

# **Watertown Commercial Development and Housing Nexus Study**

**Final Draft**

**to**

**Department of Planning and Community Development  
City of Watertown**

**Submitted by:**

Karl F. Seidman Consulting Services  
ConsultEcon, Inc.

**May 2022**

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## Executive Summary

Watertown is experiencing a large increase in commercial development that is expanding the City's job base with the potential to increase the demand for housing, including affordable housing for low-income, moderate-income and middle-income households. The City commissioned a study to assess the impact of this new development on affordable housing demand and the potential for a "linkage fee" to be paid by commercial development projects to mitigate the cost to develop this housing. This report provides a nexus study to assist Watertown in deciding whether to establish a linkage fee and, if established, the appropriate fee level and implementation policies. The report quantifies the impact of future non-residential development on the demand for affordable housing in Watertown. It then analyses the proportionate housing linkage fee rate to mitigate these impacts. Finally, it reviews linkage fees in other Massachusetts communities, several policy options and recommends linkage fee options and policies for implementation of a new housing linkage fee.

**Housing Demand.** Based on projected new development of 2,600,000 square feet over the next ten years and the likely mix of tenant industries, 6,213 new jobs are estimated to be generated in Watertown by this development. Information on the occupations and earnings of these new employees, in combination with data on the distribution of households by size and number of workers and survey results on the share of employees who moved to or sought housing in Watertown when they obtained a job in Watertown, is used to estimate the demand for new affordable housing units from the projected new development and employment. This analysis projected the need for 360 new housing units to address this demand, including 86 low-income units, 74 moderate-income units and 200 middle-income units<sup>1</sup>.

**Development Costs and Needed Subsidy.** A separate analysis of the development costs and needed subsidy for rental and homeownership units was conducted based on 141 ownership units and 219 rental units<sup>2</sup>. Development costs were estimated based on the costs for recent comparable affordable housing projects built in Boston and inner suburbs. For rental projects, the needed subsidy was calculated as the difference between total development costs and the amount of debt and equity that could be supported by the housing cash flow using affordable rents at 30% of household income and comparable operating costs. For ownership projects, the needed subsidy was calculated as the difference between total development costs and the affordable purchase price based on home mortgage payments, insurance and property taxes at 30% of household income and a 5% down payment. The results of this analysis are:

- Total development costs of \$159.9 million; and
- Total needed subsidy of \$81.4 million with \$36.7 million for the low-income units, \$18.9 million for the moderate-income units and \$25.8 million for the middle-income units.

The housing linkage fee needed to provide the full \$81.4 million in subsidy is \$31.31 per square foot on new non-residential development. However, low- and moderate-income housing development leverages public subsidies from federal and state sources in addition to those

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<sup>1</sup> A low-income unit is for a household with income at or less than 50% of the Boston area median income (AMI), a moderate-income unit is for a household between 50% and 80% of Boston AMI and a middle-income unit is for a household between 80% and 100% of Boston AMI.

<sup>2</sup> This mix is based on all of the low-income units developed as rental units, 70% of moderate-income units built as rental and 30% as ownership, and 40% of the middle-income units built as rental and 60% as ownership.

provided by local government. The local share for the production of affordable rental housing in other communities varies from 6.4 percent in Somerville to 11 percent in Boston to 39 percent in Cambridge. On average, local funds have represented 11 percent of the total project costs for 14 rental projects in the Massachusetts Housing Partnership (MHP) portfolio. Middle-income ownership units do not qualify for these subsidies so Watertown would have to cover the full subsidy for these units. Using this information on the share of local funding, two alternative linkage fees were calculated based on local sources providing 6.4% and 11% of the rental housing funding gap and 100% of the ownership funding gap. The resulting linkage fees alternatives are \$9.44/Square Foot and \$11.12/Square Foot.

**Impact on Competitiveness.** An important consideration for Watertown in establishing a housing linkage fee is its potential impact on attracting new development and tenants. A new linkage fee will increase development costs, which can impact project economics in several ways depending on a variety of factors. Consequently, linkage fee options were analyzed for their potential impact on tenant rents, developer returns and equity investor returns. A linkage fee between \$9.44 and \$11.12 would have a modest estimated effect on rents and developer returns, and thus, is unlikely to hurt Watertown's competitive position. The maximum warranted fee of \$31.31 poses a significantly greater risk to Watertown's competitiveness and is likely to generate potential challenges, as it has the potential to reduce a developer's return on costs by over one-quarter of a percentage point and returns to equity investors by over a full percentage point. If the full cost of the maximum linkage fee is passed on tenants as increased rent, it would eliminate East Watertown's rent advantage over West Cambridge and raise its rent premium versus the 128-Mass Pike market area by two-thirds. If the maximum fee was adopted, it also would exceed current linkage fees in Boston, Cambridge and Somerville, creating a cost premium compared to these important alternative locations for life science firms.

**Recommendations.** Watertown should consider establishing an affordable housing linkage fee within the range of \$9.44 to \$11.12, that reflects the expected local funding share needed to fill the estimated funding gap. This fee range is unlikely to alter Watertown's competitive position for economic development and would set Watertown's fee level below that of Boston, Cambridge and Somerville. It is also expected that Watertown will revisit this fee in the coming years to allow for adjustments as needed. In establishing a new linkage fee, it is recommended that Watertown adopt policies that simplify its application and administration, including:

- Applying the fee to all non-residential and non-governmental uses allowed under the city's Zoning Ordinance.
- Establishing a 30,000 SF non-residential project size threshold for collecting the fee.
- Applying the fee to the full amount of applicable uses without an exemption.
- Establishing a single linkage fee rate throughout Watertown without variation by use or district.
- Requiring full payment of the linkage fee obligation at the time of certificate of occupancy.

## **Introduction**

The City of Watertown is experiencing a large increase in commercial development that is expanding the City's job base with the potential to increase local demand for housing including affordable housing for low-income, moderate-income and middle-income households. The City commissioned a study to assess the impact of this new development on affordable housing demand and the potential for a "linkage fee" to be paid by development projects to mitigate the cost to develop this housing. This report provides a nexus study to assist Watertown in deciding whether to establish a linkage fee and, if established, the appropriate fee level and policies. The report quantifies the impact of future non-residential development on the demand for affordable low, moderate, and middle-income housing in Watertown. It then analyzes the proportionate housing linkage fee rate to mitigate these impacts. Finally, it reviews linkage fees in other Massachusetts communities, several policy options and recommends linkage fee options and policies for implementation of a new housing linkage fee.

## I. Watertown Development Potential and Future Development

Watertown has experienced considerable new development activity in recent years with a large pipeline of commercial projects under construction, fueled by strong growth in demand among life science firms for research and development lab space. **Table 1** summarizes non-residential development by use in Watertown from 2009 through 2021 along with projects at the construction stage (defined as having a building permit) and those permitted for future development but not yet ready for construction, as of December 31, 2021.

**Table 1. Gross Floor Area in Square Feet for Watertown Non-Residential Development Completed from 2016 to 2021 and Permitted as December 31, 2021**

| Development Type      | Completed, 2016 to 2021 | Percent of Completed | Under Construction | Approved, Pre-Construction | Percent of Construction and Approved |
|-----------------------|-------------------------|----------------------|--------------------|----------------------------|--------------------------------------|
| Hotel                 | 205,562                 | 21.6%                | 0                  | 0                          | 0.0%                                 |
| Retail                | 375,090                 | 39.4%                | 1,700              | 1,240                      | 0.1%                                 |
| Office/Lab            | 370,990                 | 39.0%                | 1,998,662          | 156,461                    | 99.9%                                |
| Total Non-Residential | 951,642                 | 100.0%               | 2,000,362          | 157,701                    | 100.0%                               |

Source: Watertown Department of Community Development and Planning

Since 2016, over 951,000 square feet (SF) of new non-residential development was completed in Watertown, with two hotels totaling almost 206,000 SF and the balance almost evenly divided between retail and office/R&D space. Based on Colliers data (see **Table 2**), the supply of Watertown office and laboratory space increased by 338,000 SF from 2013 to 2021. Lab space grew by almost 487,000 SF during this period while office space declined by 148,000, indicating some conversion of office space to lab space.

Watertown will experience the completion of considerable new commercial development over the next decade, with projects totaling 2 million SF under construction and another 157,700 SF approved for development. All of these projects under construction and approved are for new office/lab space intended to service life science firms, with a small amount of space intended for ground floor retail space.

**Table 2. Watertown Leased Office and Lab Space, 2013 to 2021**

| Year          | Office Space Supply (SF) | Laboratory Space (Supply) | Total     |
|---------------|--------------------------|---------------------------|-----------|
| 2013          | 1,184,450                | 610,903                   | 1,680,353 |
| 2014          | 1,069,450                | 610,903                   | 1,680,353 |
| 2015          | 1,069,450                | 610,903                   | 1,712,353 |
| 2016          | 1,101,450                | 610,903                   | 1,829,353 |
| 2017          | 1,218,450                | 610,903                   | 1,829,353 |
| 2018          | 1,218,450                | 953,498                   | 2,022,948 |
| 2019          | 1,069,450                | 1,097,450                 | 2,130,948 |
| 2020          | 1,033,498                | 1,097,450                 | 2,018,448 |
| 2021          | 920,998                  | 1,097,450                 | 2,018,448 |
| 8 Year Change | -148,452                 | 486,547                   | 338,095   |

Source: Colliers International

Several additional non-residential projects that may generate additional development are in the planning stage and not yet permitted. Based on early discussions with developers at three sites, including the Watertown Mall, these plans represent 903,000 SF of development with 843,000 SF of office lab space and 60,000 SF of retail space.

### **Market Demand and Absorption**

New employment and the resulting demand for housing will depend on the actual absorption of new real estate space by new and expanding employers and the city's success in attracting business growth within the region. Within the Boston metropolitan area, Watertown has emerged as a desirable business location for life science firms with strong market demand and high rents, especially in the eastern end of the city closest to Cambridge. Watertown's proximity to Cambridge and the western suburbs, its amenities and transportation access are locational advantages that have made the city attractive to life science companies. The current shortage of available lab space in Cambridge and the region has contributed to strong industry demand for space in Watertown, along with robust developer interest in building new lab projects. Strong demand for lab space in Watertown is demonstrated by the city's zero percent vacancy rate and increasing rents that reached the mid-to-high \$90s at the end of 2021<sup>3</sup>.

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<sup>3</sup> Zero vacancy is based on data from Colliers. Brokers reported East Watertown rents in the \$90 to \$100 range while the CBRE 2021 4<sup>th</sup> Quarter Lab reported an average lab rent of \$95.03 for Watertown and West Cambridge.

**Table 3. Real Estate Absorption and Supply in Watertown,  
128-MassPike Market Area and Cambridge 2017 to 2021**

| <b>Market Indicator</b>                              | <b>Watertown</b> | <b>128 MassPike</b> | <b>Cambridge</b> |
|--|------------------|---------------------|------------------|
| Lab Supply, 4Q 2021                                  | 1,097,450        | 2,265,782           | 12,887,249       |
| Lab Vacancy Rate, 4Q 2021                            | 0.00%            | 1.3%                | 0.00%            |
| Lab Net Absorption 2021                              | 116,653          | 350,621             | 316,011          |
| Office Supply, 4Q 2021                               | 920,998          | 20,568,606          | 12,319,592       |
| Office Vacancy Rate, 4Q 2021                         | 9.6%             | 18.9%               | 10.2%            |
| Office Net Absorption, 2021                          | 4,561            | 507,620             | 42,000           |
| Avg. Annual Net Absorption Lab+<br>Office, 2017-2021 | 61,120           | 288,991             | 420,085          |

Source: Colliers International Real Estate Market Data

Market absorption of office and lab space in the recent past also informs the likely scale of new development and employment growth over the next decade for Watertown. **Table 3** summarizes average absorption and other market indicators for office and laboratory space in Watertown, the 128-MassPike Market Area (which includes Lexington and Waltham) and Cambridge. Based on data from Colliers International, average net absorption of new office and lab space in Watertown averaged 61,210 SF from 2017 to 2022 and has constituted a smaller market than Cambridge and the 128--MassPike area:

- Net absorption of lab space in Watertown has exceeded absorption of office space and reached 116,653 SF in 2021;
- Vacancy rates for lab space are zero or close to zero in all three market areas; very low in averaged 108,323 SF from 2008 through 2017;
- Net absorption in all three markets has been constrained by supply growth and likely understates market demand during the last five years.

Future non-residential development in Watertown is likely to exceed these historic trends in supply and absorption. Strong demand for space by life science firms is driving much greater development activity, as represented by the large pipeline of projects under construction in Watertown. Moreover, the extremely low levels of vacant lab space throughout the region suggest that projects completed in Watertown over the next two to three years are well-positioned to successfully attract life science tenants. Two of five interviewed developers with projects under construction that have completion dates from late 2022 through 2024 reported substantial pre-leasing of the projects, while the other three had not yet pre-leased space.

Interviews with developers and real estate professionals confirmed strong market demand for lab space in Watertown. They report that Watertown is an established and desirable location for life science companies, driven by its proximity to Cambridge and Boston's western suburbs, its amenities and transportation access. A limited supply of lab space in Cambridge and throughout the region is another factor in developer and firm interest in Watertown as companies are looking at more alternatives to secure needed space in a very tight market.

Some factors could slow future development in Watertown. An extremely large pipeline of planned lab space in Boston, Cambridge and throughout the region could lead to an oversupply of



lab space in the next three to four years. According to a recent report by real estate brokerage firm Newmark<sup>4</sup>, there is a potential pipeline of over 49 million SF of new lab development in the Boston region, with 14.5 million SF under construction and another 34.6 million in proposed projects. This pipeline is approaching twice the size of the region’s 26.8 million SF of existing lab space. Cambridge and Boston’s Seaport District together represent 17.86 million SF, or 36%, of the pipeline, with Lexington and Waltham accounting for another 4.7 million SF. If an oversupply materializes with growing amounts of vacant space, some Watertown projects in the planning stage may not get built or may get delayed for many years. It is also possible that increasing high rents in east Watertown may cause some firms to locate at lower cost competing locations in nearby suburbs.

## Future Development and Employment Projection

Based on its market position, pipeline of projects under construction, and rate of absorption and new development over the five years, **Watertown is projected to absorb and spur new development of 2.6 million SF in office, laboratory and retail space over the next ten years.** This estimate assumes that the 2 million SF of projects under development will be completed and substantially leased with another 600,000 SF of projects in the pre-construction and planning stages completed and occupied during this period. New ground floor retail development is projected at 120,000 SF or 4.6% of total space—reflecting an increased desire to incorporate uses that serve use local residents into office/lab developments. After accounting for historic vacancy rates of 5%, this new development is projected to supply 2.47 million SF of occupied space (see **Table 4**).

**Table 4. Summary of Expected Development, 10 Year Period**

| <b>10-year Projection</b>   | <b>Office/Lab</b> | <b>Retail</b> |
|-----------------------------|-------------------|---------------|
| Gross Square Feet           | 2,480,000         | 120,000       |
| Net Leased SF after vacancy | 2,356,000         | 114,000       |

Source: Karl F. Seidman Consulting Services

## Expected Tenant Businesses

To determine the likely jobs and earnings from this new development, the industries likely to occupy the new large developments need to be projected. Since linkage fees are tied to **new development**, this type of new business and employment growth will differ from Watertown’s overall or net job growth, which reflects growth in existing businesses, loss of jobs from firms’ contractions and relocations, and new businesses locating in smaller projects, under 30,000 SF.

With developers of all the new projects targeting life science firms (and strong growth and real estate demand within this industry), life science enterprises are likely to occupy the vast majority of space in the projected new development. However, some portion of the new development may be leased to firms in other industries if developers are unable to attract sufficient life science firms to fully lease-up their properties. The large regional pipeline of lab development will increase the number of communities and projects competing with Watertown to attract life science firms, which makes this outcome more likely—prompting developers to look to other industries to lease-up

<sup>4</sup> Newmark, *2021 Year End Life Science Overview and Market Clusters*

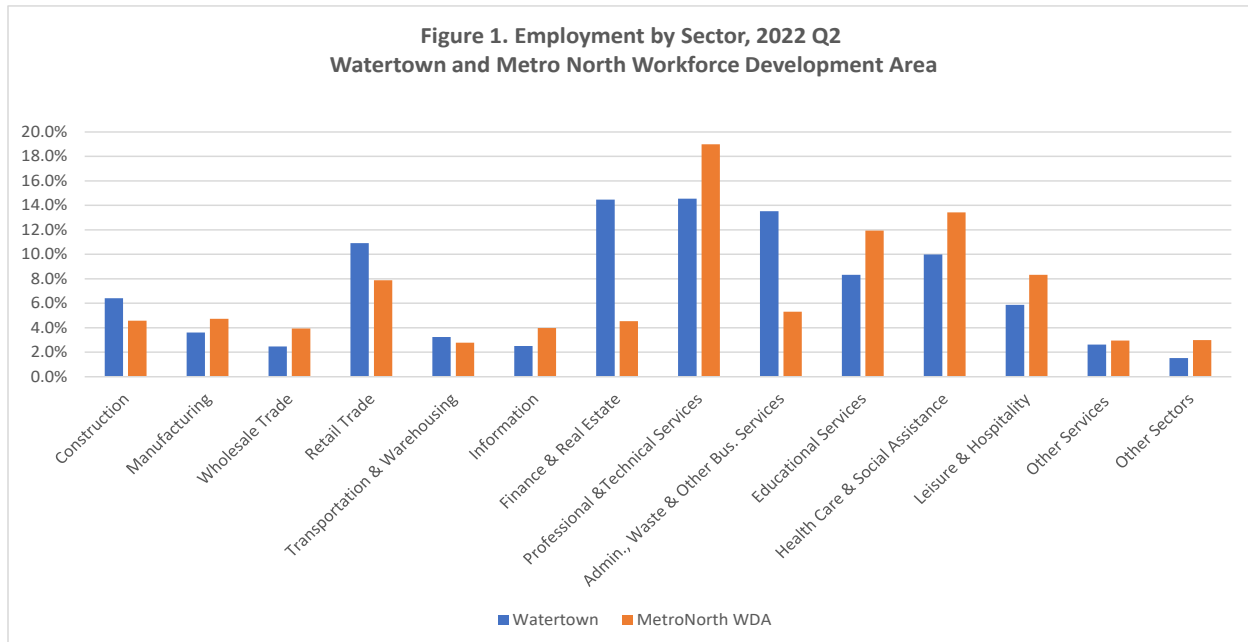
their buildings. To identify the likely industries for Watertown's new development, the employment base and recent employment growth trends for Watertown and the Metro North Workforce Development Area (WDA) were analyzed. The Metro North WDA is the portion of the Boston metropolitan area that includes Cambridge, Watertown and 18 other nearby communities and is the probable source of businesses that will locate in the City's new development<sup>5</sup>.

### **Existing Employment Base**

As shown in **Figure 1**, Watertown's employment base, which averaged 21,530 jobs in the first half of 2021 (the last period for which city employment data is available), was diversified with five sectors each accounting for 10% to 15% of total employment: Retail, Finance & Real Estate, Professional & Technical Services, Administrative, Waste & Other Business Services, and Health Care & Social Assistance. Within these sectors, the largest industries were Food & Beverage Stores (676 jobs), Insurance Carriers (2,807 jobs), Scientific Research & Development—primarily life science firms (1,624 jobs), and Social Assistance—child care and social services (820 jobs). The Metro North WDA job base is also well-diversified but with somewhat different concentrations of major sectors than Watertown. Professional & Technical Services, and Health Care & Social Assistance are the region's largest sectors with larger employment shares than in Watertown. Finance & Real Estate constitutes a much smaller share of Metro North WDA employment, at 4.5%, versus 14.5% for Watertown. On the other hand, Education Services are a much larger share of the Metro North job base (11.9%) than their 8.3% share in Watertown. The Metro North WDA has a more diverse and larger set of major industries, which is expected as it constitutes a much larger geographic area and economic base (almost 447,000 jobs in 2021). The largest industries in the Metro North WDA include: Scientific Research & Development (40,395 jobs), Colleges & Universities (29,238 jobs), Restaurants (24,149 jobs); Elementary & Secondary Schools (19,987), Computer Systems Design (19,766), General medical & Surgical Hospitals (16,157 jobs) and Management of Companies & Enterprises (13,482).

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<sup>5</sup> The communities within the Metro North WDA are Arlington, Belmont, Burlington, Cambridge, Chelsea, Everett, Malden, Medford, Melrose, North Reading, Reading, Revere, Somerville, Stoneham, Wakefield, Watertown, Wilmington, Winchester, Winthrop, and Woburn.



Source: Massachusetts Department of Labor and Workforce Development ES-202 Data Series

## Growth Industries

Recent employment growth is a better indicator of the likely industry composition of new development than the local and regional employment base since growing industries are a far more likely source of new tenants than stable or declining ones. **Tables 5 and 6** present the industries that generated the largest absolute job growth from 2015 to the second quarter of 2021 for Watertown and the Metro North WDA, respectively. Table 5 lists Watertown Industries that added at least 100 jobs over this period. For the much larger WDA, industries that added at least 1,000 jobs are included in Table 6.

In Watertown, eight industries added over 100 jobs and combined to add 4,408 jobs. Administrative & Support Services accounted for 37.6% of these new jobs, followed by Scientific Research and Development Services at 24.5% and Insurance Carriers at 19.8%. Data on the industry breakdown of Administrative and Support Services within Watertown was not available. However, temporary employment services and janitorial services are two of the component industries and these businesses are large users of office space as their workforce is largely deployed across other companies and buildings. Three health and social service-related industries combined to 501 jobs, or 11.4% of the total. The final two growth industries were Durable Goods Wholesalers and Education Services, neither of which are likely to lease space in new office/lab buildings

**Table 5. Watertown Industries Adding at Least 100 Jobs, 2015 to 2021, Q2**

| Industry                                   | Job Growth | % of Total |
|--|------------|------------|
| Durable Goods Wholesalers                  | 185        | 4.2%       |
| Insurance Carriers*                        | 872        | 19.8%      |
| Administrative & Support Services          | 1657       | 37.6%      |
| Scientific Research & Development Services | 1080       | 24.5%      |
| Educational Services                       | 113        | 2.6%       |
| Offices of Physicians+                     | 247        | 5.6%       |
| Individual & Family Services               | 119        | 2.7%       |
| Child Day Care Services                    | 135        | 3.1%       |
| Total for above industries                 | 4,408      | 100.0%     |

\*Based on 2014 data; +Based on 2021 Q1 Data

Source: Massachusetts Department of Labor and Workforce Development ES-202 Data Series

Twelve industries added at least 1,000 jobs with the Metro North WDA between 2015 and the first half of 2021, combining to generate a total of 48,904 new jobs. Scientific Research & Development Services was, by far, the largest source of employment growth, adding 18,807 jobs or 39.1% of the total. The next two largest sources of new jobs were Management of Companies (i.e., corporate headquarter offices) and Management and Technical Consulting, accounting for 13.6% and 10.9% of total job growth for the 12 industries, respectively. Three information technology-related industries (Software Publishers, Other Information Services, and Computer Systems Design & Related Services) accounted for another 12.2% of job growth. These six industries, highlighted in bold type in Table 6, are regional industries that are most likely to demand new lab and office space over the next decade and provide the source of tenants for new development projects in Watertown. Other regional growth industries in Table 6 need industrial space or specialized facilities that are different than the office/lab developments occurring in Watertown.

**Table 6. Metro North WDA Industries Adding at least 1,000 Jobs, 2015 to 2021, Q2**

| Industry                                   | Job Growth | % of Total |
|--|------------|------------|
| Specialty Trade Contractors                | 1,568      | 3.3%       |
| Nondurable Goods Wholesalers               | 1,067      | 2.2%       |
| Software Publishers                        | 1,520      | 3.2%       |
| Other Information Services                 | 2,035      | 4.2%       |
| Computer Systems Design & Related Services | 2,290      | 4.8%       |
| Management & Technical Consulting Services | 5,236      | 10.9%      |
| Scientific Research & Development Services | 18,807     | 39.1%      |
| Management Of Companies & Enterprises      | 6,529      | 13.6%      |
| Elementary & Secondary Schools             | 1,366      | 2.8%       |
| Colleges & Universities                    | 2,423      | 5.0%       |
| Residential Mental Health Facilities       | 2,474      | 5.1%       |
| Traveler Accommodation                     | 2,780      | 5.8%       |
| Total for Above Industries                 | 48,094     | 100.0%     |

Source: Massachusetts Department of Labor and Workforce Development ES-202 Data Series

Based on Watertown's market position and developer plans, a large share of the tenants in Watertown's new development will very likely be life science firms and are projected to account for 85% of the occupied space in new developments. The remaining 15% of occupied space is expected to be leased to the six Metro North WDA growth industries cited above that are office users.

## Retail Tenants

The projections for new ground floor retail space are based on planned projects, employment trends and the ground floor/retail business mix in Watertown. A large share, or 65%, of new ground floor retail space is expected to be occupied by restaurants. The remaining 35% (39,900 SF), is projected to be occupied by a mix of clothing and miscellaneous retail stores (11,400 SF), medical offices (17,100 SF), day care centers (5,700 SF), and bank branches (5,700 SF).

**Table 7** summarizes the overall projected development by use, tenant type and employment over the next ten years. These projections will be used to estimate occupations and wage levels for new employees working in the expected new buildings. Employment projections assume the amount of space occupied per new employee will be: 300 SF for office users; 450 SF for research and development tenants; 500 SF for retail, bank and day care tenants; 325 SF for medical offices, and 120 SF for restaurants<sup>6</sup>.

**Table 7. Projected New Watertown Development by Use and Tenant Type, 2022 to 2031**

| Industry                          | Square Feet | SF/Employee | Number of Employees |
|-----------------------------------|-------------|-------------|---------------------|
| Life Science Firms                | 2,121,000   | 450         | 4,713               |
| Computer Systems Design           | 35,000      | 300         | 117                 |
| Software                          | 35,000      | 300         | 117                 |
| Other Information Services        | 35,000      | 300         | 117                 |
| Management & Technical Consulting | 65,000      | 300         | 217                 |
| Management of Companies           | 65,000      | 300         | 217                 |
| Ground Floor Retail               | 114,000     |             |                     |
| Restaurant                        | 74,000      | 120         | 617                 |
| Clothing Stores/Misc. Retail      | 11,000      | 500         | 22                  |
| Daycare                           | 6,000       | 500         | 12                  |
| Bank branches                     | 6,000       | 500         | 12                  |
| Medical offices                   | 17,000      | 325         | 52                  |
| Total                             | 2,470,000   |             | 6,213               |

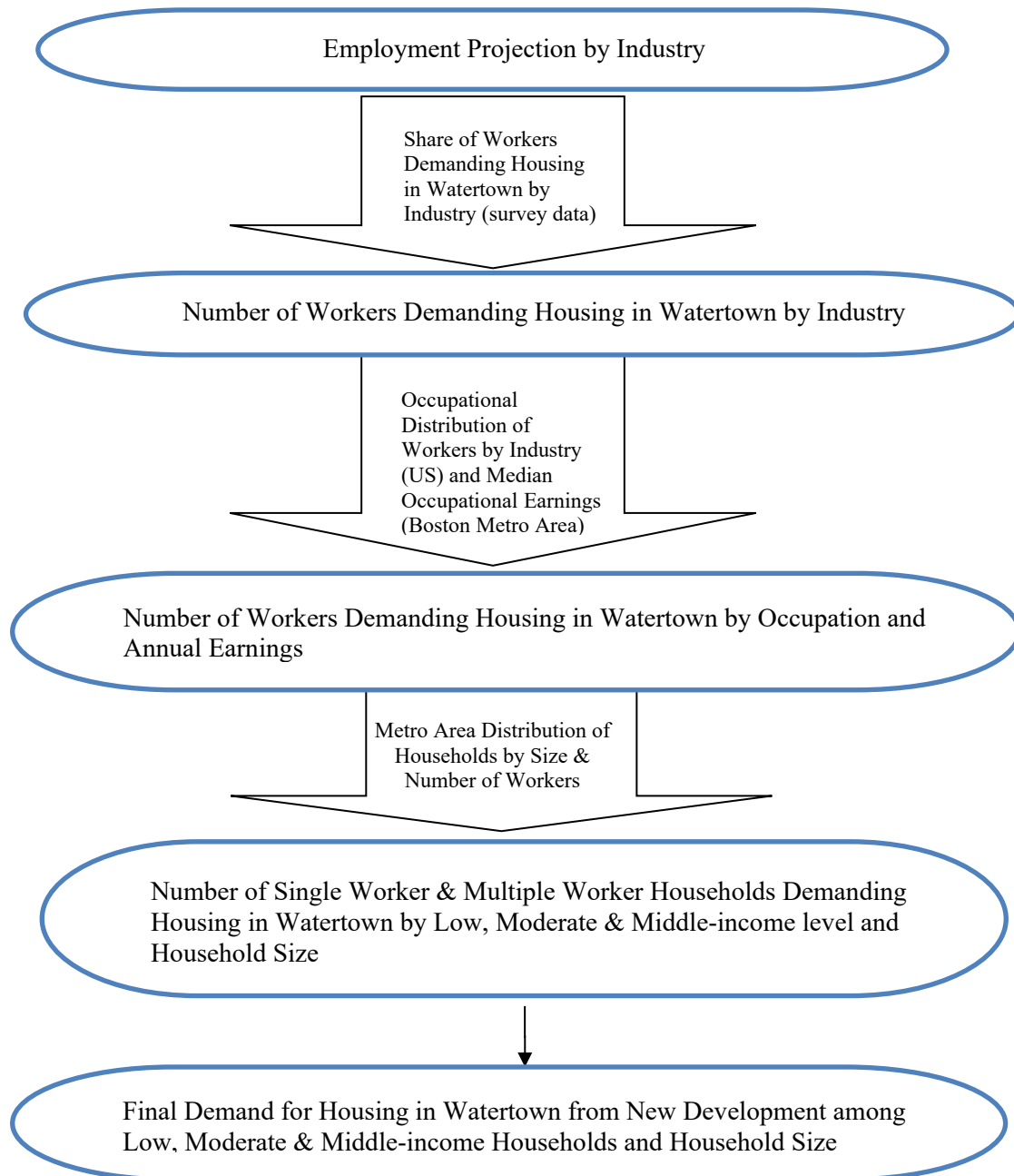
Source: Karl F. Seidman Consulting Services

<sup>6</sup> These figures reflect existing ratios among employers obtained from transportation planning surveys.

## II. Impact of Large Scale Development on Affordable Housing Demand

Using the 10-year development scenario and employment projections summarized in Table 6, this section forecasts the demand for affordable housing in Watertown that will result from this development. Since this analysis utilizes several data sources and assumptions to prepare the forecast, a full explanation of the methodology used is provided along with the results. **Figure 2** provides an overview of the analytical steps and data sources for the housing demand projections.

**Figure 2. Methodology and Data Sources for Housing Demand Analysis**



Since demand for affordable housing is tied to household income, the first step projects the distribution of new jobs by earnings. Using 2020 national data for the occupational distribution by industry, the number of new jobs in 22 occupational categories was calculated for each of the 11 industries expected to occupy new development. Earnings were then estimated for these occupations based on the median annual earnings for the respective occupation in May 2020 for the Metro North Workforce Development Area, and adjusted for inflation by the Boston region Consumer Price Index to estimate earnings as of April 2021—corresponding to the date of income figures used to define the annual levels for low, moderate and middle-income households. These calculations yielded the projected number of jobs at different annual earning levels by occupation and industry.

Since new employees will live in a variety of communities, it is necessary to determine the share that will demand housing in Watertown. To estimate the percent of new employees who will demand housing within the city, the results from a survey of employees in office, laboratory, hotel and retail buildings conducted in February and March 2022 were used. This survey measured demand by asking employees whether, as a result of obtaining a job in Watertown, they either moved to the city or sought housing in Watertown but did not move there due to housing costs. Based on the survey results<sup>7</sup>, the percentage of new employees who are expected to demand housing in Watertown is 15.6. This percentage was multiplied by the gross number of new jobs in each industry to estimate the number of new workers who will demand housing in Watertown, which equals 968. The occupational distribution for each industry was then applied to the number of workers in that industry who were expected to seek housing in Watertown to estimate their earnings distribution.

The next step to project demand for affordable housing units among the 968 employees who are expected to seek housing in Watertown requires estimating the distribution of households for these workers by both the number of wage-earners and size. Since the employees in Watertown's new developments will be drawn primarily from the greater Boston area, data for the distribution of households by number of earners and household size in the Boston metropolitan area were used to estimate the type of households for these employees<sup>8</sup>. Workers in each occupation expected to demand housing in Watertown were first divided into one-, two-, three- and four-or-more-person households based on the metro area distribution<sup>9</sup>. Then each household size group was divided into one-, two- and three-worker households, using the American Community Survey metro area percentages (see **Table 8**).

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<sup>7</sup> Summary data from this survey is provided in Appendix A.

<sup>8</sup> This data was from the 2019 five-year American Community Survey for the Boston-Cambridge-Newton MA-NH Metropolitan Area.

<sup>9</sup> From the 2013 to 2017 ACS, the ratios are: 27.7% one-person, 33.1% two-person 16.7% three person and 22.6% four or more.

**Table 8. Household Size by Number of Wage-Earners,  
Boston-Cambridge-Nashua MA-NH NECTA**

| Number of Workers             | One Worker | Two Workers | Three Workers | Total  |
|-------------------------------|------------|-------------|---------------|--------|
| One Person Household          | 100.0%     | 0.0%        | 0.0%          | 100.0% |
| Two Person Household          | 40.2%      | 59.8%       | 0.0%          | 100.0% |
| Three Person Household        | 30.5%      | 48.3%       | 21.2%         | 100.0% |
| Four or More Person Household | 23.8%      | 47.9%       | 28.3%         | 100.0% |

Source: US Census 2019 Five-Year American Community Survey

For single-earner households, the median wage for the occupation was used to estimate their household income and determine if they fell below the low-income, moderate-income or middle-income thresholds for their respective household size. Among the single earner households who are expected to demand Watertown housing, 86 are estimated to be low-income (less than 50% of area median income), 64 are projected to be moderate-income (between 50% and 80% of area median income) and 133 are estimated as middle-income (80% to 100% of area median income) for a total demand of 283 affordable housing units. Projecting affordable housing demand among multiple-earner households required estimating the earnings from the additional wage earners. To simplify this analysis, it was assumed that the second worker's earnings equaled the median annual wage for all occupations in the Metro North Workforce Area, which was \$64,674 adjusted for inflation to April 2021. This resulted in an additional 77 dual worker households from new development that will demand housing in Cambridge, 10 in the moderate-income level and 67 in the middle-income category. No three-worker households fall within the moderate or middle-income ranges.

Across all household sizes and income groups, the total number of affordable housing units needed to meet the demand generated by new office and retail development is 360 units. **Table 9** summarizes the total projected demand for new housing by household size and among low-income, moderate-income and middle-income households.

**Table 9. New Affordable Housing Demand in Watertown from New Large Developments\*  
by Income Type and Household Size, 2020 to 2029**

| Income Group    | One-Person Households | Two-Person Households | Three-Person Households | Four-Person Households | Total |
|-----------------|-----------------------|-----------------------|-------------------------|------------------------|-------|
| Low-income      | 32                    | 30                    | 11                      | 13                     | 86    |
| Moderate-income | 34                    | 4                     | 8                       | 28                     | 74    |
| Middle-income   | 41                    | 81                    | 39                      | 39                     | 200   |
| Total           | 107                   | 115                   | 58                      | 80                     | 360   |

\*Includes Hotel, Institutional, Office, R&D and Retail Developments



### **III. Subsidy Required to Address Impact of Large-Scale Development**

This section builds upon the framework established in the earlier sections to project the total subsidy required to address the projected increased demand for affordable housing generated by large-scale developments in Watertown. Housing affordability is a function of household income and the cost of available rental and for-sale housing units in each real estate market. The City of Watertown and the entire Boston region suffer from a well-known and demonstrated lack of sufficient affordable housing. This section reviews housing conditions in Watertown and calculates subsidy needed to create new affordable housing that satisfies the demand generated by new workers in new commercial and institutional development by comparing the total development cost of new affordable housing units to the housing prices that can be supported by low-, moderate-, and middle-income households. Before calculating the projected subsidy required, current housing conditions in Watertown are reviewed to provide background and context.

#### **Housing Conditions in Watertown**

Combined with city and regional growth in employment, especially in high wage industries, Watertown, like many cities in and towns in the Boston region, is experiencing an affordable housing shortage, because demand for affordable units is outstripping the supply of housing affordable to very-low-, low- and moderate-income households. The Watertown Housing Plan (for the 5-year period from 2021 to 2025) published in December 2020 by the Watertown Housing Partnership and adopted by City Council in March 2021 includes an assessment of current housing needs, an assessment of development regulations, trends, funding sources, and constraints, housing production and preservation goals and strategies, and implementation plans. The plan is focused on the availability of affordable housing in the limited housing stock in Watertown, an issue in communities throughout the Greater Boston region as it grows in population and demand for commercial and housing development increases. Watertown has relatively lower housing costs than surrounding communities in the Greater Boston region, which flows into housing trends.

#### **Housing Stock Key Drivers**

Important drivers of housing demand in Watertown are employment, population growth and household composition. In 2019, Watertown had 34,000 residents. According to the American Community Survey, there were almost 17,000 residential units in the city in 2019 and about 94 percent of units were occupied. The split between renter- and owner-occupied units is about half and half, with slightly more owners.

7.5 percent of the housing stock in Watertown is deed-restricted affordable housing, including public housing units and inclusionary units in market rate buildings. Since 2012, over 1,700 housing units have been built or are under construction, including 250 affordable units, in three mixed-use districts.

## **Buyer and Household Demographics**

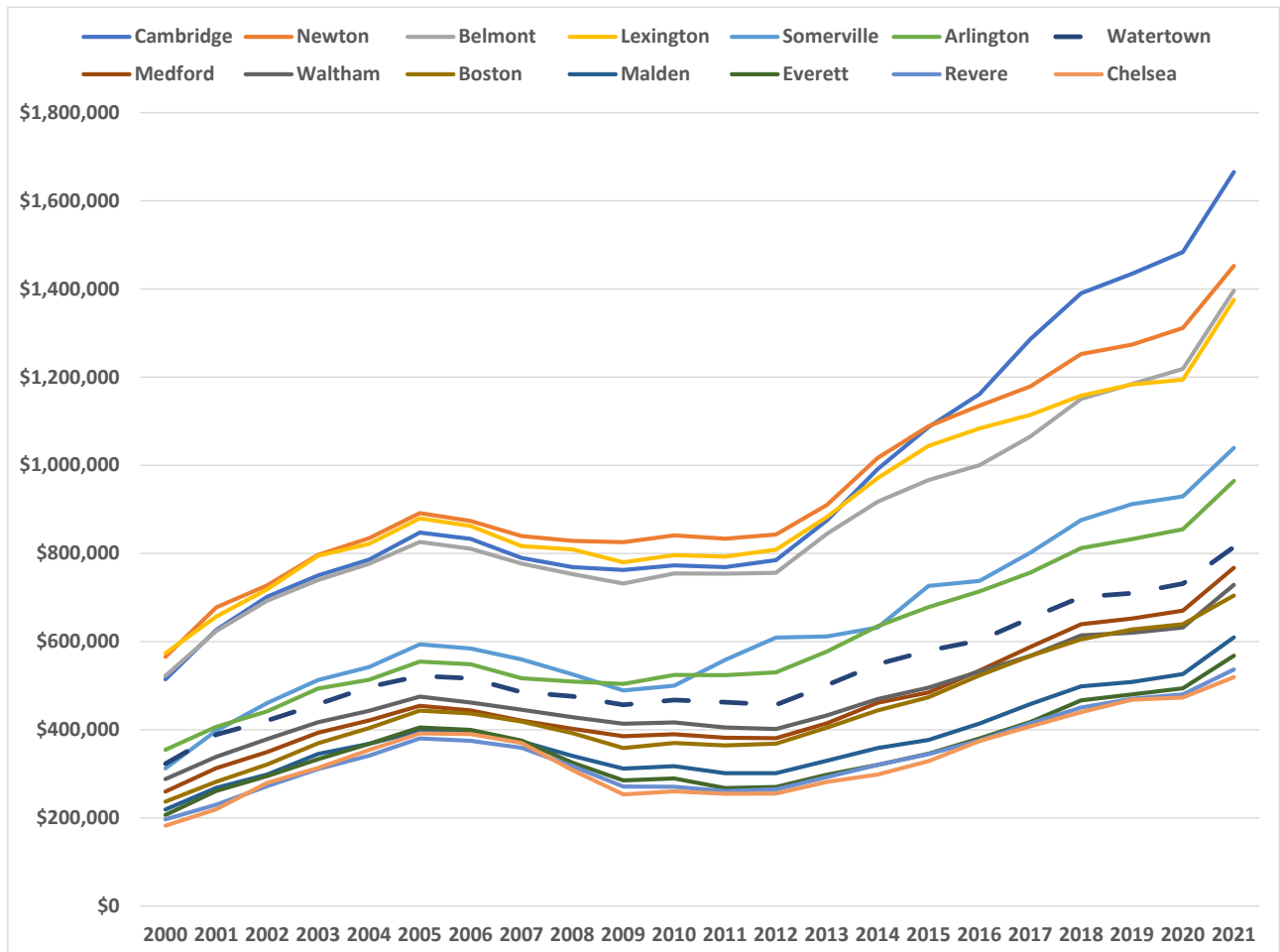
Watertown often serves as a stepping-stone for young professionals buying smaller entry level homes and then moving out to a community with larger homes as they start to expand their families (only 23.1% of households in Watertown in 2019 included children). The largest age groups in the population of Watertown are Millennials in their 20s and 30s and seniors over 60 years old. Demand for housing from both young professionals and seniors has led to the prominence of 1-bed and 2-bed rental housing units - nearly all new housing units built since 2012 are rentals, mostly 1 and 2 bedrooms.

The median household income for households in Watertown was \$101,105 (2019 ACS 5-Year Estimate), which is slightly higher than that of Middlesex County but is below most of the affluent communities that neighbor Watertown. Nonetheless, Watertown's renters and owners are relatively affluent, with the median renter income of \$81,000 and median owner income of \$120,000 in 2019. However, there is a gap between what families in Watertown can afford to pay for housing and the median sales prices for homes and condos. About 18.8 percent of households earned less than 50% of area median income (AMI), about 12.8 percent earned between 50% and 80% of AMI, and 9.6 percent of households earned between 80% and 100% of AMI. About 37 percent of all renters and 28 percent of all homeowners in Watertown are considered "cost-burdened" in that they spend more than 30 percent of gross income on housing.

## **Home and Condominium Sales**

Despite an increase in residential units, home and condo prices continue to increase in Watertown and the Greater Boston area, as shown by data in **Figure 3** and in **Figure 4**. The American Community Survey reported a net increase of nearly 1,000 units in Watertown between 2010 and 2019 and a 2019 homeowner vacancy rate of 0.5 percent. According to Zillow, the median value of a single-family home in 2021 was \$814,000 and the median value of a condo was \$581,000. Between 2010 and 2021, condo housing prices increased 71 percent in Watertown, or an average annual rate of 6.4 percent. Over the same period, single family housing prices increased 74 percent in Watertown, or an average annual rate of 6.7 percent.

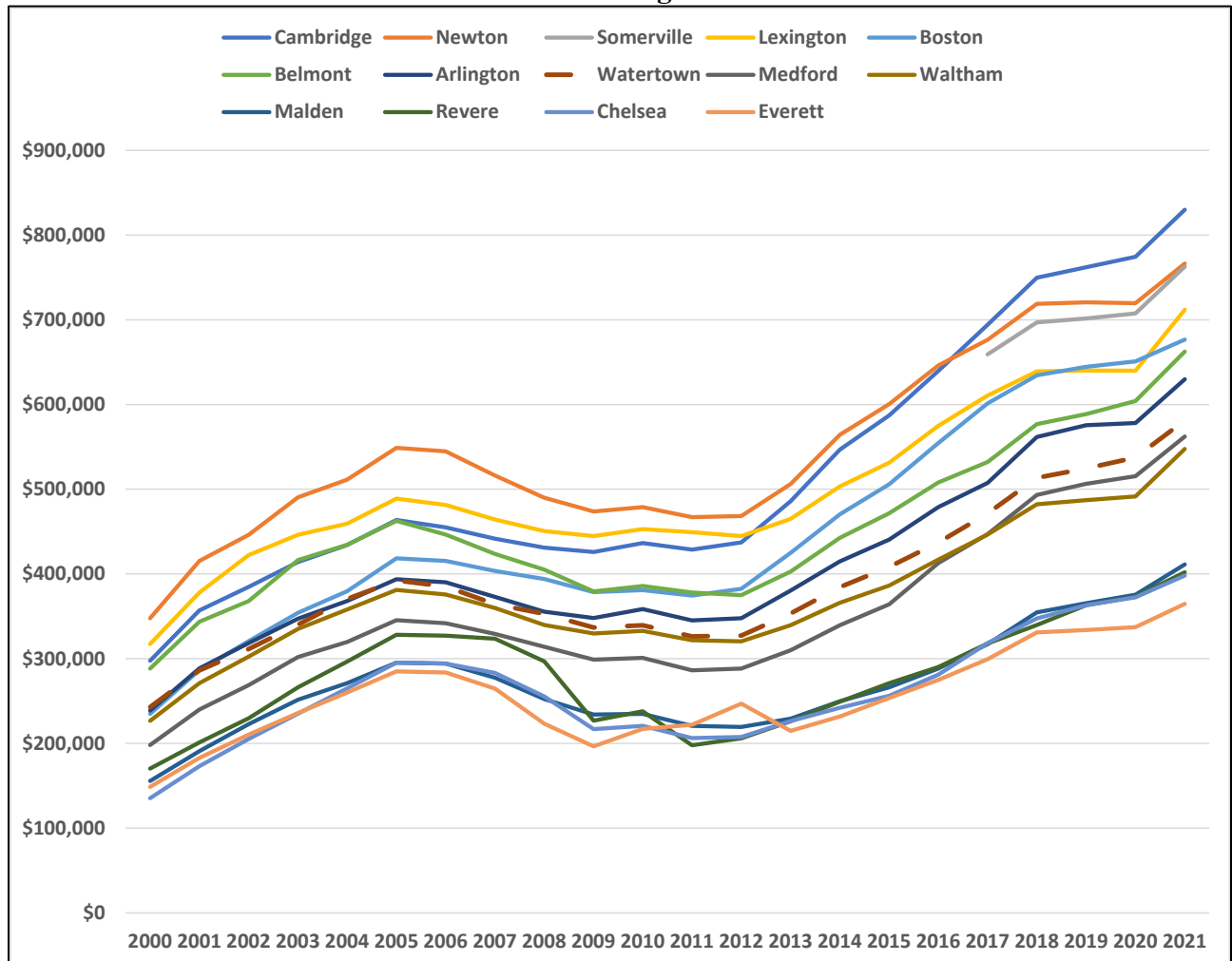
**Figure 3. Median Single-Family Value, Zillow Home Value Index, 2000 to 2021, in Watertown and Surrounding Cities and Towns**



Note: Zillow Home Value Index (ZHVI): A smoothed, seasonally adjusted measure of the median estimated home value across a given region and housing type. It is a dollar-denominated alternative to repeat-sales indices.

Source: Zillow and ConsultEcon, Inc.

**Figure 4. Median Condominium Value, Zillow Home Value Index, 2000 to 2021, in Watertown and Surrounding Cities and Towns**



Note: Zillow Home Value Index (ZHVI): A smoothed, seasonally adjusted measure of the median estimated home value across a given region and housing type. It is a dollar-denominated alternative to repeat-sales indices. Condominium data was only available for Somerville starting in October 2017.

Source: Zillow and ConsultEcon, Inc.

The Watertown Assessor's Office reported data as of 2019 – there were 416 home sales in 2019, with a median sale price of \$657,000. For condos there was a lower median figure (\$579,000) and for single family homes and multi-family homes there were higher medians (\$715,000 and \$850,000, respectively). The median square footage of homes sold in 2019 was about 1,725 SF, with a median price per square foot of \$395. The median square footage and price per square foot was higher for single family homes, at 1,774 SF and \$402/SF. Multi-family homes had higher median square footage, at 2,611 SF, and lower median price per square foot, at \$328/SF. Condos had a median of 1,378 SF and a median price per square foot of \$402/SF. The median lot size for single- and multi-family homes was about 5,200 SF. Data in **Table 10** show a summary of 2019 home sales.

**Table 10. Watertown Home Sales, 2019**

| <b>2019 Home Sales</b> | <b>Number<br/>of Sales</b> | <b>Percent<br/>to Total</b> | <b>Median<br/>Sale Price</b> | <b>Median<br/>Square<br/>Footage</b> | <b>Median<br/>Lot Size</b> | <b>Median<br/>Price per<br/>Square<br/>Foot</b> |
|------------------------|----------------------------|-----------------------------|------------------------------|--------------------------------------|----------------------------|---|
| Single-Family Sales    | 100                        | 24%                         | \$714,950                    | 1,774                                | 5,663                      | \$402   |
| Multi-Family Sales     | 56                         | 13%                         | \$850,000                    | 2,611                                | 5,227                      | \$328   |
| Condo Sales            | 260                        | 63%                         | \$578,750                    | 1,378                                | NA                         | \$404   |
| All 2019 Home Sales    | 416                        | 100%                        | \$657,000                    | 1,725                                | 5,227                      | \$395   |

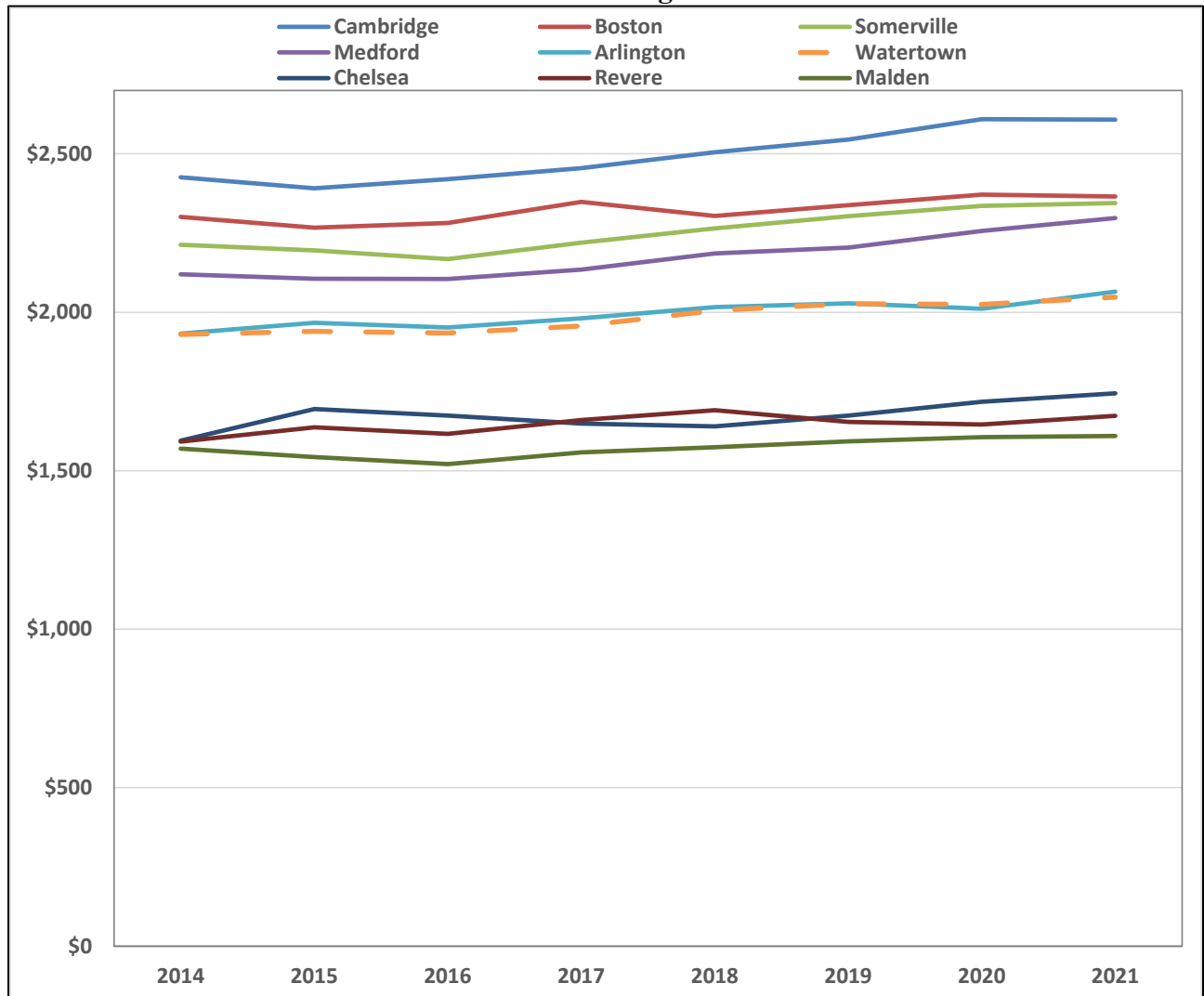
Source: Watertown Assessor's Office and ConsultEcon, Inc.

## Rental Housing

Watertown and surrounding areas have had a relatively low rental vacancy rates in recent years. As reported by the U.S. Census Bureau, the American Community Survey estimates that in 2019, Watertown had a rental vacancy rate of 4.2 percent. A low vacancy rate in rental housing continues to be a factor in the availability and cost of housing in Watertown. Data from the Census Bureau also indicates that the median monthly housing cost for Watertown renting households has increased 26 percent from 2010 to \$1,900 in 2019. If affordable housing costs would represent 30 percent or less of household income, the median monthly rental housing costs in 2019 was affordable to households earning \$76,000 or more annually.

According to data from Zillow, the median market rent in Watertown between 2014 and 2021 is shown in **Figure 5**. The median Watertown rent increased 6 percent from about \$1,900 in 2014 to \$2,000 in 2021. Watertown rent increases were higher than in Boston, Somerville, Revere, and Malden, and were lower than in Cambridge, Medford, Arlington, and Chelsea. It should be noted that other sources of rents may report different values, but this source is used to show the long-term change in rents over time, which is not as dramatic as the increase in sales.

**Figure 5. Median Market Rent, Zillow Rent Index, 2014 to 2021, in Watertown and Surrounding Cities and Towns**



Note: Zillow Rent Index (ZRI): A smoothed measure of the median estimated market rate rent across a given region and housing type. ZRI is a dollar-denominated alternative to repeat-rent indices. Rent data was not available for Belmont, Everett, Lexington, Newton, or Waltham.

Source: Zillow and ConsultEcon, Inc.

## Housing Costs as a Percent of Household Income

Due to the high cost of housing, many Watertown households devote a large portion of their incomes to housing, as shown by data in **Table 11**. Thirty-two percent of all occupied housing units in Watertown in 2019 were “cost burdened,” which means the household was paying more than 30 percent of its income on housing costs. Housing is typically considered affordable if housing costs are no more than 30 percent of household incomes. In Watertown, both homeowners and renters were cost burdened. According to the census data, Watertown had 15,600 occupied housing units in 2019. Of those, 52 percent were owner-occupied units and 48 percent were renter-occupied units. In 2019, about 27 percent of homeowners were cost burdened, and 47 percent of renters were cost burdened.

**Table 11. Renter- and Owner-Occupied Housing Costs as a Percent of Household Income in Watertown and Massachusetts, 2019**

| <b>Watertown</b>         | <b>Owner-Occupied Housing</b> |                         | <b>Renter-Occupied Housing</b> |                         | <b>All Occupied Housing</b> |                         |
|--------------------------|-------------------------------|-------------------------|--------------------------------|-------------------------|-----------------------------|-------------------------|
|                          | <b>Housing Units</b>          | <b>Percent to Total</b> | <b>Housing Units</b>           | <b>Percent to Total</b> | <b>Housing Units</b>        | <b>Percent to Total</b> |
| <b>Percent of Income</b> |                               |                         |                                |                         |                             |                         |
| Less than 20 percent     | 4,019                         | 50%                     | 2,392                          | 32%                     | 6,411                       | 41%                     |
| 20 to 29 percent         | 1,806                         | 22%                     | 2,009                          | 27%                     | 3,815                       | 24%                     |
| 30 percent or more       | 2,194                         | 27%                     | 2,766                          | 37%                     | 4,960                       | 32%                     |
| Zero or negative income  | 73                            | 1%                      | 83                             | 1%                      | 156                         | 1%                      |
| No cash rent             | NA                            | NA                      | 278                            | 4%                      | 278                         | 2%                      |
| <b>Total</b>             | <b>8,092</b>                  | <b>100%</b>             | <b>7,528</b>                   | <b>100%</b>             | <b>15,620</b>               | <b>100%</b>             |
| <b>Massachusetts</b>     | <b>Owner-Occupied Housing</b> |                         | <b>Renter-Occupied Housing</b> |                         | <b>All Occupied Housing</b> |                         |
|                          | <b>Housing Units</b>          | <b>Percent to Total</b> | <b>Housing Units</b>           | <b>Percent to Total</b> | <b>Housing Units</b>        | <b>Percent to Total</b> |
| <b>Percent of Income</b> |                               |                         |                                |                         |                             |                         |
| Less than 20 percent     | 800,420                       | 49%                     | 237,804                        | 24%                     | 1,038,224                   | 40%                     |
| 20 to 29 percent         | 389,132                       | 24%                     | 231,305                        | 23%                     | 620,437                     | 24%                     |
| 30 percent or more       | 434,455                       | 27%                     | 459,710                        | 47%                     | 894,165                     | 34%                     |
| Zero or negative income  | 8,758                         | 1%                      | 21,981                         | 2%                      | 30,739                      | 1%                      |
| No cash rent             | NA                            | NA                      | 33,932                         | 3%                      | 33,932                      | 1%                      |
| <b>Total</b>             | <b>1,632,765</b>              | <b>100%</b>             | <b>984,732</b>                 | <b>100%</b>             | <b>2,617,497</b>            | <b>100%</b>             |

Sources: U.S. Census Bureau, American Community Survey, 2015-2019, 5-Year Estimates; and ConsultEcon, Inc.

Affordable housing eligibility is often based on a household’s income relative to the Area Median Income (AMI). Data in **Table 12** shows Watertown households by household income relative to AMI. About 19 percent of households had household income of less than 50 percent of AMI. About 13 percent of households had household income between 50 percent and 80 percent of AMI. Ten percent of households had household income from 80 percent to 100 percent of AMI, and the remaining 59 percent had household income above AMI. Moderate-income households are eligible for community housing funds through CPA but are not included on the state’s subsidized housing inventory.

**Table 12. Watertown Households by Income Level, 2019**

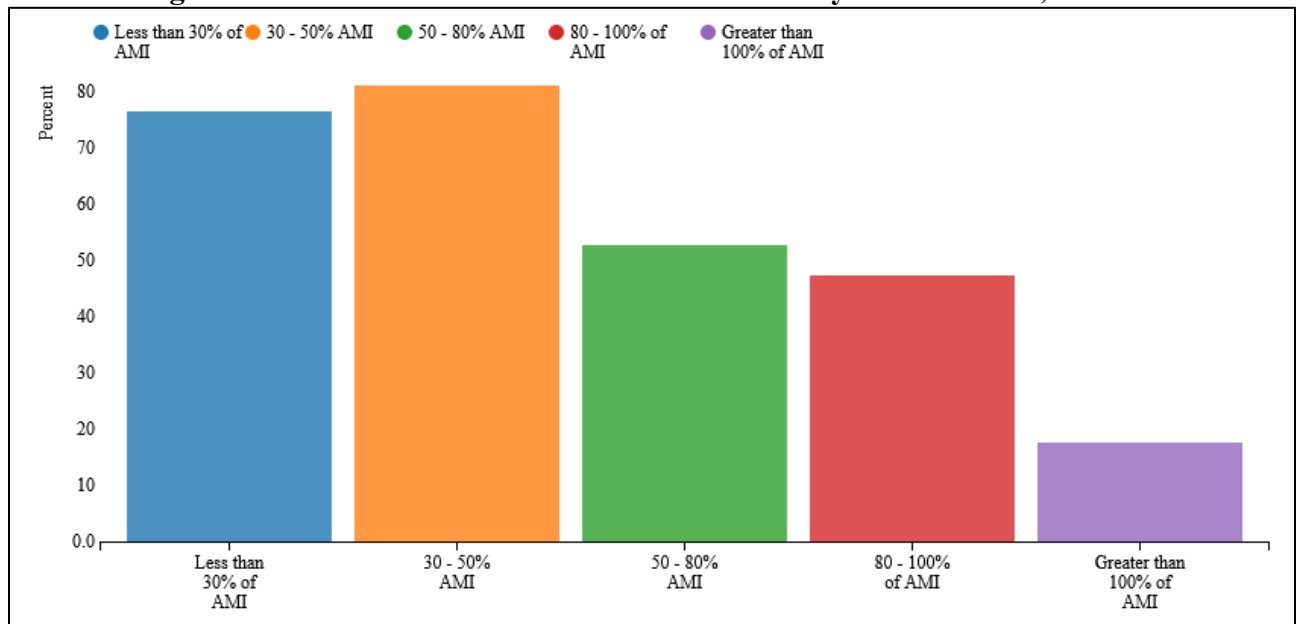
|  | Watertown  |                             |
|--|------------|-----------------------------|
|  | Households | Percent to Total Households |
| Moderate-Income Households<br><i>Between 80% and 100% of AMI</i>     | 1,455      | 9.60%                       |
| Low-Income Households<br><i>Between 50 and 80% of AMI</i>            | 1,940      | 12.80%                      |
| Very Low-Income Households<br><i>Between 30% and 50% of AMI</i>      | 1,010      | 6.70%                       |
| Extremely Low-Income Households<br><i>At or Less than 30% of AMI</i> | 1,830      | 12.10%                      |

Sources: Watertown Housing Plan, December 2020; and ConsultEcon, Inc.

The cost burden for Watertown households varies considerably by income level. Data in **Figure 6** shows Watertown cost burdened households by income level. According to a Metropolitan Area Planning Council and census data, an estimated 81 percent of all extremely low-income households, 76 percent of very low income households, 52 percent of low income households, and 47 percent moderate income households are cost burdened, versus 14 percent of households with incomes above 100 percent AMI.



**Figure 6. Watertown Cost Burdened Households by Income Level, 2018**



Source: Metropolitan Area Planning Council based 5-year American Community Survey, U.S. Census Bureau.

## National Housing Market Trends

Watertown's market experience can be evaluated in the context of national and regional trends. According to The State of the Nation's Housing, 2021, the national housing market is seeing high demand and tight supply, pushing up prices, bouncing back quickly after a mid-2020 pause. Homeowners became reluctant to sell during the COVID pandemic, tightening the supply. For 2020, existing home sales rose 5.6 percent and new single-family home sales jumped 20.4 percent – total home sales were at their highest level since the peak of the housing boom in 2006. Low interest rates and rising prices have given a boost to new residential construction, with a projected 1 million single-family units constructed in the year after August 2020. The national homeownership rate is on an upward trajectory, driven by the aging of Millennials and income gains for this age group. For younger households, the rising national price-to-income ratio (at its highest since 2006) presents a roadblock to home ownership, as accumulating the down payment and closing costs to buy homes could take years.

The pandemic led to early rental vacancies in urban areas, with people seeking to have more space, but the strengthening economy and easing of restrictions brought demand right back. Rental vacancy rates in prime urban neighborhoods went from 7.2 percent in the first quarter of 2020 to 10 percent in the fourth quarter, and back to 9.6 percent in the first quarter of 2021. For suburban areas, vacancy rates went from 7.2 percent in Q1 2020, to 6.3 percent in Q4 2020 and 6 percent in Q1 2021. Vacancy rates are higher for higher-end units, while the markets for moderate- and lower-quality apartments remained tight, with little change in vacancies. 20.4 million renters (46 percent) paid more than 30 percent of their incomes for housing that year, including 10.5 million severely burdened households. Renters were disproportionately impacted by rising housing costs and lost income during the pandemic. Even before the pandemic the number of people experiencing homelessness was rising, mostly in the Western and Sunbelt states.

## **Regional Housing Market**

The Greater Boston Housing Report Card, 2021 reinforces many of the national trends. In the Boston region, affordability of housing is a greater problem than ever. The pandemic exacerbated many long-term challenges to housing and the wealth gap has widened. At its April 2020 peak, the Massachusetts unemployment rate was 16.4 percent and has steadily declined since then, not falling below 7.0 percent. The gap between wages and housing costs and inadequate housing production are the region's largest and most pressing housing issues. Some rents have increased, home prices have risen, and vacancies / homes available for sale are at record lows. Changes in zoning laws meant to target the need for more production have been implemented at the state level, with a focus on transit-oriented development.

Vacancy rates in Greater Boston were lower than “healthy” rates for both homeowners and rentals in the years leading up to the pandemic, and it's expected that the rates will continue to go down. The surge in demand combined with limited inventory put an upward pressure on home sale prices. By 2019, home sale prices in Greater Boston were among the highest in the nation, with home price increases outpacing income growth. Homeownership is therefore becoming unattainable for a larger percentage of households. The increases in home prices during the pandemic are likely unsustainable and will plateau eventually.

The rental market was also steadily increasing after the 2008 recession, and cost burden levels increased from 2000 to 2019. The pandemic caused the rental market to drop overall, in contrast to the sales market. Rental prices fell during the early pandemic but have begun rising back up alongside home prices. The issues of housing, mobility, and employment are highly interconnected, and the MBTA has played an important role for many during the pandemic, even with lower year over year ridership.

## **Estimate of Required Affordable Housing Subsidy Contribution**

The previous section projected the demand for affordable housing from new commercial development as 360 units for low-, moderate-, and middle-income households<sup>10</sup> ranging in size from one person to four or more persons. This section determines the projected subsidy required to construct housing that is affordable for those households.

Following is a summary of data and analyses used in calculating the total per square foot subsidy from new non-residential development required to support development of new affordable housing for workers. The subsidies would be for low, moderate and middle-income households whose jobs would be in Watertown's new commercial buildings over the next 10 years.

The analyses establish that affordable rents and affordable sales prices do not currently support development of new housing production due to high development costs. Therefore, to stimulate affordable housing development, subsidies or other incentives must be provided. This analysis estimates the amount of subsidy required to meet new affordable housing demand created by employees in the new commercial development. The total required subsidy is the estimated

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<sup>10</sup> The definition used here for income level groups is different here in this nexus study than the definitions used in the Watertown Housing Plan data reported above in Table 3.

difference between the total development costs of producing new affordable housing units and the capitalized value of affordable rent and unit sale proceeds. The required subsidy is presented as a per square foot housing contribution for projected non-residential development over a 10-year period.

## **Methodology**

The following methodology was used to calculate the subsidy required to produce sufficient housing to satisfy projected ten-year affordable housing demand generated by new development non-residential buildings.

- Estimate the number of low-income, moderate-income, and middle-income households moving to or seeking to live in Watertown that would be generated by new nonresidential development.
- Specify demand by number of persons in the household, number of bedrooms, and by tenure (i.e., renter-occupied units and owner-occupied units).
- Estimate the total development costs of affordable units to satisfy the demand generated based on recent unit costs of new affordable housing development projects financed by the Massachusetts Housing Partnership between FY 2016 and FY 2021.
- Estimate the potential capitalized revenue due to annual rents and sales proceeds of affordable units segmented by middle-income, moderate-income, and low-income households.
- Calculate the difference between the total development costs and the capitalized revenue that is internally generated by renters and owners. This amount is the total subsidy required to produce the targeted new affordable units created by demand from new workers in new non-residential developments.
- Divide the total subsidy required by the total non-residential square feet subject to the housing contribution. This amount is the per square foot subsidy projected to be required to produce the new affordable units created by demand from new workers in new nonresidential developments.

Most state and federal funding programs for affordable housing are targeted to low-income and moderate-income households. The state has a new workforce housing initiative that funds middle-income housing as well. Nonetheless, federal and state tax credits are the largest subsidy source for new affordable housing projects, and they prioritize creation of units for households below 50 percent AMI and 60 percent AMI. Therefore, because of the targeting of available subsidy sources of funding, it is likely that much of the new affordable housing created in Watertown will be targeted to these income levels. As the following analysis shows, the amount of subsidy required to create housing for low-income households is substantial. Yet moderate-income and middle-income households are also increasingly finding housing to be unaffordable in Watertown's housing market.

The following key assumptions were made to calculate the housing subsidy required.

### **Unit Distribution for New Affordable Housing**

The distribution of households by number of persons and income levels was derived in Section 2 (see Table 9). The household sizes range from one person to four or more persons. All one-person households are assumed to be one-bedroom units. Two-person households are allocated as 20 percent to one bedroom units and 80 to two-bedroom units. Three-person households are allocated 80 percent to two-bedroom units and 20 percent to three-bedroom units. Four or more person households are allocated to three-bedroom units. Data in **Table 13** show the estimated distribution of housing units by size and income levels (low-moderate-middle).

**Table 13. Distribution of New Affordable Housing Demand by Number of Bedrooms and Household Income**

|   | Households by Size |            |              |             | Total      |
|---|--------------------|------------|--------------|-------------|------------|
|   | One Person         | Two Person | Three Person | Four Person |            |
| <b>Total New Housing Units Needed Based on New Non-Residential Construction</b> |                    |            |              |             | <b>360</b> |
| <i><b>Distribution of Units</b></i>   |                    |            |              |             |            |
| Low Income  | 32                 | 30         | 11           | 13          | 86         |
| Moderate Income   | 34                 | 4          | 8            | 28          | 74         |
| Middle Income   | 41                 | 81         | 39           | 39          | 200        |
| <b>Total</b>  | <b>107</b>         | <b>115</b> | <b>58</b>    | <b>80</b>   | <b>360</b> |
| <i><b>Distribution of Units by Number of Bedrooms</b></i>                       |                    |            |              |             |            |
| One Bedroom   | 100%               | 20%        | 0%           | 0%          | 36%        |
| Two Bedrooms  | 0%                 | 80%        | 80%          | 0%          | 38%        |
| Three Bedrooms  | 0%                 | 0%         | 20%          | 100%        | 26%        |
|   | 100%               | 100%       | 100%         | 100%        | 100%       |
| <b>Units by Number of Bedrooms</b>  |                    |            |              |             |            |
| <i><b>Low Income</b></i>  |                    |            |              |             |            |
| One Bedroom   | 32                 | 6          | 0            | 0           | 38         |
| Two Bedrooms  | 0                  | 24         | 9            | 0           | 33         |
| Three Bedrooms  | 0                  | 0          | 2            | 13          | 15         |
| <i><b>Moderate Income</b></i>   |                    |            |              |             |            |
| One Bedroom   | 34                 | 1          | 0            | 0           | 35         |
| Two Bedrooms  | 0                  | 3          | 6            | 0           | 9          |
| Three Bedrooms  | 0                  | 0          | 2            | 28          | 30         |
| <i><b>Middle Income</b></i>   |                    |            |              |             |            |
| One Bedroom   | 41                 | 16         | 0            | 0           | 57         |
| Two Bedrooms  | 0                  | 65         | 31           | 0           | 96         |
| Three Bedrooms  | 0                  | 0          | 8            | 39          | 47         |
| <i><b>Units by Size, Number of Bedrooms</b></i>                                 |                    |            |              |             |            |
| One Bedroom   | 107                | 23         | 0            | 0           | 130        |
| Two Bedrooms  | 0                  | 92         | 46           | 0           | 138        |
| Three Bedrooms  | 0                  | 0          | 12           | 80          | 92         |
| <b>Total Units</b>  | <b>107</b>         | <b>115</b> | <b>58</b>    | <b>80</b>   | <b>360</b> |

NOTE: ROUNDING MAY AFFECT TOTALS.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

## Mix of Rental and Ownership Units

New affordable housing has primarily been supplied through rental housing, due to the available subsidy from federal and state sources. This analysis assumes that the affordable housing to be supplied will be a mix of rental and ownership units. The estimated required subsidy in this analysis assumes that:

- 60 percent of units for middle-income households will be ownership units and the remaining 40 percent will be rental.
- 30 percent of units for moderate-income households will be ownership units and the remaining 70 percent will be rental.
- All the units for low-income households will be rental units.

Data in **Table 14** show the distribution of rental and home ownership housing units by size and income level.

**Table 14. New Affordable Housing Demand in Watertown  
by Renter and Owner-Occupied Units**

|  | Households by Size |            |              |             | Total |
|--|--------------------|------------|--------------|-------------|-------|
|  | One Person         | Two Person | Three Person | Four Person |       |
| <i>Distribution of Units</i>                             |                    |            |              |             |       |
| Low Income   | 32                 | 30         | 11           | 13          | 86    |
| Moderate Income  | 34                 | 4          | 8            | 28          | 74    |
| Middle Income  | 41                 | 81         | 39           | 39          | 200   |
| Total Units  | 107                | 115        | 58           | 80          | 360   |
| <i>Percent of Households Occupying Ownership Housing</i> |                    |            |              |             |       |
| Low Income   | 0%                 | 0%         | 0%           | 0%          |       |
| Moderate Income  | 30%                | 30%        | 30%          | 30%         |       |
| Middle Income  | 60%                | 60%        | 60%          | 60%         |       |
| <i>Number of Ownership Units</i>                         |                    |            |              |             |       |
| Low Income   | 0                  | 0          | 0            | 0           | 0     |
| Moderate Income  | 10                 | 1          | 2            | 8           | 21    |
| Middle Income  | 25                 | 49         | 23           | 23          | 120   |
| Total  | 35                 | 50         | 25           | 31          | 141   |
| <i>Percent of Households Occupying Rental Housing</i>    |                    |            |              |             |       |
| Low Income   | 100%               | 100%       | 100%         | 100%        |       |
| Moderate Income  | 70%                | 70%        | 70%          | 70%         |       |
| Middle Income  | 40%                | 40%        | 40%          | 40%         |       |
| <i>Number of Rental Units</i>                            |                    |            |              |             |       |
| Low Income   | 32                 | 30         | 11           | 13          | 86    |
| Moderate Income  | 24                 | 3          | 6            | 20          | 53    |
| Middle Income  | 16                 | 32         | 16           | 16          | 80    |
| Total  | 72                 | 65         | 33           | 49          | 219   |
| <i>Units by Tenure (rounded)</i>                         |                    |            |              |             |       |
| Ownership  | 35                 | 50         | 25           | 31          | 141   |
| Rental   | 72                 | 65         | 33           | 49          | 219   |
| Total  | 107                | 115        | 58           | 80          | 360   |
| <i>Rental Units by Number of Bedrooms</i>                |                    |            |              |             |       |
| One Bedroom  | 72                 | 13         | 0            | 0           | 85    |
| Two Bedrooms   | 0                  | 52         | 26           | 0           | 78    |
| Three Bedrooms   | 0                  | 0          | 7            | 49          | 56    |
| Total Rental   | 72                 | 65         | 33           | 49          | 219   |
| <i>Ownership Units by Number of Bedrooms</i>             |                    |            |              |             |       |
| One Bedroom  | 35                 | 10         | 0            | 0           | 45    |
| Two Bedrooms   | 0                  | 40         | 20           | 0           | 60    |
| Three Bedrooms   | 0                  | 0          | 5            | 31          | 36    |
| Total Ownership  | 35                 | 50         | 25           | 31          | 141   |
| Total Housing  | 107                | 115        | 58           | 80          | 360   |

NOTE: ROUNDING MAY AFFECT TOTALS.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

## Calculation of Needed Subsidy

The following presents the analysis of estimated total development costs, supportable financing, and needed subsidy for affordable housing units that must be created to satisfy the new demand generated by workers in new commercial developments in Watertown over the next 10 years. The analysis only presents selected tables that summarize the calculation of the needed subsidy. Additional tables in the Appendix detail all assumptions and intermediate calculations that underlie required subsidy calculation.

## Development Project Costs

Since Watertown has not recently had new affordable housing developments, there are no direct comparative development costs in the city. The unit costs used to calculate the Total Development Cost (TDC) are based on 14 projects with an average of 48 units in Boston, Somerville, Revere and Brookline financed by Massachusetts Housing Partnership permanent loan closings between Fiscal Year (FY) 2016 and FY2020 (FY ending June 30). They had an average cost of \$420,000 per unit and a median of \$431,000. Data in **Table 15** estimates the aggregate and unit costs for the construction of 360 new affordable housing units in Watertown. It is likely, however, that housing development costs will vary considerably according to the particulars of individual projects and may change over time. Housing construction costs and site acquisition costs have steadily increased at rates over inflation for the past decade. In addition, the pandemic has exacerbated the costs considerably over the past 2 years. For the purposes of this analysis, ownership units construction costs are slightly higher (5%), and the ownership units are larger which yields a higher per unit construction cost than the unit cost for rental housing.

**Table 15. Calculation of Total Development Costs  
of Affordable Rental and Ownership Housing Units in Watertown**

| <i>Project Assumptions</i>   | <b>Rental Units</b>    |                         | <b>Owner Units</b>  |                         |
|--|------------------------|-------------------------|---------------------|-------------------------|
| Number of Units  | 219                    |                         | 141                 |                         |
| Average Unit Size GSF  | 1,292                  |                         | 1,319               |                         |
| Total Project GSF  | 283,000                |                         | 186,000             |                         |
| <i>Cost Assumptions <sup>1/</sup></i>  |                        |                         |                     |                         |
| Land/Acquisition per Unit Costs  | \$80,000 <sup>1/</sup> |                         | \$80,000            |                         |
| Construction per GSF Costs   | \$200                  |                         | \$210               |                         |
| Soft Costs, including Design, Permitting, Overhead, Profit, and Contingency, as a Percent of Construction Cost | 37%                    |                         | 37%                 |                         |
| <i>Development Costs</i>   | <b>Amount</b>          | <b>Percent to Total</b> | <b>Amount</b>       | <b>Percent to Total</b> |
| Land/Acquisition   | \$17,520,000           | 18.4%                   | \$11,280,000        | 17.4%                   |
| Construction   | \$56,600,000           | 59.5%                   | \$39,060,000        | 60.3%                   |
| Soft Costs, including Design, Permitting, Overhead, Developer's Fee, and Contingency                           | \$20,942,000           | 22.0%                   | \$14,452,000        | 22.3%                   |
| <b>Total Development Costs (TDC)</b>   | <b>\$95,062,000</b>    | <b>100.0%</b>           | <b>\$64,792,000</b> | <b>100.0%</b>           |
| <b>TDC per Unit (rounded to nearest \$1000)</b>  | <b>\$434,000</b>       |                         | <b>\$460,000</b>    |                         |
| <b>TDC per GSF (rounded to nearest \$1)</b>  | <b>\$336</b>           |                         | <b>\$348</b>        |                         |

<sup>1/</sup> Total project costs are informed by data on 14 affordable housing developments financed by Massachusetts Housing Partnership permanent loan closings in FY2016-FY2020 (FYE June 30). Acquisition costs based on half of the average residential land value from the Watertown Assessor per dwelling unit from US Census. Construction costs based on data from Cummings and informed by interviews with real estate developers and brokers. Soft costs are based on ratio of soft costs to construction costs of affordable housing development projects in Cambridge, MA.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

## Development Project Revenue

Project revenue generation and the underlying development economics are different for rental and ownership housing.

### Rental Housing

An important step in calculating the subsidy required to create new affordable housing units is to define the rental housing development project's revenue that will be used to support the development and operations of new affordable housing. This analysis assumes that the new rental housing will be solely supported by rental income from tenant households and ownership housing will be supported by the sales of affordable units. Affordable rents and sales prices are derived based on household income. In prior sections of this report, annual occupational wages were the input for establishing the demand for affordable housing among low, moderate and middle-income households of new workers in new commercial development in Watertown. The weighted average annual household income for each income level<sup>11</sup>, as shown by the data in **Table 16**, is the basis for calculating affordable rents and sales prices that in turn support the development of affordable housing.

**Table 16. Weighted Average Household Income by Income Group and Household Size, Households of Workers in Projected Non-Residential Development**

|   | Households by Number of Persons |               |                 |                |
|---|---------------------------------|---------------|-----------------|----------------|
|   | One<br>Person                   | Two<br>Person | Three<br>Person | Four<br>Person |
| <i><b>Distribution of Weighted Average Income</b></i> |                                 |               |                 |                |
| Low Income  | \$33,308                        | \$42,171      | \$42,469        | \$42,837       |
| Moderate Income                                       | \$52,701                        | \$68,040      | \$85,367        | \$94,522       |
| Middle Income   | \$86,008                        | \$97,566      | \$105,459       | \$108,057      |

Source: U.S. Bureau of Labor Statistics; Karl F. Seidman Consulting Services; and, ConsultEcon, Inc.

The needed subsidy for new affordable rental housing is calculated first, followed by the calculation of the needed subsidy for affordable ownership housing.

<sup>11</sup> This average is based on the weighted average for annual household earnings based on median annual earnings for the occupations projected for low, moderate and middle-income household as discussed in section two on the Impact of New Development on Affordable Housing Demand.



## Affordable Rent Levels

The affordable rents for rental units are based on the estimated annual income of workers in the new commercial developments in Watertown. Construction of the 219 rental units of affordable housing projected in this analysis are supported by rental revenue from tenants with subsidies used to fill the gap between rental revenue and the cost to develop the housing. In general, the federal Department of Housing and Urban Development (HUD) is a source of many affordable housing subsidies. HUD defines housing costs as affordable to a household when the total cost of shelter consumes no more than 30 percent of gross (total) income. For this analysis, households are assumed to pay 30 percent of household income in rent. Data in **Table 17** detail the assumed income levels of households to derive the total gross rental revenue for the 219 units, based on the distribution of households by size and income. Total annual gross rental revenue for the units is estimated at \$4.5 million.

**Table 17. Annual Rental Revenue by Household Income and Size of Household**

| Household Size                               | Annual Income <sup>1/</sup> | Applicable Monthly Rent <sup>2/</sup> | Number of Households         | Total Annual Rent           |
|--|-----------------------------|---------------------------------------|------------------------------|-----------------------------|
| <b>Low Income Households</b>                 |                             |                                       |                              |                             |
| 1 Person                                     | \$33,308                    | \$833                                 | 32                           | \$319,757                   |
| 2 Persons                                    | \$42,171                    | \$1,054                               | 30                           | \$379,539                   |
| 3 Persons                                    | \$42,469                    | \$1,062                               | 11                           | \$140,148                   |
| 4 Persons                                    | \$42,837                    | \$1,071                               | 13                           | \$167,064                   |
| <b>Moderate Income</b>                       |                             |                                       |                              |                             |
| 1 Person                                     | \$52,701                    | \$1,318                               | 24                           | \$379,447                   |
| 2 Persons                                    | \$68,040                    | \$1,701                               | 3                            | \$61,236                    |
| 3 Persons                                    | \$85,367                    | \$2,134                               | 6                            | \$153,661                   |
| 4 Persons                                    | \$94,522                    | \$2,363                               | 20                           | \$567,132                   |
| <b>Middle Income Households</b>              |                             |                                       |                              |                             |
| 1 Person                                     | \$86,008                    | \$2,150                               | 16                           | \$412,838                   |
| 2 Persons                                    | \$97,566                    | \$2,439                               | 32                           | \$936,634                   |
| 3 Persons                                    | \$105,459                   | \$2,636                               | 16                           | \$506,203                   |
| 4 Persons                                    | \$108,057                   | \$2,701                               | 16                           | \$518,674                   |
| <b>Total Households / Housing Units</b>      |                             |                                       | <b>219</b>                   |                             |
| <b>Total Annual Rent</b>                     |                             |                                       |                              | <b>\$4,542,332</b>          |
| <b>Total Annual Rent (Rounded)</b>           |                             |                                       |                              | <b>\$4,542,000</b>          |
| <b>Aggregate Annual Rent by Income Level</b> |                             |                                       |                              |                             |
|  | <b>Number of Units</b>      | <b>Total Annual Rent (Rounded)</b>    | <b>Percent of Total Rent</b> | <b>Average Monthly Rent</b> |
| Low Income                                   | 86                          | \$1,007,000                           | 22.2%                        | \$976                       |
| Moderate Income                              | 53                          | \$1,161,000                           | 25.6%                        | \$1,825                     |
| Middle Income                                | 80                          | \$2,374,000                           | 52.3%                        | \$2,473                     |
| <b>Total</b>                                 | <b>219</b>                  | <b>\$4,542,000</b>                    | <b>100.0%</b>                | <b>\$1,728</b>              |

1/ Weighted average annual earnings based on anticipated mix of occupations and wages in new non-residential development in Watertown.

2/ Assumed at 30% of monthly income.

Note: Rounding may affect totals.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

To calculate the rental revenue available to support the total development costs described above, the gross rents must be adjusted to reflect lost revenue due to periodic vacancies and the operating costs of maintaining and managing housing. As shown by data in **Table 18**, vacancy is assumed at 3 percent of gross rental revenue. Operating costs typically include such items as building management, janitorial services, trash removal, building maintenance, landscaping, marketing and other administrative costs. For this analysis, the full cost of utilities is also included.

MHP's portfolio contains operating expense comps from 32 comparable urban metro Boston projects from 2020-2021 property financial audits or operating statements. The average was \$12,833 per unit in operating cost. For the purposes of this analysis, it is assumed that the newer and more efficient construction would have lower operating costs. Based on comparable projects in Massachusetts Housing Partnership, total operating costs were calculated as \$10,880 per unit or \$2.4 million total. Net rental income after deducting vacancy and operating costs is estimated at \$2.0 million.

### **Rental Affordability Gap and Needed Subsidy**

The next step is to find the gap in project finance between the permanent mortgage and developer equity that the net rental income can support and the total development costs of the 219 rental units. In general, the loan amount that lenders will approve is based on the income stream from the project. In this case, the annual net income from rents is \$2.0 million. However, lenders prefer to build into their mortgage calculations a cushion between projected net income from rents and the annual debt service needed to pay down the loan. The debt coverage ratio (ratio of net income to allowable debt) reduces the effective amount of net income that can be used to support a mortgage. This analysis assumes a debt coverage ratio of 1.1, based on permanent financing programs offered by the Massachusetts Housing Partnership. After adjusting the net income by the debt coverage ratio, the project has \$1.8 million in annual net income with which to pay the debt service on a permanent mortgage.

The total allowable permanent loan is calculated by dividing the net income by the mortgage constant, based on a 6.109 percent mortgage constant, (assuming the available current Massachusetts Housing Partnership financing rate amortized over a 30-year period). The permanent loan that could be supported by the resident households is \$30.1 million. The annual revenue not required for the mortgage is then available to support equity investment. Based on a required return of 10 percent, this revenue would support \$2.0 million in equity investment. Given the total development costs of \$95 million, the subsidy required to create 219 new affordable rental housing units is \$62.9 million, approximately 66 percent of the total development cost (TDC).

**Table 18. Summary of Required Affordable Housing Subsidy Rental Units**

|  |                     |                     | By Household Type   |                     |                     |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
|  |                     |                     | Low Income          | Moderate Income     | Middle Income       |
| <b>Potential Development Costs</b>                                     |                     |                     |                     |                     |                     |
| Number of Units  | 219                 |                     | 86                  | 53                  | 80                  |
| Percent to Total   | 60.7%               |                     | 39.3%               | 24.2%               | 36.5%               |
| TDC per Unit   | \$434,000           |                     | \$434,000           | \$434,000           | \$434,000           |
| TDC per GSF  | \$336               |                     | \$336               | \$336               | \$336               |
| Total Gross Square Footage (GSF)                                       | 283,000             |                     | 111,132             | 68,489              | 103,379             |
| <b>Total Development Costs (TDC)</b>                                   | <b>\$95,062,000</b> |                     | <b>\$37,330,283</b> | <b>\$23,005,872</b> | <b>\$34,725,845</b> |
| <b>Net Rental Income</b>   | <b>Unit Factor</b>  | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       |
| Gross Annual Rent  |                     | \$4,542,000         | \$1,007,000         | \$1,161,000         | \$2,374,000         |
| Less Vacancies   | 3% of Gross Rent    | (\$136,260)         | (\$30,210)          | (\$34,830)          | (\$71,220)          |
| Less Total Operating Costs <sup>1/</sup>                               | \$10,880 per Unit   | (\$2,382,720)       | (\$935,680)         | (\$576,640)         | (\$870,400)         |
| <b>Net Operating Income (NOI)</b>                                      |                     | <b>\$2,023,020</b>  | <b>\$41,110</b>     | <b>\$549,530</b>    | <b>\$1,432,380</b>  |
| <b>Derivation of Permanent Mortgage / Supportable Debt Calculation</b> |                     |                     |                     |                     |                     |
|  | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       |
| Net Operating Income (NOI)   | \$2,023,020         | \$41,110            | \$549,530           | \$1,432,380         |                     |
| Debt Coverage Ratio  | 1.1                 | 1.1                 | 1.1                 | 1.1                 |                     |
| Available for Debt Service   | \$1,839,100         | \$37,400            | \$499,600           | \$1,302,200         |                     |
| Mortgage Constant <sup>2/</sup>  | 6.109%              | 6.109%              | 6.109%              | 6.109%              |                     |
| <b>Permanent Mortgage / Supportable Debt (Rounded)</b>                 | <b>\$30,106,000</b> | <b>\$612,000</b>    | <b>\$8,178,000</b>  | <b>\$21,317,000</b> |                     |
| <b>Supportable Equity Calculation</b>                                  |                     |                     |                     |                     |                     |
|  | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       |
| Required Return on Equity  | 10.0%               | 10.0%               | 10.0%               | 10.0%               |                     |
| Revenue Available for Return to Equity                                 | \$202,302           | \$4,111             | \$54,953            | \$143,238           |                     |
| <b>Supportable Equity Investment</b>                                   | <b>\$2,023,000</b>  | <b>\$41,000</b>     | <b>\$550,000</b>    | <b>\$1,432,000</b>  |                     |
| <b>Subsidy Required Calculation</b>                                    |                     |                     |                     |                     |                     |
|  | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       | <b>Amount</b>       |
| Total Development Costs  | \$95,062,000        | \$37,330,283        | \$23,005,872        | \$34,725,845        |                     |
| Less Permanent Mortgage / Supportable Debt                             | (\$30,106,000)      | (\$612,000)         | (\$8,178,000)       | (\$21,317,000)      |                     |
| Less Supportable Equity  | (\$2,023,000)       | (\$41,000)          | (\$550,000)         | (\$1,432,000)       |                     |
| <b>Subsidy Required (TDC-Mortgage-Equity)</b>                          | <b>\$62,933,000</b> | <b>\$36,677,283</b> | <b>\$14,277,872</b> | <b>\$11,976,845</b> |                     |
| Subsidy Required as a Percent of TDC                                   | 66.2%               | 98.3%               | 62.1%               | 34.5%               |                     |
| Subsidy Required per Unit  | \$287,365           | \$426,480           | \$269,394           | \$149,711           |                     |

1/ Based on 85% of Massachusetts Housing Partnership average operating expenses per unit (\$12,800) for affordable multi-family developments in portfolio in Metro Boston. Costs are typical of CAM expenses--Administrative, Utilities, Maintenance, Insurance, Property Taxes--that would be charged to the renter or the building owner would absorb.

2/ Source: ConsultEcon calculation of mortgage constant based on March 23, 2022 interest rates from the Massachusetts Housing Partnership.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

## Ownership Housing Development Project Revenue

The average sales price of affordable units sold in Watertown is the basis for estimating the sales proceeds available to support the creation of 141 affordable ownership units in Watertown. Of the total, 21 units are for moderate-income households and 120 units are for middle-income households.

As shown by analysis in **Table 19**, the “affordable” sales price is derived based on 30 percent of gross income spent on housing and estimates of housing costs, the same as rental housing. Housing costs for ownership units include mortgage payments based on 5% down payment on the home, real estate taxes and condo fees. (Private Mortgage Insurance is not included in this analysis as it is waived through a housing lending program offered by the Massachusetts Housing Partnership.) It is assumed that low-income units are all rental units, so estimates of sales prices based on low-income earnings were not prepared.

**Table 19. Aggregate Affordable Ownership Unit Sales by Household Income and Size of Unit**

| Household Size                          | Annual Income | Monthly Housing Costs <sup>1/</sup> | Number of Households | Supportable Sales Price | Total Sales                |
|---|---------------|-------------------------------------|----------------------|-------------------------|----------------------------|
| <b>Moderate Income</b>                  |               |                                     |                      |                         |                            |
| One bedroom                             | \$54,062      | \$1,352                             | 10                   | \$178,262               | \$1,782,620                |
| Two bedroom                             | \$63,673      | \$1,592                             | 3                    | \$209,906               | \$629,718                  |
| Three bedroom                           | \$98,790      | \$2,470                             | 8                    | \$325,671               | \$2,605,367                |
| <b>Middle Income Households</b>         |               |                                     |                      |                         |                            |
| One bedroom                             | \$88,753      | \$2,219                             | 35                   | \$309,584               | \$10,835,449               |
| Two bedroom                             | \$101,141     | \$2,529                             | 57                   | \$352,834               | \$20,111,537               |
| Three bedroom                           | \$106,087     | \$2,652                             | 28                   | \$369,994               | \$10,359,842               |
| <b>Total Households / Housing Units</b> |               |                                     | <b>141</b>           |                         |                            |
| <b>Total Sales</b>                      |               |                                     |                      |                         | <b>\$46,324,532</b>        |
| <b>Total Sales (Rounded)</b>            |               |                                     |                      |                         | <b>\$46,325,000</b>        |
| <b>Aggregate Sales by Income Level</b>  |               | <b>Number of Units</b>              | <b>Total Sales</b>   | <b>Percent of Total</b> | <b>Average Sales Price</b> |
| Moderate Income                         |               | 21                                  | \$5,018,000          | 10.8%                   | \$238,952                  |
| Middle Income                           |               | 120                                 | \$41,307,000         | 89.2%                   | \$344,225                  |
| <b>Total</b>                            |               | <b>141</b>                          | <b>\$46,325,000</b>  | <b>100.0%</b>           | <b>\$328,546</b>           |

1/ Assumed at 30% of monthly income.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

## Ownership Housing Needed Subsidy

The affordability gap in project financing of ownership units is the difference between the TDC and the proceeds from the sale of the estimated required 141 ownership units. Based on the mix of units and the assumed sales prices, the total estimated sales proceeds are \$46.3 million. Assuming TDC of \$64.7 million, the estimated financing gap for 141 affordable home ownership units is \$18.5 million, which is approximately 28 percent of the TDC. Data in **Table 20** summarize the subsidy needed for ownership units.

**Table 20. Summary of Subsidy Required for Affordable Ownership Housing**

|  |                     |                      |                       | By Household Type     |                       |
|--|---------------------|----------------------|-----------------------|-----------------------|-----------------------|
|  |                     |                      |                       | Moderate Income       | Middle Income         |
| All Units                                    |                     |                      |                       |                       |                       |
| <b>Potential Development Costs</b>           |                     |                      |                       |                       |                       |
| Number of Units                              | 141                 |                      |                       | 21                    | 120                   |
| Percent to Total                             |                     |                      |                       | 14.9%                 | 85.1%                 |
| TDC per Unit                                 | \$460,000           |                      |                       | \$460,000             | \$460,000             |
| TDC per GSF                                  | \$348               |                      |                       | \$348                 | \$348                 |
| Total Gross Square Footage (GSF)             | 186,000             |                      |                       | 27,702                | 158,298               |
| <b>Total Development Costs (TDC)</b>         | <b>\$64,792,000</b> |                      |                       | <b>\$9,649,872</b>    | <b>\$55,142,128</b>   |
|  |                     |                      |                       |                       |                       |
| <b>Aggregate Unit Sales Proceeds</b>         | <b>Units</b>        | <b>Average Price</b> | <b>Sales Proceeds</b> | <b>Sales Proceeds</b> | <b>Sales Proceeds</b> |
| Moderate Income                              | 21                  | \$238,952            | \$5,018,000           | \$5,018,000           | \$0                   |
| Middle Income                                | 120                 | \$344,225            | \$41,307,000          | \$0                   | \$41,307,000          |
| <b>Total Sales Proceeds</b>                  | <b>141</b>          | <b>\$328,546</b>     | <b>\$46,325,000</b>   | <b>\$5,018,000</b>    | <b>\$41,307,000</b>   |
|  |                     |                      |                       |                       |                       |
| <b>Subsidy Required Calculation</b>          |                     | <b>Amount</b>        |                       | <b>Amount</b>         | <b>Amount</b>         |
| Total Development Costs                      |                     | \$64,792,000         |                       | \$9,649,872           | \$55,142,128          |
| Less Sales Proceeds                          |                     | (\$46,325,000)       |                       | (\$5,018,000)         | (\$41,307,000)        |
| <b>Subsidy Required (TDC-Sales Proceeds)</b> |                     | <b>\$18,467,000</b>  |                       | <b>\$4,631,872</b>    | <b>\$13,835,128</b>   |
| <i>Subsidy Required as a Percent of TDC</i>  |                     | <i>28.5%</i>         |                       | <i>48.0%</i>          | <i>25.1%</i>          |

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

## Subsidy Needed to Satisfy Ten-Year Affordable Housing Demand

The total development costs for rental and ownership units in Watertown that satisfy the demand for new affordable housing from workers in new non-residential developments is \$159.9 million. The total subsidy needed for the 360 rental and ownership units is \$81.4 million, approximately 51 percent of the TDC. The total subsidy is then divided by the total estimated commercial development building area.

Based on an estimated 2.6 million square feet of non-residential space projected over 10 years, the total subsidy required is estimated at \$31.31 per SF of non-residential development, as shown by data in **Table 21**. (Data tables in **Appendix A** detail the amount of the subsidy required for rental and ownership units.). This represents the maximum linkage fee level that is warranted based on the legal test that linkage fees must be proportional to impact they serve to mitigate.

**Table 21. Unadjusted Calculation of Subsidy Required for new Affordable Rental and Ownership Units per Square Foot of Projected Non-Residential Development**

|   | <b>All Units</b> | <b>Low Income</b> | <b>Moderate Income</b> | <b>Middle Income</b> |
|---|------------------|-------------------|------------------------|----------------------|
| Number of Units   | 360              | 86                | 74                     | 200                  |
| <i>Percent to Total</i>   | <i>100%</i>      | <i>24%</i>        | <i>21%</i>             | <i>56%</i>           |
| Total Development Cost  | \$159,854,000    | \$37,330,283      | \$32,655,744           | \$89,867,972         |
| Total Subsidy Required  | \$81,400,000     | \$36,677,283      | \$18,909,744           | \$25,811,972         |
| Percent TDC that is Subsidy   | 50.9%            | 98.3%             | 57.9%                  | 28.7%                |
| <b>Derivation of Commercial Square Footage Subject to Linkage Fee</b> |                  |                   |                        |                      |
| Total Commercial Square Footage                                       | 2,600,000        | 2,600,000         | 2,600,000              | 2,600,000            |
| <b>Subsidy Required per Square Foot of New Commercial Development</b> | <b>\$31.31</b>   | <b>\$14.11</b>    | <b>\$7.27</b>          | <b>\$9.93</b>        |
| <i>Percent to Total</i>   | <i>100%</i>      | <i>45%</i>        | <i>23%</i>             | <i>32%</i>           |

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

### Modified Subsidy Required Based on Other Subsidy Sources

The nexus calculation indicates the full cost of subsidizing the housing demand generated by workers of households in projected large-scale developments in the City of Watertown. Watertown has relatively high affordable housing development costs, given the scarcity of vacant land, and high acquisition and construction costs. The purpose of affordable housing is to limit the rental or mortgage payments of low-income households as they have a limited income stream to cover the costs to finance the development. Therefore, the City and developers are challenged to find multiple sources of subsidy to fill the gap between the rents and sales proceeds that low, moderate and middle-income families can afford and the development financing that would be incurred by affordable housing developers. In addition to the local share funded by a linkage fee or City funds, affordable housing developers will seek to layer other sources to fill the \$81.4 million needed subsidy.

Watertown's future supply of affordable housing subsidies is likely to reflect the diversity of the programs utilized by recent projects in other communities. The primary non-City funding sources available for future new affordable housing development in Watertown will likely be Low-Income Housing Tax Credits, Federal HOME and CDBG Funds, Massachusetts Housing Stabilization

Funds, and Massachusetts Affordable Housing Trust Funds. Since state sources are often awarded competitively, Watertown is not guaranteed funding from all these programs. Moreover, projects do not typically receive funding from all these sources. Nonetheless, it is reasonable to assume that future affordable housing projects will receive multiple sources of subsidy in addition to the linkage fee on new commercial development.

Because there are other sources of subsidy available for development of new affordable housing in Watertown, the linkage fee does not have to provide all of the funds needed to subsidize affordable housing. However, since Watertown has limited recent history with funding affordable housing projects, it is important to look at experience elsewhere to estimate the local share likely to be needed.<sup>12</sup> The local share for the production of affordable rental housing in other communities varies from 6.4 percent in Somerville to 11 percent in Boston to 39 percent in Cambridge. On average, local funds have represented 11 percent of the total project costs for the 14 rental projects in the Massachusetts Housing Partnership (MHP) used to estimate development costs. Most sources of subsidy for affordable funds are available only to projects targeting low-income and moderate-income households. The largest source of funds is the Low-Income Housing Tax Credit, accounting for about half of funds in MHP projects, on average. The local share on ownership projects is higher because there are few programs for ownership housing development. As a result, there are few comparable projects, one in Cambridge and one in Boston. The local share of these projects was 57 percent and 32 percent, respectively.

Therefore, for analytic and illustrative purposes, two scenarios, or estimates of Watertown's local share of the total development cost to produce affordable rental housing projects were used to create linkage fee options beyond the \$31.31 per SF level: a 6.4 percent amount that is based on Somerville's project experience and an 11 percent amount based on the MHP portfolio. These two scenarios for rental housing are added to an estimate of ownership housing component of fee based on funding 100 percent of the subsidy required for building affordable ownership housing.

Because of the limited project funding available for affordable ownership housing from the federal and state governments, Watertown must assume it will provide the full subsidy required for ownership units. It is not guaranteed that Watertown will be able to attract any outside sources of funds for ownership units given the small number of programs and their funding levels. Because of the small number of ownership projects, there are too few examples available to assign a local share estimate below 100%. The likelihood that any given ownership project would be able to get outside funding would ultimately vary from project to project and depend on factors that are difficult to assess in advance.

Data in **Table 22** calculates two illustrative scenarios for setting the linkage fee that vary by the local share for rental housing at 6.4 percent and at 11 percent that result in total linkage fee of \$9.44 and \$11.12.

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<sup>12</sup> According to the Housing Plan, the last time a Watertown project received a DHCD affordable housing award was nine years ago.

**Table 22. Linkage Fee Scenarios for the City of Watertown**

| <b>Total Development Costs (TDC) and Subsidy Required per SF of new Non-Residential Development</b> |                   |                   |  |  |
|---|-------------------|-------------------|--|--|
|   | <b>TDC per SF</b> | <b>Subsidy SF</b> |  |  |
| Ownership   | \$24.92           | \$7.10            |  |  |
| Rental  | \$36.56           | \$24.21           |  |  |
| <b>Total</b>  | <b>\$61.48</b>    | <b>\$31.31</b>    |  |  |

| <b>Linkage Fee Scenarios</b> | <b>Watertown Share of TDC</b> | <b>Watertown Share of Subsidy</b> | <b>Illustrative Fee, per SF</b> | <b>Total per SF <sup>3/</sup></b> |
|------------------------------|-------------------------------|-----------------------------------|---------------------------------|-----------------------------------|
| Ownership                    |                               | 100%                              | \$7.10                          |                                   |
| Rental A                     | 6.4% <sup>1/</sup>            |                                   | \$2.34                          | \$9.44                            |
| Rental B                     | 11% <sup>2/</sup>             |                                   | \$4.02                          | \$11.12                           |

|  |         |              |                      |                       |
|--|---------|--------------|----------------------|-----------------------|
| 10-Year Non-Residential Space Projection                                 |         | 2,600,000 SF |                      |                       |
| <b>Affordable Housing Funds Generated based on Linkage Fee Scenarios</b> |         |              | <b>Over 10 years</b> | <b>Annual Average</b> |
| Total Ownership + Rental A   | \$9.44  | per SF       | \$24,550,968         | \$2,455,097           |
| Total Ownership + Rental B   | \$11.12 | per SF       | \$28,923,820         | \$2,892,382           |
| Midpoint of Scenarios  | \$10.28 | per SF       | \$26,737,394         | \$2,673,739           |

1/ Same as City of Somerville average capital contribution share for 2 affordable housing development projects, 2013 to 2017.

2/ Same as local share of total project costs for 14 affordable housing developments financed by Massachusetts Housing Partnership permanent loan closings in FY2016-FY2020 (FYE June 30).

3/ Includes ownership and rental components of fee.

Source: Karl F. Seidman Consulting Services and ConsultEcon, Inc.

### Summary of Development Costs, Needed Subsidy and Local Share of Project Funding

The analysis of the development costs and needed subsidy for rental and homeownership units was conducted based on 141 ownership units and 219 rental units. Development costs were estimated based on costs for recent comparable affordable housing projects built in Watertown. For rental projects, the needed subsidy was calculated as the difference between total development costs and the amount of debt and equity that could be supported by the housing cash flow using affordable rents at 30 percent of household income and comparable operating costs. For ownership projects, the needed subsidy was calculated as the difference between total development costs and the affordable purchase price based on home mortgage payments and property taxes at 30 percent of household income and a 5 percent down payment.



Based on these assumptions and detailed analysis, the total development cost required to build 360 units of affordable housing is \$159.9 million. The total needed subsidy is estimated to be \$81.4 million. The maximum linkage fee needed to provide the full subsidy is \$31.31 per square foot, based on an estimated 2.6 million square feet of nonresidential space projected over 10 years.

Watertown's funding of affordable housing development leverages public subsidies from federal and state sources in addition to those provided by the city. Two estimates of Watertown's local share of the total development cost of producing affordable rental housing projects are based on Somerville's project experience (6.4%) and the MHP portfolio (11%). These two scenarios for rental housing are added to an estimate of ownership housing component of fee based on funding 100 percent of the subsidy required for building affordable ownership housing. Because of the limited project funding available for affordable ownership housing from the federal and state governments, Watertown will need to provide the full subsidy required for ownership units. The two illustrative scenarios indicate a linkage fee of \$9.44 and \$11.12.

## IV. Review of Linkage Fee Policy Options

Cities across the country have implemented policies to generate funding to address the impact of commercial development on affordable housing demand for over three decades. Many California communities have enacted such programs, and they are also found in Washington, Colorado, Florida, and New Jersey. Locally, Boston, Cambridge and Somerville have implemented linkage fees. This section reviews the linkage fees in nearby communities, considers key policy options for Watertown to address in establishing a housing linkage fee and assesses the impact of the maximum warranted linkage fee and two options discussed in the prior section on Watertown's financial competitiveness for attracting businesses and commercial development investments.

### Linkage Fee Policies in Nearby Communities

Current linkage fee rates and policies for Boston, Cambridge and Somerville are summarized in **Table 23**. Housing linkage fees range from \$10.57 in Somerville to a high of \$21.03 in Cambridge. All three cities established their fees over thirty years ago and have adjusted them over time through a combination of Consumer Price Index (CPI) adjustments and periodic changes based on new nexus studies. With the exception of Boston, the initial fee levels, adjusted for inflation (based on the Boston region CPI), are lower than current rates (See **Table 24**). Cambridge's initial rate in 2022 dollars would be \$8.20 and Somerville's would be \$4.47.

**Table 23 . Linkage Fee Policies in Boston, Cambridge and Somerville**

| City       | Year Established | Exaction/Linkage Fee Rate (per SF) | Project Size Threshold (SF)      | Exemption (SF)     | Payment Schedule   | Rate Adjustments  |
|------------|------------------|------------------------------------|----------------------------------|--------------------|--|---|
| Boston     | 1983             | Housing: \$13.03                   | 100,000                          | 100,000            | Housing: seven payments, at building permit date and 6 anniversary dates*  | Automatic annual adjustment based on a "combined index" of the CPI for Urban Consumers and CPI Housing Component. At other times as recommended by the BRA based on a consideration of economic trends, housing trends and other factors. |
|            | 1986             | Jobs: \$2.36                       |                                  |                    | Jobs: two payments at building permit date and one-year anniversary  |   |
| Cambridge  | 1988             | Housing: \$21.02                   | 30,000                           | 0                  | One payment at COO   | Annual Adjustment (in October or November) based on Boston CPI Housing Index Recalculation after three years or longer.   |
| Somerville | 1990             | Housing: \$10.57                   | 30,000 for housing and jobs fees | 30,000 for housing | Housing fee made in three payments at COO and next two anniversary dates. Jobs fee made in two payments at building permit and COO | Reevaluation every five years. Annual adjustment March 1 based on Boston CPI  |
|            | 2017             | Jobs: \$2.46 PSF                   | 15,000 for jobs                  | 15,000 for jobs    |  |   |

Source: Karl F. Seidman Consulting Services

**Table 24. Initial Housing Linkage Rates and Their Inflation-Adjusted Equivalent  
Boston, Cambridge and Somerville**

| City       | Initial Fee per SF | Inflation-Adjusted<br>Fee, March 2022 |
|------------|--------------------|---------------------------------------|
| Boston     | \$5.00             | \$15.30                               |
| Cambridge  | \$3.28             | \$8.20                                |
| Somerville | \$2.00             | \$4.47                                |

Source: Karl F. Seidman Consulting Services

### Administrative and Policy Issues

Beyond setting the linkage fee rate, Watertown needs to address several administration and policy issues if it establishes a new affordable housing linkage fee. The primary issues, reviewed in this section, are:

- The project size threshold for which linkage fees would apply.
- Exempting part of the development space from the fee.
- Whether to set a single uniform fee or vary the fee rate by use and/or development district.
- Payment time and schedule.

Size Threshold and Exemption. Communities vary in the size threshold that triggers the application of housing contributions or linkage fees. In Boston, their equivalent Development Impact Project (DIP) fee applies to developments over 100,000 SF, while in Cambridge and Somerville, it applies to developments over 30,000 SF. Some communities have no minimum size threshold for the application of commercial linkage fees and collect them from projects independent of size. This is particularly true in California where a majority of communities with such fees do not have a size threshold<sup>13</sup>. For redevelopment projects, these thresholds typically apply to the total size of the new redevelopment project not to the net increase in gross floor area.

In Watertown, most recent commercial development projects have been fairly large and exceeded 100,000 SF. However, several projects are smaller ranging from 60,000 SF to 97,000 SF, including one building under construction, two approved projects and two planned projects. In the past two years, there have been three commercial projects below 30,000, which together totaled 51,860. These development patterns suggest establishing a threshold between 30,000 and 60,000 SF. A 30,000 SF threshold would make Watertown's policy consistent with those of Cambridge and Somerville.

Although Boston and Somerville exempt part of the total floor area from paying the linkage fee, there is not a strong policy case for having an exemption. The exempted space still has an impact on the demand for affordable housing. Moreover, by exempting a portion of building space from paying the linkage fee, the fee needs to be higher to provide the revenue needed to fill the funding gap.

<sup>13</sup> *Jobs Housing Nexus Study*, Prepared for the City of San Diego, Prepared by Keyser Marston Associates, Inc., October 2010.

Variation of Housing and Employment Impacts by Use. Two primary factors shape how different uses impact the demand for affordable housing in Watertown: (1) the density of employees in the occupied space; and (2) the share of employees with earnings at the low, moderate and middle-income levels. The following **Table 25** summarizes how these factors vary across the four projected uses for future development in Watertown. Restaurants will have the greatest impact on affordable housing demand as they have both the highest employee density and largest share of jobs that pay annual wages below a middle-income level. Lab uses will have the lowest impact, as they have the lowest employee density and most employees with annual earning above the middle-income level. Office and Retail Uses have impacts that fall in between.

**Table 25. Factors Affecting the Impact on Housing Demand by Use**

| Use                       | Employees per 1,000 SF | Percent of Jobs with Annual Wages at Low, Moderate and Middle-Incomes |
|---------------------------|------------------------|---|
| Lab                       | 2.22                   | 28.9%   |
| Office+                   | 3.33                   | 56.6%   |
| Restaurant                | 8.33                   | 97.6%   |
| Retail/Personal Services+ | 2.46                   | 92.4%   |

Source: Karl F. Seidman Consulting Services  
+ Weighted average for industries within use category

Based on impact alone, there is a case for varying the housing linkage fee by use. However, a single fee level has advantages in terms of administrative simplicity and potential un-intended consequences. From an administrative perspective, the use may be difficult to determine for some projects and uses may change over time for a building. Many life science firms combine office and lab uses, which can be interspersed in the same floor, making it difficult to calculate floor area for each use. There would be an incentive for developers to classify mixed space as research and development space or to under-estimate office space if differential contribution rates were applied. Additional administrative complexities might result from the need to allocate common areas and shared uses (e.g., reception areas, conference rooms, etc.) among different uses. Another issue is that building uses often change over time, e.g., ground floor space may first be rented to a retail store and later converted to a restaurant. Similarly, a building might first have an office tenant and later be converted to lab use, or vice versa. Watertown could address this issue by basing the housing linkage fee on the initial use but this could create inequitable results between buildings with stable uses and those for which uses change more often. This problem seems greatest for buildings with a larger share of ground floor commercial space which may change more frequently between retail, restaurant and office uses. A higher fee for restaurants also might create a disincentive for developers to lease space for this use, which could create unintended consequences for mixed use projects if the fee varies by use.

Variation of Contribution Rates by Geography. Due to its location and large existing cluster of life science firms, the demand for space is higher in East Watertown than in the western Pleasant Street corridor, resulting in higher rents. With lower rents but similar construction and soft costs, projects outside East Watertown may face greater challenges to feasibility and are more sensitive to changes in development costs. Since the capacity to support additional costs is related to the rental income that a project can generate, there is a case for varying housing and employment

contributions for lower and higher rent development districts. Seattle uses this approach, varying its affordable housing impact fees by development zone. On the other hand, property acquisition costs are impacted by expected rents and, therefore, likely are lower for Pleasant Street than for properties in East Watertown. These lower acquisition costs help offset potential feasibility challenges from lower rents.

**Payment Timing Schedule.** Watertown will need to decide when to first collect a linkage fee and whether to allow developers to pay the fee over time with multiple payments, as is done in Boston and Somerville. The most common options for commencing fee payments are when the building permit or certificate of occupancy is issued.<sup>14</sup> Collection at the building permit date will allow Watertown to collect the fee sooner and have the capacity to deploy the funds sooner. However, this earlier date requires developers to finance and pay the funds earlier, before they are receiving any tenant revenue. Allowing for fee payment over time has the same trade-off—a single payment allows Watertown to receive and deploy funds sooner but has a greater financial impact on developers. Another issue with allowing multiple payments is added administrative complexity since additional record-keeping, invoicing and collection efforts are needed to track and collect payments over multiple years.

### **Impact on Watertown Competitiveness for Attracting Development and Companies**

An important consideration in establishing the housing contribution rate is its potential impact on attracting new development and tenants. A housing linkage fee will increase development costs. Developers can offset this addition by either paying less for their development site, reducing other development costs or collecting higher rents from tenants. When developers are unable to offset the added costs, e.g., if they acquired their site before the linkage fee was established or market conditions prevent them from increasing rents, the higher costs will reduce the return on investment for the developer and its investment partners. Since the impact of a new linkage fee on the economics of development is not certain and can vary under different circumstances, this section analyzes three ways in which a linkage fee may affect Watertown's competitive position for economic development:

1. The cost of the linkage fee is passed on to tenants as higher rents. If the rent increase is large, then it may affect Watertown's competitiveness in attracting businesses to new development projects.
2. The linkage fee cost is fully paid by developers without any rent increase or offsetting reduction in acquisition or other development costs. With higher development costs and the same rental income, developers will experience a reduction in their financial return for the project. Many developers have a return threshold that a project must meet to be deemed financially feasible and to be undertaken. If the added cost of the linkage fee significantly reduces the financial return, developers may forego undertaking a project in Watertown and pursue opportunities in other communities. A developer's return on cost<sup>15</sup>, a common financial return measure that developers use to assess project feasibility, is used for this analysis to assess the potential impact of linkage fee options.

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<sup>14</sup> To be clear, this is the point of collection. The fee is typically imposed with the final decision permitting the new development.

<sup>15</sup> Return on cost is the ratio of a project's net income to its total development costs.

3. The linkage fee cost is fully paid by the project's equity investors without the cost passed on as a rent increase, offset by lower acquisition and/or other development costs, or increase in project debt financing. Developers need to raise equity financing to cover the portion of project costs that cannot be financed with debt. If the full cost of the linkage fee must be financed by equity, it will reduce the equity investors' return on investment since they will be providing more capital but the project's income will not increase. If the cost of the linkage significantly reduces their investment return, then equity investors may choose not to invest in Watertown projects. The inability to raise sufficient equity investment might prevent some developers from being able to undertake projects and reduce future investment in Watertown.

Potential Impact on Rents. **Table 26** shows the dollar and percentage impact on Watertown laboratory rents for the \$31.31 maximum linkage fee and the alternatives based the different local funding shares. The maximum fee, when fully passed on to tenants, would increase annual rent by \$3.13 per SF—a 3.9% increase for East Watertown and 3.3% increase for West Watertown. The two lower fee options would generate a lower increase of \$.94 to \$1.11 per SF—a rise between 1% and 1.4% across both fee amounts and districts. These rent increases are modest in light of the large growth in lab rents during recent years and current rates of inflation.

**Table 26 . Impact of Linkage Fee Options on Watertown Rents**

| Linkage Fee Level                        | Potential Impact on Annual Per Square Foot Rent* | Percent of West Watertown Rent | Percent of East Watertown Rent |
|--|--|--------------------------------|--------------------------------|
| \$9.44 per square foot                   | \$0.94   | 1.2%                           | 1.0%                           |
| \$11.12 per square foot                  | \$1.11   | 1.4%                           | 1.2%                           |
| \$31.31 per square foot                  | \$3.13   | 3.9%                           | 3.3%                           |
| *Fee cost amortized over a 10 year lease |  |                                |                                |

Source: Karl F. Seidman Consulting Services

To assess the impact of these potential rent increases on competition for tenants, **Table 27** compares lab rents for Watertown, the East and West Cambridge submarkets, Boston's Seaport District and several competing suburban locations. East and West Watertown have much lower rents than the Seaport District and East Cambridge (Kendall Square) and this advantage will remain under any of the linkage fee options. East Watertown rents are slightly lower (\$2.22), on average, than West Cambridge—the maximum linkage fee would reverse this advantage and make East Watertown comparable or more costly than the Alewife district. Based on rent and location, West Watertown is competing with Waltham, Lexington and the 128-Mass Pike market area. The \$31.31 maximum fee would eliminate East Watertown's rent advantage over West Cambridge and increase its rent premium over the 128-Mass Pike market area by two-thirds. The two lower fee options would leave West Watertown's average rents just below that of Waltham and increase its rent premium versus the 128-Mass Pike district by 18% to 20%.

**Table 27. Lab Rents in Watertown, Cambridge, Boston and Selected Suburbs**

| Location       | Lab Asking Rent | Differential from East Watertown | Differential with West Watertown |
|----------------|-----------------|----------------------------------|----------------------------------|
| West Watertown | \$80.00         |                                  |                                  |
| East Watertown | \$95.00         |                                  |                                  |
| West Cambridge | \$97.22         | \$2.22                           | \$17.22                          |
| 128-MassPike   | \$84.70         | -\$10.30                         | \$4.70                           |
| Waltham        | \$78.37         | -\$16.63                         | -\$1.63                          |
| Lexington      | \$73.01         | -\$21.99                         | -\$6.99                          |
| Boston-Seaport | \$104.49        | \$9.49                           | \$24.49                          |
| East Cambridge | \$125.67        | \$30.67                          | \$45.67                          |

Source: Broker Interviews and CBRE Boston Metro Lab Report 4Q21

Under current market conditions, with lab demand greater than supply and the availability of space a key factor in firm location decisions, these potential impact on rents are unlikely to have a significant impact on Watertown's competitiveness in attracting firms. As lab supply increases with the development of the large lab pipeline over the next three to five years and firms have far more location choices, price factors may become more important in firm location decisions. Under such conditions, the maximum fee level could have a negative impact on the market competitiveness of West Watertown.

Impact of Developer Returns. **Table 28** shows the impact of the additional linkage fee costs on developers' financial return, under three fee amounts, for a 200,000 SF lab project with ground floor retail space under high cost (\$1000/SF) and low cost (\$875/SF) development scenarios. Under the \$9.44 option, development costs increase by \$1.888 million and reduces the project's return on cost from 8.28% to 8.20%--a decline of 8 basis points<sup>16</sup>. The \$11.12 fee option raised development costs by \$2.224 million and drops the return on cost by 9 basis points to 8.19%. For these two options, the impact on returns is modest and is unlikely to deter a developer from proceeding with a project.

<sup>16</sup> A basis point is 1/100<sup>th</sup> of a percentage point.

**Table 28. Estimated Impact of Linkage Fee Options  
on Development Costs and Developer Returns**

| <b>Development at \$1000 per square foot</b> | <b>No Fee</b> | <b>\$9.44 Fee</b> | <b>\$11.12 Fee</b> | <b>\$31.31 Fee</b> |
|--|---------------|-------------------|--------------------|--------------------|
| Total Development Costs without Fee          | \$200,000,000 | \$201,888,000     | \$202,224,000      | \$206,262,000      |
| Estimated Gross Rental income                | \$17,432,500  | \$17,432,500      | \$17,432,500       | \$17,432,500       |
| Vacancy                                      | \$871,625     | \$871,625         | \$871,625          | \$871,625          |
| Net Rental Income                            | \$16,560,875  | \$16,560,875      | \$16,560,875       | \$16,560,875       |
| Return on Cost                               | 8.28%         | 8.20%             | 8.19%              | 8.03%              |
| <b>Differential</b>                          |               | <b>-0.08%</b>     | <b>-0.09%</b>      | <b>-0.25%</b>      |
| <b>Development at \$875 per square foot</b>  |               |                   |                    |                    |
| Total Development Costs without Fee          | \$175,000,000 | \$176,888,000     | \$177,224,000      | \$181,262,000      |
| Estimated Gross Rental income                | \$14,677,500  | \$14,677,500      | \$14,677,500       | \$14,677,500       |
| Vacancy                                      | \$733,875     | \$733,875         | \$733,875          | \$733,875          |
| Net Rental Income                            | \$13,943,625  | \$13,943,625      | \$13,943,625       | \$13,943,625       |
| Return on Cost                               | 7.97%         | 7.88%             | 7.87%              | 7.69%              |
| <b>Differential</b>                          |               | <b>-0.09%</b>     | <b>-0.10%</b>      | <b>-0.28%</b>      |

Source: Karl F. Seidman Consulting Services

Impact on Investor Returns. **Table 29** summarizes the potential impact of linkage fee options on the financial returns for equity investors under the low (\$875/SF) development cost scenario for a 200,000 SF lab project with ground floor retail space. This scenario assumes that equity investors finance 30% of total development costs without the linkage fee and then finance 100% of the additional development costs due to the linkage fees. The lower development cost scenario was chosen since the fee impact on investor returns is greater for this scenario than for the high cost one.

**Table 29. Estimated Impact of Linkage Fee Options on Equity Investor Returns**

| <b>\$875 PSF Cost Project</b> | <b>No Fee</b> | <b>\$9.44 Fee</b> | <b>\$11.12 Fee</b> | <b>\$31.31 Fee</b> |
|-------------------------------|---------------|-------------------|--------------------|--------------------|
| Equity Investment             | \$52,500,000  | \$54,388,000      | \$54,724,000       | \$58,762,000       |
| Original Equity Return @10%   | \$5,250,000   | \$5,250,000       | \$5,250,000        | \$5,250,000        |
| Adjusted Return with Fee      |               | 9.65%             | 9.59%              | 8.93%              |
| <b>Differential</b>           |               | <b>-0.35%</b>     | <b>-0.41%</b>      | <b>-1.07%</b>      |
| Original Equity Return @ 12%  | \$6,300,000   | \$6,300,000       | \$6,300,000        | \$6,300,000        |
| Adjusted Return with Fee      |               | 11.58%            | 11.51%             | 10.72%             |
| <b>Differential</b>           |               | <b>-0.42%</b>     | <b>-0.49%</b>      | <b>-1.28%</b>      |

Source: Karl F. Seidman Consulting Services

The annual percentage return on equity is reduced due to the added investment capital needed to fund linkage fee costs. At the full warranted fee rate of \$31.31/SF, investment returns decrease to 8.93% for investors with a return threshold of 10% (a 107 basis point reduction) and to 10.72% for investors seeking a 12% return (a drop of 128 basis points). The impact is considerably less at the lower cost fee options—reductions of 35 and 41 basis points under a 10% return threshold and declines of 42 and 49 basis points under a 12% return target, for the \$9.44 and \$11.12 fee options, respectively. Whether these impacts are large enough to deter equity investment in Watertown projects will depend on how strictly investors stick to their return threshold and the availability of alternative investments that meet their threshold within the same investment



property type and region. Under the lower linkage fee options, investors would still be within 50 basis points of their investment target, which is less likely to make the investment undesirable than the 100 plus basis point reduction that occurs with the \$31.31 fee level.

When weighed across all three potential impacts, adopting a linkage fee at \$9.44 or \$11.12 level is unlikely to make Watertown an uncompetitive location either for new laboratory development or attracting future tenants to new development projects. Furthermore, since these two fee options are below current linkage fees in Boston, Cambridge and Somerville, they would not create a new added development cost differential with these three important competing communities. Higher development costs from the warranted fee of \$31.31 poses a greater risk of making development returns in Watertown less attractive than in competing communities, in part by setting Watertown apart with the highest linkage fees in the Boston area.

## **V. Recommended Housing Linkage Fee Policies**

The analysis detailed in this report establishes the nexus and warranted fee level for a housing linkage fee. Projected building of 2,600,000 square feet in commercial development over the next ten years is expected to generate over 6,213 jobs in Watertown . This employment growth will create demand for 360 new units of housing for low-income, moderate-income and middle-income households. An estimated financing gap of \$81.4 million must be filled to reach the \$159.9 million in total development costs necessary to build the new affordable housing units. The maximum warranted housing linkage fee to fill this financing gap is \$31.31 per square foot.

Setting the final linkage fee rates is a matter of balancing public policy goals, including the need to address increased demand for affordable housing, the level of local funding required to meet this need and the potential impact of a new linkage fee on the city's future development. Watertown also needs to consider how a future linkage fee compares to those in Boston, Cambridge and Somerville to avoid hurting its competitive position with these nearby communities in terms of development costs and rent levels. If the fee is set too high, and the result is a decline in development, then there are no fees to be collected to help create affordable housing. The two alternatives for a \$9.44 and \$11.12 are reasonable options to balance these goals.

In setting policies beyond the fee level, we recommend that Watertown adopt policies that simplify the linkage fee's application and administration. This approach will make the fee easier to understand and plan for within the development community and minimize costs and burdens on the city's Community Development and Planning Departments. Specific policy recommendations for a new linkage fee include:

- Applying the fee to all non-residential (i.e., commercial and industrial) and non-governmental uses allowed under the city's Zoning Ordinance.
- Establishing a 30,000 SF non-residential use project size threshold for collecting the fee.
- Applying the fee to the full amount of applicable uses without an exemption.
- Establishing a single linkage fee rate throughout Watertown without variation by use or district.
- Requiring full payment of the linkage fee obligation at the time of certificate of occupancy.

## Appendix A: Tables Detailing Housing Subsidy Analysis

**Table A-1. Illustrative Distribution of Affordable Rental Housing Units  
by Number of Bedrooms and Building Area**

|  | <b>Number<br/>of Units</b> | <b>Average<br/>Unit Size</b> | <b>Total<br/>Living Area</b> |
|--|----------------------------|------------------------------|------------------------------|
| One Bedroom  | 85                         | 700                          | 59,500                       |
| Two Bedroom  | 78                         | 950                          | 74,480                       |
| Three Bedroom  | 56                         | 1,150                        | 63,940                       |
| <b>Total Units</b>                                   | <b>219</b>                 | <b>904</b>                   | <b>197,920</b>               |
| Net Square Feet as a Percent of<br>Gross Square Feet |                            |                              | 70.0%                        |
| <b>Total Gross Square Feet (GSF) (Rounded)</b>       |                            |                              | <b>283,000</b>               |
| <b><i>Average Unit Size per GSF</i></b>              |                            |                              | <b><i>1,292</i></b>          |

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

**Table A-2. Affordable Ownership Housing Units  
by Number of Bedrooms and Building Area**

|   | <b>Number of<br/>Units</b> | <b>Average Unit<br/>Size</b> | <b>Total Living<br/>Area</b> |
|---|----------------------------|------------------------------|------------------------------|
| One Bedroom                                       | 45                         | 700                          | 31,500                       |
| Two Bedroom                                       | 60                         | 950                          | 57,000                       |
| Three Bedroom                                     | 36                         | 1,150                        | 41,400                       |
| <b>Total Units</b>                                | <b>141</b>                 | <b>921</b>                   | <b>129,900</b>               |
| Net Square Feet as a Percent of Gross Square Feet |                            |                              | 70.0%                        |
| <b>Total Gross Square Feet (GSF) (Rounded)</b>    |                            |                              | <b>186,000</b>               |
| <b><i>Average Unit Size per GSF</i></b>           |                            |                              | <b><i>1,319</i></b>          |

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

**Table A-3. Conversion of Ownership Unit Household Income by Persons to Household Income by Bedrooms**

|  | Annual<br>Income <sup>1/</sup> | Number of<br>Households | Aggregate<br>Income |
|--|--------------------------------|-------------------------|---------------------|
| Household Size   |                                |                         |                     |
| Calculation of Aggregate Income                                      |                                |                         |                     |
| Moderate Income Households   |                                |                         |                     |
| 1 Person   | \$52,701                       | 10                      | \$527,010           |
| 2 Persons  | \$68,040                       | 1                       | \$68,040            |
| 3 Persons  | \$85,367                       | 2                       | \$170,734           |
| 4 Persons  | \$94,522                       | 8                       | \$756,176           |
| Total  | \$72,474                       | 21                      | \$1,521,960         |
| Middle Income Households   |                                |                         |                     |
| 1 Person   | \$86,008                       | 25                      | \$2,150,200         |
| 2 Persons  | \$97,566                       | 49                      | \$4,780,734         |
| 3 Persons  | \$105,459                      | 23                      | \$2,425,557         |
| 4 Persons  | \$108,057                      | 23                      | \$2,485,311         |
| Total  | \$98,682                       | 120                     | \$11,841,802        |
| Units by Number of Bedrooms  |                                |                         | All Units           |
| One<br>bedroom   | Two<br>bedroom                 | Three bedroom           |                     |
| Distribution of Units by Number of Bedrooms                          |                                |                         | 100%                |
| 1 Person   | 100%                           | 0%                      |                     |
| 2 Persons  | 20%                            | 80%                     |                     |
| 3 Persons  | 0%                             | 80%                     |                     |
| 4 Persons  | 0%                             | 0%                      | 100%                |
| Distribution of Moderate Income Aggregate Income by Unit Size        |                                |                         | \$527,010           |
| 1 Person   | \$527,010                      | \$0                     |                     |
| 2 Persons  | \$13,608                       | \$54,432                |                     |
| 3 Persons  | \$0                            | \$136,587               |                     |
| 4 Persons  | \$0                            | \$0                     | \$756,176           |
| Total  | \$540,618                      | \$191,019               | \$790,323           |
| Total Units by Size  | 10                             | 3                       | 8                   |
| Avg. Income per Unit by Size   | \$54,062                       | \$63,673                | \$98,790            |
| Distribution of Middle Income Aggregate Income by Number of Bedrooms |                                |                         | \$2,150,200         |
| 1 Person   | \$2,150,200                    | \$0                     |                     |
| 2 Persons  | \$956,147                      | \$3,824,587             |                     |
| 3 Persons  | \$0                            | \$1,940,446             |                     |
| 4 Persons  | \$0                            | \$0                     | \$2,485,311         |
| Total  | \$3,106,347                    | \$5,765,033             | \$2,970,422         |
| Total Units by Size  | 35                             | 57                      | 28                  |
| Avg. Income per Unit by Size   | \$88,753                       | \$101,141               | \$106,087           |

1/ Source: Karl F. Seidman Consulting Services. Weighted average annual household income based on anticipated mix of occupations and average occupational wages for based on projected commercial development in Watertown.

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

| <b>Assumptions</b>                             |   |                    |                      |  |
|--|---|--------------------|----------------------|--|
| <b>Mortgage</b>                                | 5% Assumed Down payment   |                    |                      |  |
|  | 95% Percent of Price covered by Mortgage  |                    |                      |  |
|  | 4.50% Mortgage interest rate <sup>1/</sup>  |                    |                      |  |
|  | 0.72% Private Mortgage Insurance (PMI) <sup>2/</sup>                                |                    |                      |  |
| <b>Real Estate Taxes</b>                       | \$13.25 per 1,000 of assessed values/sales price                                    |                    |                      |  |
| <b>Condo Fees, as a Percent of Sales Price</b> | 1.50% Middle Income unit  |                    |                      |  |
|  | 2.00% Moderate Income unit  |                    |                      |  |
| <b>Unit Size / Number of Bedrooms</b>          |   |                    |                      |  |
|  | <b>One Bedroom</b>  | <b>Two Bedroom</b> | <b>Three Bedroom</b> |  |
| <b>Low Income Households</b>                   | Not applicable because Low Income housing units are assumed to be all rental units. |                    |                      |  |
| <b>Moderate Income Households</b>              |   |                    |                      |  |
| Sales Price                                    | \$178,262   | \$209,906          | \$325,671            |  |
| Down payment                                   | \$8,913   | \$10,495           | \$16,284             |  |
| <b>Monthly Payment Calculation</b>             |   |                    |                      |  |
| First Mortgage Payment                         | \$858   | \$1,010            | \$1,568              |  |
| Real Estate Taxes                              | \$197   | \$232              | \$360                |  |
| Condo Fees                                     | \$297   | \$350              | \$543                |  |
| <b>Total Monthly Payment</b>                   | <b>\$1,352</b>  | <b>\$1,592</b>     | <b>\$2,470</b>       |  |
| Monthly Payment Target                         | \$1,352   | \$1,592            | \$2,470              |  |
| <b>Middle Income Household</b>                 |   |                    |                      |  |
| Sales Price                                    | \$309,584   | \$352,834          | \$369,994            |  |
| Down payment                                   | \$15,479  | \$17,642           | \$18,500             |  |
| <b>Monthly Payment Calculation</b>             |   |                    |                      |  |
| First Mortgage Payment                         | \$1,490   | \$1,698            | \$1,781              |  |
| Real Estate Taxes                              | \$342   | \$390              | \$409                |  |
| Condo Fees                                     | \$387   | \$441              | \$462                |  |
| <b>Total Monthly Payment</b>                   | <b>\$2,219</b>  | <b>\$2,529</b>     | <b>\$2,652</b>       |  |
| Monthly Payment Target                         | \$2,219   | \$2,529            | \$2,652              |  |

2/ Moderate and middle income households qualify for the One Mortgage Program ([http://www.mhp.net/homeownership/homebuyer/one\\_mortgage.php](http://www.mhp.net/homeownership/homebuyer/one_mortgage.php)) that waives Private Mortgage Insurance (PMI) for first time homeowners through participating lenders.

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**Table A-5. Calculation of Subsidy Required for new Affordable Rental Units  
per Square Foot of Projected Non-Residential Development**

|  | <b>All Units</b> | <b>Low Income</b> | <b>Moderate Income</b> | <b>Middle Income</b> |
|--|------------------|-------------------|------------------------|----------------------|
| Number of Units  | 219              | 86                | 53                     | 80                   |
| Total Development Cost   | \$95,062,000     | \$37,330,283      | \$23,005,872           | \$34,725,845         |
| Total Subsidy Required   | \$62,933,000     | \$36,677,283      | \$14,277,872           | \$11,976,845         |
| Percent TDC that is Subsidy  | 66.2%            | 98.3%             | 62.1%                  | 34.5%                |
| <b>Derivation of Commercial Square Footage Subject to Housing Contribution</b> |                  |                   |                        |                      |
| Total Commercial Square Footage  | 2,600,000        | 2,600,000         | 2,600,000              | 2,600,000            |
| <b>Subsidy Required per Square Foot of New Commercial Development</b>          | <b>\$24.21</b>   | <b>\$14.11</b>    | <b>\$5.49</b>          | <b>\$4.61</b>        |

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.

**Table A-6. Calculation of Subsidy Required for new Affordable Ownership Units  
per Square Foot of Projected Non-Residential Development**

|  | <b>All Units</b> | <b>Moderate Income</b> | <b>Middle Income</b> |
|--|------------------|------------------------|----------------------|
| Number of Units  | 141              | 21                     | 120                  |
| Total Development Cost   | \$64,792,000     | \$9,649,872            | \$55,142,128         |
| Total Subsidy Required   | \$18,467,000     | \$4,631,872            | \$13,835,128         |
| Percent TDC that is Subsidy  | 28.5%            | 48.0%                  | 25.1%                |
| <b>Derivation of Commercial Square Footage Subject to Housing Contribution</b> |                  |                        |                      |
| Total Commercial Square Footage  | 2,600,000        | 2,600,000              | 2,600,000            |
| <b>Subsidy Required per Square Foot of New Commercial Development</b>          | <b>\$7.10</b>    | <b>\$1.78</b>          | <b>\$5.32</b>        |

Source: City of Watertown; Karl F. Seidman Consulting Services; and ConsultEcon, Inc.