall be considered consistent with local needs if they are reasonable in view of the regional need for low and moderate income housing considered with the number of low income persons in the city or town affected and the need to protect the health or safety of the occupants of the proposed housing or of the residents of the city or town, to promote better site and building design in relation to the surroundings, or to preserve open spaces, and if such requirements and regulations are applied as equally as possible to both subsidized and unsubsidized housing.

ZBA’s role is not to thwart the project. Communities do have the power to shape 40B projects by using the right tools.
Tools: How can you shape a 40B?

How do you integrate higher-density projects into lower-density communities?

What tools can you use within the 40B process?

Hint:

Floor Area Ratio and Dwelling Units per Acre are not adequate metrics to assess feasibility and what degree of intensity of use can be supported on the site. Focus on design not density.
Site Plan and Design Review Framework

Objective standards, design principles, best practices, analysis tools

Public, Health, and Environmental Safety
Site and Building Design Relationship to Context and Public Realm
Quality of Life Standards
Risk Management
Mitigation / Public Benefits

The Comprehensive Permit process needs a comprehensive framework for objectivity and due diligence.
Intensity of use pertains to more than just a project’s scale.

**Ground Plane***
- Site circulation
- Open space, landscape, tree conservation
- Choreography of all program functions
- Access and egress
- Curb control
- Circulation around site

*Pertains to the horizontal surface area of the lot(s) and elements adjacent to it

**Built Form**
- Scale, massing, datum
- Streetscape
- Viewsheds, Sky plane
- Shadow impacts
- Transitions
- Style, Materials
- Development and landscape patterns
- Grading contours and topography
- Shaping private, semi-private, public spaces
- Glare, noise, odors

**Below Grade**
- Remediation
- Stormwater
- Water Table
- Runoff load on municipal systems
- Infiltration, plumbing
- Blasting
- Foundation method
- Impact to below-grade abutting structures, tree roots
Technical resources provide basis for charge, findings, conditions
The public better equipped for impact statements

### Peer Review
- Site + building design, Traffic, Parking, Stormwater, Conservation, Geotechnical, Blasting
  - Independent
  - Staff prepares the Scope of Work
  - Paid for by applicant: M.G.L. c.44, Sec.53G
  - With staff can facilitate working groups to meet ZBA Charge

### Municipal Departments
- **Public Works:** Engineering, Water + Sewer, Transportation, Conservation, Parks + Recreation
- **Public and Environmental Health:** Fire, Police
- **Building Preservation:** Planning Housing

**Except fiscal impact**

### Boards and Commissions
- Transportation Board
- Conservation Commission
- Preservation Commission
- Planning Board
- Housing Board
- Housing Trust
- Council on Aging
- Commission on Disability

### Policy Documents
- e.g. Housing Production Plan

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MassHousing Partnership 40B Tech Assistance Grant
Visualization tools, data collection, impact studies provide basis for accurate representation and objective analysis

What to request from applicants for technical review (may vary)

**Ground Plane**
- Traffic Impact Study
- Stopping Site Distance
- Visibility of Pedestrians within X feet of driveway
- Parking layout and management plan, stacker systems, EV charging
- Parking Demand Study
- Composite site plan with operations
- AutoTurn analyses (trucks and emergency)
- Location of street trees
- Landscape plan

**Built Form**
- Study of context
- 3D Model (preferably electronic like SketchUp)
- Site sections and elevations with abutting structures
- Site plan imposed on atlas map
- Shadow studies
- Viewshed analyses
- Grading contour plans
- Prel building code analysis
- Tree survey
- Trash storage and management plan

**Below Grade**
- Site sections with abutting structures
- Stormwater Management Plan
- Civil drawings with info to determine feasibility
- Abutting structures
- Foundation method
- Geotech plan, if applies
- Blasting plan (unless prohibited by Geotech)
- Wetlands, vernal pools
- Remediation plan, if applies
- Soil tests
### Risk management plans

For technical review during hearing and/or conditions subject to review and approval

<table>
<thead>
<tr>
<th>Ground Plane</th>
<th>Built Form</th>
<th>Below Grade</th>
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</thead>
<tbody>
<tr>
<td>o Trash storage and management plan</td>
<td>o Construction Management Plan</td>
<td>o Foundation method</td>
</tr>
<tr>
<td>o follow up review at 90% occupancy</td>
<td>o Testing of installed mechanicals and mechanized equipment for decibel thresholds</td>
<td>o Survey of abutting structures before and after excavation</td>
</tr>
<tr>
<td>o Photograph municipal streets before and after construction</td>
<td>o Screening of headlights, garage lights, site lights</td>
<td>o Tree protection plan</td>
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<tr>
<td>o “Do Not Disturb” plan (protection of trees and other natural resources)</td>
<td></td>
<td>o Limit for allowed impact on municipal systems unless approved by DPW</td>
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<tr>
<td></td>
<td></td>
<td>o Stormwater, Geotech, Remediation, Conservation plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Blasting plan</td>
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</table>
Chapter 40B Site Plan and Design Review Toolkit Templates

and

Toolkit in Practice: Actual Applications in Different Contexts
Sometimes you need permission for an extension beyond 180 days.

**SNAPSHOT**

136 Babcock Street
Brookline

**INITIAL**

Nov 2017

**RESULTS**

- Less 20,000 GFA
- Less 15 units
- 15-20 foot setbacks front and rear
- Height at rear: 3 stories
- Improved stormwater mgt over existing conditions
- Safer vehicle access/egress
- Tree planting to restore tree loss
- Plan to protect abutting trees
- Contribution to street tree fund

**APPROVED**

Dec 2018

Architecture: CUBE3
TOOLKIT
01. Site configuration

Factors to evaluate*

Consider how front façade engages the street wall or creates separation.

Study modal patterns to discern what pattern could be echoed to create harmony or order.

Consider setback to height ratio to discern impact on street edge, pedestrian experience.

Discern opportunities for focal points.

* Throughout: These are key examples. See Peer Review Scopes of Work for different projects.

Technical resources
- Design peer review

Analysis tools
- Study of surrounding context
- 3D model (SketchUp) with abutting structures
- Site plan imposed on atlas map with abutting structures and dimension labels

“ZBA Charge” to reduce impact
Conditions to mitigate impact
Risk management plans
Mitigation and public benefits
01. IN PRACTICE  23 Prentice Street, North Grafton

Existing Conditions
01. IN PRACTICE  23 Prentice Street, North Grafton

Existing Conditions
“Service operations” pattern abutting site
01. IN PRACTICE  Coolidge Corner, Brookline
01. IN PRACTICE  Coolidge Corner, Brookline

Residential pattern opposite site and strong curve approaching site made convincing arguments to open up viewsheds, reduce massing at ground level and southwest edge of building, and increase step-backs at four story cornice.
01. IN PRACTICE  136 Babcock Street, Brookline

WHERE IS THE RESIDENTIAL ENTRANCE?
Analyses that made convincing arguments for (a) consistent front yard setback to maintain street wall, (b) to make residential entrance focal point instead of garage entrance, (c) to move loading area to relocated garage.
Where is the garage entrance?
Factors to evaluate

Is there an organizing principle, or datum, that shows a relationship to the surrounding context or public realm

Are there areas where larger volumes can be concentrated

Areas where massing must be articulated for adjacency requirements and privacy considerations

Consider compensating for shallow setbacks at footprint with deeper setbacks on upper floors

Technical resources

Design peer review

Analysis tools

- Study of surrounding context
- 3D model (SketchUp) with abutting structures
- Site sections and building elevations with abutting structures, streets
- Viewshed study and shadow studies

“ZBA Charge” to reduce impact

Conditions to mitigate impact
Risk management plans
Mitigation and public benefits
02. IN PRACTICE  Route 9, Wellesley
02. IN PRACTICE  136 Babcock Street, Brookline

BEFORE

Slope of rear yard
121-123 Siedman
Factors to evaluate

Impact on circulation pattern around site and queueing analysis

Safe pedestrian, ADA accommodations on site; avoiding conflicts at driveways

Ways to avoid conflicts at access/egress (backing out into traffic, adequate turning radius)

Opportunities to increase access to public transit, alternative modes of transportation

Parking feasibility, adequate target to support uses (avoid under-/over-supply)

Analysis tools

- One site plan choreographing all functions combined at peak time: trash pick up, ride share drop, pedestrian paths, truck deliveries
- AutoTurn analysis for emergency apparatus, trucks
- Visibility of pedestrians within 5 feet of driveway exit

"ZBA Charge" to reduce impact

Conditions to mitigate impact
Risk management plans
Mitigation and public benefits

Technical resources

Peer Review: Design, Traffic, Parking
03. IN PRACTICE  36 Essex Road, Ipswich
36 Essex Road, Ipswich

180 Apartment Units
(20 & 40 Unit Buildings)

Add 20 3BR Townhomes

200 Units Total

333 Parking Spaces and Garages

12,000 sq.ft. Retail

Rev. 11-26-18

Essex Pastures
Ipswich, MA
November 26, 2018

Sheet A-1
03. IN PRACTICE  36 Essex Road, Ipswich

AFTER
03. IN PRACTICE  135 Great Plain Avenue, Wellesley

BEFORE
03. IN PRACTICE  135 Great Plain Avenue, Wellesley
Sketch: Cliff Boehmer, peer reviewer
Factors to evaluate

Stormwater review goes only 10 feet below grade.

Geotechnical review assesses full depth of proposed excavation. Hire a Licensed Site Professional if it’s a remediation site or near gas station or remediation site.

Conservation / Wetlands

Blasting plan or prohibited altogether.

See sample Scopes of Work for factors to evaluate for each review type.

Technical resources

Peer Review: Stormwater, Geotechnical, Conservation, Blasting
Public Works (Stormwater)
Fire Department (Blasting)

Analysis tools

Borings and Soil Lab Tests
Proposed risk management plan for review

“ZBA Charge” to reduce impact
Conditions to mitigate impact
Risk management plans
Mitigation and public benefits
04. IN PRACTICE  55 Summer Street, Walpole

BEFORE
04. IN PRACTICE  55 Summer Street, Walpole

BEFORE
04. IN PRACTICE  Risk Assessment, Mitigation, and Management

Coolidge Corner, Brookline
RISK TO WATER TABLE LEVELS

Geotechnical Review
Borings, soil lab tests, evaluation of proposed foundation method, feasibility during ZBA hearing

Licensed Site Professional peer review id’d potential risks to water table presented by 4-level sub-grade garage. Prompted developer to convert to 2-level sub-grade garage with less parking, fewer units, no restaurant use (eliminating impact on GW table).

1180 Boylston Street, Brookline
REMEDIATION SITE, SAFETY

Stormwater Condition:
Max capacity for flow to municipal systems.

Geotechnical Conditions:
- NO Blasting permitted
- Additional remediation responsibility assigned to developer
- Vapor-proofing and other design requirements
- Applicant pays for Licensed Site Professional hired by Town to review site

101 Independence Drive
Brookline [Hancock Village]
EXCAVATION CHALLENGES

Blasting Condition:
Blasting permitted but Applicant required to pay for Town Blasting consultant to support Fire and Building Department review during construction.

Survey of abutters’ foundation before and after blasting. Applicant responsible for damages.
Factors to evaluate

- Go beyond the design cliche of using landscaping to “hide” the project
- Are there natural resources that define the character of the site that can be retained
- Acknowledge landscape pattern or context to ease the transition to site or give site a sense of place
- Consider nature-based solutions to reduce heat/cooling loads, or reduce runoff
- Create usable open space to be enjoyed by project residents
- Public benefits like a play area, access to walking trails to create connection
- Perimeter buffers are okay but not an excuse to build an “un-designed” building

Technical resources
- Landscape architect
- Conservation specialist
- Arborist
- Parks and Open Space Dept.

Analysis tools
- Tree survey
- Grading contours
- Survey of rock outcroppings, vernal pools, wetlands, protected resources

“ZBA Charge” to reduce impact
- Conditions to mitigate impact
- Risk management plans
- Mitigation and public benefits
Two 40Bs (one appealed) on campus of a 55-acre Olmsted-design Garden Village post-war rental housing development with 6-acre greenbelt zoned for single-family running parallel to abutters.
Rather than oppose projects wholesale, abutters can channel concerns by isolating specific grievances—which may lead to compromises they can live with.

Overlay with inclusionary zoning
Would have...
Donated and maintained 3.5 acres of open space next to abutters * Created and maintained a play area at school* Contributed $1M for public improvements * Made pedestrian and infrastructure improvements to main thoroughfare. 
Lesson: Abutters should use their power to explore the design possibilities.
06. Site operations / curb control

Factors to evaluate

- Is there a loading area for deliveries on site or is a loading zone needed at curb?
- Provisions for ride share on site, off site
- Is trash storage room large enough to store trash receptacles within building footprint. Will trash pick up be private or public; times per week (mixed use)
- How will different operations be coordinated at the same time.
- Some operations might need time restrictions, some uses prohibited.

Technical resources

- Health Dept
- Transportation Board or Dept.
- Traffic, Design, Parking peer review

Analysis tools

- Site plan(s) featuring integrated operations in combination with management plans

“ZBA Charge” to reduce impact
- Conditions to mitigate impact
- Risk management plans
- Mitigation and public benefits
**Conditions:** Certain operations restricted to times of week, day. Frequency of pick up evaluated for different uses, need for trash compactor. One parking space would need to be removed to improve stopping site distance. No Loading on public way.
Sometimes operations cannot be maintained on the site. Here a loading zone (non-exclusive use) in the public way was not only necessary for a feasible project but also provided a much-needed public benefit.

Town Counsel determined that ZBA not T-Board had purview over loading zone in public way. Loss of parking space resulted in Applicant paying two years lost revenue. Loss of street tree NOT under ZBA purview (c.87 State Law) but was approved through separate public hearing. Loading zone was deemed a public benefit to resolve existing double parking issues. Intensive analysis of safe loading zone feasibility and iterative designs were required, including an easement from Applicant for adequate pedestrian access on sidewalk.
Recommendations

1 - Apply for the MassHousing Partnership Technical Assistance grant to obtain specialized 40B expertise.

2 - Consider hiring a consultant to coordinate the project review process if staff has limited time or authority to assist the Board of Appeals.

3 - Contract an independent site and building design peer reviewer—not only engineering peer reviewers—for a holistic, integrated analysis of the project.

4 - Share successful design and process best practices:

   o Create repository of resources (like Scopes of Work for technical consultants) for Town planners; for e.g., through APA-MA Chapter website.

   o Establish a “lookbook” of before and after designs by neighborhood context with commentary.
Links to Projects

Brookline

Ipswich

Nantucket

North Grafton

Wellesley

Walpole