# TECHNICAL MEMORANDUM

**DATE:** *Monday, November 17, 2025*

**TO:** *Cheryl Tougias, President – Spaulding Tougias Architects, Inc.*

**CC:** *Christopher J. Ryan, AICP, Director of Planning & Building – Town of Belmont*

**FROM:** *Andrew S. Hill, Senior Associate – DESMAN Inc.*

**PROJECT:** *Belmont Center* **PROJECT #:** *20-25150.00-3*

**RE:** *Revised Report*

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**Statement of Purpose**

Belmont Center is a historic downtown district located around the intersection of Leonard Street, Channing Road, and Concord Avenue in Belmont, Massachusetts. As is often the case with vibrant downtowns, managing parking in the area has been a perpetual challenge, as evidenced in prior parking studies executed in 2002 and 2012. The Town of Belmont recently passed MBTA communities zoning and initiated the Belmont Center Zoning Project, testing the appropriateness of adopting Form-Based Code specific to Belmont Center. In tandem with this effort, the Town retained Spaulding Tougias Architects (STA) and its subcontractor DESMAN to evaluate the appropriateness and effectiveness of parking guidelines and requirements contained within the proposed code.

**Statement of Continuation from Prior Work and Clarification**

The following report is inclusive of comments and requested revisions provided by the Town of Belmont in a memorandum dated October 29, 2025. Significant departures from core assumptions included in the October 14, 2025 draft report include the following:

A. The “No Bonus” scenario is no longer included in the following analysis.

B. The “With Bonus” assumes replacement of existing commercial land uses within the defined study area, plus supplemental growth through new construction. Stated plainly, the proposed development program under the “With Bonus” scenario assumes existing land uses – if displaced – will be replaced in new buildings.

C. All new construction, including replacement of existing land uses, will be subject to the proposed parking requirements per the draft zoning-by laws.

D. Similarly, this analysis assumes that all existing private off-street parking within the study area associated with existing commercial uses will be preserved and available for future use.

E. Pursuant to discussions following the review of the October 14, 2025 draft report, feedback from the October 23, 2025 public hearing, and continuing work performed by Town of Belmont officials, the minimum parking requirement for hotels included in this analysis is 0.80 spaces/ room.

F. Pursuant to discussions following the review of the October 14, 2025 draft report, feedback from the October 23, 2025 public hearing, and continuing work performed by Town of Belmont officials, the minimum parking requirement for restaurants included in this analysis is 1 space for every 4 seats.

G. Pursuant to discussions following the review of the October 14, 2025 draft report, feedback from the October 23, 2025 public hearing, and continuing work performed by Town of Belmont officials, the minimum parking requirement for residential units included in this analysis is 0.50 spaces/unit.

H. An alternative projection of future conditions is provided within the following report, assuming enhanced use of alternative modes of transportation created by a combination of improved accessibility for walkers and bikers, increasing use of transit by new residents due to changes in culture and the cost of commuting by single-occupant vehicle, and the success of Transportation Demand Management efforts encouraged by new by-laws. Under this scenario, DESMAN assumes the following:

    1) All discretionary users (i.e., retail patrons, diners, residential visitors, office visitors, medical office patients and visitors, bank customers, and hotel guests will be subject to a 15% model reduction in demand, as opposed to the current 5%.

    2) All non-discretionary users (I.e., commercial employees, office workers, medical staff, and bank employees) will be subject to 0.33 model adjustment, down from the current 0.49 adjustment.

    3) In a departure from current conditions, where just 3% of all Belmont residents report living in a residence with no automobile, in the future one in every ten residents will live car free within Belmont Center.

**Project Approach**

Working with Town officials, DESMAN developed a parking supply inventory within the defined study area surrounding Belmont Center and conducted initial parking occupancy counts to establish a baseline of existing conditions. As part of this work, DESMAN also prepared an inventory of existing and occupied land uses – exclusive of residential properties – within the defined study area, shown in ***Figure 1*** on the following page.

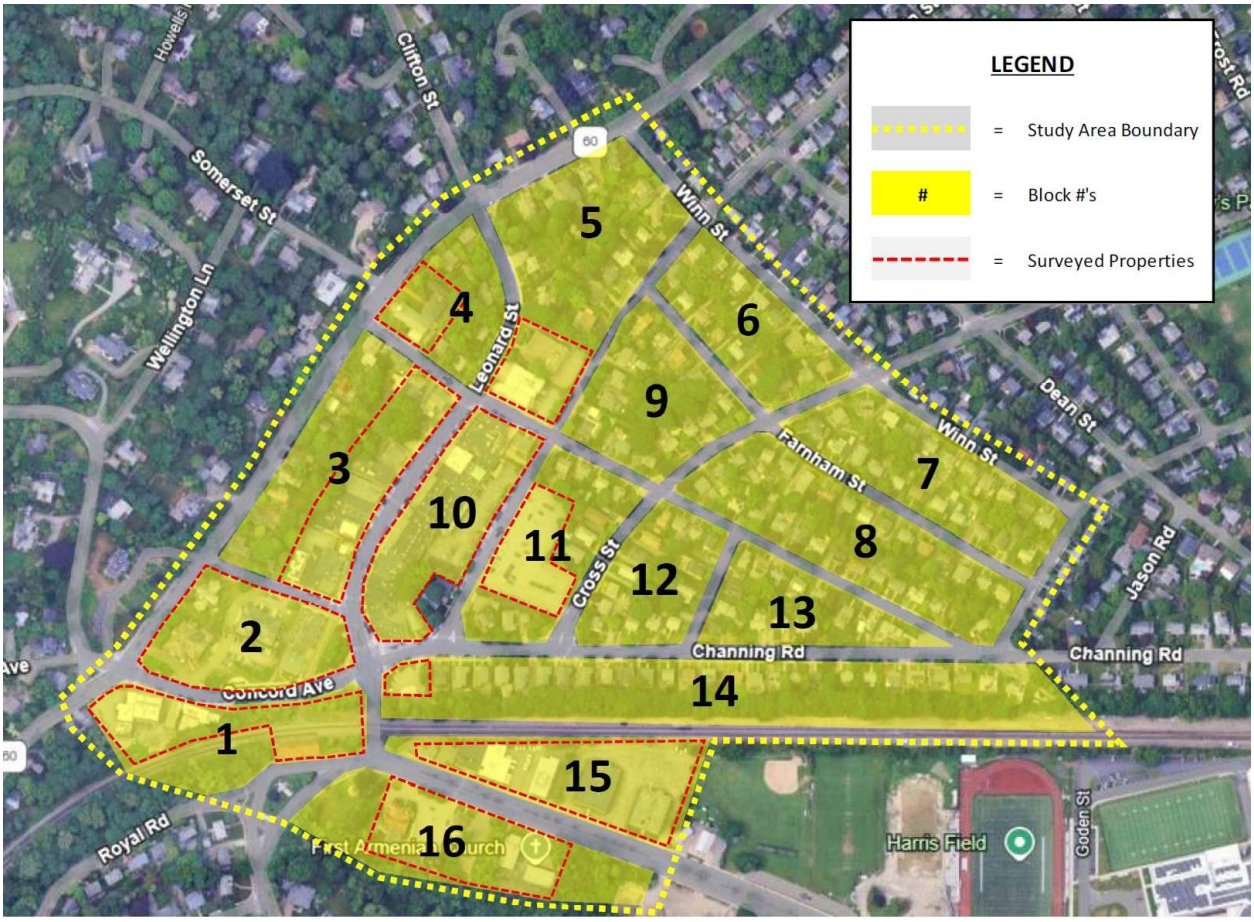
DESMAN then prepared a shared parking model following standard Urban Land Institute methodology and calibrated it to align with observed existing conditions.

Using the development program information provided within the "Belmont Center Zoning Model with Scenarios (9/4/25)" for the 'Likely' scenarios *With Density Bonuses* as a base and the shared parking model developed for and calibrated to existing conditions in Belmont Center, DESMAN projected peak hour demand.

DESMAN compared these projections of peak hour demand against the parking required for each scenario per the Belmont, MA Form Based Overlay Districts (May 29, 2025 Draft) to determine if the proposed requirements would determine if adequate parking supply would be provided for each program at full build out under the proposed code.

DESMAN also performed a review of the parking components included in the proposed code specific to parking requirements by land use (Tables 1-2a-e, pages 21-22) and parking requirement relief options under Parking Standards (10.3.F, pages 41-44).

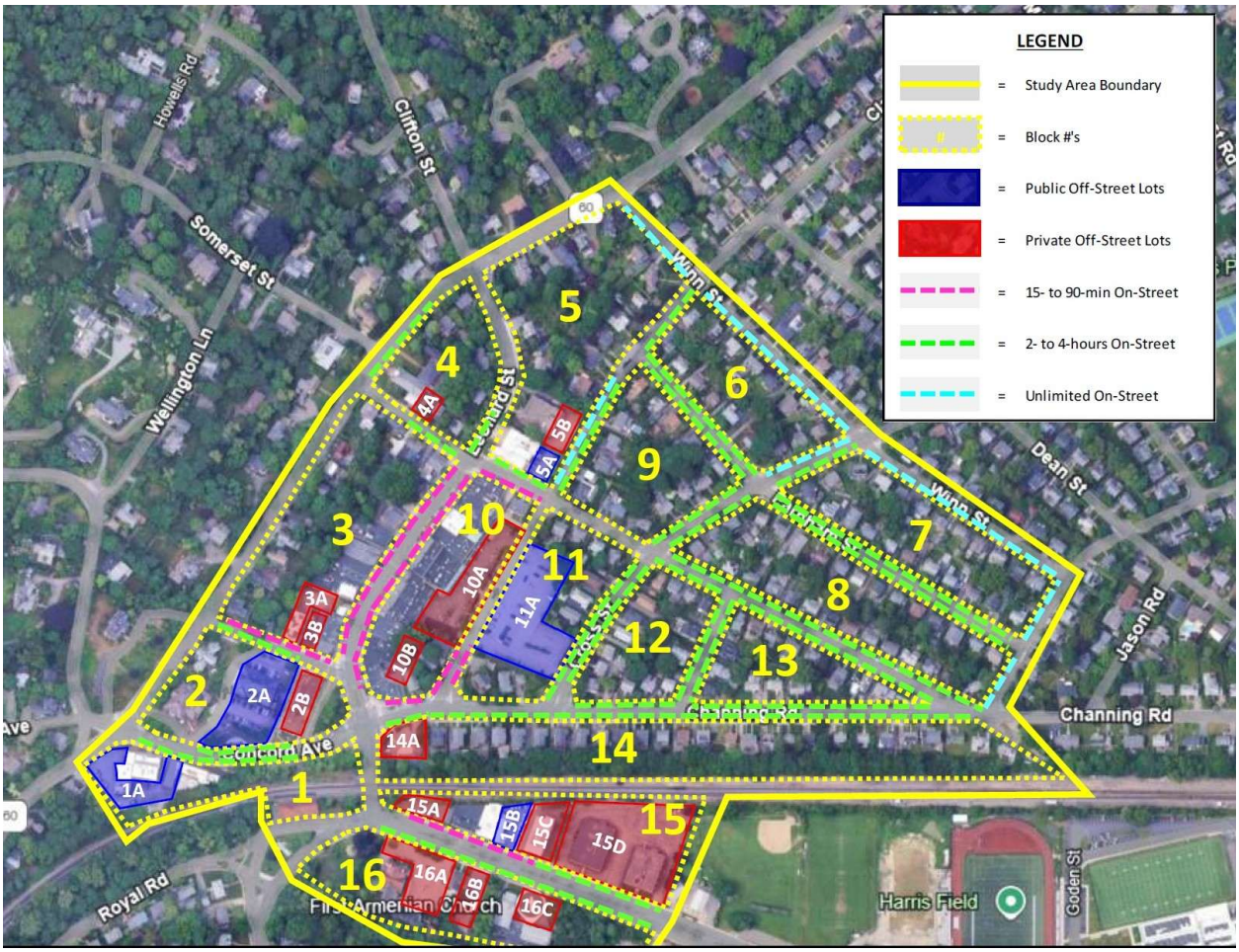
**Figure 1: Defined Parking Study Area**




**Existing Parking Supply**

Working in tandem with Town of Belmont officials, DESMAN inventoried a total of 1,158 parking spaces within the defined study area. 429 (37%) of these spaces were on-street and the majority of those were subject to some form of prescribed time limit, the two-hour limit making up the bulk of this grouping. Combined with the parking spaces found in off-street lots owned by the Town of Belmont, the total public parking supply (724 spaces) accounted for roughly 63% of all parking within the defined study area. The 37% (434 spaces) of the supply located in private off-street facilities was contained with surface lots and one garage dedicated to serve a specific and exclusive business, building, or institution. The location of each facility is shown in ***Figure 2*** on the next page; the inventory is included as ***Table 1*** on the following page.

**Figure 2: Location of Existing Parking Supply**



## Table 1: Existing Parking Supply

| | | | ON-STREET | | | | | | | | | | OFF-STREET | | | | | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Time Limited | | | | | Un- | Loading | Other | HC | Sub- | Public Lot | | | | Private Lot | | | Private Garage | | | Sub- | |
| Block | Name/Description | Address | 15-Min | 1 Hour | 90 Min | 2-Hour | 4-Hour | Regulated | Zone | | | Total | Permit | Hourly | HC | Other | Permit | HC | Other | Permit | Other | HC | Total | |
| 1A | Police Station Lot | 460 Concord Ave | | | | | | | | | | 0 | 34 | | | | | | | | | | 34 | *34* |
| 1 | Concord Ave (Southside) | Pleasant St/ Leonard St | | | | 19 | | | | | | 19 | | | | | | | | | | | 0 | *19* |
| 2A | Belmont Gallery of Art | 19 Moore St | | | | | | | | | | 0 | 38 | 4 | | | | | | | | | 42 | *42* |
| 2B | M&T Bank Garage | 2 Leonard St | | | | | | | | | | 0 | | | | | | | | | 33 | | 33 | *33* |
| 2 | Concord Ave (Northside) | Pleasant St/ Leonard St | | | | 7 | | | 1 | | | 8 | | | | | | | | | | | 0 | *8* |
| 2 | Moore (Southside) | Pleasant St/ Leonard St | | | | 8 | | | 1 | | | 9 | | | | | | | | | | | 0 | *9* |
| 3A | Eagle Orthodonics | 18 Moore St | | | | | | | | | | 0 | | | | | 14 | | | | | | 14 | *14* |
| 3B | Employee Permit | 32 Leonard St | | | | | | | | | | 0 | | | | | 5 | 1 | | | | | 6 | *6* |
| 3 | Alexander Ave (Southside) | Pleasant St/ Leonard St | | | | 3 | | | | | | 3 | | | | | | | | | | | 0 | *3* |
| 3 | Leonard St (Westside) | Alexander Ave/ Moore St | | | 16 | | | | | | 2 | 18 | | | | | | | | | | | 0 | *18* |
| 3 | Moore (Northside) | Pleaseant St/ Leonard St | | | 4 | | | | | | 1 | 5 | | | | | | | | | | | 0 | *5* |
| 4A | Plymouth Nursery School | 582 Pleasant St | | | | | | | | | | 0 | | | | | 3 | | | | | | 3 | *3* |
| 4 | Pleasant St (Eastside) | Leonard St/ Alexander Ave | | | | 9 | | | | | 1 | 10 | | | | | | | | | | | 0 | *10* |
| 4 | Leonard St (Westside) | Pleasant St/ Alexander Ave | | | | 2 | | | | | | 2 | | | | | | | | | | | 0 | *2* |
| 5A | Fire Station | 99 Leonard St | | | | | | | | | | 0 | 15 | 2 | | | | | | | | | 17 | *17* |
| 5B | Verizon | 115 Leonard St | | | | | | | | | | 0 | | | | | 13 | | | | | | 13 | *13* |
| 5 | Winn St (Southside) | Pleasant St/ Claflin St | | | | | | 4 | | | | 4 | | | | | | | | | | | 0 | *4* |
| 5 | Claflin St (Westside) | Winn St/ Alexander Ave | | | | | | 5 | | | | 5 | | | | | | | | | | | 0 | *5* |
| 5 | Alexander Ave (Northside) | Leonard St/ Clarflin St | | | | 2 | | | | | | 2 | | | | | | | | | | | 0 | *2* |
| 6 | Winn St (Southside) | Claflin St/Cross St | | | | | | 15 | | | | 15 | | | | | | | | | | | 0 | *15* |
| 6 | Cross St (Westside) | Winn St/Farnham St | | | | | | 3 | | | | 3 | | | | | | | | | | | 0 | *3* |
| 6 | Farnham St (Northside) | Claflin St/Cross St | | | | 8 | | | | | | 8 | | | | | | | | | | | 0 | *8* |
| 6 | Claflin St (Eastside) | Winn St/Farnham St | | | | 5 | | | | | | 5 | | | | | | | | | | | 0 | *5* |
| 7 | Winn St (Southside) | Cross St/Sherman St | | | | | | 18 | | | | 18 | | | | | | | | | | | 0 | *18* |
| 7 | Sherman St (Westside) | Winn St/Farnham St | | | | | | 4 | | | | 4 | | | | | | | | | | | 0 | *4* |
| 7 | Farnham St (Northside) | Cross St/Sherman St | | | | 20 | | | | | | 20 | | | | | | | | | | | 0 | *20* |
| 7 | Cross St (Eastside) | Winn St/Farnham St | | | | 10 | | | | | | 10 | | | | | | | | | | | 0 | *10* |
| 8 | Cross St (Eastside) | Farnham St/ Alexander Ave | | | | 10 | | | | | | 10 | | | | | | | | | | | 0 | *10* |
| 8 | Farnham St (Southside) | Cross St/Sherman St | | | | 20 | | | | | | 20 | | | | | | | | | | | 0 | *20* |
| 8 | Sherman St (Westside) | Farnham St/ Alexander Ave | | | | | | 4 | | | | 4 | | | | | | | | | | | 0 | *4* |
| 8 | Alexander Ave (Northside) | Cross St/Sherman St | | | | 20 | | | | | | 20 | | | | | | | | | | | 0 | *20* |
| 9 | Farnham St (Southside) | Claflin St/Cross St | | | | 8 | | | | | | 8 | | | | | | | | | | | 0 | *8* |
| 9 | Cross St (Westside) | Farnham St/ Alexander Ave | | | | 10 | | | | | | 10 | | | | | | | | | | | 0 | *10* |
| 9 | Claflin St (Eastside) | Farnham St/ Alexander Ave | | | | 10 | | | | | | 10 | | | | | | | | | | | 0 | *10* |
| 10A | Customer Parking Lot | 75 Leonard St | | | | | | | | | | 0 | | | | | | 4 | 76 | | | | 80 | *80* |
| 10B | Shop Owner Permit Lot | 18 Channing Rd | | | | | | | | | | 0 | | | | | 10 | | | | | | 10 | *10* |
| 10 | Alexander Ave (Southside) | Leonard St/ Claflin St | | | | 4 | | | | | | 4 | | | | | | | | | | | 0 | *4* |
| 10 | Claflin St (Westside) | Alexander Ave/ Channing Rd | | 4 | | | | | | | | 4 | | | | | | | | | | | 0 | *4* |
| 10 | Channing Rd (Northside) | Leonard St/ Claflin St | | | | 3 | | | | | | 3 | | | | | | | | | | | 0 | *3* |
| 10 | Leonard St (Eastside) | Alexander Ave/ Channing Rd | 3 | | | 16 | | | 1 | | 2 | 22 | | | | | | | | | | | 0 | *22* |
| 11A | Claflin St Public Lot | 10 Claflin St | | | | | | | | | | 0 | 70 | 98 | 6 | 4 | | | | | | | 178 | *178* |
| 11 | Cross St (Westside) | Alexander Ave/ Channing Rd | | | | 8 | | | | | | 8 | | | | | | | | | | | 0 | *8* |
| 11 | Claflin St (Eastside) | Alexander Ave/ Channing Rd | | 5 | | | | | | | | 5 | | | | | | | | | | | 0 | *5* |
| 12 | Alexander Ave (Southside) | Cross St/Farm Rd | | | | 5 | | | | | | 5 | | | | | | | | | | | 0 | *5* |
| 12 | Farm Rd (Westside) | Alexander Ave/ Channing Rd | | | | 6 | | | | | | 6 | | | | | | | | | | | 0 | *6* |
| 12 | Channing Rd (Northside) | Cross St/Farm Rd | | | | 5 | | | | | | 5 | | | | | | | | | | | 0 | *5* |
| 12 | Cross St (ES) | Alexander Ave/ Channing Rd | | | | 8 | | | | | | 8 | | | | | | | | | | | 0 | *8* |
| 13 | Alexander Ave (Southside) | Farm Rd/ Channing Rd | | | | 15 | | | | | | 15 | | | | | | | | | | | 0 | *15* |
| 13 | Channing Rd (Northside) | Farm Rd/ Alexander Ave | | | | 10 | | | | | | 10 | | | | | | | | | | | 0 | *10* |
| 13 | Farm Rd (Eastside) | Alexander Ave/ Channing Rd | | | | 6 | | | | | | 6 | | | | | | | | | | | 0 | *6* |
| 14A | Chase Bank Lot | 7 Channing Rd | | | | | | | | | | 0 | | | | | | 1 | 11 | | | | 12 | *12* |
| 14 | Channing Rd (Southside) | Concord Ave/ Alexander Ave | | | | 44 | | | | | | 44 | | | | | | | | | | | 0 | *44* |
| 15A | The Luxe Dose | 415 Concord Ave | | | | | | | | | | 0 | | | | | 2 | | | | | | 2 | *2* |
| 15B | United States Postal Service | 405 Concord Ave | | | | | | | | | | 0 | 24 | | | | 7 | | | | | | 31 | *31* |
| 15C | National Assoc. for Armenian | 395 Concord Ave | | | | | | | | | | 0 | | | | | 20 | | | | | | 20 | *20* |
| 15D | 375/385 Shared Lot | 375/385 Concord Ave | | | | | | | | | | 0 | | | | | 144 | 5 | 17 | | | | 166 | *166* |
| 15 | Concord Ave (Northside) | Leonard St/ Soccer Field | 7 | | | 7 | | | | | 1 | 15 | | | | | | | | | | | 0 | *15* |
| 16A | First Armenian Church Lot | 380 Concord Ave | | | | | | | | | | 0 | | | | | | 2 | 14 | | | | 16 | *16* |
| 16B | Henry Frost Program Lot | 396 Concord Ave | | | | | | | | | | 0 | | | | | | | 24 | | | | 24 | *24* |
| 16C | Unitarian Universalist | 404 Concord Ave | | | | | | | | | | 0 | | | | | | 2 | 26 | | | | 28 | *28* |
| 16 | Concord Ave (Southside) | Common St/Historical Lot | | | | | 16 | | | 3 | | 19 | | | | | | | | | | | 0 | *19* |
| TOTAL | | | 10 | 9 | 43 | 285 | 16 | 53 | 3 | 3 | 7 | 429 | 181 | 104 | 6 | 4 | 218 | 15 | 168 | 0 | 33 | 0 | 729 | 1,158 |

## Baseline Parking Occupancy

To establish a baseline of current parking occupancy, utilization, and adequacy across the defined study area, DESMAN performed an inventory of parked vehicles on Tuesday, 9/10/2025 at 10:00 AM, 12:00 PM, 2:00 PM, and 4:00 PM. The survey day was sunny and dry, occurring after the start of the traditional school academic year and not in conflict with any known holiday or other observance, so it was anticipated that the conditions observed would be reflective of a 'typical' weekday.

As shown in ***Table 2***, next page, the total number of vehicles parked within the study area never exceeded 36% of the total supply. In point of fact, with the exception of one block bounded by Pleasant Street, Alexander Avenue, Leonard Street, and Moore Street, parking utilization on a block-by-block basis never surpassed 45% of capacity.

## Table 2: Baseline Parking Occupancy Observations (Tuesday, 9/10/2025)

| Block | Name/Description | Address/Intersecting Streets | Supply | Observed Occupancy, Tuesday, 9/10/2025 | | | |
|---|---|---|---|---|---|---|---|
| | | | | 10:00 AM | 12:00 AM | 2:00 PM | 4:00 PM |
| 1A | Police Station Lot | 460 Concord Ave | 34 | 11 | 11 | 11 | 13 |
| 1 | Concord Ave (Southside) | Pleasant St/ Leonard St | 19 | 12 | 19 | 13 | 7 |
| 2A | Belmont Gallery of Art | 19 Moore St | 42 | 32 | 37 | 38 | 29 |
| 2B | M&T Bank Garage | 2 Leonard St | 33 | 4 | 8 | 5 | 3 |
| 2 | Concord Ave (Northside) | Pleasant St/ Leonard St | 8 | 5 | 7 | 6 | 5 |
| 2 | Moore (Southside) | Pleasant St/ Leonard St | 9 | 3 | 6 | 5 | 4 |
| 3A | Eagle Orthodonics | 18 Moore St | 14 | 12 | 16 | 14 | 9 |
| 3B | Employee Permit | 32 Leonard St | 6 | 3 | 3 | 3 | 3 |
| 3 | Alexander Ave (Southside) | Pleasant St/ Leonard St | 3 | 2 | 3 | 2 | 2 |
| 3 | Leonard St (Westside) | Alexander Ave/ Moore St | 18 | 6 | 8 | 16 | 14 |
| 3 | Moore (Northside) | Pleaseant St/ Leonard St | 5 | 4 | 3 | 7 | 5 |
| 4A | Plymouth Nursery School | 582 Pleasant St | 3 | 3 | 3 | 0 | 0 |
| 4 | Pleasant St (Eastside) | Leonard St/ Alexander Ave | 10 | 5 | 6 | 4 | 4 |
| 4 | Leonard St (Westside) | Pleasant St/ Alexander Ave | 2 | 2 | 2 | 2 | 2 |
| 5A | Fire Station | 99 Leonard St | 17 | 4 | 4 | 4 | 2 |
| 5B | Verizon | 115 Leonard St | 13 | 0 | 0 | 0 | 0 |
| 5 | Winn St (Southside) | Pleasant St/ Claflin St | 4 | 0 | 0 | 0 | 0 |
| 5 | Claflin St (Westside) | Winn St/ Alexander Ave | 5 | 0 | 0 | 0 | 1 |
| 5 | Alexander Ave (Northside) | Leonard St/ Clarflin St | 2 | 2 | 2 | 2 | 2 |
| 6 | Winn St (Southside) | Claflin St/Cross St | 15 | 0 | 0 | 0 | 1 |
| 6 | Cross St (Westside) | Winn St/Farnham St | 3 | 0 | 1 | 1 | 1 |
| 6 | Farnham St (Northside) | Claflin St/Cross St | 8 | 0 | 1 | 0 | 1 |
| 6 | Claflin St (Eastside) | Winn St/Farnham St | 5 | 0 | 0 | 0 | 0 |
| 7 | Winn St (Southside) | Cross St/Sherman St | 18 | 0 | 0 | 0 | 0 |
| 7 | Sherman St (Westside) | Winn St/Farnham St | 4 | 0 | 0 | 0 | 0 |
| 7 | Farnham St (Northside) | Cross St/Sherman St | 20 | 0 | 1 | 3 | 4 |
| 7 | Cross St (Eastside) | Winn St/Farnham St | 10 | 0 | 0 | 0 | 1 |
| 8 | Cross St (Eastside) | Farnham St/ Alexander Ave | 10 | 0 | 1 | 2 | 1 |
| 8 | Farnham St (Southside) | Cross St/Sherman St | 20 | 2 | 5 | 2 | 4 |
| 8 | Sherman St (Westside) | Farnham St/ Alexander Ave | 4 | 0 | 0 | 0 | 0 |
| 8 | Alexander Ave (Northside) | Cross St/Sherman St | 20 | 1 | 1 | 1 | 1 |
| 9 | Farnham St (Southside) | Claflin St/Cross St | 8 | 1 | 1 | 1 | 1 |
| 9 | Cross St (Westside) | Farnham St/ Alexander Ave | 10 | 1 | 1 | 1 | 1 |
| 9 | Claflin St (Eastside) | Farnham St/ Alexander Ave | 10 | 0 | 0 | 0 | 0 |
| 10A | Customer Parking Lot | 75 Leonard St | 80 | 27 | 33 | 28 | 29 |
| 10B | Shop Owner Permit Lot | 18 Channing Rd | 10 | 5 | 7 | 4 | 6 |
| 10 | Alexander Ave (Southside) | Leonard St/ Claflin St | 4 | 2 | 2 | 3 | 2 |
| 10 | Claflin St (Westside) | Alexander Ave/ Channing Rd | 4 | 1 | 1 | 1 | 2 |
| 10 | Channing Rd (Northside) | Leonard St/ Claflin St | 3 | 2 | 2 | 2 | 2 |
| 10 | Leonard St (Eastside) | Alexander Ave/ Channing Rd | 22 | 14 | 14 | 14 | 14 |
| 11A | Claflin St Public Lot | 10 Claflin St | 178 | 71 | 80 | 74 | 78 |
| 11 | Cross St (Westside) | Alexander Ave/ Channing Rd | 8 | 0 | 0 | 0 | 0 |
| 11 | Claflin St (Eastside) | Alexander Ave/ Channing Rd | 5 | 0 | 0 | 1 | 1 |
| 12 | Alexander Ave (Southside) | Cross St/Farm Rd | 5 | 1 | 0 | 2 | 2 |
| 12 | Farm Rd (Westside) | Alexander Ave/ Channing Rd | 6 | 0 | 0 | 0 | 0 |
| 12 | Channing Rd (Northside) | Cross St/Farm Rd | 5 | 0 | 0 | 0 | 1 |
| 12 | Cross St (ES) | Alexander Ave/ Channing Rd | 8 | 0 | 0 | 0 | 0 |
| 13 | Alexander Ave (Southside) | Farm Rd/ Channing Rd | 15 | 1 | 4 | 2 | 3 |
| 13 | Channing Rd (Northside) | Farm Rd/ Alexander Ave | 10 | 1 | 1 | 1 | 1 |
| 13 | Farm Rd (Eastside) | Alexander Ave/ Channing Rd | 6 | 0 | 0 | 0 | 0 |
| 14A | Chase Bank Lot | 7 Channing Rd | 12 | 4 | 4 | 7 | 5 |
| 14 | Channing Rd (Southside) | Concord Ave/ Alexander Ave | 44 | 4 | 7 | 8 | 11 |
| 15A | The Luxe Dose | 415 Concord Ave | 2 | 3 | 3 | 4 | 2 |
| 15B | United States Postal Service | 405 Concord Ave | 31 | 7 | 10 | 8 | 7 |
| 15C | National Assoc. for Armenian | 395 Concord Ave | 20 | 12 | 13 | 11 | 9 |
| 15D | 375/385 Shared Lot | 375/385 Concord Ave | 166 | 50 | 53 | 69 | 71 |
| 15 | Concord Ave (Northside) | Leonard St/ Soccer Field | 15 | 9 | 9 | 12 | 10 |
| 16A | First Armenian Church Lot | 380 Concord Ave | 16 | 5 | 8 | 11 | 9 |
| 16B | Henry Frost Program Lot | 396 Concord Ave | 24 | 0 | 2 | 3 | 1 |
| 16C | Unitarian Universalist | 404 Concord Ave | 28 | 1 | 1 | 1 | 0 |
| 16 | Concord Ave (Southside) | Common St/Historical Lot | 19 | 12 | 12 | 11 | 6 |
| **TOTAL** | | | **1,158** | **347** | **416** | **420** | **393** |
| **Adequacy** | | | | **811** | **742** | **738** | **765** |
| ***Utilization*** | | | | ***30%*** | ***36%*** | ***36%*** | ***34%*** |

As the figure below shows, only the block bounded by Leonard, Alexander, Pleasant, and Moore Streets appeared to approach an overall condition which might be perceived as "full" by a causal observer. While Leonard Street between Alexander Avenue, Moore Street, and Channing Road appeared to be nearly parked to capacity at times, DESMAN recorded ample available parking in the private lots abutting the businesses along this roadway and substantial availability in the Town's Claflin Street parking lot.

**Figure 3: Observed Peak Hour Conditions – Block-by-Block (Tuesday, 9/10/2025 @ 2:00 pm)**


**Future Demand Projection Methodology**

To project future parking demand within the study area, DESMAN prepared the following shared parking model specific to Belmont Center. *Shared parking* is a methodology for calculating the parking demands of a particular project or area developed by the Urban Land Institute (ULI) in collaboration with the Institute of Transportation Engineers (ITE) and the International Council of Shopping Centers (ICSC).

This methodology is a departure from the standard zoning ordinance method of calculating required parking which is to apply a parking demand ratio (or parking requirement per local code or ordinance) to each component within a project, sum the total of all demands and build against this figure. This traditional methodology treats parking demand as a fixed, unwavering phenomenon and, as result, often results in the provision of parking supply greater than the true need of the development. This methodology allows the planner to accurately determine the need for the development as an organic whole, rather than an assembly of disparate parts. The result is provision of a parking supply to support the project which is adequate to meet the project's needs without building excess parking spaces.

Shared Parking models are comprised of industry standard base parking demand ratios, adjusted to reflect for variations in demand specific to each project's composition and locality, as well as fluctuations in demand according to time of day and year. Base parking demand ratios are developed through the long-term study of stand-alone land uses (i.e. office buildings, retail stores, hotel, etc.) with their own dedicated parking facilities. Researchers perform occupancy counts at different times of day, different days of the week, and different times of the year, to isolate the busiest hour of the busiest weekday and/or weekend day annually.

Once the peak hour is isolated, researchers divide the number of vehicles parked by the key driving element in each land use, such as the number of hotel rooms or total gross leasable square footage of the building. This division renders a parking demand ratio; the mathematic expression of the number of cars parked at the busiest hour of the busiest day related to the land use's key driver.

The Urban Land Institute (ULI), the Institute of Transportation Engineers (ITE), the International Council of Shopping Center (ICSC), the International Parking Institute (IPI), the National Parking Association (NPA), the American Planning Association (APA) and other agencies gather and consolidate these individual studies into peer-reviewed, statistically reliable resources for application in planning studies, such as this one. DESMAN applied the base demand ratios to the proposed program shown in ***Table 3***.

**Table 3: Base Parking Demand Ratios**

| Land Use | User Group | Weekday | Weekend | Unit | Source |
|---|---|---|---|---|---|
| Standard Retail | Customer | 2.90 | 3.20 | /ksf GLA | **Shared Parking: 3rd Edition**. Washington DC: *ULI-The Urban Land Institute*, 2020, p.16 |
| | Employee | 0.70 | 0.80 | /ksf GLA | **Shared Parking: 3rd Edition**. Washington DC: *ULI-The Urban Land Institute*, 2020, p.16 |
| Fine/Casual Dining | Customer | 0.73 | 0.54 | /seat | **Parking Generation: 5th Edition**. Washington DC: *ITE - Institute of Transportation Engineers*, 2019, p.717-718 |
| | Employee | 0.13 | 0.09 | /seat | **Parking Generation: 5th Edition**. Washington DC: *ITE - Institute of Transportation Engineers*, 2019, p.717-718 |
| Fast Casual Dining | Customer | 0.49 | 0.47 | /seat | **Parking Generation: 5th Edition**. Washington DC: *ITE - Institute of Transportation Engineers*, 2019, p.734-735 |
| | Employee | 0.09 | 0.08 | /seat | **Parking Generation: 5th Edition**. Washington DC: *ITE - Institute of Transportation Engineers*, 2019, p.734-735 |
| Café/Take Out | Customer | 0.52 | 0.58 | /seat) | **Parking Generation: 5th Edition**. Washington DC: *ITE - Institute of Transportation Engineers*, 2019, p.764-765 |
| | Employee | 0.09 | 0.10 | /seat | **Parking Generation: 5th Edition**. Washington DC: *ITE - Institute of Transportation Engineers*, 2019, p.764-765 |
| Residential | Studio | 0.80 | 0.80 | /unit | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| | 1-Bedroom | 0.90 | 0.90 | /unit | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| | 2-Bedroom | 1.65 | 1.65 | /unit | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| | 3-Bedroom | 1.85 | 1.85 | /unit | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| | Guest | 0.10 | 0.10 | /unit | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| General Offices | Visitor | 0.30 | 0.03 | /ksf GFA | **Shared Parking: 3rd Edition**. Washington DC: *ULI-The Urban Land Institute*, 2020, p.16 |
| | Employee | 3.50 | 0.35 | /ksf GFA | **Shared Parking: 3rd Edition**. Washington DC: *ULI-The Urban Land Institute*, 2020, p.16 |
| Medical Offices | Visitor | 3.00 | 0.00 | /ksf GFA | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| | Employee | 1.60 | 0.00 | /ksf GFA | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| Bank | Visitor | 3.50 | 3.00 | /ksf GFA | **Shared Parking: 3rd Edition**. Washington DC: *ULI-The Urban Land Institute*, 2020, p.15 |
| | Employee | 2.50 | 1.75 | /ksf GFA | **Shared Parking: 3rd Edition**. Washington DC: *ULI-The Urban Land Institute*, 2020, p.16 |
| Hotel | Visitor | 1.00 | 1.00 | /room | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |
| | Employee | 0.15 | 0.15 | /room | **Shared Parking: 3rd Edition**. Washington DC: *ULI - Urban Land Institute*, 2020, p.16 |

Per standard ULI methodology, adjustments to base demand ratios area applied to reflect the actual conditions in the project site. These applied factors included adjustments to reflect choice of transportation mode, internal rates of capture, and other local factors.

*Mode adjustments* reflect the percentage of users expected to drive themselves to a project, versus arriving by other means. The most recent [2023] American Community Survey (ACS) administered by the US Census Bureau covering Belmont, Massachusetts, reported that 48.9% of the local populace drove themselves to work in a personal vehicle; 28.4% worked from home, 11.1% took transit, and the remainder walked, biked, and travelled by other means. This is the basis for .489 mode adjustment specific to the project for all employees.

Peer reviewed and published data on mode use by shoppers, diners, tourists and other patrons in Belmont could not be located. Based on DESMAN's experience in communities of similar size, location, and

composition[1], DESMAN assumed that not more than 5% of all customers and visitors would come by means other than a single-occupant private vehicle and applied a .95 mode adjustment to all users who were not employees or residents.

Per the most recent [2023] American Community Survey (ACS) administered by the US Census Bureau covering Belmont, Massachusetts 28.4% of all Belmont households had only one vehicle, 52.6% had two vehicles, and 15.4% reported having three or more vehicles at home. Just 3.26% of all reporting households had no vehicle at home, resulting in an applied .9725 mode adjustment for residents.

*Capture adjustments* – the percentage of persons already on the project site for one reason, but patronizing another business – is applied so that demand associated with one land use is not credited against another land use during the modeling process. For example, the office worker who goes to a nearby café on break does not generate any new or additional parking demand by getting a latte. If that employee's parking demand is already 'credited' to his office, the capture adjustment to the café assures that his parking demand is NOT associated with the coffee shop, i.e. "double counting" him.

Peer reviewed and published data on capture by land use in Belmont could not be located. Based on DESMAN's experience in communities of similar size, location, and composition[2], DESMAN assumed that there would be no capture adjustment for residents or employees of all land uses as these individuals would be 100% captive to their respective uses. However, it was theorized that some of these captive workers and residents, as well as Belmont locals living on the fringes of the study area, might patronize other land uses within the study area during the course of a typical day without generating an additional vehicle trip or associated parking demand.

Based on DESMAN's experience in communities of similar size, location, and composition, DESMAN assumed that there would be some capture adjustments for shoppers, diners, and bank visitors. Some of these reductions would remain fairly stable, regardless of the day of week or time of day, while others will fluctuate according to time of day or day of the week. Applied capture assumptions to this model were as follows:

- *Retail*: Twenty percent (20%) of patrons would be captive to another use on weekdays, decreasing to 15% on weekday evenings, and 10% on weekends and weekend evenings.
- *Fine/Casual Restaurants*: One in four (25%) of weekday lunch patrons would be captive to other uses, decreasing to 20% on weekday evenings, and 15% on weekends and weekend evenings.
- *Fast Casual Restaurants*: Thirty percent (30%) of weekday lunch patrons would be captive to other uses, decreasing to 25% on weekday evenings, and 20% on weekends and weekend evenings.
- *Café/Take-Out Restaurants*: Forty percent (40%) of weekday lunch patrons would be captive to other uses, decreasing to 35% on weekday evenings, and 30% on weekends and weekend evenings.
- *Bank:* One in ten (10%) of weekday visitors would be captive to other uses.

*Local adjustments* are applied based on an existing, occupied land use program and observed occupancy conditions; they calibrate results further to align them with local dynamics. This process is addressed later

[1] Including studies performed in mixed-use districts located in: *Watertown, MA; Arlington, MA; Brookline, MA; Dedham, MA; Newton, MA; Medford, MA; Dedham, MA; Norwood, MA*; and *Quincy, MA*.

[2] See footnote 1 for specific communities.

in the report. Unlike other adjustments which are applied according to land use and/or user type, local adjustments are applied universally to calibrate the model to align with observed existing conditions. The application of a local adjustment results in a model that provide more refined and accurate projections of future need.

## Table 4: Applied Mode, Capture, and Local Adjustments

**WEEKDAYS**

**DAYTIME (6:00 AM - 4:59 PM)**

| Land Use | User Group | Base Ratio | Modal Adj. | Capture Adj. | Local Adj. | Project Ratio | Unit |
|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 2.90 | 0.95 | 0.80 | 0.76 | 1.68 | /ksf GLA |
| | Employee | 0.70 | 0.49 | 1.00 | 0.76 | 0.26 | /ksf GLA |
| Fine/Casual Dining | Customer | 0.73 | 0.95 | 0.75 | 0.76 | 0.40 | /seat |
| | Employee | 0.13 | 0.49 | 1.00 | 0.76 | 0.05 | /seat |
| Fast Casual Dining | Customer | 0.49 | 0.95 | 0.70 | 0.76 | 0.25 | /seat |
| | Employee | 0.09 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Café/Take Out | Customer | 0.52 | 0.95 | 0.60 | 0.76 | 0.23 | /seat) |
| | Employee | 0.09 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Residential | Studio | 0.80 | 0.97 | 1.00 | 0.76 | 0.59 | /unit |
| | 1-Bedroom | 0.90 | 0.97 | 1.00 | 0.76 | 0.66 | /unit |
| | 2-Bedroom | 1.65 | 0.97 | 1.00 | 0.76 | 1.21 | /unit |
| | 3-Bedroom | 1.85 | 0.97 | 1.00 | 0.76 | 1.36 | /unit |
| | Guest | 0.10 | 1.00 | 1.00 | 0.76 | 0.08 | /unit |
| General Offices | Visitor | 0.30 | 0.95 | 1.00 | 0.76 | 0.22 | /ksf GFA |
| | Employee | 3.50 | 0.49 | 1.00 | 0.76 | 1.30 | /ksf GFA |
| Medical Offices | Visitor | 3.00 | 0.95 | 1.00 | 0.76 | 2.17 | /ksf GFA |
| | Employee | 1.60 | 0.49 | 1.00 | 0.76 | 0.59 | /ksf GFA |
| Bank | Visitor | 3.50 | 0.95 | 0.90 | 0.76 | 2.27 | /ksf GFA |
| | Employee | 2.50 | 0.49 | 1.00 | 0.76 | 0.93 | /ksf GFA |
| Hotel | Visitor | 1.00 | 1.00 | 1.00 | 0.76 | 0.76 | /room |
| | Employee | 0.15 | 0.49 | 1.00 | 0.76 | 0.06 | /room |

**EVENING (5:00 PM - 12:00 AM)**

| Land Use | User Group | Base Ratio | Modal Adj. | Capture Adj. | Local Adj. | Project Ratio | Unit |
|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 2.90 | 0.95 | 0.85 | 0.76 | 1.78 | /ksf GLA |
| | Employee | 0.70 | 0.49 | 1.00 | 0.76 | 0.26 | /ksf GLA |
| Fine/Casual Dining | Customer | 0.73 | 0.95 | 0.80 | 0.76 | 0.42 | /seat |
| | Employee | 0.13 | 0.49 | 1.00 | 0.76 | 0.05 | /seat |
| Fast Casual Dining | Customer | 0.49 | 0.95 | 0.75 | 0.76 | 0.27 | /seat |
| | Employee | 0.09 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Café/Take Out | Customer | 0.52 | 0.95 | 0.65 | 0.76 | 0.24 | /seat) |
| | Employee | 0.09 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Residential | Studio | 0.80 | 0.97 | 1.00 | 0.76 | 0.59 | /unit |
| | 1-Bedroom | 0.90 | 0.97 | 1.00 | 0.76 | 0.66 | /unit |
| | 2-Bedroom | 1.65 | 0.97 | 1.00 | 0.76 | 1.21 | /unit |
| | 3-Bedroom | 1.85 | 0.97 | 1.00 | 0.76 | 1.36 | /unit |
| | Guest | 0.10 | 1.00 | 1.00 | 0.76 | 0.08 | /unit |
| General Offices | Visitor | 0.30 | 0.95 | 1.00 | 0.76 | 0.22 | /ksf GFA |
| | Employee | 3.50 | 0.49 | 1.00 | 0.76 | 1.30 | /ksf GFA |
| Medical Offices | Visitor | 3.00 | 0.95 | 1.00 | 0.76 | 2.17 | /ksf GFA |
| | Employee | 1.60 | 0.49 | 1.00 | 0.76 | 0.59 | /ksf GFA |
| Bank | Visitor | 3.50 | 0.95 | 1.00 | 0.76 | 2.53 | /ksf GFA |
| | Employee | 2.50 | 0.49 | 1.00 | 0.76 | 0.93 | /ksf GFA |
| Hotel | Visitor | 1.00 | 1.00 | 1.00 | 0.76 | 0.76 | /room |
| | Employee | 0.15 | 0.49 | 1.00 | 0.76 | 0.06 | /room |

**WEEKENDS**

**DAYTIME (6:00 AM - 4:59 PM)**

| Land Use | User Group | Base Ratio | Modal Adj. | Capture Adj. | Local Adj. | Project Ratio | Unit |
|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 3.20 | 0.95 | 0.90 | 0.76 | 2.08 | /ksf GLA |
| | Employee | 0.80 | 0.49 | 1.00 | 0.76 | 0.30 | /ksf GLA |
| Fine/Casual Dining | Customer | 0.54 | 0.95 | 0.85 | 0.76 | 0.33 | /seat |
| | Employee | 0.09 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Fast Casual Dining | Customer | 0.47 | 0.95 | 0.80 | 0.76 | 0.27 | /seat |
| | Employee | 0.08 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Café/Take Out | Customer | 0.58 | 0.95 | 0.70 | 0.76 | 0.29 | /seat) |
| | Employee | 0.10 | 0.49 | 1.00 | 0.76 | 0.04 | /seat |
| Residential | Studio | 0.80 | 0.97 | 1.00 | 0.76 | 0.59 | /unit |
| | 1-Bedroom | 0.90 | 0.97 | 1.00 | 0.76 | 0.66 | /unit |
| | 2-Bedroom | 1.65 | 0.97 | 1.00 | 0.76 | 1.21 | /unit |
| | 3-Bedroom | 1.85 | 0.97 | 1.00 | 0.76 | 1.36 | /unit |
| | Guest | 0.10 | 1.00 | 1.00 | 0.76 | 0.08 | /unit |
| General Offices | Visitor | 0.03 | 0.95 | 1.00 | 0.76 | 0.02 | /ksf GFA |
| | Employee | 0.35 | 0.49 | 1.00 | 0.76 | 0.13 | /ksf GFA |
| Medical Offices | Visitor | 0.00 | 0.95 | 1.00 | 0.76 | 0.00 | /ksf GFA |
| | Employee | 0.00 | 0.49 | 1.00 | 0.76 | 0.00 | /ksf GFA |
| Bank | Visitor | 3.00 | 0.95 | 1.00 | 0.76 | 2.17 | /ksf GFA |
| | Employee | 1.75 | 0.49 | 1.00 | 0.76 | 0.65 | /ksf GFA |
| Hotel | Visitor | 1.00 | 1.00 | 1.00 | 0.76 | 0.76 | /room |
| | Employee | 0.15 | 0.49 | 1.00 | 0.76 | 0.06 | /room |

**EVENING (5:00 PM - 12:00 AM)**

| Land Use | User Group | Base Ratio | Modal Adj. | Capture Adj. | Local Adj. | Project Ratio | Unit |
|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 3.20 | 0.95 | 0.90 | 0.76 | 2.08 | /ksf GLA |
| | Employee | 0.80 | 0.49 | 1.00 | 0.76 | 0.30 | /ksf GLA |
| Fine/Casual Dining | Customer | 0.54 | 0.95 | 0.85 | 0.76 | 0.33 | /seat |
| | Employee | 0.09 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Fast Casual Dining | Customer | 0.47 | 0.95 | 0.80 | 0.76 | 0.27 | /seat |
| | Employee | 0.08 | 0.49 | 1.00 | 0.76 | 0.03 | /seat |
| Café/Take Out | Customer | 0.58 | 0.95 | 0.70 | 0.76 | 0.29 | /seat) |
| | Employee | 0.10 | 0.49 | 1.00 | 0.76 | 0.04 | /seat |
| Residential | Studio | 0.80 | 0.97 | 1.00 | 0.76 | 0.59 | /unit |
| | 1-Bedroom | 0.90 | 0.97 | 1.00 | 0.76 | 0.66 | /unit |
| | 2-Bedroom | 1.65 | 0.97 | 1.00 | 0.76 | 1.21 | /unit |
| | 3-Bedroom | 1.85 | 0.97 | 1.00 | 0.76 | 1.36 | /unit |
| | Guest | 0.10 | 1.00 | 1.00 | 0.76 | 0.08 | /unit |
| General Offices | Visitor | 0.03 | 0.95 | 1.00 | 0.76 | 0.02 | /ksf GFA |
| | Employee | 0.35 | 0.49 | 1.00 | 0.76 | 0.13 | /ksf GFA |
| Medical Offices | Visitor | 0.00 | 0.95 | 1.00 | 0.76 | 0.00 | /ksf GFA |
| | Employee | 0.00 | 0.49 | 1.00 | 0.76 | 0.00 | /ksf GFA |
| Bank | Visitor | 3.00 | 0.95 | 1.00 | 0.76 | 2.17 | /ksf GFA |
| | Employee | 1.75 | 0.49 | 1.00 | 0.76 | 0.65 | /ksf GFA |
| Hotel | Visitor | 1.00 | 1.00 | 1.00 | 0.76 | 0.76 | /room |
| | Employee | 0.15 | 0.49 | 1.00 | 0.76 | 0.06 | /room |

As part of DESMAN's due diligence, a land use inventory within the defined study area was performed. As the supply inventory did not include residential driveways and garages and the occupancy counts did capture vehicles parked in those locations, the land use inventory did not include an accounting of residential properties within the defined study area. Working with Town officials, the Belmont GIS database, aerial imagery as well as observations made in the field, DESMAN developed an inventory of existing and land uses as of Tuesday, 9/10/2025. This can be examined in ***Exhibit A*** at the end of this document.

DESMAN applied this land use program into the shared parking model and compared results for a representative September weekday at 10:00 AM, 12:00 PM, 2:00 PM, and 4:00 PM to the occupancy data gathered on 9/10/2025. DESMAN found the model was projecting demand at a rate that was roughly 24% higher than observed during these hours and applied a .76 local adjustment factor to calibrate the model and align outputs to match observed local conditions.

A summary of applied adjustments to base demand ratios are shown in ***Table 4***, prior page.

The final factor comprising the model is the adjustment to reflect for variances for temporal and seasonal *presence*. *Presence* is the expression of parking demand for specific users and land uses according to time of day and time of year. Presence is expressed as a percentage of peak potential demand modified for time of day or year.

For example, the model projects that 87,577 square feet of general retail has a peak parking demand equal up to 179 spaces on a weekday and 208 parking spaces on a weekend. However, this demand is influenced by the hours of operation. At 3:00 AM, a retail store is unlikely to project any parking demand at all. Additionally, parking demand is influenced by the time of year. Traditionally, retail stores are busiest as the winter holidays approach and least busy in January and February, when fewer people shop. Therefore, parking demand associated with a retail store also decreases.

Presence becomes a significant factor in a mixed-use environment like Belmont Center because it allows different land uses to share the same parking supply. For example, if an office building is placed next to a hotel, summing the peak projected demand of each of the land uses would result in parking supply substantially larger than necessary, as the hotel is largely empty when the office building is occupied and vice versa. However, applying presence factors to the peak demand projections to adjust for hours of operation and use trends, the owner actually needs to provide only a fraction of the spaces needed for the combined land uses to adequately support both the hotel and the office building. The assumption is that demand for the hotel will peak in overnight, while demand for the office space will peak during standard business hours. These presence trends of parking demand for these land uses are complimentary and allow for some sharing of the same spaces, reducing total peak demand.

Variations for time of day and time of year for weekends (Saturdays) were also calculated for Belmont Center and applied to the model. The majority of presence adjustments were taken from the ULI's **Shared Parking: 3rd Edition**. Presence factors were applied to projections of gross demand and used to generate hourly parking demand projections for a typical weekday and weekend day throughout the year. DESMAN used these projections to isolate the peak hour in each month.

The applied presence adjustments for time of year are shown below in ***Table 6*** on the next page, and time of day presence adjustments are included as ***Tables 7*** (weekdays) and ***8*** (weekends) on the following pages.

## Table 5: Applied Monthly Presence Factors

| Land Use | User Group | January | February | March | April | May | June | July | August | September | October | November | December | Holidays | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 59% | 61% | 69% | 67% | 72% | 72% | 70% | 73% | 66% | 68% | 76% | 100% | 85% | 1 |
| | Employee | 69% | 71% | 79% | 77% | 82% | 82% | 80% | 83% | 76% | 78% | 86% | 100% | 95% | 1 |
| Fine/Casual Dining | Customer | 88% | 87% | 96% | 93% | 89% | 91% | 93% | 95% | 91% | 93% | 97% | 100% | 95% | 1 |
| | Employee | 88% | 87% | 100% | 95% | 100% | 96% | 95% | 98% | 91% | 94% | 92% | 95% | 75% | 2 |
| Fast Casual Dining | Customer | 88% | 87% | 96% | 93% | 89% | 91% | 93% | 95% | 91% | 93% | 97% | 100% | 95% | 1 |
| | Employee | 88% | 87% | 100% | 95% | 100% | 96% | 95% | 98% | 91% | 94% | 92% | 95% | 75% | 2 |
| Café/Take Out | Customer | 88% | 87% | 96% | 93% | 89% | 91% | 93% | 95% | 91% | 93% | 97% | 100% | 95% | 1 |
| | Employee | 92% | 85% | 93% | 92% | 97% | 93% | 95% | 95% | 90% | 93% | 95% | 100% | 98% | 3 |
| Residential | Studio | 100% | 100% | 100% | 100% | 95% | 90% | 85% | 90% | 95% | 100% | 100% | 100% | 100% | 1 |
| | 1-Bedroom | 100% | 100% | 100% | 100% | 95% | 90% | 85% | 90% | 95% | 100% | 100% | 100% | 100% | 1 |
| | 2-Bedroom | 100% | 100% | 100% | 100% | 95% | 90% | 85% | 90% | 95% | 100% | 100% | 100% | 100% | 1 |
| | 3-Bedroom | 100% | 100% | 100% | 100% | 95% | 90% | 85% | 90% | 95% | 100% | 100% | 100% | 100% | 1 |
| | Guest | 100% | 100% | 100% | 100% | 95% | 90% | 85% | 90% | 95% | 100% | 100% | 100% | 100% | 1 |
| General Offices | Visitor | 100% | 100% | 100% | 100% | 96% | 94% | 92% | 94% | 96% | 100% | 100% | 100% | 80% | 1 |
| | Employee | 100% | 100% | 100% | 100% | 95% | 90% | 85% | 90% | 95% | 100% | 100% | 100% | 80% | 1 |
| Medical Offices | Visitor | 100% | 100% | 100% | 100% | 95% | 90% | 90% | 85% | 90% | 95% | 100% | 100% | 80% | 1 |
| | Employee | 100% | 100% | 100% | 100% | 100% | 95% | 90% | 95% | 100% | 100% | 100% | 100% | 80% | 1 |
| Bank | Visitor | 100% | 100% | 100% | 100% | 98% | 96% | 94% | 96% | 98% | 100% | 100% | 100% | 90% | 1 |
| | Employee | 100% | 100% | 100% | 100% | 100% | 95% | 90% | 95% | 100% | 100% | 100% | 100% | 80% | 1 |
| Hotel | Visitor | 80% | 90% | 100% | 100% | 90% | 90% | 100% | 100% | 75% | 75% | 75% | 50% | 100% | 1 |
| | Employee | 90% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 90% | 90% | 1 |

Notes:

1. Sourced from ***ULI's Shared Parking: 3rd Edition*** , 2020, pg. 19
2. Sourced from ***ITE's Parking Generation:5th Edition*** , 2019, pg. 810 (Food Services and Drinking Places)
3. Sourced from ***ITE's Parking Generation:5th Edition*** , 2019, pg. 810 (Food and Beverage Stores)

## Table 6: Applied Daily Presence Factors for a Weekday

| Land Use | User Group | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM | 12:00 AM | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 1% | 5% | 15% | 35% | 65% | 85% | 95% | 100% | 95% | 90% | 85% | 90% | 90% | 90% | 80% | 50% | 30% | 10% | 0% | 1 |
| (Typical) | Employee | 10% | 15% | 25% | 45% | 75% | 95% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 90% | 60% | 40% | 20% | 0% | 1 |
| Standard Retail | Customer | 1% | 5% | 15% | 30% | 55% | 75% | 90% | 100% | 100% | 100% | 95% | 85% | 80% | 75% | 65% | 50% | 30% | 10% | 0% | 1 |
| (December) | Employee | 10% | 15% | 25% | 45% | 75% | 95% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 90% | 60% | 40% | 20% | 0% | 1 |
| Standard Retail | Customer | 1% | 5% | 10% | 20% | 40% | 65% | 90% | 100% | 100% | 100% | 95% | 85% | 70% | 55% | 40% | 25% | 15% | 5% | 0% | 1 |
| (Holidays) | Employee | 10% | 15% | 25% | 45% | 75% | 95% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 90% | 60% | 40% | 20% | 0% | 1 |
| Fine/Casual Dining | Customer | 0% | 0% | 0% | 0% | 15% | 40% | 75% | 75% | 65% | 40% | 50% | 75% | 95% | 100% | 100% | 100% | 95% | 75% | 25% | 1 |
| | Employee | 0% | 20% | 50% | 75% | 90% | 90% | 90% | 90% | 90% | 75% | 75% | 100% | 100% | 100% | 100% | 100% | 100% | 85% | 35% | 1 |
| Fast Casual Dining | Customer | 25% | 50% | 60% | 75% | 85% | 90% | 100% | 90% | 50% | 45% | 45% | 75% | 80% | 80% | 80% | 60% | 55% | 50% | 25% | 1 |
| | Employee | 50% | 75% | 90% | 90% | 100% | 100% | 100% | 100% | 100% | 75% | 75% | 95% | 95% | 95% | 95% | 80% | 65% | 65% | 35% | 1 |
| Café/Take Out | Customer | 5% | 10% | 20% | 30% | 55% | 85% | 100% | 100% | 90% | 60% | 55% | 60% | 85% | 80% | 50% | 30% | 20% | 10% | 5% | 1 |
| | Employee | 20% | 20% | 30% | 40% | 75% | 100% | 100% | 100% | 95% | 70% | 60% | 70% | 90% | 90% | 60% | 40% | 30% | 20% | 20% | 1 |
| Residential | Studio | 100% | 95% | 88% | 80% | 75% | 70% | 68% | 65% | 65% | 68% | 71% | 74% | 77% | 80% | 83% | 86% | 89% | 92% | 100% | 1 |
| | 1-Bedroom | 100% | 95% | 88% | 80% | 75% | 70% | 68% | 65% | 65% | 68% | 71% | 74% | 77% | 80% | 83% | 86% | 89% | 92% | 100% | 1 |
| | 2-Bedroom | 100% | 95% | 88% | 80% | 75% | 70% | 68% | 65% | 65% | 68% | 71% | 74% | 77% | 80% | 83% | 86% | 89% | 92% | 100% | 1 |
| | 3-Bedroom | 100% | 95% | 88% | 80% | 75% | 70% | 68% | 65% | 65% | 68% | 71% | 74% | 77% | 80% | 83% | 86% | 89% | 92% | 100% | 1 |
| | Guest | 0% | 10% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 40% | 60% | 100% | 100% | 100% | 100% | 80% | 50% | 1 |
| General Offices | Visitor | 0% | 1% | 20% | 60% | 100% | 45% | 15% | 45% | 95% | 45% | 15% | 10% | 5% | 2% | 1% | 0% | 0% | 0% | 0% | 1 |
| | Employee | 3% | 15% | 50% | 90% | 100% | 100% | 85% | 85% | 95% | 95% | 85% | 60% | 25% | 15% | 5% | 3% | 1% | 0% | 0% | 1 |
| Medical Offices | Visitor | 0% | 10% | 40% | 85% | 100% | 100% | 75% | 60% | 95% | 90% | 80% | 35% | 25% | 10% | 5% | 0% | 0% | 0% | 0% | 1 |
| | Employee | 0% | 20% | 60% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 75% | 40% | 25% | 0% | 0% | 0% | 0% | 1 |
| Bank | Visitor | 0% | 0% | 50% | 90% | 100% | 50% | 50% | 50% | 70% | 50% | 80% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1 |
| | Employee | 0% | 0% | 60% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1 |
| Hotel | Visitor | 95% | 90% | 80% | 70% | 60% | 60% | 55% | 55% | 60% | 60% | 65% | 70% | 75% | 75% | 80% | 85% | 95% | 100% | 100% | 1 |
| | Employee | 10% | 30% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 70% | 70% | 40% | 20% | 20% | 20% | 20% | 10% | 5% | 1 |

Notes:

1. Sourced from ***ULI's Shared Parking: 3rd Edition*** , 2020, pg. 20

## Table 7: Applied Daily Presence Factors for a Weekend

| Land Use | User Group | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM | 12:00 AM | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Retail | Customer | 1% | 5% | 15% | 35% | 65% | 85% | 95% | 100% | 95% | 90% | 85% | 90% | 90% | 90% | 80% | 50% | 30% | 10% | 0% | 1 |
| (Typical) | Employee | 10% | 15% | 25% | 45% | 75% | 95% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 90% | 60% | 40% | 20% | 0% | 1 |
| Standard Retail | Customer | 0% | 0% | 0% | 0% | 35% | 63% | 75% | 82% | 74% | 68% | 73% | 89% | 100% | 100% | 100% | 88% | 59% | 38% | 20% | 1 |
| (December) | Employee | 10% | 15% | 40% | 75% | 85% | 95% | 100% | 100% | 100% | 100% | 100% | 95% | 85% | 80% | 75% | 65% | 45% | 15% | 10% | 1 |
| Standard Retail | Customer | 1% | 5% | 10% | 20% | 40% | 60% | 80% | 95% | 100% | 100% | 95% | 85% | 70% | 60% | 50% | 30% | 20% | 10% | 0% | 1 |
| (Holidays) | Employee | 10% | 15% | 40% | 75% | 85% | 95% | 100% | 100% | 100% | 100% | 100% | 95% | 85% | 80% | 75% | 65% | 45% | 15% | 0% | 1 |
| Fine/Casual Dining | Customer | 0% | 0% | 0% | 0% | 0% | 15% | 50% | 55% | 45% | 45% | 45% | 60% | 90% | 95% | 100% | 90% | 90% | 90% | 50% | 1 |
| | Employee | 0% | 20% | 30% | 60% | 75% | 75% | 75% | 75% | 75% | 75% | 75% | 100% | 100% | 100% | 100% | 100% | 100% | 85% | 50% | 1 |
| Fast Casual Dining | Customer | 10% | 25% | 45% | 70% | 90% | 90% | 100% | 85% | 65% | 40% | 45% | 60% | 70% | 70% | 65% | 30% | 25% | 15% | 10% | 1 |
| | Employee | 50% | 75% | 90% | 90% | 100% | 100% | 100% | 100% | 100% | 75% | 75% | 95% | 95% | 95% | 95% | 80% | 65% | 65% | 35% | 1 |
| Café/Take Out | Customer | 5% | 10% | 20% | 30% | 55% | 85% | 100% | 100% | 90% | 60% | 55% | 60% | 85% | 80% | 50% | 30% | 20% | 10% | 5% | 1 |
| | Employee | 15% | 20% | 30% | 40% | 75% | 100% | 100% | 100% | 95% | 70% | 60% | 70% | 90% | 90% | 60% | 40% | 30% | 20% | 20% | 1 |
| Residential | Studio | 100% | 90% | 85% | 80% | 75% | 70% | 65% | 70% | 70% | 70% | 75% | 85% | 90% | 97% | 98% | 99% | 100% | 100% | 100% | 1 |
| | 1-Bedroom | 100% | 90% | 85% | 80% | 75% | 70% | 65% | 70% | 70% | 70% | 75% | 85% | 90% | 97% | 98% | 99% | 100% | 100% | 100% | 1 |
| | 2-Bedroom | 100% | 90% | 85% | 80% | 75% | 70% | 65% | 70% | 70% | 70% | 75% | 85% | 90% | 97% | 98% | 99% | 100% | 100% | 100% | 1 |
| | 3-Bedroom | 100% | 90% | 85% | 80% | 75% | 70% | 65% | 70% | 70% | 70% | 75% | 85% | 90% | 97% | 98% | 99% | 100% | 100% | 100% | 1 |
| | Guest | 0% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 40% | 60% | 100% | 100% | 100% | 100% | 80% | 50% | 1 |
| General Offices | Visitor | 0% | 20% | 60% | 80% | 90% | 100% | 90% | 80% | 60% | 40% | 20% | 10% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 1 |
| | Employee | 0% | 20% | 60% | 80% | 90% | 100% | 90% | 80% | 60% | 40% | 20% | 10% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 1 |
| Medical Offices | Visitor | 0% | 0% | 90% | 90% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 50% | 0% | 0% | 0% | 1 |
| | Employee | 0% | 0% | 60% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 50% | 0% | 0% | 0% | 1 |
| Bank | Visitor | 0% | 0% | 25% | 40% | 75% | 100% | 90% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1 |
| | Employee | 0% | 0% | 90% | 100% | 100% | 100% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1 |
| Hotel | Visitor | 95% | 90% | 80% | 70% | 60% | 60% | 55% | 55% | 60% | 60% | 65% | 70% | 75% | 75% | 80% | 85% | 95% | 100% | 100% | 1 |
| | Employee | 100% | 100% | 90% | 80% | 70% | 70% | 65% | 65% | 70% | 70% | 75% | 80% | 0% | 0% | 0% | 0% | 60% | 100% | 100% | 1 |

Notes:

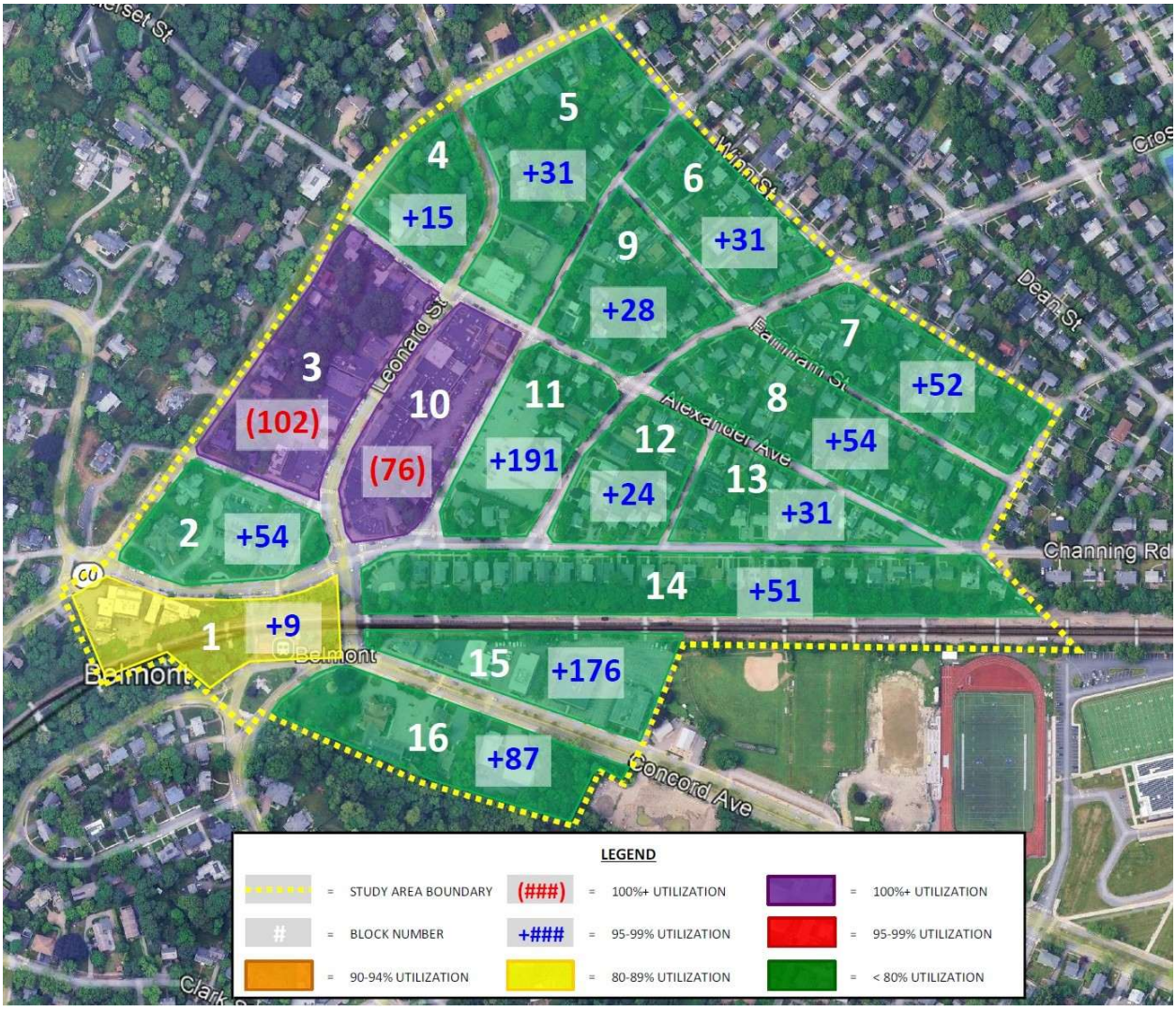
1. Sourced from ***ULI's Shared Parking: 3rd Edition*** , 2020, pg. 21

**Current Peak Supply, Demand, and Adequacy**

To gauge adequacy of the existing parking supply, DESMAN developed an inventory of existing active land uses within the defined study area. This inventory included governmental and institutional buildings as well as commercial land uses which is included as **Exhibit A** at the end of this report[3].

According to the model developed specifically for this engagement and calibrated to align with observed existing conditions in Belmont Center, the district will generate demand for 502 parking spaces at the busiest hour of the busiest day of the year[4] ("peak hour") against a total supply of 1,158 parking spaces, leaving 656 spaces unused.

**Figure 4: Parking Adequacy by Block Under Current Peak Hour Conditions (Weekday)**



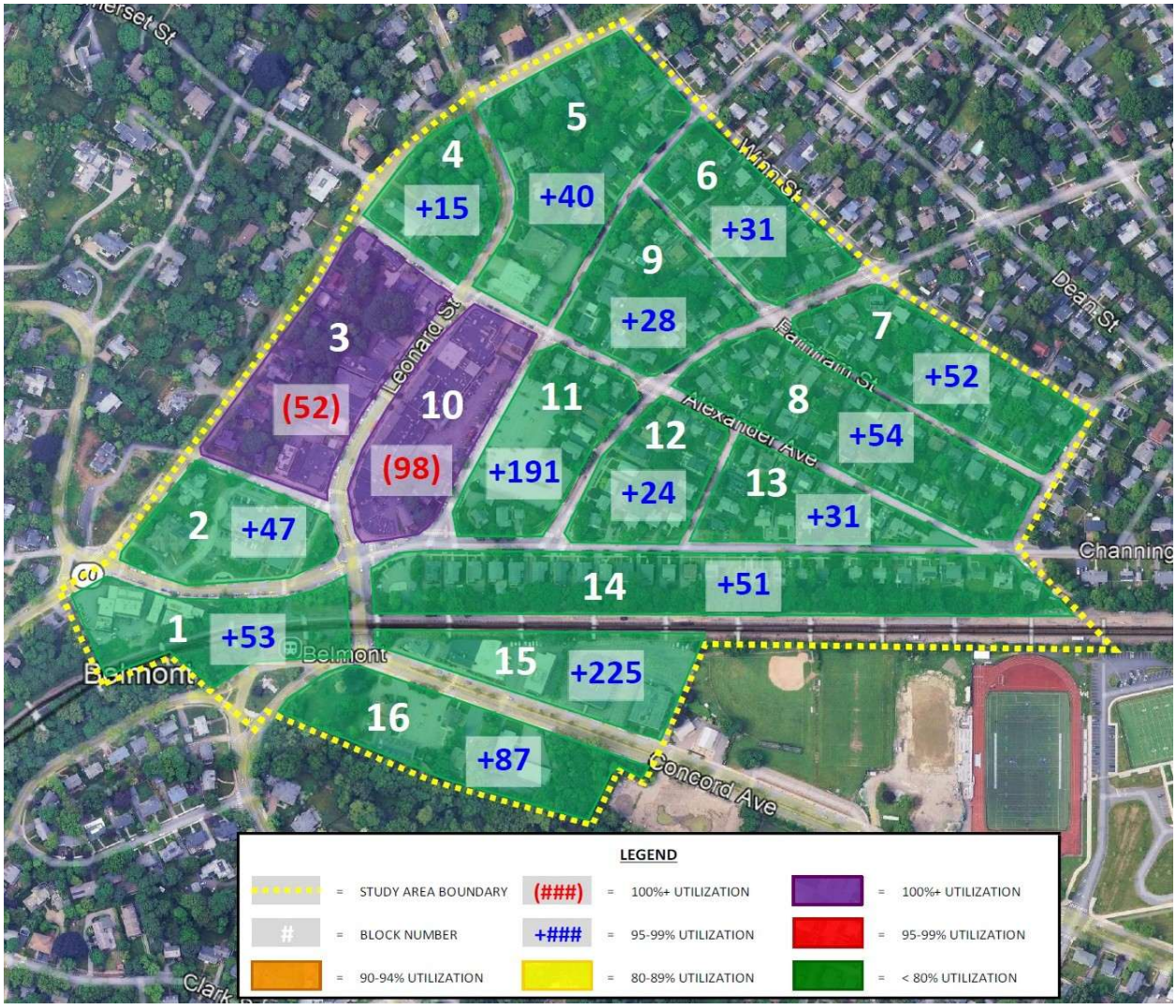

[3] The inventory did not include any of the existing residential properties within the defined study area, the majority of which are single-family residences with parking provided on site in the form of a residential parking garage, carport, or driveway. Similarly, DESMAN's field counts and demand projections do not include those residential garages, carports, or driveways. In excluding both residential supply and demand from the analysis, DESMAN assumes an existing future balance between the demands of these land uses and their associated parking supply.

[4] 2:00 PM on a December weekday.

The preceding figure locates this demand on a block-by-block basis and compares it against the total supply contained within the block[5]. As the figure shows, the density of development along Leonard Street between Alexander Avenue, Moore Street, and Channing Road results in far more demand on Blocks 3 and 10 than can be accommodated by the limited amount of private off-street parking and public on-street parking located within and around each block's perimeter. However, the large concentration of public parking within Block 11 (Claflin Lot) as well as the on-street parking around Blocks 2, 4, 5, 9, 11, and 14 mitigates this projected shortfall in practice.

Similar trends are projected at the busiest hour of the busiest weekend day of the year[6], when existing active land uses within the study area will generate demand for 337 spaces against a total supply of 1,158 spaces, resulting in a 781-space gross surplus.

**Figure 5: Parking Adequacy by Block Under Current Peak Hour Conditions (Weekend)**




[5] This figure appears different than the Observed Peak Hour conditions figure because that graphic showed where people were actually parking, while this figure shows where demand is coming from based on the location of each land use within the block. Thus, in practice the deficits shown do not exist in reality, where individuals migrate to where they can find available parking, but do illustrate where individuals would like to park, if the capacity was available.

[6] A December Saturday at noon.

**Future Parking Supply, Demand and Adequacy**

The 'likely' variant of the *With Density Bonuse*s scenario assumes full build out composition of 476,885 square feet of commercial space; 402,627 square feet of residential space equating to 536 residential units; and 220,000 square feet of hotel space equating to 358 rooms[7]. Within the program provided by the Town of Belmont (Belmont Center Zoning Build-Out Model with Scenarios [9/4/2025]) the commercial space is further subdivided into Retailing space (209,056 SF), Services (73,820 SF), and Office (194,008).

To this program DESMAN made additional assumptions to convert the information into a format which could be used within the model as follows:

1. All Retailing Space (209,056 SF) was assumed to be Standard Retail and/or Pharmacy for the purposes of this exercise. This includes replacement of 87,577 square feet of existing retail and pharmacy space.
2. Service Space (73,820 SF) was assumed to apply to restaurant and banks for the purposes of this analysis.
3. Twenty-four percent (24%) of all Service Space was allocated to Banks (17,721 SF). This would be a reduction of roughly 10,215 square feet total Bank space relative to existing conditions.
4. The remaining 65% of Service Space was allocated to Fine/Casual Dining (19% or 14,215 SF), Fast Casual Dining (23% or 17,140 SF), and Café/Take-Out (34% or 24,744 SF). This was assumed to be new space in addition to the 30,462 square feet of existing restaurants[8] already in existence within the study area.
5. Restaurant square footages were converted into the number of seats by applying the following assumed ratios of square footage for each seat:
    a. Fine/Casual Dining: 1 seat for every 50 SF GFA
    b. Fast Casual Dining: 1 seat for every 60 SF GFA
    c. Café/Take-Out: 1 seat for every 75 SF GFA
6. All Office Space (194,008) was assumed to be General and Medical Offices for this analysis and inclusive of the 80,326 square feet of existing General Office and Medical Office spaces within the study area currently.
7. Residential units were subdivided into Studios, One-Bedroom, and Two-Bedroom units per information provided by the Town. Existing residential units within the boundaries of the study area were not included in projections as the majority of these appear to single-family residences with garages, carports, driveways, or other dedicated parking supply contained within the property assumed to be adequate to accommodate peak hour demands.
8. DESMAN assumed the number of hotel rooms provided by the Town.
9. DESMAN did not include 'institutional' land uses within the models projecting future needs. However, to assure there was adequate supply available to serve this demand, DESMAN applied only the number of spaces available within each block after the peak hour demand from

[7] Note: A proposed revision to the draft by-laws would cap the number of hotel rooms that could be built 'by-right' to 150 and allow construction of up to 250 only by Special Permit.

[8] 8,879 square feet of Fine/Casual Dining, 7,912 square feet of Fast Casual restaurant, and 13,671 square feet of cafés and/or take-out restaurants.

Institutional land uses was satisfied. This reduced the total existing parking supply from 1,158 parking spaces to 976 spaces at the peak hour.

10. Adequacy was judged as the peak hour demand as projected by the model against the combined number of a) spaces mandated to support new development per the draft by-law (1,730) plus b) the number of available existing parking spaces (976) after satisfying existing peak hour demand for Institutional land uses within the study area.

Application of these assumptions rendered the program shown in ***Table 8.***

**Table 8: Future Development Program**

| BLK | RETAIL (sf GLA) | PHARMACY (sf GLA) | F/C DINING (sf GLA) | F/C DINING (seats) | FAST CASUAL (sf GLA) | FAST CASUAL (seats) | CAFÉ/ TAKE-OUT (sf GLA) | CAFÉ/ TAKE-OUT (seats) | RESIDENTIAL Studios | RESIDENTIAL 1-BR | RESIDENTIAL 2-BR | G.OFFICE (sf GFA) | M. OFFICE (sf GFA) | BANK (sf GFA) | HOTEL (rooms) | PARKING REQUIRED | EXISTING SUPPLY | TOTAL SUPPLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15,482 | - | - | - | - | - | - | - | 14 | 14 | 4 | 17,418 | - | - | - | 89 | 29 | 118 |
| 2 | 4,466 | - | 5,336 | 107 | - | - | - | - | 7 | 7 | 2 | | - | 6,648 | - | 59 | 38 | 97 |
| 3 | 32,448 | 3,036 | 2,928 | 59 | 1,961 | 33 | 2,482 | 33 | 15 | 15 | 4 | 12,950 | 21,787 | - | - | 208 | 46 | 254 |
| 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 15 | 15 |
| 5 | 6,552 | - | - | - | - | - | 11,073 | 148 | 4 | 4 | 1 | 8,190 | - | - | - | 74 | 35 | 109 |
| 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 31 | 31 |
| 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 52 | 52 |
| 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 54 | 54 |
| 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 28 | 28 |
| 10 | 68,090 | 9,305 | 5,951 | 119 | 5,951 | 99 | 11,189 | 149 | 25 | 25 | 7 | 87,070 | | - | - | 486 | 123 | 609 |
| 11 | 4,674 | - | - | - | 9,228 | 154 | - | - | - | - | - | | - | - | - | 52 | 116 | 168 |
| 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 24 | 24 |
| 13 | - | - | - | - | - | - | - | - | 9 | 9 | 2 | - | - | - | - | 10 | 31 | 41 |
| 14 | 4,148 | - | - | - | - | - | - | - | 7 | 7 | 2 | | - | - | - | 20 | 56 | 76 |
| 15 | 49,335 | - | - | - | - | - | - | - | 113 | 113 | 20 | 40,978 | 1,394 | 11,073 | 358 | 639 | 222 | 861 |
| 16 | 11,520 | - | - | - | - | - | - | - | 47 | 47 | 12 | 4,221 | - | - | - | 93 | 76 | 169 |
| **Total** | **196,715** | **12,341** | **14,215** | **285** | **17,140** | **286** | **24,744** | **330** | **241** | **241** | **54** | **170,827** | **23,181** | **17,721** | **358** | **1,730** | **976** | **2,706** |

**Notes:**
**Bold Blue Text** = Parking Required for New Development under Proposed Zoning
**Bold Green Text** = Total Existing Supply Minus Observed Peak Occupancy Associated with Civic Uses

Based on the parking requirements included in the draft Belmont Center Zoning By Law and/or amended by the October 29th memorandum, DESMAN calculated that up to 1,730 parking spaces might need to be provided to support the land uses within this program as shown in ***Table 9***.

**Table 9: Parking Supply Calculations Per Zoning By-Laws for New Development**

| Land Use | Belmont By Law | Conversion | Total SF/Units | | Parking Required | |
|---|---|---|---|---|---|---|
| Bank | 1 per 600 sf | 1.67 | 17,721 | s.f. GFA | 30 | spaces |
| Retail | 1 per 350 sf | 2.86 | 209,056 | s.f. GFA | 597 | spaces |
| Office | 1 per 600 sf | 1.67 | 194,008 | s.f. GFA | 324 | spaces |
| Restaurant | 1 per 4 seats | 0.25 | 901 | seats | 225 | spaces |
| Residential | 0.50/unit | 0.50 | 536 | units | 268 | spaces |
| Institution | 1 per 550 sf | 1.82 | 0 | s.f. GFA | 0 | spaces |
| Hotel | 0.80/rm | 0.80 | 358 | rooms | 286 | spaces |
| **Total** | | | | | **1,730** | **spaces** |

The parking demand model prepared by DESMAN following industry standard methodology and applying calibrated demand ratios based on empirical observation of existing land uses projected that, if the parking demand for each land use, inclusive of both existing and proposed future development, were calculated as standalone needs in isolation, there would need to be at least 1,822 parking spaces available within the defined study area as shown in ***Table 10,*** next page.

**Table 10: Total Gross Demand Inclusive of Existing and Proposed Land Uses**

| Land Use | Program | | Peak (Gross Demand) | | Peak Demand Ratio | | Belmont By Law |
|---|---|---|---|---|---|---|---|
| Bank | 17,721 | sf GFA | 61 | spaces | 291 | spaces/SF | 1 per 600 sf |
| Retail | 209,056 | sf GFA | 426 | spaces | 491 | spaces/SF | 1 per 350 sf |
| Office | 194,008 | sf GFA | 323 | spaces | 601 | spaces/SF | 1 per 600 sf |
| Restaurant | 901 | seats | 312 | spaces | 0.35 | space/seat | 1 per 4 seats |
| Residential | 536 | units | 408 | spaces | 1.31 | spaces/unit | 0.50/unit |
| Institution | 0 | sf GFA | 0 | spaces | n/a | spaces/SF | 1 per 550 sf |
| Hotel | 358 | rooms | 292 | spaces | 1.23 | spaces/room | 0.80/room |
| **Total** | | | **1,822** | | | | |

As the preceding table shows, the peak parking demand ratio for each land use an independent entity[9] calculated by DESMAN's model differs from the parking requirements included in the draft by-laws. In the case of Retail and Office land uses, this variance is nominal. However, the parking requirement for Banks appears to require roughly half the amount of parking demand exerted by these land uses according to DESMAN's model. Similarly, the parking requirements for Restaurant, Hotel, and Residential land uses all appear to be lower than the demand exerted by these uses according to DESMAN's projections.

Projection of peak hour parking demand allowing for some interplay of land uses across the study area and the natural ebb and flow of demand according to parking patterns specific to each land use indicates that, at busiest hour of the busiest day of the year, peak demand for all existing and proposed land uses across the study area would be for 1,310 spaces against a total supply of 2,706 spaces, resulting in a 1,396-space parking surplus as shown in ***Table 11***.

**Table 11: Projected Weekday Peak Hour Demand – Future Conditions**

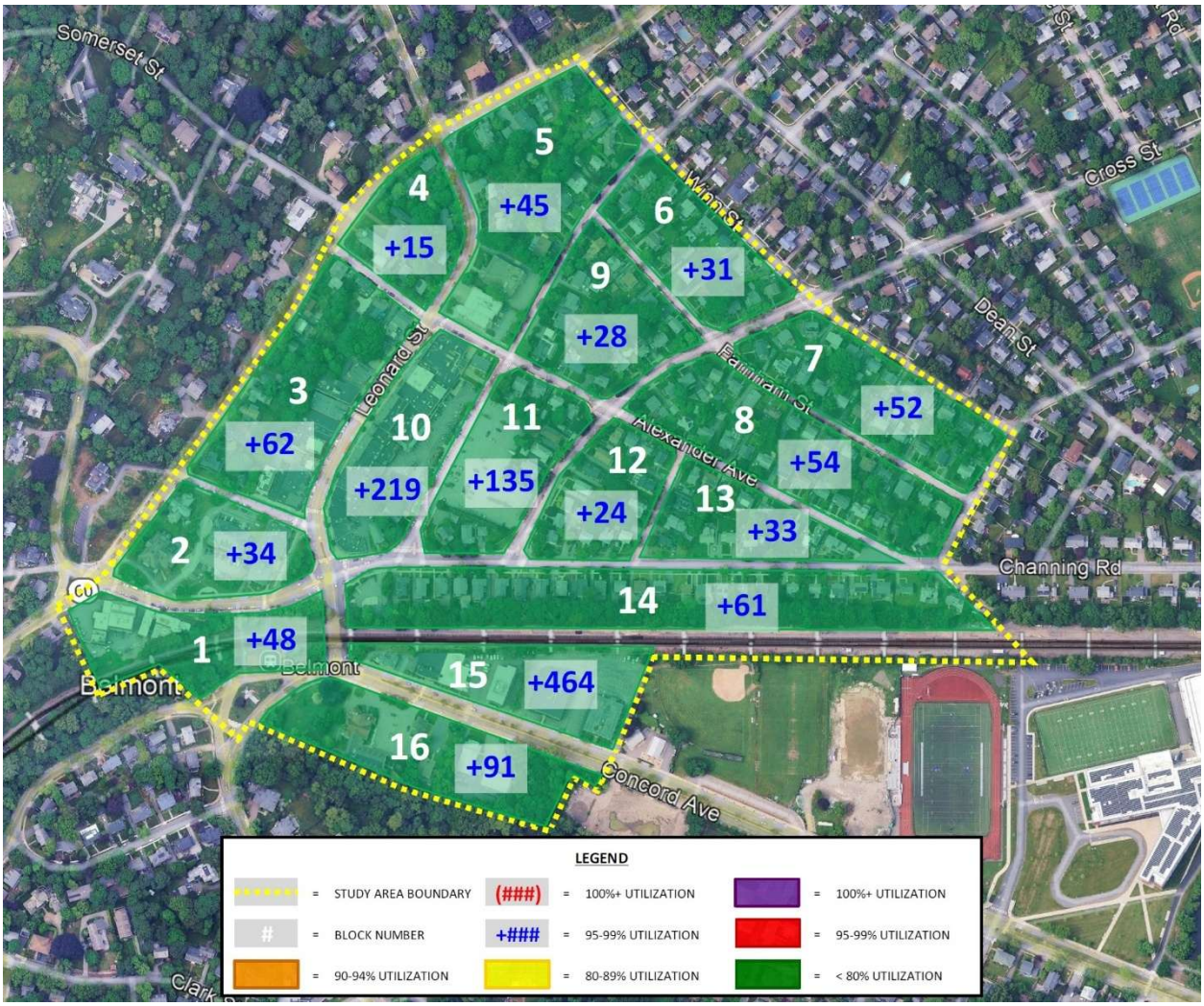
| | | | WEEKDAYS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Month: | January | February | March | April | May | June | July | August | September | October | November | December | Holidays |
| Land Use | User | Hour: | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM | 2:00 PM |
| Standard Retail | Customer | | 196 | 203 | 229 | 223 | 239 | 239 | 233 | 243 | 219 | 226 | 253 | 350 | 298 |
| | Employee | | 37 | 38 | 43 | 42 | 44 | 44 | 43 | 45 | 41 | 42 | 46 | 54 | 51 |
| Fine/Casual Dining | Customer | | 65 | 64 | 71 | 68 | 65 | 67 | 68 | 70 | 67 | 68 | 71 | 73 | 70 |
| | Employee | | 11 | 11 | 13 | 12 | 13 | 12 | 12 | 12 | 11 | 12 | 12 | 12 | 9 |
| Fast Casual Dining | Customer | | 31 | 31 | 34 | 33 | 32 | 32 | 33 | 34 | 32 | 33 | 34 | 36 | 34 |
| | Employee | | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 9 | 9 | 10 | 8 |
| Café/Take Out | Customer | | 59 | 58 | 64 | 62 | 59 | 61 | 62 | 63 | 61 | 62 | 65 | 67 | 63 |
| | Employee | | 10 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 10 | 10 | 10 | 10 |
| Residential | Studio | | 92 | 92 | 92 | 92 | 88 | 83 | 78 | 83 | 88 | 92 | 92 | 92 | 92 |
| | 1-Bedroom | | 103 | 103 | 103 | 103 | 98 | 93 | 88 | 93 | 98 | 103 | 103 | 103 | 103 |
| | 2-Bedroom | | 43 | 43 | 43 | 43 | 41 | 39 | 36 | 39 | 41 | 43 | 43 | 43 | 43 |
| | 3-Bedroom | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Guest | | 8 | 8 | 8 | 8 | 8 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 |
| General Offices | Visitor | | 35 | 35 | 35 | 35 | 34 | 33 | 32 | 33 | 34 | 35 | 35 | 35 | 28 |
| | Employee | | 211 | 211 | 211 | 211 | 200 | 190 | 179 | 190 | 200 | 211 | 211 | 211 | 169 |
| Medical Offices | Visitor | | 48 | 48 | 48 | 48 | 45 | 43 | 43 | 40 | 43 | 45 | 48 | 48 | 38 |
| | Employee | | 14 | 14 | 14 | 14 | 14 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 11 |
| Bank | Visitor | | 28 | 28 | 28 | 28 | 27 | 27 | 26 | 27 | 27 | 28 | 28 | 28 | 25 |
| | Employee | | 16 | 16 | 16 | 16 | 16 | 15 | 14 | 15 | 16 | 16 | 16 | 16 | 13 |
| Hotel | Visitor | | 131 | 147 | 163 | 163 | 147 | 147 | 163 | 163 | 122 | 122 | 122 | 82 | 163 |
| | Employee | | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 18 |
| *Subtotal Customers and Guests* | | | *593* | *614* | *672* | *660* | *648* | *649* | *660* | *673* | *605* | *619* | *656* | *719* | *719* |
| *Subtotal Residents and Visitors* | | | *246* | *246* | *246* | *246* | *235* | *222* | *209* | *222* | *235* | *246* | *246* | *246* | *246* |
| *Subtotal Employees* | | | *326* | *328* | *337* | *335* | *327* | *314* | *301* | *315* | *320* | *334* | *338* | *345* | *289* |
| TOTAL | | | 1,165 | 1,188 | 1,255 | 1,241 | 1,210 | 1,185 | 1,170 | 1,210 | 1,160 | 1,199 | 1,240 | 1,310 | 1,254 |
| Total Supply | | | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 |
| Surplus/(Deficit) | | | 1,541 | 1,518 | 1,451 | 1,465 | 1,496 | 1,521 | 1,536 | 1,496 | 1,546 | 1,507 | 1,466 | 1,396 | 1,452 |

*PEAK HOUR =*

[9] This assumes NO shared use between land uses and projects parking for each land use at its peak hour. Parking demand by land use will vary according to time of day, day of week, and time of year.

With replacement of existing land uses with new land uses and some growth as outlined in the development program, retention of existing unutilized public and parking supply, and new supply as mandated by the parking requirements within the proposed by-law, prior shortfalls shown under Existing Conditions are satisfied and surplus is indicated on each block within the defined study area.

**Figure 6: Peak Hour Demand and Adequacy on Weekdays – Future Conditions**




Peak demand on weekends is still projected to occur on a Saturday in December, but the peak hour has shifted from noon to 7:00 PM due to the addition of the new residential units and hotel rooms included in the future program. As shown in ***Table 12*** on the following page, peak demand is projected for 1,235 spaces against the supply of 2,706 spaces, forecasting a 1,471-space supply surplus.

As ***Figure 7***, next page, shows there are no shortfalls indicated on any block within the study area and substantial surpluses on Blocks 3, 10, 11, and 15.

## Table 12: Projected Weekend Peak Hour Demand – Future Conditions

| | | | WEEKENDS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Month: | January | February | March | April | May | June | July | August | September | October | November | December | Holidays |
| Land Use | User | Hour: | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM | 7:00 PM |
| Standard Retail | Customer | | 231 | 239 | 270 | 262 | 282 | 282 | 274 | 286 | 258 | 266 | 298 | 435 | 222 |
| | Employee | | 43 | 44 | 49 | 48 | 51 | 51 | 50 | 51 | 47 | 48 | 53 | 50 | 47 |
| Fine/Casual Dining | Customer | | 79 | 78 | 86 | 83 | 79 | 81 | 83 | 85 | 81 | 83 | 87 | 89 | 85 |
| | Employee | | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 9 | 9 | 10 | 8 |
| Fast Casual Dining | Customer | | 48 | 48 | 52 | 51 | 49 | 50 | 51 | 52 | 50 | 51 | 53 | 55 | 52 |
| | Employee | | 8 | 7 | 9 | 8 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 |
| Café/Take Out | Customer | | 68 | 68 | 74 | 72 | 69 | 71 | 72 | 74 | 71 | 72 | 75 | 78 | 74 |
| | Employee | | 10 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 |
| Residential | Studio | | 138 | 138 | 138 | 138 | 131 | 124 | 117 | 124 | 131 | 138 | 138 | 138 | 138 |
| | 1-Bedroom | | 154 | 154 | 154 | 154 | 147 | 139 | 131 | 139 | 147 | 154 | 154 | 154 | 154 |
| | 2-Bedroom | | 64 | 64 | 64 | 64 | 61 | 58 | 54 | 58 | 61 | 64 | 64 | 64 | 64 |
| | 3-Bedroom | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Guest | | 41 | 41 | 41 | 41 | 39 | 37 | 35 | 37 | 39 | 41 | 41 | 41 | 41 |
| General Offices | Visitor | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Employee | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Medical Offices | Visitor | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Employee | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank | Visitor | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Employee | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hotel | Visitor | | 163 | 184 | 204 | 204 | 184 | 184 | 204 | 204 | 153 | 153 | 153 | 102 | 204 |
| | Employee | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Subtotal Customers and Guests* | | | *589* | *617* | *686* | *672* | *663* | *668* | *684* | *701* | *613* | *625* | *666* | *759* | *637* |
| *Subtotal Residents and Visitors* | | | *397* | *397* | *397* | *397* | *378* | *358* | *337* | *358* | *378* | *397* | *397* | *397* | *397* |
| *Subtotal Employees* | | | *70* | *69* | *78* | *76* | *80* | *79* | *78* | *79* | *74* | *75* | *80* | *79* | *72* |
| TOTAL | | | 1,056 | 1,083 | 1,161 | 1,145 | 1,121 | 1,105 | 1,099 | 1,138 | 1,065 | 1,097 | 1,143 | 1,235 | 1,106 |
| Total Supply | | | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 | 2,706 |
| Surplus/(Deficit) | | | 1,650 | 1,623 | 1,545 | 1,561 | 1,585 | 1,601 | 1,607 | 1,568 | 1,641 | 1,609 | 1,563 | 1,471 | 1,600 |

*PEAK HOUR =*

## Figure 7: Peak Hour Demand and Adequacy on Weekends – Future Conditions

In theory, the number of parking spaces needed to support development per the proposed by-laws does not provide an adequate number of spaces if one assumes that each project must provide adequate new parking on-site to support peak needs as shown in ***Table 13***.

**Table 13: Comparison of Gross Demand by Isolated Land Use vs. Proposed Parking Requirements**

| Land Use | Peak Demand | | Parking Required | | Surplus/(Deficit) | |
|---|---|---|---|---|---|---|
| Bank | 61 | spaces | 30 | spaces | (31) | spaces |
| Retail | 426 | spaces | 597 | spaces | 171 | spaces |
| Office | 323 | spaces | 324 | spaces | 1 | spaces |
| Restaurant | 312 | spaces | 225 | spaces | (87) | spaces |
| Residential | 408 | spaces | 268 | spaces | (140) | spaces |
| Institution | 0 | spaces | 0 | spaces | 0 | spaces |
| Hotel | 292 | spaces | 286 | spaces | (6) | spaces |
| **Total** | **1,822** | **spaces** | **1,730** | **spaces** | **(92)** | **spaces** |

However, this conclusion does not take into account the interplay of parking demand between the different land uses according to time of day, day of the week, and time of year. For example, the parking space shortfalls projected for Residential and Hotel land uses is most likely to occur between midnight and 6:00 AM, during which most of the spaces associated with Retail, Office, and Bank land uses are unused. Similarly, the shortfalls projected for Bank and Restaurant land uses could easily be offset by the surplus associated with Retail land uses, even under peak hour conditions.

In point of fact, when comparing peak hour demand inclusive of variances in demand by land use according to time of day, day of week, and time of year, the 1,730 spaces required per the proposed by-laws meet and exceed average peak hour demand on weekdays[10] by 42% and average peak hour demand on weekends[11] by 55%.

This perspective focused solely on self-sufficiency also ignores the number of available existing private and public parking spaces in the area. As noted in prior sections of this report, there are a total of 1,158 parking spaces currently across the defined study area, including 429 on-street spaces open to the public, 295 spaces contained in Town-owned parking lots, and 434 spaces in private facilities associated with existing commercial land uses[12].

Even with the demand exerted by Town and other institutional land uses accounted for, this still represents roughly 900 spaces still available. And while roughly half of those spaces are unavailable during overnight hours due to the Town's prohibition on overnight parking on public streets and lots, the existing private supply (434 spaces) associated with commercial land uses could still be enough to accommodate all residential parking needs (408) projected for the future during the overnight hours.

[10] 1,214 spaces

[11] 1,120 spaces

[12] DESMAN estimates that there are roughly 135 single-family residences within the defined study area with parking capacity for up to 280 vehicles in private driveways and residential garages. These land uses and the associated parking supply were excluded from this analysis.

While parking requirements within zoning by-laws are intended to protect the community by assuring that each project has adequate parking to support its needs without impacting abutting properties, these same requirements have the potential to hurt the community when applied blindly. Parking requirements set to meet the peak demand of each land use within a project as stand-alone entity ultimately result on a parking supply which is larger than it needs to be if all the land uses do not achieve peak hour demand at the same time. Similarly, parking requirements which do not allow for the impact of mitigating factors such as shared use between properties, the use of unused existing supply, and/or incentivized use of alternative modes of travel often result in projects which include far more on-site parking that might actually be needed.

It is tempting to view mandating excessive parking for each project as erring to the side of caution, but doing so actually hurts a community in the following ways:

- Each parking space provided, but not necessarily needed, takes away roughly 300' square feet which could be dedicated to higher and better uses. These higher and better uses could directly benefit the community, such as green space, park land, a community center, etc. They could also indirectly benefit the community by creating more land uses which generate property or sales tax for the municipality.
- On average, each parking space in surface lot adds roughly $10,000 to the cost of the project. Above-grade structured parking can cost anywhere from $20,000 to $80,000 per space and underground parking spaces add a minimum of $50,000 per unit, increasing exponentially according to the dimensions and depth of the facility. These costs can be prohibitive to potential developers and slow or even stall investment in a community.
- If a developer is willing to bear the cost of providing excess parking, it will be born by them only during the initial development process. There less than twenty municipalities in the United States that have the mix of economic factors which all the developer to fully recoup the cost of providing parking through the collect of parking fees. In most cases, the cost of providing parking within the project is included in the calculation of the sales price or lease rates once the project is complete. Excessive parking requirements have been linked directly to housing affordability in this manner.
- The higher project costs caused by excessive parking requirements may be passed on to a tenant through their lease terms, only to be paid by community members in the form of higher prices for retail goods, meals, entertainment, hotel nights, etc.
- Building excessive parking impacts the streetscape as well, dedicating space used for curb cuts to access the on-site parking that disrupts the flow of pedestrian and vehicular traffic; allocating space to parking that might otherwise be used for wider sidewalks; converting grade-level space that might otherwise house a shop or café into beneath building parking area that are perceived as stagnant, dark, or unsafe by pedestrians.

Based on this, DESMAN does not feel any further change to the individual parking requirements should be made. As the preceding analysis has shown, the proposed parking requirements mandate more than adequate supply to support new projects when factoring in variations in demand between land uses and existing available capacity.

**Sensitivity Analysis**

After the presentation of draft findings in the October 14th report and at the October 23rd public hearing, DESMAN was asked to address three aspects of our parking analysis as follows:

1. A question was raised as to whether the parking demand ratios and other standards employed in the preceding analysis appropriate for the Town of Belmont given it unique aspects.
2. The analysis employs modal adjustment taken from the 2023 American Community Survey conducted by the U.S. Census Bureau in the Town of Belmont. It is anticipated that, with future investments in local bicycling infrastructure, the rising cost of fuel, recovery of ridership on MBTA lines, and general changes in local culture, reliance on personal automobiles is likely to decline 'naturally' in the future. To that end, DESMAN was asked to produce an alternate projection of peak hour parking needs assuming larger modal adjustments that reported in the 2023 American Community Survey.
3. Prior analysis and analysis to date both indicate that, with the inclusion of assumptions of shared use between land uses and use of existing parking spaces, the proposed parking requirements could be reduced to an even greater degree than the preceding analysis anticipates. DESMAN was asked whether they would recommend further adjustments to the parking requirement and what those adjustments might be.

*Applicability of Industry Standards*

The Urban Land Institute (ULI), the lead agency in developing and updated Shared Parking methodology, openly acknowledges that the recommended parking demand ratios and presence factors are generic in nature and designed to render projections of peak hour demand which are inherently conservative. The ULI cautions practitioners that the recommended ratios and factors should be, whenever possible, adjusted to reflect the dynamics of the specific community being studied. Those recommended adjustments include a reduction in base demand ratios which reflects the percentage of potential uses specific to each land use likely to arrive by single-occupant vehicle (*modal adjustment*) versus alternate means of travel. For the preceding analysis, any modal adjustments were drawn from statistics recorded in the 2023 American Community Survey executed by the U.S. Census Bureau specific to the Town of Belmont.

ULI also recommends adjusting base demand ratios where appropriate to reflect the percentage of users specific to each land use which may be associated with one land use (such as an office building, hotel, residential complex, etc.) but patronizing another (e.g., retail store, café, restaurant, fitness center, bank, etc.) at the peak hour. These users are considered 'captive' to their primary use and accounted for in that projection, therefore not generating additional demand by patronizing another land use. This *capture adjustment* is reduction to the base demand ratio and is applied to reflect this phenomenon and prevent 'double counting' certain users. The capture adjustments applied by DESMAN for this analysis were informed by lengthy studies of pedestrian travel patterns for projects in Dedham, Norwood, Quincy, Arlington, Watertown, Waltham, Rockport, and Salem, Massachusetts in the last five (5) years[13].

Finally, where ever possible, ULI recommends that model outputs be calibrated against actual field observations to align the model as closely as possible to local conditions. As detailed earlier in this report,

[13] Such studies are typically conducted as part of a larger long-term study of downtown pedestrian and parking patterns and conducted over multiple days and months within an appointed year. Our scope of work for the Town of Belmont did include the cost or time allowances to perform this work in Belmont Center, but these communities were considered roughly comparable.

DESMAN conducted occupancy counts in early September, after local schools were in session and the majority of the local populace had concluded summer travel, to gather baseline data on actual parking occupancy. DESMAN also performed a comprehensive inventory of existing land uses within the study on the day that occupancy counts were performed to establish the land uses driving the observed occupancy. DESMAN than compared model outputs to observed conditions and calibrated the model to observed conditions specific to Belmont Center through application of a calculated *local adjustment factor*. This final adjustment aligned model outputs with observed actual conditions within Belmont Center.

A comparison of base and adjusted parking demand ratios specific to the Belmont Center project is provided below as ***Table 14***.

**Table 14: Base and Adjusted Parking Demand Ratios for Belmont Center**

| | WEEKDAY | | WEEKEND | |
|---|---|---|---|---|
| **Land Use** | **Base Ratio** | **Adjusted Ratio** | **Base Ratio** | **Adjusted Ratio** |
| Standard Retail | 3.60 /ksf GLA | 2.04 /ksf GLA | 4.00 /ksf GLA | 2.38 /ksf GLA |
| Fine/Casual Dining | 0.86 /seat | 0.47 /seat | 0.63 /seat | 0.36 /seat |
| Fast Casual Dining | 0.58 /seat | 0.30 /seat | 0.55 /seat | 0.30 /seat |
| Café/Take Out | 0.61 /seat | 0.27 /seat | 0.68 /seat | 0.33 /seat |
| Residential | 0.90 /Studio unit | 0.67 /Studio unit | 0.90 /Studio unit | 0.67 /Studio unit |
| | 1.00 /1-BR unit | 0.74 /1-BR unit | 1.00 /1-BR unit | 0.74 /1-BR unit |
| | 1.75 /2-BR unit | 1.29 /2-BR unit | 1.75 /2-BR unit | 1.29 /2-BR unit |
| | 1.95 /3-BR unit | 1.44 /3-BR unit | 1.95 /3-BR unit | 1.44 /3-BR unit |
| General Offices | 3.80 /ksf GFA | 1.52 /ksf GFA | 0.38 /ksf GFA | 0.15 /ksf GFA |
| Medical Offices | 4.60 /ksf GFA | 2.76 /ksf GFA | 0.00 /ksf GFA | 0.00 /ksf GFA |
| Bank | 6.00 /ksf GFA | 3.20 /ksf GFA | 4.75 /ksf GFA | 2.82 /ksf GFA |
| Hotel | 1.15 /room | 0.82 /room | 1.15 /room | 0.82 /room |

In DESMAN's experience working in eastern Massachusetts communities with limited (commuter rail and bus) MBTA service these adjusted base demand ratios are appropriate for use in Belmont Center within the parameters of the project.

*Future Modal Adjustment Impacts*

At the request of the Town of Belmont, DESMAN ran an alternate version of the Shared Parking model developed for this engagement subject to the following adjustments:

A. The modal adjustment applied to discretionary parkers such as retail customers, diners, residential guests, office visitors, medical office patients and visitors, bank patrons, and hotel guests was reduced from a 0.05 reduction to a 0.15 reduction. The prior adjustment was based on assumptions derived from working in similar communities to Belmont in eastern Massachusetts. The latter adjustment reflects increased use of alternative modes of transportation to access Belmont Center driven by a combination of infrastructure and transit service improvements and increased future fuel costs.

B. The modal adjustment for mandatory parkers such as retail, restaurant, bank, office, medical office, and hotel employees was reduced from 0.498 driving rate as document in the 2023 American Community Survey to a 0.33 driving rate. It is anticipated that improvements in biking and walking infrastructure specific to the Belmont Center area, improvements in local and

regional transit service to the area, escalating fuel costs, and general cultural shift away from single-occupant vehicle travel will facilitate this shift in the future.

C. A reduction in the percentage of residents living without having a personal vehicle in the household was increased from the 3% rate reported in the 2023 American Community Survey to a 10% rate in the future. The aforementioned improvements in infrastructure to encourage more use of alternate transportation modes, recovery in MBTA ridership specific to commuting in and out of Belmont Center, inflated fuel costs relative to current conditions, and a general cultural shift away from single-occupant vehicle travel are all expected to support this assumption. DESMAN also anticipates that the increasing cost of housing, paired with greater access to Transportation Network Company (TNC) services such as Uber and Lyft and car-sharing services will help increase the number of car-free households in Belmont Center.

As the core program for future development is unchanged, the parking requirements within the proposed zoning-by laws would mandate provision of 1,730 spaces. However, the sum of individual peak demand would only be for 1,548 spaces[14] as shown in ***Table 15***.

**Table 15: Sum of Peak Demand by Land Use – Alternative Scenario with Reduced SOV Use**

| Land Use | Program | | Peak (Gross Demand) | | Peak Demand Ratio | | Belmont By Law |
|---|---|---|---|---|---|---|---|
| Bank | 17,721 | sf GFA | 51 | spaces | 347 | SF/space | 1 per 600 sf |
| Retail | 209,056 | sf GFA | 370 | spaces | 565 | SF/space | 1 per 350 sf |
| Office | 194,008 | sf GFA | 237 | spaces | 819 | SF/space | 1 per 600 sf |
| Restaurant | 901 | seats | 270 | spaces | 3.34 | seats/space | 1 per 4 seats |
| Residential | 536 | units | 376 | spaces | 0.70 | spaces/unit | 0.50/unit |
| Institution | 0 | sf GFA | 0 | spaces | n/a | SF/space | 1 per 550 sf |
| Hotel | 358 | rooms | 244 | spaces | 0.68 | spaces/room | 0.80/room |
| **Total** | | | **1,548** | | | | |

Under this alternative scenario, the parking required by the proposed by-laws would exceed gross demand by 182 spaces. This reduced demand would support retention of parking requirements associated with Banks, Retail stores, Offices, and Medical Offices without change and allow for the following adjustments:

- Restaurants: A reduction from *1 space for every 4* seats to ***1 space for every 5 seats***.
- Residences: A reduction from *0.50 spaces/unit* to ***0.33 spaces/unit***.
- Hotels: A reduction from *0.80 spaces/room* to ***0.67 spaces/room***.

*Recommendations Regarding Future Adjustments to Parking Requirements*

Given the scope of the analysis provided, both under the base and alternative scenarios, it would appear a reduction in the parking requirements would be warranted to align those requirements to more closely match up with projected peak hour demand. However, DESMAN does not recommend this action for the following reasons:

1. Based on the analysis presented thus far, none of the parking requirements in the proposed zoning by-laws aligns precisely with projected peak demand. For example, while applying the

[14] Factoring in variations in demand for time of day, day of week, and time of year, roughly 1,100 spaces would be needed at the peak hour across the district.

proposed reductions outlined under the alternative scenario would reduce the number of required spaces to match peak demand, there would still be disparities between the number of spaces required by land use and peak demand by land use as illustrated in ***Table 16***, below.

**Table 16: Comparison of Peak Hour Demand and Parking Required Under Alternative Scenario**

| Land Use | Peak Demand | | Parking Required | | Surplus/(Deficit) | |
|---|---|---|---|---|---|---|
| Bank | 51 | spaces | 30 | spaces | (21) | spaces |
| Retail | 370 | spaces | 597 | spaces | 227 | spaces |
| Office | 237 | spaces | 324 | spaces | 87 | spaces |
| Restaurant | 270 | spaces | 180 | spaces | (90) | spaces |
| Residential | 376 | spaces | 177 | spaces | (199) | spaces |
| Institution | 0 | spaces | 0 | spaces | 0 | spaces |
| Hotel | 244 | spaces | 240 | spaces | (4) | spaces |
| **Total** | **1,548** | **spaces** | **1,548** | **spaces** | **0** | **spaces** |

2. The projected peak hour demand under each scenario, while significantly lower than the 'sum of all peaks' projections, also assumes fluid sharing of available parking across Belmont Center to maximize the utility of each public and private parking space. Should a private property owner, existing or in the future, decline to engage in shared parking with other land uses and/or wish to limit access to the parking associated with their project to solely tenants and their guests, there may be empty spaces that cannot be used by parkers in need of accommodation. If the proposed parking requirements mandate some overbuilding of supply, that may well serve as a buffer against these occurrences.

3. The proposed by-laws include multiple opportunities for prospective developers to seek 'relief' from the mandated parking requirements through execution of Shared Parking studies and/or Shared Use agreements, commitment to Transportation Demand Management (TDM) plans and initiatives, and In Lieu payments for requested waivers. Further reduction of and/or removal of minimum parking requirements reduces and/or eliminates some of the incentive for prospective developers to pursue such initiatives. Minimum parking requirements are in essence the 'stick' a municipality uses to make the pursuit of more sustainable planning and development practices a more attractive 'carrot.' While there may be some developers who might seek to include Shared Parking, Shared Use, and/or TDM initiatives as part of their project plan according to personal practice or preference, maintenance of minimum parking requirements gives the municipality leverage to encourage other developers who are not as motivated.

4. The preceding analysis was based on assumed development programs. These land uses included in these programs, the amount of each land use, the priority for development of different land uses is a function of market conditions as well as long-term planning. Currently, there is pressure to introduce more housing, especially affordable housing, into Massachusetts and the development program, and the underlying plans informing that program, reflect that need. At certain times in the past, priority has placed on the development of more retail space, office space, or other land uses according to the prevailing market conditions at the time. As illustrated within the preceding analysis, different land uses have different parking demand profiles and patterns. Should future market conditions mandate a change in development focus, it would be better to have a set of parking requirements that were more conservative rather than hyper accurate parking requirements which may not be germane to future conditions.

# Exhibit A: Existing Land Use Inventory as of 9/10/2025

| Block | Parcel ID | Address | Description | S.G. Retail (s.f. GLA) | Srvc Retail (s.f. GLA) | F/C Dining (s.f. GLA) | Pharmacy (s.f. GLA) | Fast Casual (s.f. GLA) | Take-Out (s.f. GLA) | G. Office (s.f. GFA) | M. Office (s.f. GFA) | Bank (s.f. GFA) | Church (s.f. GFA) | Museum (s.f. GFA) | School (s.f. GFA) | Civic (s.f. GFA) | Other Land Uses (description) | Other Land Uses (s.f. GFA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 31-1-B | 460 Concord Ave | Police Station | | | | | | | | | | | | | 13,265 | | |
| 1 | 31-1-C | 450 Concord Ave | Municipal Light Department | | | | | | | | | | | | | 8,766 | | |
| 1 | 31-7 | 440 Concord Ave | Greenspace | | | | | | | | | | | | | | Open Parcel | 2,739 |
| 1 | 31-8 | 438 Concord Ave | Greenspace | | | | | | | | | | | | | | Open Parcel | 2,690 |
| 1 | 31-9 | 436 Concord Ave | Greenspace | | | | | | | | | | | | | | Open Parcel | 3,535 |
| 1 | 31-10 | 434 Concord Ave | Greenspace | | | | | | | | | | | | | | Open Parcel | 8,185 |
| 1 | 31-11 | 1 Common St | Lions Club/Train Depot | | | | | | | 2,712 | | | | | | | | |
| 2 | 31-1-A | 455 Concord Ave | Town Hall | | | | | | | | | | | | | 25,854 | | |
| 2 | 31-1-A | 644 Pleasant St | Superintendent-Schools | | | | | | | | | | | | | 11,000 | | |
| 2 | 31-1-A | 19 Moore St | Homer Municipal Building | | | | | | | | | | | | | 27,000 | | |
| 2 | 31-1 | 2 Leonard St | M&T Bank | | | | | | | | | 16,464 | | | | | | |
| 3 | 34-171 | 9-11 Alexander Ave | Belmont Orthodontics | | | | | | | | 4,539 | | | | | | | |
| 3 | 34-170 | 21 Alexander Ave | Soliyarn | | | | | | | 804 | | | | | | | Estimate | |
| 3 | 34-169 | 86 Leonard St | Leonando Salon | | 910 | | | | | | | | | | | | | |
| 3 | 34-169 | 84 Leonard St | Seraderian Dentral Group | | | | | | | | 910 | | | | | | Estimated | |
| 3 | 34-169 | 82 Leonard St | Leading Edge Real Estate | | | | | | | 910 | | | | | | | Estimated | |
| 3 | 34-169 | 80 Leonard St | Belmont Caffe | | | | | | 860 | | | | | | | | Estimated | |
| 3 | 34-168 | 72 Leonard St | Office Space for Lease | | | | | | | | | | | | | | For Lease | 2,341 |
| 3 | 34-167 | 68 Leonard St #1 | A Chocolate Dream | 4,197 | | | | | | | | | | | | | | |
| 3 | 34-167 | 68 Leonard St #2 | Karma Fie Crafts | 4,197 | | | | | | | | | | | | | | |
| 3 | 34-167 | 68 Leonard St #3 | Belmont Oral, Facial & Implant Surgery | | | | | | | | 8,394 | | | | | | | |
| 3 | 34-167 | 68 Leonard St #4 | Yes! Plastic Free | 5,596 | | | | | | | | | | | | | | |
| 3 | 34-166 | 66 Leonard St | La Victoria Taqueria | | | | | 1,961 | | | | | | | | | | |
| 3 | 34-166 | 66 Leonard St | Leonard's Place | | | | | | | 3,922 | | | | | | | | |
| 3 | 34-166 | 66 Leonard St | Robert's Salon | | 1,961 | | | | | | | | | | | | | |
| 3 | 34-165 | 64 Leonard St | Former CVS | | | | | | | | | | | | | | For Sale | 6,621 |
| 3 | 34-164-A | 50 Leonard St Front | Il Casale Belmont | | | 2,928 | | | | | | | | | | | | |
| 3 | 34-164-A | 50 Leonard St Rear | Lovejoy Interiors | 2,928 | | | | | | | | | | | | | | |
| 3 | 34-164-A | 50 Leonard St Upper | Colleary Construction | 5,855 | | | | | | | | | | | | | | |
| 3 | 34-164 | 48 Leonard St | Rachel Walters Collection | 970 | | | | | | | | | | | | | | |
| 3 | 34-164 | 46 Leonard St | Marcou Jewelers | 970 | | | | | | | | | | | | | | |
| 3 | 34-163 | 40 Leonard St | Cambridge Savings Bank | | | | | | | | | 1,622 | | | | | | |
| 3 | 34-163 | 36 Leonard St | Rancator's Ice Cream | | 1,622 | | | | | | | | | | | | | |
| 3 | 34-163 | 34 Leonard St | Helena's Clothing | 1,622 | | | | | | | | | | | | | | |
| 3 | 34-163 | 32 Leonard St | Belmont Wine and Beer | 1,622 | | | | | | | | | | | | | | |
| 3 | 34-163 | 30 Leonard St | Shine's Asian Cusine | | | | | | 1,622 | | | | | | | | | |
| 3 | 34-162 | 18 Moore St | Eagle Orthodonics/Mondovi Dental | | | | | | | | 7,944 | | | | | | | |
| 4 | 34-150-A | 582 Pleasant St | Plymouth Congregational Church | | | | | | | | | | 10,300 | | | | Estimate | |
| 5 | 34-133 | 115 Leonard St | Verizon | | | | | | | 8,190 | | | | | | | | |
| 5 | 34-133-A | 99 Leonard St | Belmont Center Fire Station | | | | | | | | | | | | | 8,300 | | |
| 10 | 34-140 | 16-18 Channing Rd | Orient Sunshine Wellness Center | | 2,640 | | | | | | | | | | | | | |
| 10 | 34-139 | 6 Channing Rd | Nick's Place II | | | | | | 942 | | | | | | | | | |
| 10 | 34-139 | 15 Leonard St | Ingram Realty Co | | | | | | | 942 | | | | | | | | |
| 10 | 34-140 | 19 Leonard St | Quebrada Baking Co | | | | | | 942 | | | | | | | | | |
| 10 | 34-141 | 21 Leonard St | Bessie Blue LLC | 942 | | | | | | | | | | | | | | |
| 10 | 34-142 | 25 Leonard St | Sun Rite Cleaners & Tailors | | 942 | | | | | | | | | | | | | |
| 10 | 34-143 | 27 Leonard St | Gregory's House of Pizza | | | | | | | 942 | | | | | | | | |
| 10 | 34-138 | 31 Leonard St | Irresistibles | 1,859 | | | | | | | | | | | | | | |
| 10 | 34-138 | 37 Leonard St | Santander Bank Branch | | | | | | | | | 1,859 | | | | | | |
| 10 | 34-137 | 41 Leonard St | Bruegger's Bagels | | | | | | 3,354 | | | | | | | | | |
| 10 | 34-137 | 43 Leonard St | Union Pharmacy | | | | 3,354 | | | | | | | | | | | |
| 10 | 34-136 | 47 Leonard St | The Nail Spa | | 2,849 | | | | | | | | | | | | | |
| 10 | 34-136 | 49 - 51 Leonard St | Butternut Bakehouse | | 2,849 | | | | | | | | | | | | | |
| 10 | 34-136 | 53 Leonard St | Champions Sporting Goods | 2,849 | | | | | | | | | | | | | | |
| 10 | 34-136 | 55 Leonard St | Lagree Lab- Coming Soon | | | | | | | | | | | | | | Coming Soon | 2,849 |
| 10 | 34-136 | 59 Leonard St | Revolve Consignment Boutiques | 2,849 | | | | | | | | | | | | | | |
| 10 | 34-136 | 63 Leonard St | Westcott Mercantile | 2,849 | | | | | | | | | | | | | | |
| 10 | 34-134 | 65 Leonard St | Citizens Bank | | | | | | | | | 5,951 | | | | | | |
| 10 | 34-134 | 69 Leonard St | Patou Thai | | | | | 5,951 | | | | | | | | | | |
| 10 | 34-134 | 71 Leonard St | Toy Shop of Belmont | 5,951 | | | | | | | | | | | | | | |
| 10 | 34-134 | 73 Leonard St | Society Beauty Bar | | 5,951 | | | | | | | | | | | | | |
| 10 | 34-134 | 75 Leonard St | The Wellington Tavern | | | 5,951 | | | | | | | | | | | | |
| 10 | 34-134 | 77 Leonard St | Local Root by Didriks | 5,951 | | | | | | | | | | | | | | |
| 10 | 34-134 | 79 Leonard St | Black Bear Café | | | | | | 5,951 | | | | | | | | | |
| 10 | 34-134 | 79 Leonard St | Belmont Books | 5,951 | | | | | | | | | | | | | | |
| 10 | 34-134 | 87 Leonard St | Vacant Shop | | | | | | | | | | | | | | | 5,951 |
| 10 | 34-134 | 67 Leonard St | CVS | | | | 5,951 | | | | | | | | | | | |
| 10 | 34-145 | 41 Alexander Ave | Belmont Pump Station | | | | | | | | | | | | | 1,584 | | |
| 11 | 34-115-A | 10 Claflin St | Claflin St Public Parking Lot | | | | | | | | | | | | | | Municipal | 56,264 |
| 14 | 35-29 | 7 Channing Rd | Chase Bank | | | | | | | | | 2,040 | | | | | | |
| 15 | 35-30 | 415 Concord Ave #2 | Good Look Optical | | | | | | | | 1,394 | | | | | | | |
| 15 | 35-30 | 415 Concord Ave #1 | Hair Images | | 1,394 | | | | | | | | | | | | | |
| 15 | 35-31 | 405 Concord Ave | United States Postal Service | | | | | | | | | | | | | 10,419 | | |
| 15 | 35-33 | 395 Concord Ave | National Assoc. for Armenian Studies | | | | | | | | | | | 15,486 | | | | |
| 15 | 35-34 | 385 Concord Ave | Quad Optics/Belmont Family Dental | | | | | | | 21,724 | | | | | | | | |
| 15 | 35-35 | 375 Concord Ave | Nassiri Swan & Associates PC | | | | | | | 17,000 | | | | | | | | |
| 16 | 24-59-A | 404 Concord Ave | First Church, Unitarian Universalist | | | | | | | | | | 11,300 | | | | Estimate | |
| 16 | 24-59 | 396 Concord Ave | Henry Frost Children's Program | | | | | | | | | | | | 2,590 | | | |
| 16 | 25-58-A | 380 Concord Ave | First Armenian Church | | | | | | | | | | 22,184 | | | | | |
| **TOTAL** | | | | **57,156** | **21,116** | **8,879** | **9,305** | **7,912** | **13,671** | **57,145** | **23,181** | **27,936** | **43,784** | **15,486** | **2,590** | **106,188** | **N/A** | **91,175** |