

**Rental Housing Market Study and
Preliminary Feasibility Analysis**

CARLISLE AFFORDABLE HOUSING TRUST

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I. EXECUTIVE SUMMARY

The Town of Carlisle and Carlisle Affordable Housing Trust (CAHT) retained RKG Associates, Inc. (RKG) to prepare a market analysis of potential demand for a hypothetical mixed-income, non-age restricted apartment project that would come on-line between 2016 and 2020. The apartments would be constructed on town-owned land near the village center (the Banta Davis site). RKG conducted a detailed analysis of housing production, household characteristics, and real estate market conditions in Carlisle and the six surrounding towns. RKG also evaluated the financial viability and financial feasibility of three hypothetical projects of different sizes, assuming development on town-owned property on one hand and acquisition of private property on the other hand. **Financial viability** refers to whether a project generates sufficient cash flow from on-going operations to cover typical mortgage debt and return on investment. **Financial feasibility** deals with whether the cost to construct the project is more or less than its “market” value based on the net operating income.

RKG’s key findings and conclusions are as follows

- Over the next five years, Carlisle’s greatest rental housing demand will be for low-income apartments for the elderly. A portion of that demand will be met by the new Benfield Farms development.
- The demand for market-rate rental housing remains limited in Carlisle because the town does not have the amenities, goods and services, and public transportation access that renter households typically seek.
- Regionally – meaning Carlisle and the six surrounding towns – total rental demand is estimated at 950 units per year, including 170 new construction units and the balance from turnover of existing units.
- Of the total seven-town regional demand, 56 percent (535 units) will come from elderly households (65+ years), while 42 percent (398 units) will be households with incomes that can support market rental rents (\$1,500 per month and up). Assuming that future demand for new rental units runs at the same rate as recent years, total annual demand for new market-rate apartments in the seven-town region will be approximately seventy-five units per year.
- Over time, most of the towns around Carlisle have made significant gains in the supply of housing for low- or moderate-income people. Several neighboring towns have either reached or they are approaching the 10 percent statutory minimum under Chapter 40B, the state’s affordable housing law. As more towns achieve the 10 percent minimum, Carlisle may be in a better position to capture more of the region’s rental housing demand.
- In 2014, the region’s supply of Chapter 40B housing, 4,528 units, represents 7.8 percent of the total Census 2010 year-round housing supply in the seven-town area. Carlisle is currently at 2.6 percent, and its forty-six affordable units represent 1 percent of all affordable units in the region.
- Developers of mixed-income rental housing generally need approval for at least 100 units (preferably 150) in order for a project to make economic sense. Rental developments of this size on sites without public water or sewer require approximately ten to twelve acres

of upland for buildings, parking, and wastewater treatment and disposal, plus additional land on-site or nearby for the MassDEP-required public water supply well Zone 1 (approximately six acres).

- The Benfield Farms development required significant infrastructure costs that would make a typical mixed-income development infeasible without public subsidy. Benfield Farm was made possible by significant commitments from public equity sources, most notably Low-Income Housing Tax Credits (LIHTC). If a rental development on the Banta Davis property could tie into the Carlisle School's existing Wastewater Treatment Facility (WWTF), which has nearly 9,000 gallons per day (gpd) of unused capacity, the infrastructure costs would drop significantly and increase the feasibility of mixed-income housing in that location. Similarly, the ability to share a public water supply with other public uses would help to reduce infrastructure costs as well.
- RKG's analysis of three hypothetical development projects ranging from twenty to forty-four units indicates that a development loss would occur under each scenario regardless of location, ranging from \$0.68 million to \$1.14 million. Development at Banta-Davis property (without consideration of relocating the ball field) has the lowest overall loss. If an alternative location is used, the losses increase by another \$1 million to \$2 million. While all of the hypothetical scenarios appear financially viable given typical lending criteria, their actual development potential is financially infeasible without public subsidy.
- In order to be feasible, a 44-unit mixed-income development on the Banta Davis site would require public subsidy of about \$1.4 million (including ball field relocation costs), or \$31,500 per unit (rounded). By contrast, a 44-unit mixed-income development on another site would require public subsidy of \$3.2 million, or \$72,000 per unit (rounded).
- Providing public funds to facilitate a mixed-income rental development involves policy considerations that go beyond the scope of this report.

A. Background

Carlisle is an affluent, low-density bedroom community located about twenty-five miles northwest of Boston and five miles south of Lowell. The market region used for this analysis includes Carlisle and the six surrounding towns through which local residents can access the regional highway network. By choice, Carlisle has very limited commercial development. Almost all the services to support residential life in Carlisle are located in (or beyond) the surrounding towns at a distance of approximately four to five miles from the village center. In addition, Carlisle does not have any land zoned for multi-family housing. In light of these conditions, it comes as no surprise that Carlisle has a very limited supply of rental housing.

As of Census 2010, renter-occupied units accounted for only 7.3 percent of all 1,738 occupied units in Carlisle. By contrast, the region has 11,500 renter-occupied units and they represent 23 percent of the region's occupied housing inventory. Moreover, Carlisle's entire housing inventory represents just 3 percent of the region's total number of housing units. From 2000 to 2010, Carlisle captured 2.5 percent of the regional change in owner-occupied units and less than 1 percent of the change in renter-occupied units, less than in the previous decade.

Until construction of the 26-unit Benfield Farms project, which is nearing completion, no new, legal rental units had been developed in Carlisle for approximately thirty years. No market-rate multi-family rental development has ever been produced in Carlisle. The near-absence of

rental housing in Carlisle is partly a result of the town's very-low-density development pattern and lack of many of the amenities and conveniences sought by renter households, including access to convenient public transportation. Carlisle also lacks municipal water and sewer utilities, which developers of market-rate rental housing typically prefer in order to limit their infrastructure capital costs and achieve economically feasible density.

Like other communities in Massachusetts, Carlisle is subject to G.L. c. 40B, ss. 20-23 ("Chapter 40B"), which authorizes a Zoning Board of Appeals (ZBA) to waive zoning requirements in order to build low- and moderate-income housing if the local supply, as defined in the statute, is less than 10 percent of all year-round units. According to the Massachusetts Department of Housing and Community Development (DHCD), 2.6 percent of Carlisle's year-round housing is affordable and eligible for listing in the Chapter 40B Subsidized Housing Inventory, resulting in what is currently a 128-unit shortfall.

Chapter 40B projects account for an increasing share of the housing produced in the seven-town region covered by this study. The region's supply of housing developed under Chapter 40B experienced a 350 percent increase over the last decade, rising from 1,370 units in 2000 to 4,884 units in 2010. In addition, about 63 percent of the net housing gain in the seven-town region (3,474 units) was a direct result of Chapter 40B comprehensive permits. This regional Chapter 40B supply may expand by another 11 percent (390 units) in the upcoming years. The other six towns in the region have either achieved or nearly achieved their 10 percent statutory minimum. Chapter 40B units accounted for approximately 8.3 percent of the region's year-round housing in 2010. At the same time, less than 2 percent was so classified in Carlisle. (As of the date of this report, however, the regional Chapter 40B inventory is 7.8 percent, and for Carlisle, 2.6 percent.)

Table I-1 tabulates the regional multi-family expansion that occurred over the last decade by the town and a pipeline of proposed projects or those under construction. As shown, nearly 2,620 units in multi-family developments were completed, including nearly 2,150 Chapter 40B units. Some of these major projects include The Village at Taylor Pond and the Heritage at Bedford Springs in Bedford; The Villas at Old Concord Rd and Princeton at Boston Road in Billerica; Avalon Acton in Acton and Westford; Kensington at Chelmsford; and the Concord Mews, Warner Woods, and Fairhaven Gardens in Concord.

Table I-1 – Multi-Family Development in the Region

Rental Housing Pipeline	Comp [1]	UC/Pln [2]
Acton Multi-Family	135	
Chapter 40B	531	7
Bedford Multi-Family	55	38
Chapter 40B	361	
Billerica Multi-Family		
Chapter 40B	480	41
Carlisle Multi-Family		
Chapter 40B		26
Chelmsford Multi-Family		
Chapter 40B	260	164
Concord Multi-Family	234	
Chapter 40B	499	
Westford Multi-Family	48	
Chapter 40B	15	200
Total Multi-Family	472	38
Chapter 40B	2,146	412
Total	2,618	450
[1] Completed; [2] Under Construction; Planning		
Source: MAPC, DHCD & Municipalities		

Another 450 units in multi-family buildings were under construction or proposed in the region, including Benfield Farms in Carlisle. Other projects in the pipeline include Princeton Apartments in Westford, Princeton at Rivermeadow and Chelmsford Wood Residences in Chelmsford, and Rose Hill Manor in Billerica.

B. Projected Five-Year Demand

RKG's rental demand analysis, based on five-year regional demographic projections, indicates the greatest demand in Carlisle will be for low-income rental housing for the elderly, and the Benfield Farm project will capture a portion of this demand. The total forecast of rental demand in the region is estimated at 950 units per year, with 170 of these representing demand for new construction units and the balance from turnover of existing units. Of the total seven-town regional demand, 56 percent (535 units) will come from elderly households (65+ years), while 42 percent (398 units) will have incomes that can support market rental rates (\$1,500 and up). Assuming future demand for new units runs at the same rate as recent years, total annual demand for new market rate rental units in the seven-town region will be approximately 75 per year.

Carlisle has effectively zoned out market-rate multi-family rental development and produced only low-income rental units for the elderly. As a result, existing data cannot be used to predict the amount of regional market-rate multi-family housing that Carlisle could capture. If Carlisle captured 3 percent of the region's annual estimated demand for new market-rate rental housing (three times its current capture rate), this would mean total approximately two households (2.25) per year, plus another one household (0.7) for the "affordable" portion, for a total of perhaps 15 units over the next five years. (See Table I-2). For a rental project to be considered feasible from a market perspective, Carlisle would need to capture a much higher percentage of regional demand for new, market-rate rental units. As long as Chapter 40B developments elsewhere in the region continue on construction-ready land (sites with water or sewer) that are also closer to goods and services, development of such a project in Carlisle would be speculative from the perspective of institutional sources of capital. The most likely pool of developers for mixed-income rental housing with a substantial market-rate component in

Carlisle, at least for the next five years, would be developers already experienced in the region and whose equity structures, track records with lenders, marketing expertise, and experience in permitting projects with private water and private sewage treatment would give them the confidence and capital to build in a small town without any established comparables.

Table I-2 – Annual Rental Demand in Carlisle (High)

Carlisle's Annual Rental Demand (High - 3% of Region)					
	< Age 54	Age 55 to 64	> Age 64	Total	%
Less than \$40,000 [1,2]	1.8	0.8	7.7	10.3	36%
\$40,000 to \$59,999 [2,3]	1.2	0.5	4.4	6.2	22%
\$60,000 to \$74,999 [3]	1.2	0.3	2.8	4.3	15%
\$75,000 or more	5.9	0.7	1.1	7.6	27%
Total	10.1	2.3	16.1	28.5	28.5%
% of Total	35.6%	8.1%	56.3%		
Demand for New Construction [4]					
Market	1.5	0.2	0.3	1.9	49%
Affordable [5]	0.5	0.2	1.4	2.0	51%
Annual Demand for New Construction					
	2.0	0.3	1.6	3.9	100%
% of Total	50%	8%	42%		
[1] 30% of AMI; [2] Very-Low Income (50%); [3] Low Income (80%); [4] 25% of annual demand; [5] Includes all Hholds earning \$60,000 to \$74,999; and 60% of Hholds earning \$40,000 - \$59,999					
Source: Demographics NOW; US Census & RKG Associates, Inc.					

Looking beyond the five-year study period, as more of the surrounding towns achieve their 10 percent statutory minimum, rental projects will cease to be constructed (or slow down considerably) around Carlisle. Being centrally located and only a short distance from large, existing rental developments that are fully leased, Carlisle may be in a better position to capture more of the region's rental housing demand. Again, the first market-rate rental development in Carlisle will be most likely to come from a developer with experience in the region, or in a similar region, and a developer that is developing for its own account rather than institutional equity.

Until market-rate comparables exist in Carlisle or diminishing Chapter 40B opportunities in other towns nearby raise Carlisle's profile with multi-family rental developers, RKG believes that a multi-family rental project would likely require public incentives to attract rental developers. For example, the Town could reach out to local employers in order to better quantify the potential demand for workforce housing within the local employment base and use this information to assure a potential developer and financing entity that an apartment development could be leased up in a reasonable time frame. Carlisle has an employment base of 700 local workers, including approximately 33 percent (approximately 230 workers) that live outside of Carlisle and the six surrounding towns. If a proposed project captured 10 percent of this base, it would equate to about 20 units and represent a good starting point to establish sustainable demand for workforce housing in a town that presently has little to none.

C. Considerations for Future Planning

RKG encouraged the CAHT to reach out to regional, market-rate rental developers to hear their perspective. The Trust contacted two organizations with recent such experience in Acton, Littleton or Concord. According to those developers, the lack of comparable data for market rate rental units in those other towns had chilled institutional investment there as well. The organizations were able to move forward using internal funding. The two organizations also had experience with sites lacking public water and sewer, and viewed these as resolvable challenges. Both organizations found Carlisle to be an attractive location for mixed-income, multi-family rental development but only at a minimum size of 100 units, and preferably somewhat larger (120 to 150 units), for marketing, property management, and land cost- and infrastructure cost-spreading reasons. Rental developments at such scale require approximately 10-12 acres of upland for buildings, parking, and wastewater treatment and disposal, plus additional land on-site, or nearby, for the MassDEP-required public water supply well Zone 1 (approximately 6 acres), and a mix of two- and three-story buildings, according to these developers.

For projects smaller than the 100-unit threshold for Chapter 40B-qualifying mixed-income rental development, the developers suggested that the CAHT consider Low-Income Housing Tax Credit (LIHTC) developers, such as the Benfield Farms developer, NOAH, and other non-profits. Both organizations had found that empty-nesters and/or elderly already in the region were significant sources of market-rate tenants. Average market rate rents at the existing projects ranged from approximately \$1600/month for small, one-bedroom units to approximately \$1900/month for two-bedroom units. Three-bedroom units achieved rental rates of \$2700 per month. The number of children resulting from the existing, fully-leased developments in towns with excellent schools (Acton and Concord) averaged approximately one child per three units and, in the case of the Concord project, which includes several 3-bedroom units, less than one child per four units. All of the developments required relief from judicial challenges by town government, which the town boards of selectmen provided in return for receiving rental developments in which every apartment counts towards the municipality's 40B 10 percent obligation (i.e. 100 percent 40B efficiency).

RKG prepared a financial analysis of a hypothetical 24-unit, mixed-income rental project based on a series of assumptions about unit size and mix, rental income and operating expenses, and capitalization rates. The hypothetical project would have a value of approximately \$150,000 per unit, against which a preliminary feasibility analysis was prepared, with another series of assumptions regarding a range in land acquisition; design, legal and permitting; site-development; building type; and construction costs. At this time, neither the exact location nor extent of needed infrastructure is clear since plans were not available.

RKG reviewed the construction budget for Benfield Farms to assist with identifying infrastructure costs, but total development costs for that project (\$9.8 million) equate to \$377,380 per unit, which is two and half times the feasible value of a hypothetical, 26-unit project. Benfield Farms is feasible only because it is so deeply subsidized with Low-Income Housing Tax Credits (LIHTC) and other public equity sources. As a result, the Benfield Farm experience cannot be compared with a predominantly market-rate rental development that would have little if any public subsidy, i.e., where attainable rents must be enough to cover the project's annual operating expenses and debt service. At Benfield Farms, the exceptionally high cost per unit is largely driven by the project's considerable infrastructure requirements

compared with the small number of units. A rental development on part of the Banta Davis property could tie into an existing Wastewater Treatment Facility (WWTF), which has a MassDEP permit for 13,500 gallons per day (gpd) and unused capacity of nearly 9,000 gpd, even under peak flow conditions. Such a WWTF tie-in would be significantly less expensive than the new, large septic system and very long (~1/4 mile long) sewage line required for the Benfield Farms development.

II. SOCIO-ECONOMIC CONDITIONS

This chapter provides RKG's analysis of population, household, and employment trends for Carlisle and the region. For purposes of this analysis, the region includes Carlisle and six adjacent towns: Acton, Bedford, Billerica, Chelmsford, Concord, and Westford, as shown in Figure II-1.

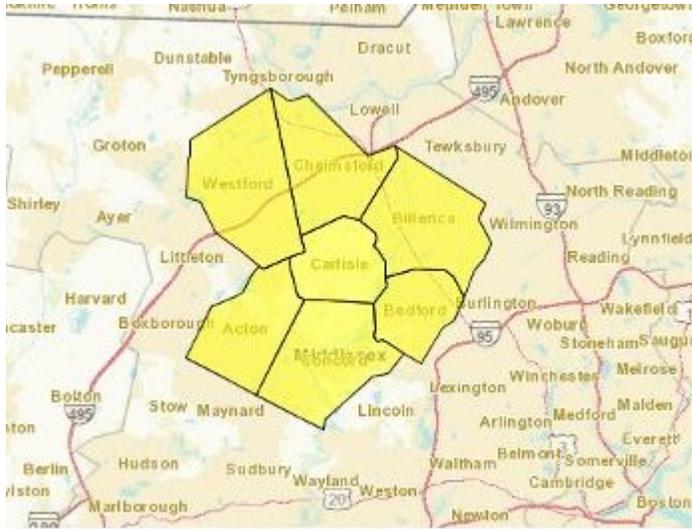


Figure II-1 – Carlisle & its Region in Middlesex County

A. Demographic Trends

Table II-1 presents select demographics for Carlisle and the region from the decennial census and current estimates and five-year forecasts obtained from Demographics NOW, a private socioeconomic modeling firm. Carlisle's estimated 2013 population of almost 5,000 people reflects a 3 percent increase since 2010. A similar gain was experienced during the 2000s, which paled by comparison with the nearly 9 percent increase experienced during the 1990s. The region had over 157,190 residents in 2013, and Carlisle accounted for about 3.2 percent of the regional total. The region experienced a 2 percent growth in population since 2010, but during the 2000s it increased by nearly 4 percent, and almost 7 percent in the 1990s. The population in Middlesex County was estimated at nearly 1.54 million in 2013, and reflected a 2 percent growth since 2010, and a 2.6 percent growth during the 2000s.

Consistent with the state as a whole, growth in minority populations was greater than overall population growth in all areas during all periods. In 2013, approximately 13 percent of the population in Carlisle was in a minority population group, compared with 16 percent in the region or 28 percent in Middlesex County.

In 2013, Carlisle had nearly 1,750 households, reflecting a 3 percent gain since 2010. Carlisle's average household size (2.87) exceeded that of the region (2.67), due largely to the size and composition of its housing stock. Its households accounted for 3 percent of all those in the region. Carlisle experienced a 5 percent increase in households over the last decade, which was half the 10.8 percent gain experienced in the 1990s. In absolute numbers, Carlisle

gained 158 households during the 1990s, or an average annual gain of 16 households per year. In comparison, Carlisle had a gain of 80 households over the last decade, half that during the 1990s, and an average of 8 households per year. The region had an 8 percent increase in households over the last decade and a 12 percent gain during the 1990s.

Table II-1 – Carlisle & Comparative Areas: Select Demographic Statistics (1990 – 2018)

Selected Characteristics	Town of Carlisle	% over Prior	Region [1]	% over Prior	Middlesex County	% over Prior	Carlisle as % of Region	Region as % of County
Total Population								
1990	4,333		138,661		1,398,468		3.1%	9.9%
2000	4,710	8.7%	148,214	6.9%	1,465,376	4.8%	3.2%	10.1%
2010	4,852	3.0%	153,760	3.7%	1,503,085	2.6%	3.2%	10.2%
2013	4,998	3.0%	157,192	2.2%	1,536,052	2.2%	3.2%	10.2%
2018	5,061	1.3%	161,370	2.7%	1,561,520	1.7%	3.1%	10.3%
Non-White Population								
1990	203		5,806		111,056		3.5%	5.2%
2000	307	51.2%	10,911	87.9%	206,914	86.3%	2.8%	5.3%
2010	522	70.0%	20,277	85.8%	300,674	45.3%	2.6%	6.7%
2013	555	6.3%	21,750	7.3%	320,838	6.7%	2.6%	6.8%
2018	579	4.3%	23,331	7.3%	338,012	5.4%	2.5%	6.9%
Hispanic Ethnicity								
1990	36		1,958		47,383		1.8%	4.1%
2000	56	55.6%	2,366	20.8%	66,706	40.8%	2.4%	3.5%
2010	100	78.6%	3,725	57.4%	98,350	47.4%	2.7%	3.8%
2013	118	18.0%	4,168	11.9%	108,789	10.6%	2.8%	3.8%
2018	132	11.9%	4,659	11.8%	118,960	9.3%	2.8%	3.9%
Total Households								
1990	1,457		46,697		519,527		3.1%	9.0%
2000	1,615	10.8%	52,219	11.8%	561,197	8.0%	3.1%	9.3%
2010	1,695	5.0%	56,341	7.9%	580,688	3.5%	3.0%	9.7%
2013	1,747	3.1%	57,629	2.3%	594,230	2.3%	3.0%	9.7%
2018	1,769	1.3%	59,776	3.7%	607,915	2.3%	3.0%	9.8%
Average H'hold Size								
1990	2.97		2.88		2.59		103%	111%
2000	2.92	-1.7%	2.76	-4.1%	2.52	-2.7%	106%	110%
2010	2.87	-1.7%	2.67	-3.3%	2.50	-0.8%	107%	107%
2013	2.87	0.0%	2.67	0.0%	2.49	-0.4%	107%	107%
2018	2.86	-0.3%	2.65	-0.7%	2.48	-0.4%	108%	107%

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source : US Census; DemographicsNOW and RKG Associates, Inc.

Referring still to Table II-1, Carlisle's population is forecasted to increase to over 5,060 people in 2018, for a 1.3 percent gain. Similar to prior decades, a greater increase in minority population is also forecasted. The population in the region and Middlesex County is also forecasted to grow over the next five years. Carlisle is also forecasted to experience a net gain of 22 households over the next five years or a gain of 1.3 percent. The region is forecasted to experience a 3.7 percent increase in households over the next five-years for a net increase of 2,150 households. Carlisle is forecasted to capture 1 percent of the increase in regional household growth over the next five years, or between four and five new households per year.

1. Population by Age

In 2013, the median age of the population in Carlisle was 47.7 years – about four years older than the median for the region – and almost nine years older than the median for Middlesex County. Table II-2 shows that both the age 55-to-64 and age 65 & over cohorts increased by over 50 percent during the last decade, while declines were evident in the school-age population (age 19 and younger), and family-formation cohort (age 35-to-44). Similar changes

in these same cohorts were experienced in the region and Middlesex County over the last decade.

Five-year forecasts indicate a continued aging of the population in Carlisle, as the median age will exceed 49 years. The elderly population in Carlisle would account for 18 percent of the total in 2018 while the near-retirees cohort would represent another 21 percent. A decline in school-age population is forecasted while a gain in the age 20-to-34 cohort is also forecasted.

Table II-2 – Carlisle & Its Comparative Regions- Distribution of Population by Age

Age Distribution	Town of Carlisle	% over Prior	Region [1]	% over Prior	Middlesex County	% over Prior	Carlisle as % of Region	Region as % of County
19 and Under								
2000	1,520		42,287		366,323		3.6%	11.5%
2010	1,415	-6.9%	41,217	-2.5%	361,983	-1.2%	3.4%	11.4%
2013	1,439	1.7%	41,181	-0.1%	364,887	0.8%	3.5%	11.3%
2018	1,353	-6.0%	40,294	-2.2%	362,930	-0.5%	3.4%	11.1%
20 to 34								
2000	298		22,407		330,115		1.3%	6.8%
2010	324	8.7%	19,762	-11.8%	320,070	-3.0%	1.6%	6.2%
2013	407	25.6%	20,861	5.6%	327,914	2.5%	2.0%	6.4%
2018	481	18.2%	22,710	8.9%	332,898	1.5%	2.1%	6.8%
35 to 44								
2000	884		28,905		253,647		3.1%	11.4%
2010	517	-41.5%	21,965	-24.0%	213,018	-16.0%	2.4%	10.3%
2013	420	-18.8%	20,628	-6.1%	211,831	-0.6%	2.0%	9.7%
2018	358	-14.8%	19,443	-5.7%	207,301	-2.1%	1.8%	9.4%
45 to 54								
2000	1,033		23,341		202,331		4.4%	11.5%
2010	1,073	3.9%	28,968	24.1%	233,001	15.2%	3.7%	12.4%
2013	1,034	-3.6%	29,919	3.3%	238,076	2.2%	3.5%	12.6%
2018	910	-12.0%	28,391	-5.1%	225,920	-5.1%	3.2%	12.6%
55 to 64								
2000	587		14,863		125,656		3.9%	11.8%
2010	898	53.0%	20,240	36.2%	177,998	41.7%	4.4%	11.4%
2013	991	10.4%	21,988	8.6%	189,137	6.3%	4.5%	11.6%
2018	1,066	7.6%	24,179	10.0%	201,812	6.7%	4.4%	12.0%
65 and Over								
2000	395		16,397		187,299		2.4%	8.8%
2010	625	58.2%	21,608	31.8%	197,015	5.2%	2.9%	11.0%
2013	707	13.1%	22,615	4.7%	204,207	3.7%	3.1%	11.1%
2018	893	26.3%	26,353	16.5%	230,659	13.0%	3.4%	11.4%
Median Age								
2000	41.8		38.3		36.4		109.1%	105.2%
2010	46.8	11.9%	42.7	11.5%	38.4	5.6%	109.6%	111.1%
2013	47.7	1.9%	43.5	1.9%	38.8	0.9%	109.6%	112.2%
2018	49.3	3.4%	44.3	1.8%	39.1	0.8%	111.3%	113.3%

Source : RKG Associates, Inc. and DemographicsNow

2. Households by Income

Table II-3 reports the income distribution of households in Carlisle and its comparison areas, and also approximates the three low-income levels below the 80 percent of area median income (AMI) for the greater Boston region (100 percent AMI 2013 = \$94,400). In 2013, Carlisle had a median household income of \$157,856, which was almost 51 percent greater than the region (\$104,506) and 28 percent greater than Middlesex County.

Table II-3 – Carlisle & Its Comparative Areas: Households by Income (2000 – 2018)

Household Income	Town of Carlisle	% over Prior	% over Region [1]	% over Prior	Middlesex County	% over Prior	Carlisle as % of Region	Region as % of County
\$25,000 or less [2]								
2000	170		5,848		105,407		2.9%	5.5%
2010	120	-29.4%	5,007	-14.4%	92,749	-12.0%	2.4%	5.4%
2013	113	-5.8%	4,879	-2.6%	91,956	-0.9%	2.3%	5.3%
2018	87	-23.0%	4,121	-15.5%	80,799	-12.1%	2.1%	5.1%
\$25,000 to \$34,999 [2,3]								
2000	67		3,120		49,056		2.1%	6.4%
2010	19	-71.6%	2,720	-12.8%	37,507	-23.5%	0.7%	7.3%
2013	25	31.6%	2,639	-3.0%	36,980	-1.4%	0.9%	7.1%
2018	22	-12.0%	2,291	-13.2%	33,681	-8.9%	1.0%	6.8%
\$35,000 to \$49,999 [3,4]								
2000	75		5,671		74,183		1.3%	7.6%
2010	57	-24.0%	4,433	-21.8%	57,572	-22.4%	1.3%	7.7%
2013	53	-7.0%	4,363	-1.6%	57,048	-0.9%	1.2%	7.6%
2018	40	-24.5%	3,864	-11.4%	51,888	-9.0%	1.0%	7.4%
\$50,000 to \$74,999 [3,4]								
2000	158		9,824		111,358		1.6%	8.8%
2010	133	-15.8%	8,138	-17.2%	91,034	-18.3%	1.6%	8.9%
2013	121	-9.0%	7,706	-5.3%	87,790	-3.6%	1.6%	8.8%
2018	89	-26.4%	6,403	-16.9%	74,998	-14.6%	1.4%	8.5%
\$75,000 to \$99,999								
2000	148		8,761		81,462		1.7%	10.8%
2010	156	5.4%	7,649	-12.7%	81,722	0.3%	2.0%	9.4%
2013	156	0.0%	7,675	0.3%	82,969	1.5%	2.0%	9.3%
2018	122	-21.8%	6,616	-13.8%	73,440	-11.5%	1.8%	9.0%
\$100,000 and over								
2000	1,010		19,078		140,040		5.3%	13.6%
2010	1,210	19.8%	28,394	48.8%	220,104	57.2%	4.3%	12.9%
2013	1,279	5.7%	30,367	6.9%	237,487	7.9%	4.2%	12.8%
2018	1,409	10.2%	36,481	20.1%	293,109	23.4%	3.9%	12.4%
Median HH Income								
2000	\$130,479		\$79,480		\$60,946		164%	130%
2010	\$150,476	15.3%	\$100,667	26.7%	\$78,335	28.5%	149%	129%
2013	\$157,856	4.9%	\$104,546	3.9%	\$81,855	4.5%	151%	128%
2018	\$177,501	12.4%	\$117,050	12.0%	\$96,503	17.9%	152%	121%

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford; [2] 30% of Area Median Income (AMI - \$94,400-FY2013); [3] Very Low Income (50% of AMI); [4] Low Income (80% of AMI); depending on H/hold size
Source : US Census; DemographicsNOW, HUDUSER.org and RKG Associates, Inc.

Over the last decade, Carlisle experienced a 20 percent increase in households earning \$100,000 or more, and a 5 percent increase in households earning \$75,000 to \$99,999, while declines were experienced in all other cohorts. Similar shifts in households by income levels were also evident in the region and Middlesex County over the last decade, but at different rates.

In 2013, 18 percent of Carlisle's households earned less than \$75,000, including some that would qualify as low- or moderate-income depending on household size. Approximately 6 percent had incomes of less than \$25,000, or roughly equivalent to 30 percent of area median income (AMI); another 4 percent earned incomes of \$25,000 to \$49,999, including those that would be categorized as low income (50 percent or below of AMI); and another 7 percent earned \$50,000 to \$75,000, including those that would be moderate-income households (80 percent of AMI). This distribution of low-income households in Carlisle in 2013 was much lower than in the region or in Middlesex County, where 34 percent to 46 percent of households earned less than \$75,000, respectively.

Referring to Table II-3, the median household income in Carlisle is forecasted to increase to \$177,500 (12 percent) over the next five years, when it would be 52 percent higher than that of the region. All the growth in households over the next five-years would be earning \$100,000

or more, as the lower income groups would diminish. In 2018, approximately 13 percent of Carlisle households would be earning less than \$75,000, as compared to 28 percent of the region. In effect, Carlisle would be losing 74 households earning less than \$75,000 by 2018, which would account for nearly 3 percent of the loss in 2,910 households in the region earning less than \$75,000.

B. Labor Force and Employment Trends

This section discusses trends in the resident labor force in the comparative areas, as well as trends in local employment, businesses and wages.

1. Commuting Patterns

Table II-4 reports 2010 commuting patterns of the resident workers in Carlisle and those that had jobs at local businesses, based on estimates from the American Community Survey (ACS). As shown, approximately 25 percent of Carlisle’s labor force worked in Carlisle while the remaining 75 percent commuted out of town for work. This included almost 22 percent that worked in one of the surrounding towns in the region, and almost 40 percent that commuted to the rest of Middlesex County for work. About 9 percent of the resident workforce in Carlisle commuted to Boston/Suffolk County in 2010.

Table II-4 – Carlisle: Commuting Patterns From & To Town (2010)

WORKERS IN RESIDENCES & GEO OF WHERE WORK				JOBS IN PLACE & GEO WHERE WORKERS RESIDE					
Workers in Residence	#	Workplace of Carlisle Workers in Residence	#	% of Wrk in Res	Local Jobs in	#	Jobs in Carlisle Held by Workers from	#	% of Jobs
Carlisle	1,969	Carlisle	496	25.2%	Carlisle	1,056	Carlisle	496	47.0%
		Rest of Region	425	21.6%			Rest of Region	198	18.8%
		Acton	17	0.9%			Acton	36	3.4%
		Bedford	38	1.9%			Bedford	0	0.0%
		Billerica	57	2.9%			Billerica	14	1.3%
		Chelmsford	72	3.7%			Chelmsford	66	6.3%
		Concord	180	9.1%			Concord	31	2.9%
		Westford	61	3.1%			Westford	51	4.8%
		Rest of Middlesex Co.	778	39.5%			Rest of Middlesex Co.	153	14.5%
		Boston/Suffolk Co.	181	9.2%			Boston/Suffolk Co.	0	0.0%
		Rest of Massachusetts	81	4.1%			Rest of Massachusetts	145	13.7%
		Out of State	8	0.4%			Out of State	64	6.1%

Source: American Community Survey (2006-2010) & RKG Associates, Inc.

Approximately 47 percent of the local jobs in Carlisle were held by a Carlisle resident, and another 20 percent were held by someone who commuted to Carlisle from another town in the region. Another 6 percent commuted in from the rest of Middlesex County, and the rest from elsewhere in Massachusetts or from out-of-state. In short, almost two-thirds of the local jobs in Carlisle were held by a person who lived in Carlisle or an adjacent town. Both these local workers, but especially the 33 percent of Carlisle workers who commute to town from outside of the 7-town region, would provide a good sample of people with whom to initiate discussions about workforce housing needs in Carlisle.

2. Trends in the Labor Force and Unemployment Rates

Carlisle had 2,545 persons in the labor force in 2012, which represents an increase of 1 percent since 2010, as shown in Table II-5. This increase was similarly experienced in the region and Middlesex County. Over the last decade, the labor force increased by 1 percent in Carlisle,

while the labor force in the region expanded by 2.6 percent. During the 1990s, the labor force in Carlisle increased by 1 percent, while the gain in the region was 0.2 percent. Carlisle's labor force in 2012 was consistent with prior decades, representing about 3 percent of the region-wide labor force.

Table II-5 – Carlisle & Comparative Areas: Labor Force & Unemployment Rates

Criteria by Select Years	Town of Carlisle	% over Prior	Region [1]	% over Prior	Middlesex County	% over Prior	Carlisle as % of Region	Region as % of County
Labor Force								
1990	2,469		81,244		801,555		3.0%	10.1%
2000	2,496	1.1%	81,442	0.2%	821,797	2.5%	3.1%	9.9%
2010	2,523	1.1%	83,540	2.6%	832,643	1.3%	3.0%	10.0%
2012	2,545	0.9%	84,197	0.8%	839,137	0.8%	3.0%	10.0%
Unemployment Rate								
1990	2.3%		4.7%		5.2%		49.6%	90.3%
2000	1.7%	-0.6%	2.1%	-2.6%	2.2%	-2.9%	80.1%	94.9%
2010	6.0%	4.3%	6.8%	4.7%	6.8%	4.6%	89.0%	99.9%
2012	4.4%	-1.6%	5.4%	-1.4%	5.3%	-1.5%	82.9%	100.7%

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source : MA EOL&WD; and RKG Associates, Inc.

Table II-5 also reveals trends in unemployment in Carlisle and the comparison areas. As shown, the unemployment rate in Carlisle was at its lowest in 2000, at 1.7 percent, which was lower than that of the region (2.1 percent) and Middlesex County (2.2 percent). In 2010, Carlisle's unemployment rate increased to 6 percent but remained lower than the regional and Middlesex County rates. In 2012, the unemployment rate in all areas decreased from 2010, and Carlisle was lower (4.4 percent) than the comparison areas.

3. Economic Trends

In 2012, employment in Carlisle totaled 700 jobs, which was 9 percent higher than in 1990 (640 jobs), but 24 percent less than in 2000 (920 jobs) and almost 5 percent less than in 2010 (730 jobs), as shown in Table II-6. Despite the fluctuation in employment, the number of businesses operating in Carlisle increased in each period, and in 2012, there were over 140 businesses operating in Carlisle. The employment base in Carlisle represented less than 1 percent of regional employment.

In 2012, employment in the region totaled 98,240 jobs and was nearly 4 percent higher than in 2010, but almost 2 percent lower than in 2000. Similarly, employment in Middlesex County totaled 826,500 jobs in 2012, and was 3 percent higher than in 2010, but remained 3 percent below the peak in 2000. In both geographies, economic recovery from the recessionary period prior to 2010 has occurred; however, total employment in each area remained below the prior peak in 2000, as shown in Table II-6. In 2012, the region accounted for almost 12 percent of Middlesex County's total employment base and its share increased somewhat since 2000.

Table II-6 – Carlisle & Comparative Areas: Select Economic Data (2010-2012)

Criteria by Select Years	Town of Carlisle	% over Prior	Region [1]	% over Prior	Middlesex County	% over Prior	Carlisle as % of Region	Region as % of County
Employment								
1990	639		86,927		N/A		0.7%	N/A
2000	920	44.0%	99,804	14.8%	850,289	N/A	0.9%	11.7%
2010	730	-20.7%	94,508	-5.3%	803,040	-5.6%	0.8%	11.8%
2012	697	-4.5%	98,237	3.9%	826,496	2.9%	0.7%	11.9%
Businesses								
1990	120		4,313		N/A		2.8%	N/A
2000	128	6.7%	5,220	21.0%	45,664	N/A	2.5%	11.4%
2010	138	7.8%	5,589	7.1%	49,003	7.3%	2.5%	11.4%
2012	141	2.2%	5,563	-0.5%	49,392	0.8%	2.5%	11.3%
Average Wage								
1990	\$34,432		\$31,157		N/A		110.5%	N/A
2000	\$40,662	18.1%	\$53,736	72.5%	\$51,740	N/A	75.7%	103.9%
2010	\$53,820	32.4%	\$72,380	34.7%	\$68,068	31.6%	74.4%	106.3%
2012	\$60,372	12.2%	\$73,993	2.2%	\$72,176	6.0%	81.6%	102.5%
[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford								
Source : MA EOL&WD; and RKG Associates, Inc.								

The average wage in Carlisle was slightly more than \$60,370 in 2012 and 18 percent lower than in the region (\$73,990), which was almost 3 percent higher than in Middlesex County (\$72,180). Since 2010, the average wage in Carlisle increased by 12 percent, which was greater than indicated for the region (2 percent) or Middlesex County (6 percent). The 2012 average wage in Carlisle was 62 percent lower than the median income (\$157,860), and this difference was much greater than the 29 percent difference indicated in the region, or the 12 percent difference in Middlesex County. As discussed in the affordability analysis, a household earning \$60,000 could afford to a purchase price between \$215,000 and (at most) \$255,000, depending on down payment and other financing criteria. As a result, homeownership would not be an option for someone earning the average wage because in 2012, Carlisle's median sale price was over \$618,000. In comparison, a household earning Carlisle's average wage could afford rent at \$1,500 per month and remain within the 30 percent of household income guidelines, but Carlisle does not have enough rental supply to house a worker earning the average wage.

a) Businesses, Employment & Wages by Industry in 2012

In 2012, Carlisle had an employment base of nearly 700 jobs. About 37 percent (260 jobs) were in the government sector, most likely employed by the school district. As shown in Table II-7, private sector employment was diverse, as nearly 160 jobs were in professional services or 22 percent of total employment, another 9 percent in health care and social assistance, 6 percent in construction, and so on. Unlike its residential base that represented 3 percent of the region, the economic base in Carlisle represented 0.7 percent of the region's total employment base in 2012, and it had slipped somewhat since 2000 from a loss of jobs over the decade.

The highest concentration of firms was in the professional services sector followed by other services, as shown in Table II-7. The highest average weekly wage by industry sector was also in the professional services sector (\$2,029), followed by wholesale trade (\$2,210), finance and insurance (\$1,575) and construction (\$1,289). An average weekly wage of \$1,200 could equate to a monthly rent (including utilities) of \$1,500 based on the 30 percent standard.

Table II-7 – Carlisle & Its Region: Firms, Employment & Wages by Sector (2012)

INDUSTRY	Carlisle			Region			Carlisle as % of Region		
	Firms	Jobs	Wk Wg	Firms	Jobs	Wk Wg	Firms	Jobs	Wk Wg
TOTAL - PRIVATE	128	440	\$1,247	5,392	84,363	\$1,465	2.4%	0.5%	85.1%
Agriculture, Forestry, Fishing & Hunting				90	974	\$569			
Construction	12	48	\$1,289	520	5,650	\$1,501	2.3%	0.8%	85.9%
Manufacturing				293	14,696	\$2,029			
Wholesale Trade	7	6	\$2,210	375	4,718	\$1,775	1.9%	0.1%	124.5%
Retail Trade				501	8,042	\$499			
Transportation and Warehousing				82	1,638	\$926			
Information	7	17	\$916	142	5,415	\$2,345	4.9%	0.3%	39.1%
Finance and Insurance	5	11	\$1,575	190	1,359	\$1,478	2.6%	0.8%	106.6%
Real Estate and Rental and Leasing	3	7	\$984	140	842	\$1,219	2.1%	0.8%	80.7%
Professional and Technical Services	38	156	\$2,029	1,061	14,620	\$2,368	3.6%	1.1%	85.7%
Management of Companies & Enterprises				26	1,310	\$2,501			
Administrative and Waste Services	9	15	\$662	267	2,570	\$941	3.4%	0.6%	70.4%
Educational Services	5	8	\$890	86	1,659	\$952	5.8%	0.5%	93.5%
Health Care and Social Assistance	9	63	\$520	494	10,448	\$918	1.8%	0.6%	56.7%
Arts, Entertainment, and Recreation				96	1,469	\$386			
Accommodation and Food Services				307	5,411	\$351			
Other Services, Ex. Public Admin	20	31	\$776	698	2,858	\$886	2.9%	1.1%	87.6%
GOVERNMENT	13	257	\$1,014	171	13,874	\$1,170	7.6%	1.9%	86.7%
TOTAL (ALL INDUSTRIES)	141	697	\$1,161	5,563	98,237	\$1,423	2.5%	0.7%	81.6%

Source: MA EOL&WD and RKG Associates, Inc.

b) Major Businesses in Carlisle

Table II-8 lists the 25 major businesses in Carlisle by employment levels, industry sectors and ownership type (private or public). As shown, there are 13 private-sector businesses and 12 public-sector businesses, and the Carlisle School District is the largest employer. The town should consider contacting each of these employers to begin a discussion about workforce housing needs and how their employees may fit within this dialogue.

Table II-8 – Town of Carlisle: Major Businesses

Company Name	Address	Number of employees	NAICS Code	Industry Sector	Type
Assurance Technology Corp	South St	50-99	5417	Scientific Research	Private
Coldwell Banker	Westford St	50-99	5312	Real Estate Agents	Private
Kimball Farm Ice Cream	Bedford Rd	50-99	7225	Restaurant	Private
J M Barrett & Co	Lowell St	20-49	5312	Real Estate Agents	Private
Multicultural Neuro Behavioral	Martin St	20-49	6243	Vocational Rehabilitation	Private
Wee Forest Folk Inc	Bedford Rd	20-49	3399	Misc Manufacturing	Private
Ferns Country Store	Lowell St # 12	10-19	4451	Retail	Private
Great Brook Cross Country Ski	Lowell St	10-19	7211	Accommodation	Private
Infor Medical Communications	Acton St	10-19	5416	Medical Consultant	Private
Merz Construction Inc		10-19	2361	Construction	Private
Mr Mike & B's Ent LLC	Westford St # A	10-19	2361	Construction	Private
North Star Excavating	Bedford Rd	10-19	2389	Construction	Private
St Irene's Catholic Church	East St	5-9	8131	Religious Organization	Private
Carlisle School District	School St	100-249	6111	Elem/Sec Education	Public
Carlisle Fire Chief	Lowell St	20-49	9221	Fire Protection	Public
Carlisle Fire Dept	Westford St	20-49	9221	Fire Protection	Public
After School Activities Prgm	Lowell St	10-19	6111	Elem/Sec Education	Public
Carlisle Extended Program	East St	10-19	6244	Child Day Care Service	Public
Carlisle Police Dept	Lowell St	10-19	9221	Police Protection	Public
Carlisle Public School Dist	School St	10-19	6111	Elem/Sec Education	Public
Carlisle Town-Emergency	Lowell St	10-19	9221	Ambulance sercie	Public
Gleason Public Library	Bedford Rd	10-19	5191	Library & Archives	Public
US Post Office	Bedford Rd	10-19	4911	Postal Service	Public
Bereau-Forestry & Fire Control	Lowell St	5-9	9221	Fire Protection	Public
Carlisle Highway Dept	Lowell Rd	5-9	2373	Construction	Public

Source: MA EOL & WD; infogroup; and RKG Associates, Inc.

C. Conclusion

Carlisle's socioeconomic profile differs from that of the immediate region and Middlesex County. Carlisle had a population of almost 5,000 people and 1,700 households in 2013, and while it experienced growth over the last two decades, growth that occurred during the 1990s was much greater than over the last decade. The households in Carlisle tend to be larger than those in the region, and the population is somewhat older. The median household income (\$157,860) is 50 percent greater than the regional median (\$104,550), which in turn was almost 30 percent more than Middlesex County (\$81,850).

Although Carlisle is one of the more affluent suburbs in Massachusetts, about 18 percent of its households earn less than \$75,000, including almost 7 percent earning less than \$25,000, or less than 30 percent of AMI (\$94,400); another 4 percent earned \$25,000 to \$49,999, or less than 50 percent of AMI; and 7 percent earned \$50,000 to \$74,999, or less than 80 percent of AMI.

Over the next five years, the region is projected to add another 2,150 households and Carlisle is forecasted to capture about 1 percent of the regional growth based on historical trends, or between 4 and 5 new households per year, suggesting limited demand for new rental housing by 2018 from existing town residents (other than, potentially, some empty-nesters or elderly).

In 2010, approximately 75 percent of the resident labor force commuted out of town for work, and the remaining 25 percent worked in town. These, however, represented about 47 percent of the local jobs, and another 20 percent were held by persons who commuted from one of the surrounding towns in the region.

The labor force in Carlisle did not increase as fast as its population over the last 20 years, nor did the region's. The unemployment rate in Carlisle was historically below that of the region and the county. The 4.4 percent rate in 2012 indicates some recovery from 2010 (6 percent), but it was much higher than in 2000 (1.7 percent) or in 1990 (2.3 percent).

Carlisle had an employment base of nearly 700 jobs in 2012 with about 37 percent (260 jobs) was in the government sector, most likely working for the local schools. Private sector employment was diverse, as another 22 percent (of total employment) was in professional services, 9 percent in health care and social assistance, 6 percent in construction, and so on. Unlike its residential base that represented 3 percent of the region, the economic base in Carlisle represented less than 1 percent of the region in 2012, and it slipped somewhat since 2000 from a loss of jobs over the decade while the region as a whole recovered from losses that occurred during the recession.

In spite of the high median household income, the average wage in Carlisle was under \$60,400 in 2012, about 20 percent less than the region's average wage. From an affordability perspective, this average wage could support a single-family purchase price of up to \$260,000 (assuming favorable financing conditions) or rent of \$1,500 per month and remain within the 30 percent guidelines. Despite the loss of employment over the last decade, Carlisle experienced an increase in businesses, and had 141 firms operating in 2012. RKG believes a survey of many of these businesses should be performed in order to define more accurately the potential need for workforce housing in town.

III. HOUSING SUPPLY AND TENURE CHARACTERISTICS

This section identifies trends in the housing supply in Carlisle and its region, including changes in housing production and vacancy trends. Then, key tenure characteristics of owner and renter households are analyzed from a review of decennial census data.

A. Housing Supply and Vacancy Trends

Total housing in Carlisle had a net increase of 103 units (6 percent) between 2000 and 2010, as shown in Table III-1, and this change was lower than the 160 unit increase (11 percent) experienced during the 1990s. Owner housing increased by 187 units (14 percent) during the 1990s and by 58 units (4 percent) over the last decade, for a combined increase of 245 units over the twenty-year period, an average annual housing production of 12 units per year throughout the town. In comparison, the rental stock in Carlisle experienced a net increase of 3 units over the twenty-year period, since the rental supply decreased by -21 units during the 1990s, but increased by 24 units in the 2000s, which was attributed to unoccupied/unsold homes being rented on a short term basis, and not new rental housing production.

In the region, the housing supply increased by over 5,530 units between 2000 and 2010, for a 10 percent gain, which was similar to the percentage gain (10 percent) experienced during the 1990s, when the regional housing supply increased by 4,974 units. Combined, the regional housing stock increased by 10,500 units over the 20-year period, indicating average annual housing production of 525 units per year, and 14 percent of the regional expansion was for rental units. Carlisle captured about 2.5 percent of the regional increase in housing since 1990, but less than 2 percent of the net regional increase over the last decade. Carlisle, however, captured very little, if any of the regional production in rental housing over the last decade.

Referring to Table III-1, the vacancy rate for owner units in Carlisle increased to 1.3 percent in 2010, while in the region it was reported at 1.1 percent. In both cases it was higher than in 2000, as there were 3 more owner units vacant in 2010 in Carlisle than in 2000, and nearly 230 units in the region. Most of these vacant units were single-family homes or condominiums available for-sale. The renter vacancy rate increased to nearly 5 percent in Carlisle in 2010, and nearly 8 percent in the region; and in Carlisle there were 2 more vacant renter units in 2010 than in 2000, while the region experienced an increase of nearly 660 vacant renter units since 2000. The vacancy data indicates that household formation in the region over the last decade failed to keep pace with housing production, as the supply of housing increased by 10 percent, while occupied housing increased by 8 percent, resulting in increased vacant units. As shown in Table III-1, the region had almost 900 vacant rental units in 2010, for a vacancy rate approaching 8 percent. The amount of seasonal and other vacant units also doubled in the region over the last decade.

Referring to Table III-1, the supply of Chapter 40B housing in Carlisle increased by 2 units over the last full decade, and experienced no change during the 1990s. In comparison, the region's supply of Chapter 40B housing experienced a three-and-a-half-fold increase over the last full decade, rising from 1,370 units in 2000 to 4,884 units in 2010. This increase in Chapter 40B units accounted for 63 percent of the net increase in housing in the region.

As a result, approximately 8.3 percent of the year-round housing in the region was Chapter 40B in 2010, while in Carlisle less than 2 percent was so classified at the end of the decade. As shown in Table III-1, the 2010 housing supply in Carlisle represented 3 percent of the total supply in the region; however, the rental stock represented only 1.1 percent of that in the region. The Chapter 40B supply in Carlisle in 2010 accounted for only 0.4 percent of the regional supply.

Table III-1 – Carlisle & Its Region: Housing Supply & Vacancy Trends (1990-2010)

Criteria	Carlisle			1990-00 Chg		2000-10 Chg		Carlisle as % of Region				
	1990	2000	2010	#	%	#	%	1990	2000	2010	90-00	00-10
Total Housing Units	1,495	1,655	1,758	160	11%	103	6.2%	3.1%	3.1%	3.0%	3.2%	1.9%
Owner Units	1,348	1,535	1,593	187	14%	58	3.8%	3.6%	3.5%	3.4%	3.0%	2.5%
Renter Units	125	104	128	(21)	-17%	24	23.1%	1.3%	1.2%	1.1%	1.9%	0.9%
Occupied Units	1,457	1,618	1,695	161	11%	77	4.8%	3.1%	3.1%	3.0%	2.9%	1.9%
Chapter 40B SHI [2]	18	18	20	0	0.0%	2	11%	1.5%	1.3%	0.4%	0.0%	0.1%
% of Year-Round	1.2%	1.1%	1.1%	-0.1%		0.1%		49%	42%	14%		
Vacant Units	38	37	63	(1)	-2.6%	26	70%	2.4%	3.7%	2.6%	0.2%	1.8%
Overall Vacancy Rate	2.5%	2.2%	3.6%	-0.3%		1.3%						
Owner Units	11	17	20	6	55%	3	18%	3%	6%	4.0%	-4.3%	1.3%
Owner Vacancy Rate	0.8%	1.1%	1.3%	0.3%		0.1%						
Renter Units	5	4	6	(1)	-20.0%	2	50%	0.9%	1.7%	0.7%	0.3%	0.3%
Renter Vacancy Rate	4.0%	3.8%	4.7%	-0.2%		0.8%						
Seasonal Units	4	8	18	4	100%	10	125%	3.0%	3.3%	3.4%	3.8%	3.5%
% Seasonal	0.3%	0.5%	1.0%	0.2%		0.5%						
Other Vacant Units	18	8	19	(10)	-56%	11	138%	4.1%	3.1%	3.8%	5.5%	4.5%
% Other	1.2%	0.5%	1.1%	-0.7%		0.6%						
	Region [1]			1990-00 Chg		2000-10 Chg						
Criteria	1990	2000	2010	#	%	# Chg	% Chg					
Total Housing Units	48,259	53,233	58,767	4,974	10%	5,534	10%					
Owner Units	37,750	43,900	46,242	6,150	14%	2,342	5%					
Renter Units	9,937	8,834	11,500	(1,103)	-12%	2,666	30%					
Occupied Units	46,697	52,221	56,341	5,524	12%	4,120	8%					
Chapter 40B SHI [2]	1,194	1,370	4,844	176	14.7%	3,474	254%					
% of Year-Round	2.5%	2.6%	8.3%	0.1%		5.7%						
Vacant Units	1,562	1,012	2,426	(550)	-35%	1,414	140%					
Overall Vacancy Rate	3.2%	1.9%	4.1%	-1.3%		2.2%						
Owner Units	416	277	506	(139)	-33%	229	83%					
Owner Vacancy Rate	1.1%	0.6%	1.1%	-0.5%		0.5%						
Renter Units	574	236	895	(338)	-59%	659	279%					
Renter Vacancy Rate	5.8%	2.7%	7.8%	-3.1%		5.1%						
Seasonal Units	135	241	524	106	79%	283	117%					
% Seasonal	0.3%	0.5%	0.9%	0.2%		0.4%						
Other Vacant Units	437	256	501	(181)	-41%	245	96%					
% Other	0.9%	0.5%	0.9%	-0.4%		0.4%						
[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford												
[2] From Subsidized Housing Inventories (SHI) - dated March 1990; October 2001; & September 2009												
Source: US Census; MA DHCD & RKG Associates, Inc.												

1. Permit Data & Average Unit Costs

As shown in Table III-2, building permit data indicated that 139 units were reportedly permitted over the last decade in Carlisle, which represents approximately 87 percent of the net increase in housing (103 units) during this period. A total of 5,190 units were reportedly permitted in the region and accounted for 104 percent of the net increase in housing over the last decade. In Carlisle, the difference suggests that some permitted units remained unbuilt, and the excess in the region suggests additional gains in housing resulted from units permitted prior to 2000. All the permitted units in Carlisle were for single-family homes, while the region experienced a more diverse blend of unit types. Referring to Table III-2, permit activity in Carlisle was much higher between 2000 and 2006 as 120 units were permitted in these seven

years, equating to 86 percent of total units permitted over the last decade. Activity was also high in the region during the first seven years of the last decade when 81 percent of total permitted units occurred. As shown in Table III-2, average annual activity was about 14 units per year over the last decade in Carlisle, but declined by half during the three plus years of the current decade. A slowdown was also evident in the region but not to the same extent.

Table III-2 – Carlisle & Its Region: Reported Private Building Permit Activity

Year	Carlisle		Year	Region [1]					Carlisle as % of Region
	Single Family	Total Units		Single Family	Two Family	3 & 4 Units	5 + Units	Total Units	
2000	24	24	2000	373	14	16	16	419	5.7%
2001	25	25	2001	314	0	12	114	440	5.7%
2002	16	16	2002	273	8	31	144	456	3.5%
2003	7	7	2003	313	4	72	253	642	1.1%
2004	17	17	2004	408	20	3	40	471	3.6%
2005	19	19	2005	529	18	36	447	1,030	1.8%
2006	12	12	2006	377	4	7	348	736	1.6%
2007	7	7	2007	319	0	4	225	548	1.3%
2008	2	2	2008	174	2	8	6	190	1.1%
2009	10	10	2009	189	2	3	64	258	3.9%
Total	139	139	Total	3,269	72	192	1,657	5,190	2.7%
AVG	14	14	AVG	327	7	19	166	519	
2010	5	5	2010	332	2	4	355	693	0.7%
2011	7	7	2011	274	0	3	7	284	2.5%
2012	8	8	2012	331	0	12	0	343	2.3%
Aug-13	6	6	Aug-13	212	0	0	0	212	2.8%
Total	26	26	Total	1,149	2	19	362	1,532	1.7%
AVG	7	7	AVG	313	1	5	99	418	

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census & RKG Associates, Inc.

Table III-3 – Carlisle & Its Region: Average Costs per New Permitted Unit by Type

Year	Carlisle		Year	Region [1]					Carlisle as % of Region
	Single Family	Total		Single Family	Two Family	3 & 4 Units	5 + Units	Total Units	
2000	\$609,582	\$609,582	2000	\$209,532	\$120,000	\$120,000	\$32,188	\$196,349	310%
2001	\$572,851	\$572,851	2001	\$206,277		\$89,840	\$93,675	\$173,927	329%
2002	\$609,805	\$609,805	2002	\$219,542	\$96,820	\$80,760	\$67,057	\$159,801	382%
2003	\$844,592	\$844,592	2003	\$202,363	\$131,727	\$68,712	\$88,866	\$142,207	594%
2004	\$773,992	\$773,992	2004	\$206,989	\$152,674	\$177,383	\$120,343	\$197,135	393%
2005	\$736,285	\$736,285	2005	\$196,369	\$133,286	\$127,887	\$97,683	\$150,045	491%
2006	\$742,390	\$742,390	2006	\$182,515	\$181,750	\$151,200	\$98,159	\$142,327	522%
2007	\$652,186	\$652,186	2007	\$239,806		\$89,361	\$89,248	\$176,891	369%
2008	\$841,400	\$841,400	2008	\$255,293	\$299,650	\$193,164	\$193,164	\$251,182	335%
2009	\$793,374	\$793,374	2009	\$280,945	\$125,000	\$258,000	\$93,360	\$232,936	341%
AVG	\$682,432	\$682,432	AVG	\$213,324	\$139,033	\$100,625	\$92,447	\$169,532	403%
2010	\$790,877	\$790,877	2010	\$208,616	\$87,000	\$109,712	\$118,762	\$161,665	489%
2011	\$844,592	\$844,592	2011	\$263,063		\$128,500	\$234,405	\$260,935	324%
2012	\$660,668	\$660,668	2012	\$260,560		\$165,000		\$257,217	257%
Aug-13	\$870,192	\$870,192	Aug-13	\$265,290				\$265,290	328%
AVG	\$783,578	\$783,578	AVG	\$247,020	\$87,000	\$147,597	\$120,998	\$215,800	363%

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census & RKG Associates, Inc.

Table III-3 exhibits the average construction cost per unit based on the reported permit data. The average cost for single-family units was \$682,430 in Carlisle over the last decade as compared to \$213,320 in the region. The average cost for multi-family units ranged from \$92,450 to \$139,000 in the region over the last decade. Since 2010, the average construction cost for a single-family home increased to nearly \$783,600 in Carlisle, while in the region it

averaged \$247,000. The average cost for multi-family units ranged from \$87,000 to \$147,600. Average construction cost per unit in Carlisle was generally about 4 times more than that in the region; however, it was all for single-family development.

2. Change in Tax Parcels since 1990

RKG reviewed changes in tax parcel data since 1990 in order to ascertain a better understanding of rental housing in Carlisle. This data, from Massachusetts Division of Local Services, only measures the increase in residential parcels, which is fine for single-family and condominium properties, but does not have unit counts for multi-family properties, nor does it include tax-exempt properties, such as Carlisle Village Court.

As shown in Table III-4, Carlisle had 1,658 single-family parcels in 2010 (January) which was 96 parcels more than in 2000. There were another 22 condominium parcels in 2010 which was 10 parcels more than in 2000. A nominal increase in the two-three unit parcels and miscellaneous also occurred and the combined result (108 parcels) was fairly similar to the net increase in total housing units (103 units) in Carlisle over the last decade, according to US Census data. Since 2010, an increase of another 17 parcels occurred, which was slightly less than the 20 units indicated by permit activity between 2010 and 2012, as shown in Table III-2. In effect, Carlisle had a housing supply of approximately 1,775 units in 2013.

Table III-4 – Carlisle & Its Region: Change in Residential Tax Parcels for Select Years

Carlisle		As of January 1,				# Change by Period & Annual Average					
Parcels by Type	1990	2000	2010	2012	1990-00	AVG	2000-10	AVG	2010-12	AVG	
Single-Family	1,364	1,546	1,642	1,658	182	18	96	10	16	8	
Condominiums	0	12	22	23	12	1	10	1	1	1	
2-3 units	8	12	13	13	4	0	1	0	0	0	
4 units +	0	0	0	0	0	0	0	0	0	0	
Miscellaneous	0	6	7	7	6	1	1	0	0	0	
Total	1,372	1,576	1,684	1,701	204	20	108	11	17	9	
Region [1]		As of January 1,				# Change by Period & Annual Average					
Parcels by Type	1990	2000	2010	2012	1990-00	AVG	2000-10	AVG	2010-12	AVG	
Single-Family	35,511	39,470	40,432	40,659	3,959	396	962	96	227	114	
Condominiums	4,809	6,233	8,206	8,528	1,424	142	1,973	197	322	161	
2-3 units	1,465	1,535	1,462	1,356	70	7	(73)	(7)	(106)	(53)	
4 units +	149	151	172	174	2	0	21	2	2	1	
Miscellaneous	10	135	200	204	125	13	65	7	4	2	
Total	41,944	47,524	50,472	50,921	5,580	558	2,948	295	449	225	
Carlisle as % of Region						# Change by Period & Annual Average					
Parcels by Type	1990	2000	2010	2012	1990-00	2000-10	2010-12				
Single-Family	3.8%	3.9%	4.1%	4.1%	4.6%	10.0%	7.0%				
Condominiums	0.0%	0.2%	0.3%	0.3%	0.8%	0.5%	0.3%				
2-3 units	0.5%	0.8%	0.9%	1.0%	5.7%	-1.4%	0.0%				
4 units +	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
Miscellaneous	0.0%	4.4%	3.5%	3.4%	4.8%	1.5%	0.0%				
Total	3.3%	3.3%	3.3%	3.3%	3.7%	3.7%	3.8%				
[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford											
Source: MA DLS & RKG Associates, Inc.											

The region experienced an increase of 3,000 single-family, condominium and miscellaneous parcels between 2000 and 2010, for an average increase of 300 units per year, which was almost 8 percent less than the average indicated from single-family permit activity (327 units), suggesting that some conversion of existing stock may have occurred. Carlisle represented about 3.3 percent of the regional supply of residential parcels in all periods shown in Table III-4.

3. Multi-Family and Chapter 40B Developments Completed and Proposed

Table III-5 exhibits some major residential projects in Carlisle that were completed or proposed. In terms of Chapter 40B projects, only one project, Benfield Farms, was proposed for rental and this 26-unit age and income-restricted project is currently under-construction and set to be completed by early 2014. Three other projects were proposed over the last decade for home ownership, and only one (Laurel Hollow/Rocky Point) was developed with 8 units including two Chapter 40B units. One project (Coventry Woods) received a 30-unit permit, but did not proceed, and another (Carlisle Woods) was denied approval in Billerica. Two other single-family developments were also approved, where a few lots still remain on the market and asking prices for these lots range from \$350,000 to \$475,000.

Two major projects were reportedly being considered in Carlisle at this time, and both would be targeted for owners. One would also be targeted for active seniors (age 55 and older) under the senior residential open space (SROSC) bylaw, and the other would have a Chapter 40B component. If the latter is approved as proposed, it would include a total of 20 single family homes and add another 5 units to the Chapter 40B inventory.

Table III-5 – Carlisle: Major Projects - Completed, Under Construction & Proposed

Project Name	Address	Tenure	Type	Year Status	# of Units Remaining	Ch 40B
Long Ridge	100 Long Ridge Rd	Owner	Chapter 40-B	Conceptual/Proposed	20	5
Russell St	Russell St	Owner	Age Restricted (SROSC)	Conceptual/Proposed	18	
Benfield Farm	South St	Rental	Chapter 40-B Age Restricted	2010 Under Construction	26	26
Hanover Hill	Westford St	Owner	S-F Subdivision	2008 On-Going	36	10
Greystone Crossing	Cross St	Owner	Conservation S-F Cluster	2006 On-Going	15	2
Laurel Hollow	Lowell St	Owner	Chapter 40-B	2004 Completed	8	2
Coventry Woods	Concord St	Owner	Chapter 40-B Age Restricted	2007 Permit Vacated		
Carlisle Woods	Maple St	Owner	Chapter 40-B	2005 Denied in Billerica		

Source: Town of Carlisle, homes.com; & RKG Associates, Inc.

With the approval and development of Benfield Farms, Carlisle had forty-six units classified as Chapter 40B-eligible in 2013, or 2.6 percent of its Census 2010 year-round housing (1,740 units). Assuming a Chapter 40B goal of 174 units ($1,740 * 0.10$), a shortage of 128 units would be apparent, and the five proposed units, if approved and constructed, would lessen the shortage to 123 units until at least 2020. Assuming annual housing production of twelve units per year in Carlisle, if 25 percent were “countable” on the Chapter 40B SHI (or three units per year), it would take at least 40 years to reach the 10 percent statutory minimum, if not longer, since the 10 percent would be recalculated at every decennial census. If annual housing production rates increased by for-sale developments using Chapter 40B to avoid local land use requirements, the mandated 10 percent benchmark could be reached sooner. In any case, for-sale developments using Chapter 40B as the basic permitting mechanism are, effectively, less than 22.5 percent “efficient” in achieving the 10 percent mandate under Chapter 40B. Carlisle would need to add approximately 850 additional owner units, nearly 50 percent of its current housing stock, to achieve the 10 percent mandate with owner-only Chapter 40B developments.

The other major Chapter 40B project in the town is Carlisle Village Court, an 18-unit, one-bedroom, complex targeted to the low-income elderly and disabled population. Reportedly, this project has a waiting-list of 13 applicants; however, tenant turnover averaged about one unit per year, forcing applicants to look elsewhere. The new Benfield Farms project would hopefully satisfy some on the waiting list and perhaps a few existing tenants.

Table III-6 tabulates the regional multi-family expansion that occurred over the last 10 plus years by the individual towns, and a pipeline of proposed projects or those under construction. As shown, nearly 2,620 units in multi-family developments were completed, including nearly 2,150 Chapter 40B units. Some of these major projects by town include The Village at Taylor Pond and the Heritage at Bedford Springs in Bedford; The Villas at Old Concord Rd and Princeton at Boston Rd in Billerica; Avalon Acton in Acton and Westford; Kensington at Chelmsford; and the Concord Mews, Warner Woods, and Fairhaven Gardens in Concord.

Table III-6 – Multi-Family Development in the Region

Rental Housing Pipeline	Comp [1]	UC/Pln [2]
Acton Multi-Family	135	
Acton Chapter 40B	531	7
Bedford Multi-Family	55	38
Bedford Chapter 40B	361	
Billerica Multi-Family		
Billerica Chapter 40B	480	41
Carlisle Multi-Family		
Carlisle Chapter 40B		26
Chelmsford Multi-Family		
Chelmsford Chapter 40B	260	164
Concord Multi-Family	234	
Concord Chapter 40B	499	
Westford Multi-Family	48	
Westford Chapter 40B	15	200
Total Multi-Family	472	38
Total Chapter 40B	2,146	412
Total	2,618	450

[1] Completed; [2] Under Construction; Planning
Source: MAPC; DHCD & Municipalities

Also, another 450 unit in multi-family buildings were under-construction or proposed in the region, including Benfield Farms in Carlisle, as shown in Table III-6. Other projects in the pipeline include Princeton Apartments in Westford; Princeton at Rivermeadow and Chelmsford Wood Residences in Chelmsford; and Rose Hill Manor in Billerica.

4. Conclusions

Carlisle had 1,740 housing units in 2010 and experienced an increase of 100 units over the last decade (6 percent), coupled with a 160-unit gain (11 percent) during the 1990s. All the gain was in ownership housing, since very little, if any, was developed for rental (investment) purposes, over this 20-year period.¹ This is not surprising since Carlisle lacks any land zoned for multi-family rental development, which is further exacerbated by the lack of municipal utilities (water/sewer), lack of shopping and services conveniences, and very high land costs.

In comparison, the housing supply in the region increased by 10,508 units since 1990, with 14 percent targeted for renters. In fact, the region's Chapter 40B supply increased by 3,474 units between 2000 and 2010, and represented 63 percent of the net change in housing during that period, while Carlisle had an increase of two Chapter 40B units or 2 percent of the housing production in town over the last full decade.

¹ The possible exception would be the 15 "accessory" units as a result of a zoning change in the 1990s, including 5 or so created over the last decade.

Average annual housing production in Carlisle averaged about 12 units per year since 1990; however, permit activity since 2007 showed an average of only 6 to 7 units, and all this activity was for single-family homes. Building costs from permit data indicated new homes in Carlisle averaged around \$750,000, excluding land and site development costs, which was three times higher than in the region (\$250,000). Building costs for multi-unit development in the region averaged over \$120,000 per unit.

The rental stock and Chapter 40B supply in Carlisle increased by twenty-six units with the Benfield Farms project, and this coupled with the eighteen units at Carlisle Village Court, would total forty-four units for income-eligible, elderly (age 62 and older) households. These two projects are the extent of the “formal” rental supply in Carlisle. The remainder is considered “informal” and includes accessory units (fifteen units), 2-to-3 family properties (thirteen parcels), and some single-family homes or condominium rented on a short-term basis.

Carlisle remains 129 units short of the 10 percent minimum under Chapter 40B, and one project is being proposed that would add another five units (ownership units) to the Subsidized Housing Inventory, if approved. Based on straight-line extrapolation of historic housing production trends, it may take Carlisle forty years if not longer to meet the statutory minimum. Historic housing production rates and methods in Carlisle may change, however, to favor development in Carlisle using Chapter 40B, given the trend toward Chapter 40B permitting in the region (Chapter 40B accounted for 63 percent of all new housing in the region in the last decade), and the reality that the other six towns in the region have achieved, or are close to achieving, their 10 percent mandate under Chapter 40B. If such a shift were to occur, Carlisle could be required to increase its housing stock by nearly 50 percent, or approximately 850 units, before achieving the 10 percent minimum under Chapter 40B.

B. Household Characteristics by Tenure

This section identifies trends and characteristics of owner and renter households in the Town of Carlisle and its region. Age, income, values and rents, household size and bedrooms, and mobility are examined from a review of decennial census data.

1. Tenure Characteristics and Trends

Carlisle experienced an increase of seventy-seven households (occupied units) over the last decade, which was almost half the growth experienced during the 1990s (161 households), as shown in Table III-7. A minor shift in tenure occurred since 2000 in Carlisle as owner households increased by fifty-five units (4 percent) while renter households increased by twenty-two units (22 percent). As a result, the owner occupancy rate decreased to 92 percent in 2010, while the renter tenure rate increased to 7 percent. The increase in renter households during the last decade offset the decline (-20 renters) experienced during the 1990s in Carlisle.

Table III-7 - Carlisle & Its Region: Occupied Housing & Tenure Statistics (1990 – 2010)

Criteria	Carlisle			1990-00 Chg		2000-10 Chg		Carlisle as % of Region				
	1990	2000	2010	#	%	#	%	1990	2000	2010	90-00	00-10
Occupied Units	1,457	1,618	1,695	161	11%	77	4.8%	3.1%	3.1%	3.0%	2.9%	1.9%
Owner H'holds	1,337	1,518	1,573	181	14%	55	3.6%	3.6%	3.5%	3.4%	2.9%	2.6%
% Owners	91.8%	93.8%	92.8%	2.1%		-1.0%		115%	112%	114%		
Renter H'holds	120	100	122	(20)	-17%	22	22%	1.3%	1.2%	1.2%	2.6%	1.1%
% Renters	8.2%	6.2%	7.2%	-2.1%		1.0%		41%	38%	38%		
	Region [1]			1990-00 Chg		2000-10 Chg						
Criteria	1990	2000	2010	#	%	# Chg	% Chg					
Occupied Units	46,697	52,221	56,341	5,524	12%	4,120	8%					
Owner H'holds	37,334	43,623	45,736	6,289	17%	2,113	5%					
% Owners	79.9%	83.5%	81.2%	3.6%		-2.4%						
Renter H'holds	9,363	8,598	10,605	(765)	-8.2%	2,007	23%					
% Renters	20.1%	16.5%	18.8%	-3.6%		2.4%						

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; MA DHCD & RKG Associates, Inc.

In the region, occupied housing increased by 4,120 units (8 percent) over the last decade, and it was fairly evenly divided between homeowners (2,110) and renters (2,010), although the homeownership rate slipped to 81.2 percent in 2010, from 83.5 percent in 2000, as shown in Table III-7. In 2010, homeowner households in Carlisle represented 3.4 percent of the regional owners, down from a 3.6 percent representation in 2000, while renter households in Carlisle accounted for just over 1 percent of regional renters.

2. Age Characteristics

The age characteristics of owner households and then renter households are examined.

a) Owners

Since 2000, owners in Carlisle increased in each of the cohorts, age 55 and over, and most of the change occurred in the age 55 to 64 cohort with the increase attributed to aging in place. As shown in Table III-8, Carlisle also experienced a decline in the age 35 to 44 cohort. The region also experienced a large decline in the age 35 to 44 cohort but this was offset by gains in the four cohorts age 45 and older.

Carlisle captured about 2.6 percent of the growth in owner households in the region over the last decade, and its capture of the age 55 to 64 cohort was the strongest. In 2010, Carlisle had 22 percent of its owner households age 65 and older, which was similar to that in the region. However, Carlisle had a much lower concentration of owners in the two cohorts younger than age 45.

Table III-8 – Carlisle & Its Region: Owner Households by Age

Carlisle	2000	2010	Change		% of Total		% of Owners		Carlisle as % of Region		
			#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Owner Households	1,518	1,573	55	3.6%	93.8%	92.8%	100%	100%	3.5%	3.4%	2.6%
less than 35 yrs	47	39	(8)	-17.0%	2.9%	2.3%	3%	2%	1.1%	1.4%	0.5%
35 to 44 yrs	398	215	(183)	-46.0%	25%	13%	26%	14%	3.3%	2.5%	5.2%
45 to 54 yrs	525	522	(3)	-0.6%	32%	31%	35%	33%	4.6%	3.9%	-0.1%
55 to 64 yrs	318	458	140	44.0%	20%	27%	21%	29%	4.1%	4.5%	6.2%
65 to 74 yrs	162	219	57	35.2%	10%	13%	11%	14%	3.3%	3.6%	4.4%
75 yrs +	68	120	52	76.5%	4.2%	7.1%	4%	8%	2.2%	2.7%	3.6%
Region [1]	2000	2010	Change		% of Total		% of Owners				
			#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Owner Households	43,623	45,736	2,113	4.8%	83.5%	81.2%	100%	100%			
less than 35 yrs	4,407	2,871	(1,536)	-34.9%	8.4%	5.1%	10%	6%			
35 to 44 yrs	12,168	8,663	(3,505)	-28.8%	23%	15%	28%	19%			
45 to 54 yrs	11,321	13,488	2,167	19.1%	22%	24%	26%	29%			
55 to 64 yrs	7,836	10,087	2,251	28.7%	15%	18%	18%	22%			
65 to 74 yrs	4,862	6,151	1,289	26.5%	9.3%	11%	11%	13%			
75 yrs +	3,029	4,476	1,447	47.8%	5.8%	7.9%	7%	10%			

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

b) Renters

Table III-9 exhibits renter households in Carlisle and the region by different age groups. In Carlisle, the increase in renters occurred in the two baby-boom generation cohorts in 2010 (age 45 to 64), followed by the advanced elderly (age 75 and older) which offset loss in the two age cohorts age 44 and younger. Similarly, the region had losses in the under age 44 cohorts, while most of the increase were the aging in place of the baby-boom generation cohorts and advanced elderly. Over the last decade, Carlisle captured only 1 percent of the region growth in renter households, about half the capture rate of total households (2 percent).

Table III-9 – Carlisle & Its Region: Renter Households by Age

Carlisle	2000	2010	Change		% of Total		% of Renters		Carlisle as % of Region		
			#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Renter Households	100	122	22	22.0%	6.2%	7.2%	100%	100%	1.2%	1.2%	1.1%
less than 35 yrs	22	19	(3)	-13.6%	1.4%	1.1%	22%	16%	0.8%	0.7%	3.6%
35 to 44 yrs	31	15	(16)	-51.6%	1.9%	0.9%	31%	12%	1.4%	0.7%	8.5%
45 to 54 yrs	20	35	15	75.0%	1.2%	2.1%	20%	29%	1.5%	1.7%	2.1%
55 to 64 yrs	6	23	17	283.3%	0.4%	1.4%	6%	19%	0.9%	1.7%	2.4%
65 to 74 yrs	11	8	(3)	-27.3%	0.7%	0.5%	11%	7%	1.8%	1.0%	-1.3%
75 yrs +	10	22	12	120.0%	0.6%	1.3%	10%	18%	0.9%	1.2%	1.9%
Region [1]	2000	2010	Change		% of Total		% of Renters				
			#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Renter Households	8,598	10,605	2,007	23.3%	16.5%	18.8%	100%	100%			
less than 35 yrs	2,648	2,564	(84)	-3.2%	5.1%	4.6%	31%	24%			
35 to 44 yrs	2,192	2,004	(188)	-8.6%	4.2%	3.6%	25%	19%			
45 to 54 yrs	1,352	2,076	724	53.6%	2.6%	3.7%	16%	20%			
55 to 64 yrs	657	1,364	707	107.6%	1.3%	2.4%	8%	13%			
65 to 74 yrs	598	830	232	38.8%	1.1%	1.5%	7%	8%			
75 yrs +	1,151	1,767	616	53.5%	2.2%	3.1%	13%	17%			

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

In 2010, approximately 25 percent of renters in Carlisle were elderly, but they accounted for less than 2 percent of total households, as shown in Table III-9. In comparison, 38 percent of

renters in Carlisle were age 44 and younger and they accounted another 2 percent of the total households.

3. Income Characteristics and Values/Rents

The income and home value or rent characteristics of owners and renters are discussed here.

a) Owners

In 2010, the median owner household income in Carlisle increased to \$169,900, and approximately 70 percent of the total households were owners with incomes of \$150,000 or more, as compared to 26 percent in the region, where the median owner income was \$117,140, as shown in Table III-10. Another 14 percent of owner households in Carlisle earned between \$100,000 and \$150,000, as compared to 20 percent in the region. Approximately 9 percent of the owners (or 10 percent of total households) in Carlisle had incomes of less than \$35,000, which was similar to the region, although Carlisle had a higher concentration of owners earning less than \$25,000.

Table III-11 exhibits owners in Carlisle and the region by different ranges in housing values. In Carlisle, the median home value was \$780,700 in 2010, reflecting a 72 percent increases from 2000. This increase was almost three times more than the gain in median homeowner income (27 percent), as shown in Table III-10. In 2010, Carlisle had over 9 percent of the regional supply of owner housing valued at \$500,000 or more, almost three times its representation of homeowner households (3 percent); however, this concentration diminished over the last decade, as the region had a 3.5 fold increase in ownership housing valued at \$500,000 or more.

Table III-10 – Carlisle & Its Region-Owner Households by Income

Carlisle			Change		% of Total		% of Owners		Carlisle as % of Region		
	2000	2010	#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Owner Households	1,518	1,573	55	3.6%	94%	93%	100%	100%	3.5%	3.4%	2.6%
Less than \$25,000	146	145	(1)	-1%	9%	8.5%	10%	9%	4.3%	5.4%	0.2%
\$25,000 to \$34,999	53	9	(44)	-84%	3%	0.6%	3%	1%	2.4%	0.4%	18.8%
\$35,000 to \$49,999	61	42	(19)	-30%	3.8%	2.5%	4%	3%	1.4%	1.3%	2.0%
\$50,000 to \$74,999	138	53	(85)	-61%	8.5%	3.1%	9%	3%	1.8%	1.0%	3.3%
\$75,000 to \$99,999	140	134	(6)	-4.4%	8.7%	7.9%	9%	9%	1.8%	2.1%	0.5%
\$100,000 to \$149,999	307	234	(73)	-24%	19%	14%	20%	15%	3.1%	2.0%	-5.0%
\$150,000 or more	672	955	283	42%	42%	56%	44%	61%	8.3%	6.6%	4.4%
Median Owner Income	\$134,068	\$169,900	\$35,832	26.7%					148%	145%	135%
Region [1]			Change		% of Total		% of Owners				
	2000	2010	#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Owner Households	43,623	45,736	2,113	4.8%	84%	81%	100%	100%			
Less than \$25,000	3,437	2,706	(731)	-21.3%	6.6%	4.8%	8%	6%			
\$25,000 to \$34,999	2,196	1,960	(236)	-10.8%	5.0%	4.3%	5%	4%			
\$35,000 to \$49,999	4,257	3,328	(929)	-21.8%	8.2%	5.9%	10%	7%			
\$50,000 to \$74,999	7,842	5,299	(2,543)	-32.4%	15.0%	9.4%	18%	12%			
\$75,000 to \$99,999	7,794	6,506	(1,288)	-16.5%	14.9%	11.5%	18%	14%			
\$100,000 to \$149,999	10,019	11,482	1,463	14.6%	19.2%	20.4%	23%	25%			
\$150,000 or more	8,078	14,455	6,377	78.9%	15.5%	25.7%	19%	32%			
Median Owner Income	\$90,696	\$117,142	\$26,446	29.2%							

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
 Source: US Census; American Community Survey & RKG Associates, Inc.

Table III-11 – Carlisle & Its Region- Owners by Ranges in Value

Carlisle	2000	2010	Change		% of Total		Carlisle as % of Region			
			#	%	2000	2010	2000	2010	Chg	
Total Households	1,618	1,695	77	4.8%	100%	100%	3.1%	3.0%	1.9%	
Owner Households	1,518	1,573	55	3.6%	93.8%	92.8%	3.5%	3.4%	3.4%	
Owners by Housing Values			as % of Owner							
less than \$100,000	16	13	(3)	-21%	1.1%	41.8%	2.5%	1.5%	-1.5%	
\$100,000 to \$199,999	20	20	(0)	-2%	1.3%	1.2%	0.2%	1.0%	0.0%	
\$200,000 to \$299,999	98	9	(89)	-91%	6.4%	0.6%	0.6%	0.1%	1.0%	
\$300,000 to \$399,999	422	8	(414)	-98%	28%	0.5%	5.2%	0.1%	-8.7%	
\$400,000 to \$499,999	363	149	(214)	-59%	24%	9.5%	9.0%	1.8%	-4.8%	
\$500,000 and up	599	1,375	776	129%	39%	87%	15%	9.1%	7.0%	
Median Owner Value	\$454,430	\$780,700	\$326,270	71.8%			179%	173%	165%	
Region [1]			Change		% of Total					
	2000	2010	#	%	2000	2010				
Total Households	52,221	56,341	4,120	7.9%	100%	100%				
Owner Households	43,623	45,736	2,113	4.8%	83.5%	81.2%				
Owners by Housing Values			as % of Owner							
less than \$100,000	657	889	232	35%	1.5%	1.9%				
\$100,000 to \$199,999	11,604	1,978	(9,626)	-83%	27%	4.3%				
\$200,000 to \$299,999	15,146	6,433	(8,713)	-58%	35%	14%				
\$300,000 to \$399,999	8,061	12,799	4,738	59%	18%	28%				
\$400,000 to \$499,999	4,049	8,526	4,477	111%	9.3%	19%				
\$500,000 and up	4,106	15,111	11,005	268%	9.4%	33%				
Median Owner Value	\$253,287	\$450,436	\$197,149	77.8%						

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

b) Renters

In 2010, the median renter income in Carlisle dropped to \$28,530, while in the region it increased to \$52,570, as shown in Table III-12. In Carlisle, 56 percent of the renters earned less than \$35,000 or 6 percent of total households in 2010, as compared to 33 percent of the renters in the region (or 12 percent of total households). Carlisle had 1 percent of the regional renter households in 2010, but nearly 6 percent of those earning \$25,000 to \$34,999, as shown below.

Table III-12 – Carlisle & Its Region: Renters by Income Levels

Carlisle	2000	2010	Change		% of Total		% of Renters		Carlisle as % of Region		
			#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Renter Households	100	122	22	22%	6.2%	7.2%	100%	100%	1.2%	1.2%	1.1%
Less than \$25,000	28	22	(6)	-21%	1.7%	1.3%	28%	18%	1.1%	0.8%	-3.7%
\$25,000 to \$34,999	6	46	41	682%	0.4%	2.7%	6%	38%	0.7%	5.8%	-40%
\$35,000 to \$49,999	13	9	(4)	-32%	0.8%	0.5%	13%	7%	0.9%	0.6%	-11%
\$50,000 to \$74,999	19	15	(4)	-23%	1.2%	0.9%	19%	12%	1.0%	0.6%	-1.0%
\$75,000 to \$99,999	12	12	(0)	-2.2%	0.7%	0.7%	12%	10%	1.2%	1.1%	-0.4%
\$100,000 to \$149,999	5	12	7	135%	0.3%	0.7%	5%	10%	0.9%	0.9%	0.9%
\$150,000 or more	18	7	(11)	-59%	1.1%	0.4%	18%	6%	6.1%	0.7%	-1.5%
Median Renter Income	\$56,458	\$28,529	(\$27,929)	-49%					126%	54%	-353%
Region [1]			Change		% of Total		% of Renters				
	2000	2010	#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Renter Households	8,598	10,605	2,007	23.3%	16.5%	18.8%	100%	100%			
Less than \$25,000	2,448	2,606	158	6.5%	4.7%	4.6%	28%	25%			
\$25,000 to \$34,999	909	806	(102)	-11%	11%	7.6%	11%	8%			
\$35,000 to \$49,999	1,474	1,511	37	2.5%	2.8%	2.7%	17%	14%			
\$50,000 to \$74,999	1,938	2,361	424	22%	3.7%	4.2%	23%	22%			
\$75,000 to \$99,999	956	1,019	62	6.5%	1.8%	1.8%	11%	10%			
\$100,000 to \$149,999	582	1,326	744	128%	1.1%	2.4%	7%	13%			
\$150,000 or more	292	976	684	234%	0.6%	1.7%	3%	9%			
Median Renter Income	\$44,661	\$52,574	\$7,913	18%							

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

Table III-13 – Carlisle & Its Region: Renters by Ranges in Rent

Carlisle	2000	2010	Change		% of Total		Carlisle as % of Region		
			#	%	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%	3.1%	3.0%	1.9%
Renter Households	100	122	22	22.0%	6.2%	7.2%	1.2%	1.2%	1.2%
Renters by Gross Rent					as % of Renter				
No rent to \$499	27	6	(21)	-78%	26.7%	4.8%	1.9%	0.4%	20.0%
\$500 to \$749	7	0	(7)	-100%	6.7%	0.0%	0.4%	0.0%	0.6%
\$750 to \$999	13	6	(8)	-56%	13.3%	4.8%	0.5%	0.4%	0.7%
\$1,000 to \$1,499	12	21	9	72%	12.2%	17.3%	0.6%	0.5%	0.5%
\$1,500 to \$1,999	36	0	(36)	-100%	35.6%	0.0%	6.4%	0.0%	-2.9%
\$2,000 and up	6	89	84	1508%	5.6%	73.2%	1.8%	5.7%	6.7%
Median Gross Rent	\$1,400	\$2,000+	\$600	42.9%			158%	156%	152%
Region [1]			Change		% of Total				
	2000	2010	#	%	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%			
Renter Households	8,598	10,605	2,007	23.3%	16.5%	18.8%			
Renters by Gross Rent					as % of Renter				
No rent to \$499	1,412	1,308	(104)	-7%	16.4%	12.3%			
\$500 to \$749	1,859	648	(1,210)	-65%	21.6%	6.1%			
\$750 to \$999	2,487	1,397	(1,090)	-44%	28.9%	13.2%			
\$1,000 to \$1,499	1,972	3,893	1,921	97%	22.9%	36.7%			
\$1,500 to \$1,999	558	1,791	1,233	221%	6.5%	16.9%			
\$2,000 and up	311	1,569	1,258	405%	3.6%	14.8%			
Median Gross Rent	\$888	\$1,284	\$396	44.6%					

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford

Source: US Census; American Community Survey & RKG Associates, Inc.

In 2010, the median gross rent in Carlisle was \$2,000 plus, as shown in Table III-13, and over 73 percent of the renter households resided in units with rents of \$2,000 or more. In the region, the median gross rent was \$1,284 in 2010, and 15 percent of renter households were renting apartments for \$2,000 or more, including 6 percent from Carlisle. Approximately 32 percent of the renters in the region paid \$1,000 or less in 2010 versus 67 percent in 2000. Another 54 percent of renters in the region had rents of \$1,000 to \$2,000.

Table III-14 exhibits households in Carlisle by their share of income incurred for housing costs in 2010. Approximately 25 percent of total households incurred housing costs of 35 percent or more of their income, including 22 percent that were renters. It is likely these renters paid rents of \$2,000 or more (89 in Table III-13), and had incomes of less than \$75,000 (92 in Table III-12) and account for 75 percent of renter households in Carlisle in 2010. Another 6 percent of total households in 2010 incurred cost of 30 percent to 35 percent for their housing, and 31 percent of total households in Carlisle incurred housing costs of 30 percent of their income or more in 2010, and 19 percent of them were renters (99), or 81 percent of the renter households.

Table III-14 – Carlisle: Households by Tenure & Share of Income for Housing (2010)

Housing Cost as % of Income	Households by Tenure			As a % of Total Households		
	Owners	Renters	Total	Owners	Renters	Total
Less than 20.0 percent	807	7	814	47.6%	0.4%	48.1%
20.0 to 24.9 percent	221	5	226	13.0%	0.3%	13.3%
25.0 to 29.9 percent	92	6	97	5.4%	0.3%	5.7%
30.0 to 34.9 percent	96	7	102	5.7%	0.4%	6.0%
35.0 percent or more	330	92	422	19.5%	5.4%	24.9%
Not Computed	27	6	33	1.6%	0.3%	1.9%
Total	1,573	122	1,695	92.8%	7.2%	100.0%

Source: US Census; American Community Survey & RKG Associates, Inc.

4. Household Size and Bedroom Count

This section reviews household sizes by tenure, and compares that to bedroom counts.

a) Owner

The average homeowner household size in Carlisle was 2.91 persons in 2010, which was slightly larger than the region (2.83) as shown in Table III-15. Approximately, 58 percent of owners were two-or-three-person households, and 33 percent were four-person or more households in 2010, while 9 percent were one-person households. In comparison, 16 percent of the owners in the region were one-person households in 2010; 52 percent were two-or-three-person households, and 32 percent four-person or more households.

Table III-16 reports homeowner households by the number of bedrooms per unit. There appears to be a mismatch in owner households between household size and corresponding counts in bedrooms. For instance, 71 percent of the owner units in Carlisle had four bedrooms or more, while 33 percent of owners were four-person or more households. Only 4 percent of owner housing in Carlisle had two bedrooms or less, while 47 percent were two persons or less. Another 25 percent of owner housing had three bedrooms in 2010; however, three-person households represented 19 percent of the homeowners in Carlisle.

The region had a similar concentration of three-bedroom (41 percent) and four-bedroom or more (41 percent) owner housing in 2010, but 52 percent of owners were three persons or more. In comparison, the region had an 18 percent supply of two-bedroom or less owner housing, but 49 percent of owner households had two persons or less.

In short, ownership housing in Carlisle had a much higher concentration of four-bedroom or more units than the region, and a much lower concentration of two- and three-bedroom owner units. The concentration of owner households with two persons or less in Carlisle, significantly exceeded the supply of two-bedroom or less owner units, while the concentration of owner housing with 3-bedrooms or more exceeded owner households with 3-persons or more,

Table III-15 – Carlisle & Its Region: Owners by Household Size

Carlisle			Change		% of Total		% of Owners		Carlisle as % of Region		
	2000	2010	#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Owner Households	1,518	1,573	55	3.6%	93.8%	92.8%	100%	100%	3.5%	3.4%	2.6%
1-person	149	142	(7)	-4.7%	9.2%	8.4%	10%	9%	2.4%	1.9%	-0.6%
2-person	535	598	63	11.8%	33%	35%	35%	38%	3.8%	4.0%	6.1%
3-person	278	318	40	14.4%	17%	19%	18%	20%	3.3%	3.7%	16.8%
4-person	393	332	(61)	-15.5%	24%	20%	26%	21%	4.1%	3.5%	73.5%
5-person +	163	183	20	12.3%	10%	11%	11%	12%	3.0%	3.5%	-11.1%
AVG Hhold Size	2.96	2.91	(0.05)	-1.7%							
			Change		% of Total		% of Owners				
Region [1]	2000	2010	#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Owner Households	43,623	45,736	2,113	4.8%	83.5%	81.2%	100%	100%			
1-person	6,194	7,300	1,106	18%	12%	13%	14%	16%			
2-person	14,066	15,098	1,032	7.3%	27%	27%	32%	33%			
3-person	8,371	8,609	238	2.8%	16%	15%	19%	19%			
4-person	9,645	9,562	(83)	-0.9%	18%	17%	22%	21%			
5-person +	5,347	5,167	(180)	-3.4%	10%	9%	12%	11%			
AVG Hhold Size	2.91	2.83	(0.08)	-2.6%							

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

Table III-16 – Carlisle & its Region: Owners by Bedroom Counts

Carlisle			Change		% of Total		% of Owners		Carlisle as % of Region		
	2000	2010	#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Owner Households	1,518	1,573	55	3.6%	93.8%	92.8%	100%	100%	3.5%	3.4%	2.6%
1-bdrm -	0	34	34	--	0.0%	2.0%	0%	2.1%	0.0%	3.5%	11.2%
2-bdrm	83	36	(47)	-56.7%	5.1%	2.1%	5%	2%	1.4%	0.5%	-3.9%
3-bdrm	519	392	(127)	-24.4%	32.1%	23.1%	34%	25%	2.7%	2.1%	25.0%
4-bdrm +	916	1,111	195	21.3%	56.6%	65.6%	60%	71%	5.2%	5.9%	17.8%
Region [1]			Change		% of Total		% of Owners				
	2000	2010	#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Owner Households	43,623	45,736	2,113	4.8%	83.5%	81.2%	100%	100%			
1-bdrm -	671	972	302	45.0%	1.3%	1.7%			2%	2%	
2-bdrm	6,113	7,334	1,220	20.0%	11.7%	13.0%			14%	16%	
3-bdrm	19,246	18,740	(507)	-2.6%	36.9%	33.3%			44%	41%	
4-bdrm +	17,593	18,691	1,098	6.2%	33.7%	33.2%			40%	41%	

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

b) Renter

In 2010, the average renter household size in Carlisle was 2.25 persons, and was 15 percent larger than the region, as shown in Table III-17. The distribution of renter households by size was not too dissimilar between the geographies, except Carlisle had a higher concentration of five-person renter households (10 percent) than the region (4 percent) in 2010.

Table III-18 exhibits renter households by number of bedrooms in Carlisle and the region. Approximately 77 percent of the renters in Carlisle had a three- or four-bedroom units (home), while 11 percent were in two-bedroom units and 12 percent in one-bedroom units in 2010. This distribution was almost the reverse in the region, as 78 percent of renters were in one- or two-bedroom units, and 22 percent in three-or-more bedroom units. Approximately 41 percent of the renters in the region were in one-bedroom units, and another 37 percent were in two-bedroom units.

Table III-17 – Carlisle & Its Region: Renters by Household Size

Carlisle			Change		% of Total		% of Renters		Carlisle as % of Region		
	2000	2010	#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Renter Households	100	122	22	22.0%	6.2%	7.2%	100%	100%	1.2%	1.2%	1.1%
1-person	35	53	18	51.4%	2.2%	3.1%	35%	43%	0.9%	1.0%	1.4%
2-person	30	28	(2)	-6.7%	1.9%	1.7%	30%	23%	1.2%	1.0%	-0.6%
3-person	14	16	2	14.3%	0.9%	0.9%	14%	13%	1.2%	1.2%	1.0%
4-person	13	13	0	0.0%	0.8%	0.8%	13%	11%	1.6%	1.4%	0.0%
5-person +	8	12	4	50.0%	0.5%	0.7%	8.0%	9.8%	2.1%	2.9%	13.8%
AVG Hhold Size	2.30	2.25	(0.05)	-2.2%							
Region [1]			Change		% of Total		% of Renters				
	2000	2010	#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100.0%	100.0%					
Renter Households	8,598	10,605	2,007	23.3%	16.5%	18.8%	100%	100%			
1-person	3,778	5,110	1,332	35.3%	7.2%	9.1%	44%	48%			
2-person	2,492	2,800	308	12.4%	4.8%	5.0%	29%	26%			
3-person	1,141	1,344	203	17.8%	2.2%	2.4%	13%	13%			
4-person	805	940	135	16.8%	1.5%	1.7%	9%	9%			
5-person +	382	411	29	7.6%	0.7%	0.7%	4.4%	3.9%			
AVG Hhold Size	2.03	1.96	(0.08)	-3.8%							

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

Table III-18 – Carlisle & Its Region: Renters by Bedroom Counts

Carlisle			Change		% of Total		% of Renters		Carlisle as % of Region		
	2000	2010	#	%	2000	2010	2000	2010	2000	2010	Chg
Total Households	1,618	1,695	77	4.8%	100%	100%			3.1%	3.0%	1.9%
Renter Households	100	122	22	22.0%	6.2%	7.2%	100%	100%	1.2%	1.2%	1.1%
1-bdrm -	30	15	(15)	-51.6%	1.9%	0.9%	30%	11.9%	1.0%	0.3%	-1.2%
2-bdrm	0	13	13	--	0.0%	0.8%	0%	11%	0.0%	0.3%	3.7%
3-bdrm	28	57	29	104.9%	1.7%	3.4%	28%	47%	1.9%	3.7%	53.4%
4-bdrm +	42	37	(5)	-11.8%	2.6%	2.2%	42%	30%	9.1%	4.8%	-1.6%
Region [1]			Change		% of Total		% of Renters				
	2000	2010	#	%	2000	2010	2000	2010			
Total Households	52,221	56,341	4,120	7.9%	100%	100%					
Renter Households	8,598	10,605	2,007	23.3%	16.5%	18.8%	100%	100%			
1-bdrm -	3,020	4,299	1,279	42.4%	5.8%	7.6%	35%	41%			
2-bdrm	3,614	3,969	356	9.8%	6.9%	7.0%	42%	37%			
3-bdrm	1,503	1,558	55	3.7%	2.9%	2.8%	17%	15%			
4-bdrm +	461	778	317	68.7%	0.9%	1.4%	5%	7%			

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

5. Households by Move in Period

Table III-19 exhibits the period when owner or renter households moved in their unit over the last decade for Carlisle and the region. As shown, almost 240 owner households moved in during the five-year period prior to 2010, while another 260 owners moved in the preceding five years, for a total of nearly 500 households or an average of 50 households per year. This average is similar to that indicated in the 1990s and 1980s. When ownership growth over the last decade is subtracted, the annual average owner turnover was forty-four households per year, for a homeowner turnover rate of 2.8 percent. In comparison, the region had 18,250 households move in over the last decade, for an annual average of 1,825 per year, and over 1,610 owners after adjusting for growth, for an owner turnover rate of 3.5 percent.

Table III-19 – Carlisle & Its Region: Period Owner & Renter Household Moved in Unit

Carlisle	2010 Census		AVG/Year		% of Hhold		Carlisle as % of Region	
	Owners	Renter	Owners	Renter	Owner	Renter	Owners	Renters
Total Households	1,573	122			92.8%	7.2%	3.4%	1.2%
H'holds by Move In								
2005 or later	237	106	47	21	15.1%	86.9%	2.7%	1.5%
2000 to 2004	257	0	51	0	16.3%	0.0%	2.7%	0.0%
1990 to 1999	525	0	53	0	33.4%	0.0%	4.3%	0.0%
1980 to 1989	327	16	33	3	20.8%	13.1%	5.3%	4.8%
prior to 1980	227	0			14.4%	0.0%	2.5%	0.0%
Region [1]	2010 Census		AVG/Year		% of Hhold			
	Owners	Renter	Owners	Renter	Owner	Renter		
Total Households	45,736	10,605			81.2%	18.8%		
H'holds by Move In								
2005 or later	8,728	7,215	1,746	1,443	19.1%	68.0%		
2000 to 2004	9,525	1,641	1,905	328	20.8%	15.5%		
1990 to 1999	12,311	1,102	1,231	220	26.9%	10.4%		
1980 to 1989	6,157	330	616	66	13.5%	3.1%		
prior to 1980	9,015	317			19.7%	3.0%		

[1] Includes Acton; Bedford; Billerica; Carlisle; Chelmsford; Concord & Westford
Source: US Census; American Community Survey & RKG Associates, Inc.

Referring to Table III-19, an estimated 106 renter households moved into their unit in Carlisle in the five years prior to 2010, or an average of twenty-one renters per year, while no renter moved in during the early part of the decade. Deducting for renter growth over the last decade,

the renter turnover rate in Carlisle was 13.8 percent. In the region, nearly 8,860 renters moved in their unit over the last decade, and the resulting turnover rate was 6.5 percent, or about half the rate indicated for Carlisle.

C. Conclusions

Carlisle had 1,740 housing units in 2010 and experienced an increase of 100 units over the last decade, which was 36 percent less than during the 1990s. All the gain was in owner-occupied single-family housing, since very little, if any was developed for rental (investment) purposes over the last two decades. The region had an increase of over 10,500 units since 1990, including 5,500 units over the last decade. Approximately 14 percent of the new housing in the region was targeted for renters, and the Chapter 40B supply in the region increased by more than 3,470 units since 2000, representing 63 percent of the net change in housing. By contrast, only 2 percent of the net change in housing in Carlisle was for Chapter 40B units.

While annual housing production in Carlisle averaged twelve units per year since 1990, permit activity since 2007 indicates an average of six units per year. New homes in Carlisle were built for average cost of \$750,000 (building only) while in the region, it was \$250,000. Costs for multi-unit development average at over \$120,000 per unit in the region.

Carlisle's Chapter 40B and rental supply increased by twenty-six units due to the Benfield Farms project. This, coupled with the eighteen units at Carlisle Village Court, was the extent of the "formal" rental supply in town. Both projects were targeted for the elderly (62 and older) with income restrictions. The remaining "informal" market consisted of accessory units (fifteen units), two- to three-family homes (13 parcels), and some homes or condominiums rented on a short-term basis.

At present, a Chapter 40B project is under consideration proposing twenty homes, of which five would be "affordable" to households with incomes below the 80 percent of the area median income (AMI). Over the last decade, two other Chapter 40B homeownership projects went through the approval process but did not materialize. Presently, there are several multi-family projects under construction or in the approval process in the region with a combined total of 450 units, including the twenty-six units at Benfield Farms and another 386 units of Chapter 40B rental housing elsewhere, indicating a 16 percent increase in Chapter 40B rentals over what was previously developed (2,150 units) in the seven-town region.

In 2013, about 2.6 percent of the housing in Carlisle was Chapter 40B (forty-six units), and the town remained 128 units short of the 10 percent statutory minimum. Based on historic housing production trends, it may take forty years if not longer for Carlisle to meet the 10 percent minimum. Historic housing production rates and methods in Carlisle may change, however, to favor development in Carlisle using Chapter 40B, given the trend toward Chapter 40B permitting in the region (Chapter 40B accounted for 63 percent of all new housing in the region in the last decade), and the reality that the other six towns nearby have achieved, or are close to achieving, their 10 percent goal. If such a shift were to occur, Carlisle could be required to increase its housing stock by nearly 50 percent, or approximately 850 units, before achieving the 10 percent mandate under Chapter 40B.

The tenure ratio in Carlisle was 93 percent owners/7 percent renters in 2010, and much different than the seven-town region as a whole (81 percent/19 percent). Census data indicate

that Carlisle had an increase of twenty-two renter households since 2000, which offset the loss of twenty renters during the 1990s. Effectively, Carlisle had a net increase of two renter households over the last twenty years, which is not surprising given the lack of any new rental development during that period. RKG believes that most of this gain in renters was attributed to rental of unsold/unoccupied single-family housing, since the overall vacancy rate increased to 4 percent in 2010.

Carlisle captured about 2.6 percent of the regional growth in owners over the last decade, and 1.1 percent of the renter growth. Nearly all the growth in owners in Carlisle was age 55 and older, while the renter growth occurred in the age 45 to 64 cohort, or the baby-boom generation. Carlisle, and to a greater extent, the region lost renters younger than age 44 over the last decade.

The median income for renters in Carlisle dropped to \$28,530 in 2010, while in the region it increased to \$52,570. The median gross rent in Carlisle increased to over \$2,000 and in the region, to \$1,280. In both areas, the increase in median rent outpaced the increase in median renter income. In 2010, almost 31 percent of households in Carlisle incurred housing costs at 30 percent or more of their income, including 6 percent that were renters.

Renter turnover in Carlisle averaged nearly 14 percent over the last decade, as compared to 6.5 percent for the region. RKG believes that most of this rental turnover disparity is attributable to rental of unsold/unoccupied single-family housing. Owner turnover in Carlisle was 2.8 percent over the last decade, as compared to 3.5 percent for the region.

IV. RESIDENTIAL MARKET CONDITIONS

This section identifies trends in the for-sale and rental market in Carlisle and its region. Sales activity of single-family homes and condominiums are reviewed, as well as median sales values of residential properties. The rental market is examined from a review of conditions in the Greater Boston and two of its submarkets, using data from ReisReports, a private firm that tracks apartment trends in the region. Rental pricing is presented for select properties in the region.

A. For-Sale Sector

1. Single-Family Sales and Median Price Trends

Figure IV-1 exhibits the trends in the volume of sales of single-family homes in Carlisle and the region since 1987. Carlisle had forty-eight single-family sales in 2012, and was at this level for the prior two years. Sales through September 2013 totaled fifty single-family homes, and when annualized indicated sixty-six sales, which would be equivalent to the average number of sales between 2000 and 2009. Single-family sales in the individual towns in the region varied widely, but sale activity in 2012 were generally higher in all towns than in the prior years. Collectively, the region had nearly 1,470 single-family sales in 2012, which was the highest total since 2005 (1,640), and sales in Carlisle represented about 3.3 percent of the regional activity. Since 2000 single-family sales in Carlisle averaged 4 percent of the regional sale volume of single-family sales.

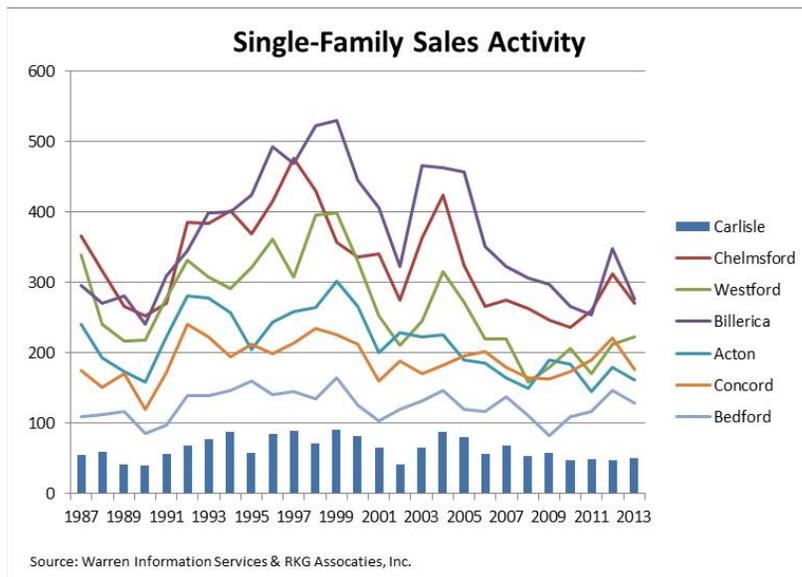


Figure IV-1 – Single-Family Sales Activity in Carlisle & Its Region

Figure IV-1 displays the median value of single-family sales in Carlisle and the individual towns of the region. In 2013 (through September) the median value in Carlisle increased to \$666,000 and was higher than the three previous years. However, it remained 24 percent below the peak of \$876,560 in 2005. The median value in 2013 in all communities was higher than

in previous years, but in most cases remained below the prior peak, with the exception of Bedford and Concord, where sales volume was generally two to three times higher, respectively, than Carlisle.

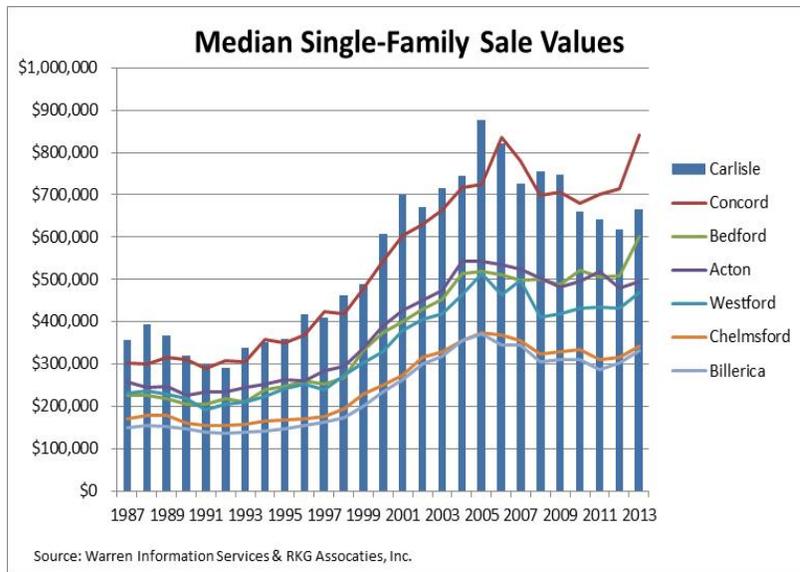


Figure IV-2 – Median Single-Family Sale Value Trends in Carlisle & Its Region

2. Condominium Sales and Median Price Trends

Figure IV-3 displays the sales volume of condominium sales in Carlisle and its region; however, due to the limited supply in Carlisle only a few years are evident.

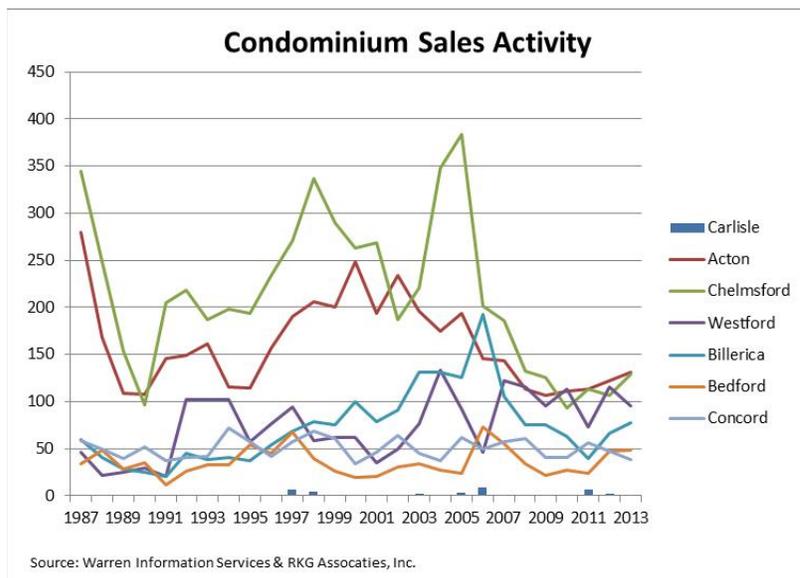


Figure IV-3 – Condominium Sales Activity in Carlisle & Its Region

Referring to Figure IV-3, condominium sales in Carlisle were at their peak in 2006 at nine sales, which accounted for 1.3 percent of regional sale activity in that year. For the most part, condominium sales in many of the communities in the region rebounded in 2013 from prior years, but remain below their peaks experienced in the earlier part of the last decade. Since 2000, condominium sales in the region averaged at 625 sales per year, and 2007 was the last

year to exceed this average. Combined, single-family and condominium sales activity averaged over 2,000 sales per year since 2000, and 70 percent were single-family sales. Average sales in Carlisle equated to 3 percent of regional activity; however, nearly all were single-family home sales.

Figure IV-4 exhibits the trends in the median sale values of condominiums in Carlisle (when available) and the towns of the region. As shown, Carlisle had the highest overall median in 2005 (\$712,500) but in 2011 (\$356,000) it was nearly half the prior peak value. A steep decline in median value was also evident in Bedford between 2004 (\$615,000) and 2006 (\$194,900); however, median values improved and by 2013 (\$495,045), it was 20 percent below the peak. In 2012, Concord was the first community in the region to surpass the prior peak median condominium value, and in 2013, Acton was the second.

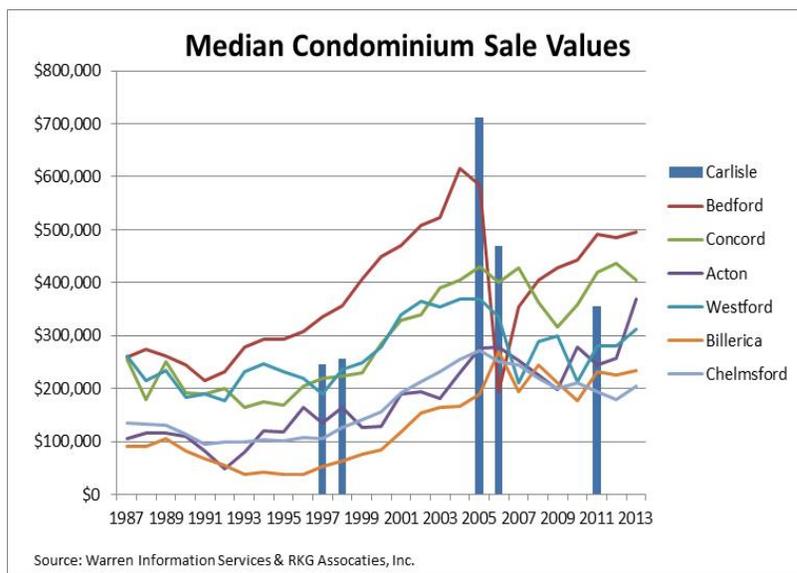


Figure IV-4 – Median Condominium Sale Value Trends in Carlisle and its Region

3. Conclusions

The for-sale market continues to recover from the financial crisis and national recession that started around 2007. The volume of sales for single-family homes and condominiums in 2013 was higher than in prior years, and in some costs recovered to pre-recession levels. Median values have also improved in recent years, but in many communities remained below the prior peak. In Carlisle, single-family sales in 2013 were at their highest level since 2007, but the median sale value remained 24 percent below the peak in 2005 (\$876,560) which was the highest median price in the region. Sales in Carlisle, however, accounted for only 3 percent of those in the region, and activity averaged at 63 sales per year since 2000 with 97 percent for single-family homes.

B. For-Rent Market Sector

This section analyzes conditions in the rental market from data obtained ReisReports, a private firm that tracks conditions at multiple apartment projects in the Greater Boston Region. Carlisle and its region are located on the boundary of two submarkets, namely West/Northwest Suburban (W/NW S) and the North Shore/ Merrimack River Valley

(NS/MRV). As shown in Figure IV-5, these two submarkets (3 and 9) form the outer ring of the western and northern Greater Boston, between Interstates 95 (Route 128) and 495.

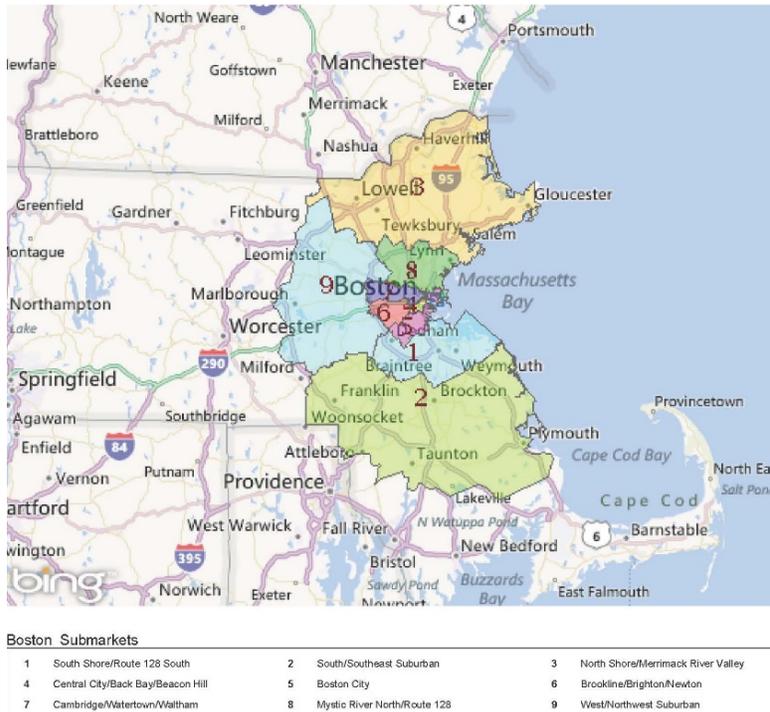


Figure IV-5 – Greater Boston & Its Rental Submarkets

a) Sample Group

The ReisReport provided detailed specifics on a sample seven apartment projects within relatively close proximity to the village center of Carlisle. Key characteristics are shown in Table IV-1. The sample had almost 1,190 units, ranging from 90 units to 312 units. The overall average rent was nearly \$1,725, ranging from \$1,044 to \$2,321. The current vacancy was reported at 4.9 percent for the sample, ranging from 2.1 percent to 6.4 percent.

One-bedroom rents averaged over \$1,570, ranging from \$1,050 to \$2,000, and one-bedroom units ranged in size from 650 SF to 900 SF, averaging at 748 SF. The average rent per SF was \$2.10/SF, ranging from \$1.45/SF to \$2.55/SF. The mix of one-bedroom units represented 23 percent of the sample, ranging from 8 percent to 44 percent of a project.

Two-bedroom rents averaged over \$1,750, ranging from \$1,088 to \$2,340, and two-bedroom units ranged in size from 850 SF to 1,150 SF. The average rent per SF was \$1.81/SF, ranging from \$1.30 to \$2.05/SF. Two-bedroom units represented 71 percent of the sample mix, ranging from 52 percent to 83 percent of a project.

Three-bedroom rents averaged over \$2,480, ranging from \$1,580 to \$3,705, and three-bedroom units ranged in size from 1,185 SF to 1,500 SF. The average rent per SF was \$1.85/SF, ranging from \$1.24 to \$2.47/SF. Three-bedroom units represented 4 percent of the sample mix, ranging from 3 percent to 8 percent of a project.

Table IV-1 – Sample Group of Apartments

Name	Meadows at Brick Kiln	Katadin Woods	Stone Brook Farms	Arbor-etum	Tudor Glen Village	Pond Side	Little-brook	Total/AVG
City	Chelmsford	Lexington	Burlington	Burlington	Woburn	Littleton	Hudson	
Submarket [1]	NS/MRV	W/NW S	MRN/128	MRN/128	MRN/128	W/NW S	W/NW S	
Distance from Carlisle Village	5.3 m	5.6 m	6.9 m	8.2 m	8.6 m	8.7 m	14.3 m	
Units	180	128	203	312	180	90	96	1,189
AVG Rent	\$1,044	\$2,321	\$1,837	\$1,991	\$1,703	\$1,511	\$1,335	\$1,724
Vacancy	6.4%	2.3%	3.4%	6.4%	5.6%	4.4%	2.1%	4.9%
# of Floors	3	3	3	4	2	2	3	3
Year Built	1986	1988	1988	1988	1985	1985	1988	1987
Current Asking Rents								
0-bdrm	\$856							\$856
1-bdrm	\$1,049	\$2,002	\$1,725	\$1,655	\$1,495	\$1,445	\$1,115	\$1,573
2-bdrm	\$1,071	\$2,342	\$1,925	\$1,984	\$1,745	\$1,553	\$1,332	\$1,753
3-bdrm		\$3,705		\$2,469		\$1,741	\$1,580	\$2,482
Units Sizes (SF)								
0-bdrm	255							255
1-bdrm	725	786	715	750	650	900	657	748
2-bdrm	825	1,150	1,050	1,010	850	1,150	875	969
3-bdrm		1,500		1,330		1,400	1,185	1,339
Unit Mix (% of Total)								
0-bdrm	10%							2%
1-bdrm	23%	31%	44%	10%	17%	44%	8%	23%
2-bdrm	67%	63%	56%	82%	83%	52%	83%	71%
3-bdrm		6%		8%		3%	8%	4%
Asking Rent/SF								
0-bdrm	\$3.36							\$3.36
1-bdrm	\$1.45	\$2.55	\$2.41	\$2.21	\$2.30	\$1.61	\$1.70	\$2.10
2-bdrm	\$1.30	\$2.04	\$1.83	\$1.96	\$2.05	\$1.35	\$1.52	\$1.81
3-bdrm		\$2.47		\$1.86		\$1.24	\$1.33	\$1.85
Unit Amenities								
								Count
Dishwasher	x	x	x	x	x	x	x	7
Washer/Dryer		x		x		x		3
Internet	x	x	x	x	x	x	x	7
Project Amenities								
Business Center				x				1
Health Club	x		x	x			x	4
Clubhouse	x	x	x	x		x	x	6
Shared Laundry	x	x	x		x	x	x	6
Pet Friendly	x	x	x	x	x	x	x	7
Parking Lot	x	x	x	x	x	x	x	7
Pool	x	x	x	x	x		x	6
Tennis			x			x	x	3
[1] Greater Boston Submarkets: North Shore/Merrimac River Valley (NS/MRV); West/Northwest Suburban (W/NW S); Mystic River North/Route 128 (MRN/128)								
Source: Reis Reports & RKG Associates, Inc.								

Referring to Table IV-1, all seven properties provided a dishwasher and internet access as a unit amenities, while only three properties had in unit washer/dryers. In terms of project amenities, all seven properties were pet friendly and provide parking lots; six of the properties had a pool and club house, as well as shared laundry facilities. Four properties had a health club; and three offered tennis, and one had a business center.

b) Comparative Rental Data

Table IV-2 compares rental characteristics of the sample group with the averages for the different submarkets and Greater Boston. Rent growth trends by unit types are also shown by the submarkets. The sample group had a higher overall average rent (\$1,724) than indicated for both the West/Northwest Suburban submarket (\$1,663), and the North Shore/Merrimack River Valley submarket (\$1,524), but lower than indicated for Greater Boston (\$1,867). The sample also had a higher distribution of two-bedroom units (71 percent).

Table IV-2 – Rental Comparison by Sample & Submarkets

Sample Group	August 2013									
Unit by Type	Rent	Avg SF	Rent/SF	Mix						
0-bdrm	\$856	255	\$3.36	1.8%						
1-bdrm	\$1,573	748	\$2.10	23.5%						
2-bdrm	\$1,753	969	\$1.81	71.2%						
3-bdrm	\$2,482	1,339	\$1.85	3.5%						
Average	\$1,724	918	\$1.88	100.0%						
West/NW Suburban					Rent Growth					
	August 2013				Quarterly			Annualized		
Unit by Type	Rent	Avg SF	Rent/SF	Mix	2q-13	1q-13	YTD	1-year	3-year	5-year
0-bdrm	\$986	552	\$1.79	5.1%	-1.6%	-1.0%	-2.0%	5.8%	3.4%	0.1%
1-bdrm	\$1,436	773	\$1.86	40.4%	-0.5%	0.6%	0.8%	7.2%	3.7%	2.6%
2-bdrm	\$1,823	1,071	\$1.70	52.5%	1.9%	0.1%	2.6%	6.4%	3.5%	2.7%
3-bdrm	\$2,257	1,345	\$1.68	2.0%	2.5%	-0.3%	2.8%	-0.5%	0.7%	1.3%
Average	\$1,663				1.0%	0.2%	0.7%	6.6%	3.5%	2.6%
No. Shore/Merrimack River Valley					Rent Growth					
	August 2013				Quarterly			Annualized		
Unit by Type	Rent	Avg SF	Rent/SF	Mix	2q-13	1q-13	YTD	1-year	3-year	5-year
0-bdrm	\$952	530	\$1.80	1.8%	0.8%	-0.8%	0.0%	-3.0%	0.0%	0.6%
1-bdrm	\$1,374	783	\$1.75	36.1%	1.0%	0.7%	1.7%	3.5%	3.3%	2.6%
2-bdrm	\$1,616	1,045	\$1.55	57.9%	0.7%	-0.2%	0.4%	3.3%	3.1%	2.4%
3-bdrm	\$1,789	1,311	\$1.36	4.2%	-2.1%	-0.1%	-2.1%	7.5%	3.2%	2.4%
Average	\$1,524				0.6%	0.1%	0.3%	3.5%	3.1%	2.4%
Greater Boston					Rent Growth					
	August 2013				Quarterly			Annualized		
Unit by Type	Rent	Avg SF	Rent/SF	Mix	2q-13	1q-13	YTD	1-year	3-year	5-year
0-bdrm	\$1,275	494	\$2.58	5.0%	-0.6%	1.0%	1.3%	1.2%	2.0%	1.5%
1-bdrm	\$1,685	769	\$2.19	39.5%	1.2%	0.5%	2.6%	3.5%	2.9%	1.7%
2-bdrm	\$2,006	1,078	\$1.86	51.9%	0.7%	0.4%	2.0%	2.6%	2.2%	1.8%
3-bdrm	\$2,664	1,332	\$2.00	3.6%	2.0%	1.6%	4.5%	4.3%	2.9%	0.8%
Average	\$1,867				0.9%	0.5%	0.9%	3.0%	2.5%	1.7%
Average over period ending					Jun-13	Mar-13	Jun-13	Dec-12	Dec-12	Dec-12

Source: ReisReports & RKG Associates, Inc.

The sample group had a higher one-bedroom rent (\$1,573) than the two submarkets, but lower than Greater Boston (\$1,685). The two-bedroom rent at the sample group (\$1,753) was lower than the West/Northwest Suburban submarket (\$1,823) and Greater Boston (\$2,006), but higher than the North Shore/Merrimack Valley submarket (\$1,616).

Three-bedroom rent at the sample group (\$2,482) was higher than the West/Northwest Suburban submarket (\$2,257) and the North Shore/Merrimack Valley submarket (\$1,789), but lower than Greater Boston (\$2,664).

Referring to Table IV-2, rent growth in the West/Northwest Suburban submarket over the last two quarters (YTD) was highest for two- and three-bedroom units, while in Greater Boston rent growth was seen for all unit types. Table IV-3 compares changes in vacancy rates and rent growth for the sample, and other geographies. The sample group had a lower vacancy rate

(4.9 percent) in August 2013 than the West/Northwest Suburban submarket (5.1 percent), but it was higher for the other periods for 2013. It was also higher than North Shore/ Merrimack River Valley and Greater Boston in 2013. However, historic trends indicated a lower vacancy rate for the sample groups than all other areas, and likely due to a static supply.

Rent growth for the sample group in 2013 varied from the other areas but for the most part was slightly lower. This may be attributed to a spike in rent growth (13 percent) that occurred in 2012 for the sample, which was much higher than the other areas, and likely attributed to higher rent growth in the two older periods than indicated for the other submarkets.

Table IV-3 – Comparison Trends in Vacancy and Rent Growth

Period	Vacancy Rate Trends				Rent Growth				Average over period ending
	Sample	W/NW Suburbs	NS/MR Valley	Boston	Sample	W/NW Suburbs	NS/MR Valley	Boston	
Aug-13	4.9%	5.1%	3.8%	3.9%	0.3%	0.3%	0.6%	0.6%	Aug-13
2q13	4.7%	4.0%	3.8%	3.6%	1.1%	1.0%	0.6%	0.9%	Jun-13
1q13	5.2%	4.3%	4.0%	3.7%	-0.1%	0.2%	0.1%	0.5%	Mar-13
YTD Avg	5.0%	4.2%	3.9%	3.7%	0.6%	0.7%	0.3%	0.9%	Jun-13
1-year	3.3%	4.4%	4.5%	3.9%	13.1%	6.6%	3.5%	3.0%	Dec-12
3-year	3.8%	5.1%	5.6%	4.8%	5.1%	3.5%	3.1%	2.5%	Dec-12
5-year	4.1%	5.0%	6.5%	5.1%	2.8%	2.6%	2.4%	1.7%	Dec-12

Source: ReisReports & RKG Associates, Inc.

Table IV-4 exhibits different rental market characteristics based on the age of properties within each of the submarkets. The West/Northwest Suburban submarket (11 percent) had the highest concentration of post-2009 units than the other two areas, while its concentration of units in built in 2000-2009 was the lowest. Its concentration of pre-1980 units (60 percent) was also higher than the other areas, and its concentration of 1980-1989 supply (5 percent) was lower.

Table IV-4 – Characteristics by Year Built (Supply, Rent & Vacancy)

Year Built	W/NW Suburban			NS/MRV			Greater Boston		
	Supply	Rent	Vac. Rate	Supply	Rent	Vac. Rate	Supply	Rent	Vac. Rate
Pre 1970	15%	\$1,436	2.9%	11%	\$1,312	2.2%	20%	\$1,631	2.1%
1970-1979	45%	\$1,359	4.0%	30%	\$1,291	3.2%	30%	\$1,496	3.4%
1980-1989	5%	\$1,757	2.7%	13%	\$1,370	3.0%	12%	\$1,733	3.1%
1990-1999	4%	\$2,000	3.2%	4%	\$1,445	4.4%	5%	\$1,942	3.5%
2000-2009	21%	\$1,888	4.4%	37%	\$1,812	4.0%	29%	\$2,165	4.1%
Post 2009	11%	\$2,632	15.7%	5%	\$1,760	11.4%	4%	\$2,405	17.2%
All	100%	\$1,663	5.1%	100%	\$1,524	3.8%	100%	\$1,867	3.9%

Source: ReisReports & RKG Associates, Inc.

Referring to Table IV-4, post 2009 units in the West/Northwest Suburban submarket had the highest rent (\$2,632) of any geography, and the vacancy rate was nearly 16 percent, suggesting slower absorption of the newer high-priced units, which was also evident in Greater Boston (17 percent) for this group.

Table IV-5 compares apartment completions and unit absorption in the different areas. In the June to August period, the West/Northwest Suburban submarket had nearly 370 units completed, and 154 units were absorbed indicating a 2.4 ratio, which was slower than the 1.7 indicated for Greater Boston, where 736 units of the 1,247 newly-built units were absorbed. Historic data for the West/Northwest Suburban submarket indicated a faster pace of absorption for newly built units, as well as for Greater Boston, than was evident in the most recent period.

This finding suggest that demand for newly-built apartments in the West/ Northwest suburban market may be waning, as the for-sale market shows signs of improvements and interest rates remained relatively low. Also, rental concessions are apparent as 0.7 months of free rent was the average for the West/Northwest Suburban submarket, about one-week more than the other areas.

Table IV-5 – Apartment Completions and Absorptions by Submarket

W/NW Suburban	June- Aug	Quarterly			Annualized		
		2q-13	1q-13	YTD	1-year	3-year	5-year
Units Built	367	0	0	0	418	227	344
Units Absorbed	154	58	0	29	438	305	322
Ratio (blt/abs)	2.4	0.0	0.0	0.0	1.0	0.7	1.1
Inventory							
Growth Rates		0.0%	0.0%	0.0%	2.2%	1.2%	1.9%
Free Rent (mo.)	0.72						
Expense Ratio	43.0%						
No.							
Shore/MRV							
Units Built	-na-	0	0	0	177	296	501
Units Absorbed	-na-	65	49	57	363	599	756
Ratio (blt/abs)		0.0	0.0	0.0	0.5	0.5	0.7
Inventory							
Growth Rates		0.0%	0.0%	0.0%	0.5%	0.9%	1.6%
Free Rent (mo.)	0.52						
Expense Ratio	41.9%						
Greater Boston							
Units Built	1,247	250	313	282	1,551	1,139	2,298
Units Absorbed	736	547	331	439	1,972	2,800	2,954
Ratio (blt/abs)	1.7	0.5	0.9	0.6	0.8	0.4	0.8
Inventory							
Growth Rates		0.1%	0.2%	0.1%	0.8%	0.6%	1.2%
Free Rent (mo.)	0.52						
Expense Ratio	41.6%						
Average over period ending		Jun-13	Mar-13	Jun-13	Dec-12	Dec-12	Dec-12

Source: ReisReports & RKG Associates, Inc.

2. Asking Rents at Major Projects in Region

RKG searched various apartment rental website to ascertain a range in rents at major complexes in the multiple towns in the region. RKG used a starting rent at each of these projects as the baseline for comparison purposes, and the corresponding unit sizes. Most of these projects offer a variety of unit sizes and floor plans, and the rents typically increase with larger units. Key statistics from an inventoried sample of seventeen apartment complexes in the region are summarized by different towns in Table IV-6, followed by highlights from a review of the data and comparison with the sample group.

Table IV-6 – Carlisle & Its Region: Summary of Rents at Apartment Complexes (Nov 2013)

Community	Project Name	# of Units	Starting Rents by Type				Units Size in SF				Starting Rent per Unit SF			
			0-bdm	1-bdm	2-bdm	3-bdm	0-bdm	1-bdm	2-bdm	3-bdm	0-bdm	1-bdm	2-bdm	3-bdm
Acton	Parker Street Apartments	76		\$725	\$875		500	800			\$1.45	\$1.09		
Acton	Spring Hill Commons	104	\$750	\$1,000	\$1,250	400	600	700		\$1.88	\$1.67	\$1.79		
Acton	Coach Estates	48		\$1,200	\$1,450		768	868			\$1.56	\$1.67		
Acton	Avalon Acton	380		\$1,500	\$1,760		743	1,059			\$2.02	\$1.66		
Acton	Total (4)/Average	608	\$750	\$1,106	\$1,334	400	653	857		\$1.88	\$1.69	\$1.56		
Bedford	Avalon at Bedford Center	139		\$1,554	\$2,160		816	1,104			\$1.90	\$1.96		
Bedford	The Village at Taylor Pond	188		\$1,591	\$1,985		854	1,016			\$1.86	\$1.95		
Bedford	Heritage at Bedford Springs	164		\$1,618	\$2,233	\$2,302	768	1,145	1,420		\$2.11	\$1.95	\$1.62	
Bedford	Total (3)/Average	491		\$1,588	\$2,126	\$2,302	813	1,088	1,420		\$1.95	\$1.95	\$1.62	
Billerica	Parlmont Park	216	\$922	\$1,123	\$1,269	390	621	806		\$2.36	\$1.81	\$1.57		
Billerica	Middlesex Crossing	252	\$1,155	\$1,320	\$1,400	330	540	700		\$3.50	\$2.44	\$2.00		
Billerica	The Villas at Old Concord Rd	324		\$1,343	\$1,617	\$2,549	693	1,210	1,365		\$1.94	\$1.34	\$1.87	
Billerica	Princeton at Boston Rd	156		\$1,663	\$1,927		744	1,077			\$2.24	\$1.79		
Billerica	Total (4)/Average	948	\$1,039	\$1,362	\$1,553	\$2,549	360	650	948	1,365	\$2.88	\$2.10	\$1.64	\$1.87
Carlisle	Benfield Farms [1]	26		\$1,350	\$1,650		530	830			\$2.55	\$1.99		
Chelmsford	Coach & Carriage House	149	\$915	\$1,050	\$1,330	375	600	775		\$2.44	\$1.75	\$1.72		
Chelmsford	Princeton Common	108		\$1,490	\$1,795		670	1,030			\$2.22	\$1.74		
Chelmsford	Kensington at Chelmsford	144		\$1,555	\$1,740		797	1,094			\$1.95	\$1.59		
Chelmsford	Total (3)/Average	401	\$915	\$1,365	\$1,622	375	689	966		\$2.44	\$1.98	\$1.68		
Concord	Concord Mews	350		\$1,756	\$2,240		701	975			\$2.50	\$2.30		
Concord	Fairhaven Gardens	42			\$3,615	\$3,950		1,600	2,000			\$2.26	\$1.98	
Concord	Total (2)/Average	392		\$1,756	\$2,928	\$3,950	701	1,288	2,000		\$2.50	\$2.27	\$1.98	
Total (17 projects, 2,790 units) /Average		169	\$936	\$1,352	\$1,782	\$2,934	374	690	988	1,595	\$2.50	\$1.96	\$1.80	\$1.84
Minimum		26	\$750	\$725	\$875	\$2,302	330	500	700	1,365	\$1.88	\$1.45	\$1.09	\$1.62
Maximum		380	\$1,155	\$1,756	\$3,615	\$3,950	400	854	1,600	2,000	\$3.50	\$2.55	\$2.30	\$1.98

[1] Age-restricted (62+); market-rate rents only

Source: move.com;forrent.com; rent.com;project managers/websites & RKG Associates, Inc.

- One-bedroom units had an average starting rent of \$1,350, ranging from \$725 (Parker Street Apartments in Acton) to \$1,756 (Concord Mews in Concord). This average was 22 percent lower than indicated by the sample group (\$1,573). One-bedroom units range in size from 500 SF to 854 SF, and average at 690 SF, which was also smaller than the sample group (748 SF). The average starting rent per square foot for one-bedroom units was \$1.96/SF, ranging from \$1.45/SF to \$2.55/SF.
- The starting “market rent” for one-bedroom units at Benfield Farms in Carlisle (\$1,350) is similar to the average starting rent for one-bedroom units in the region; however, the average unit size at Benfield Farms (530 SF) is approximately 20 percent smaller than the average for the group (690 SF), whereby the average rent per square foot for one-bedroom units at Benfield Farms was the highest for the region (\$2.55/SF) on a per square foot basis. Acton (\$1,056) had the lowest average one-bedroom rent, and Concord (\$1,756) had the highest, as shown in Table IV-6.
- Two-bedroom units had an average starting rent of slightly more than \$1,780, ranging from \$875 (Parker Street Apartment in Acton) to \$3,615 (Fairhaven Gardens in Concord). This average was 1.5 percent higher than the sample group (\$1,753). Two-bedroom units ranged in size from 700 SF to 1,600, and average at 988 SF, and somewhat larger than the sample group (969 SF). The average starting rent per square foot was \$1.80/SF, ranging from \$1.09/SF to \$2.30/SF, and the average was similar to the sample group (\$1.81/SF). Concord (\$2,928) had the highest average starting rent for two-bedroom units and Acton had the lowest (\$1,334). The starting “market-rent” for two-bedroom units at Benfield Farms (\$1,650) was 7 percent lower than the average indicated from the sample (\$1,782), and the average size (830 SF) was 16 percent smaller than the average from the sample (988 SF), causing the rent per square foot to be almost 11 percent higher than the average

(\$1.80/SF), as shown in Table IV-6. [Note that Benfield Farms “market” rents are actually for units where household income is capped at 100 percent of AMI.]

- Three-bedroom units had an average starting rent of \$2,934 ranging from \$2,300 (Heritage at Bedford Springs in Bedford) to \$3,950 (Fairhaven Gardens in Concord). This average was 18 percent higher than the sample group (\$2,482). The average unit size was 1,595 SF ranging from 1,365 SF to 2,000 SF, and the indicated price per square foot averaged \$1.84/SF, ranging from \$1.62/SF to \$1.98. The sample group had a similar average price per square foot (\$1.85/SF), but the average unit size was smaller (1,339 SF). Concord (\$3,950) had the highest average three-bedroom rent, and Bedford (\$2,302) had the lowest.

3. Listings on Craig’s List

RKG also reviewed for-rent listings on Craig’s List, a popular internet site for renters looking for apartments or homes for rent in the region. Table IV-7 summarizes the listings towns and bedrooms in the region. Unfortunately, listing data for apartments (excluding Benfield Farms) or homes in Carlisle was not available. Anecdotally, rents for the few one and two bedroom apartments in Carlisle either in small multi-unit buildings or accessory apartments reportedly range from \$1,200 to \$1,500, respectively, while rents for single-family homes start at \$2,000 in a few cases but typically range between \$3,000 and \$5,000 per month, according to a local real estate broker.

As shown in Table IV-7, listings for sixty-six units were tabulated by bedroom count and town, with one-and two- bedroom units accounting for most of the listings. The average asking rents for one-bedroom units was \$1,244 ranging from \$808 (Acton) to \$1,790 (Concord). This average appeared slightly higher (4 percent) than the \$1,200 per month reported for one-bedroom units in Carlisle. As shown in Table IV-7, the low-end of the one-bedroom listings was \$395, reflective of a single room in a shared house in Acton, and the high-end was for a luxury unit in an historic area of Concord (\$1,970).

The average asking rent for two-bedroom units was \$1,784 ranging from \$1,609 (Acton) to \$1,896 (Bedford) The overall range was from \$1,000 (Bedford) to \$2,456 (Bedford), and the reported rent in Carlisle (\$1,500) for two-bedroom units was 16 percent below that indicated for the region.

As shown in Table IV-7, the asking rent for three-bedroom units averaged at \$2,127 in the region, ranging from \$2,015 (Bedford) to \$2,900 (Concord). The asking rent for four-bedroom units was \$3,100 in the region, and toward the low-end of the general range for single-family homes in Carlisle.

Table IV-7 – Carlisle & Its Region: Summary of Rental Listing from Craig’s List (Nov 2013)

Subject	Type	Acton	Bedford	Billerica	Chelmsford	Concord	Westford	Total
Listings	1-bdm	8	7	7	1	1	1	25
	2-bdm	8	9	8	2		1	28
	3-bdm	2	6	2		1		11
	4-bdm	1	1					2
AVG Rent	1-bdm	\$808	\$1,613	\$1,210	\$1,490	\$1,970	\$1,400	\$1,244
	2-bdm	\$1,609	\$1,896	\$1,819	\$1,795		\$1,875	\$1,784
	3-bdm	\$2,025	\$2,015	\$2,180		\$2,900		\$2,127
	4-bdm	\$3,200	\$3,000					\$3,100
Low \$	1-bdm	\$395	\$1,300	\$775				\$395
	2-bdm	\$1,250	\$1,000	\$1,630				\$1,000
	3-bdm	\$1,950	\$1,375	\$2,000				\$1,375
	4-bdm							\$3,000
High \$	1-bdm	\$1,200	\$1,775	\$1,663		\$1,970		\$1,970
	2-bdm	\$2,200	\$2,456	\$1,975				\$2,456
	3-bdm	\$2,100	\$2,312	\$2,360		\$2,900		\$2,900
	4-bdm							\$3,200
Source: Craig’s List & RKG Associates, Inc.								

4. Rental Conclusions

The apartment market in Greater Boston has experienced a renaissance as a result of the end of the housing bubble created in the for-sale sector because of easily obtainable financing during the early-to-mid part of the last full decade. Apartment development continues in the region, and conditions are positive, as rents continue to increase and vacancy remains relatively low. However, a review of ReisReport data suggest that absorption of newer units has slowed, which may be attributed to improvements in the for-sale sector, since interest rates remain relatively low.

Rents at the sample group in the ReisReport appeared in-line with those in at apartment complexes in the region, where a broad range in rents exists depending on the unit-type and town. The asking rents indicated from Craig’s list were generally within the range of that indicated at apartment complexes, and in all cases reflect a very competitive market with a variety of different options; however, a softening in pricing was not that apparent, although rental concessions were apparent.

The reported rental prices in Carlisle for its limited supply appeared below the averages indicated for the region, perhaps due to the income limitations on a significant percentage of the Carlisle rental apartment stock; however, reported rents for single-family homes in Carlisle exceeded pricing for 3- and 4-bedroom units in the region. The 100 percent of AMI rents at Benfield Farms for one-bedroom units (\$1,350) appeared similar to the average indicated for the region, but the rent for two-bedroom units (\$1,650) was lower, and in both cases the average unit size was smaller than indicated at other projects, resulting in a higher price per square foot. Of course, rents at Benfield Farms cannot be used to determine market-rents in Carlisle. Benfield Farms is a LIHTC project, where most of the units are for elderly households earning 60 percent or less of AMI. Only four units are available to households above that level, and even they are capped at 100 percent of AMI.

V. DEMAND FOR RENTAL HOUSING IN CARLISLE

This section identifies a range in annual demand for housing in Carlisle based on its potential capture of five-year forecasts for the region obtained from DemographicsNow and key characteristics from U.S. Census data. The annual demand allocated for Carlisle varies from a low annual figure based on historic trends to a high figure that assumes a greater capture of the regional forecast. However, this high end is considered speculative from the perspective of institutional financing sources due to the lack of comparable product in town.

The annual demand is forecasted for a period between 2013 and 2018, and would be reasonable for a project proposed within a 2016 to 2020 time-frame. This estimate can be refined in the future, as the Town undertakes additional research, focus groups and the like in order to ascertain a better understanding of the market potential of the proposed project(s).

A. Forecasted Annual Household Demand (2012-2017)

In estimating future demand for housing in the Town of Carlisle, RKG utilized DemographicNow's five-year household forecasts for the region, coupled with tenure and turnover rates in housing and other factors derived from US Census data to formulate an annual forecast of housing demand over the next five years based on different captures rates that would be expected for Carlisle.

Table V-1 – Carlisle & Its Region: Annual Housing Demand (2013 – 2018)

Regional 5-year Household Projections			
	Owners	Renter	Total
2013	45,555	12,074	57,629
2018	46,852	12,924	59,776
5-year change	1,296	851	2,147
Annual Average	259	170	429
Annual Turnover	1,608	780	2,387
Total Annual Demand	1,867	950	2,817
Range in Potential Capture in Carlisle [1]			
	Owner	Renter	Total
Low	56	9	66
High	93	28	122
Range in Annual New Construction [2]			
	Owner	Renter	Total
Low	8	2	11
High	14	7	21
[1] Owner capture is 3% to 5%; renter capture 1% to 3%			
[2] 15% of owner/25% of renter demand for new construction			
Source: Demographics NOW; US Census & RKG Associates, Inc.			

As shown in Table V-1, the seven-town region centered on Carlisle is forecasted to experience an increase of nearly 2,150 households by 2018, which equates to an annual average of nearly 430 households. Annual demand from turnover in the region is estimated at nearly 2,390 households for a total demand of nearly 2,820 households per year, of which nearly 85 percent would be attributed to turnover, and approximately 34 percent would be renters seeking housing. The annual demand for rental units is 950, with 82 percent coming from turnover and 18 percent (170 units) from renter households new to the regional market.

Based solely on historical capture rates, and ignoring the looming constraints on production in the six towns surrounding Carlisle, RKG estimates that Carlisle might capture between 3 percent (low) and 5 percent (high) of this annual owner demand and between 1 percent and 3 percent of the renter demand. This would calculate to between fifty-six and ninety-three owner households annually, and between nine and twenty-eight renter households annually. RKG estimates that between eight and fourteen owner households and between two and seven renter households would be seeking new construction per year, as shown in Table V-1.² Carlisle could potentially capture a larger share of the regional demand if the supply were available or if supply in the six surrounding towns fell off as those communities met their 10 percent minimum under Chapter 40B. However, it would still compete with other communities for these households on the basis of location, amenities, size, quality, distance from employment, distance from and quality of schools, and pricing, among other factors.

1. Affordability of Owning and Renting

In order to quantify future demand for housing by different age and income levels, it is necessary to establish a range in home values and monthly rents that would be affordable at different income levels. Based on current financial assumptions as noted in Table V-2, a range in home values and monthly rents are estimated by different income levels.

Table V-2 – Carlisle: Affordability of Owning & Renting (November 2013)

Gross Income	Ownership [1]		Monthly Rent [2]
	Low Value	High Value	
\$20,000	\$70,000	\$85,000	\$500
\$40,000	\$140,000	\$175,000	\$1,000
\$60,000	\$215,000	\$255,000	\$1,500
\$75,000	\$265,000	\$325,000	\$1,875
\$100,000	\$355,000	\$435,000	\$2,500
\$125,000	\$445,000	\$545,000	\$3,125
\$150,000	\$535,000	\$655,000	\$3,750
[1] Financial Assumptions			
	Low Value	High Value	
Interest Rate	5.00%	4.00%	
Term	30	30	
Downpayment	5%	20%	
RE TAXES/1000	\$18.56	\$18.56	
Insurance /1000	\$4.00	\$4.00	
Cost as % of Income	30%	30%	
[2] Rental Cost factored at 30% of gross income			
Source: RKG Associates, Inc.			

2. Annual Demand for Rental Units by Price Range

As shown in Table V-3, the annual demand forecast in the seven-town region by renters totals 950 households. Of these, 73 percent would earn incomes of less than \$75,000, and most would likely qualify for affordable housing depending of household size. The remaining 27 percent would qualify for “market-rate” rentals. In addition, over 56 percent would be elderly (65 years and older) and most of these would be categorized as low-income.

² These forecasts in new housing growth for Carlisle (55 to 110 households) by 2018, would be 2.5 to 5 times higher than the increase in households (22) by 2018, as shown in Table II-1.

The 27 percent of renter demand that come from households earning \$75,000 or more, or approximately 240 renter households per year, would fit the profile of the market-rate units for a proposed rental project in Carlisle, with approximately 75 of such renter households annually seeking newly-constructed units, based on historic rates in the region. Again, the issue is the lack of comparable data for how much of this seven-town regional demand could be captured by Carlisle. Going purely on the basis of supply-limited data Carlisle would capture 1 percent to 3 percent of these “market-rate” renters, that would equate to three to seven renters per year, and if only one-quarter sought new housing (as opposed to turnover into existing units) that would yield one or two renters per year. The lack of comparable data to document market-rate apartment rental demand in Carlisle would discourage most institutional lenders or investors and so constrain developers to those not requiring institutional investment.

Table V-3 – Annual Regional Renter Demand by Age, Income & Rent & Carlisle’s Capture

ANNUAL REGIONAL RENTAL DEMAND									
Income Range	< Age 35	Age 35 to 44	Age 45 to 54	Age 55 to 64	Age 65 & 74	Age 75 & Older	Total	% of Total	Monthly Rent Range
Less than \$20,000 [1]	12	3	5	8	57	58	142	15.0%	\$500 or less
\$20,000 to \$39,999 [1,2]	23	9	8	19	61	82	203	21.3%	\$500 to \$1,000
\$40,000 to \$59,999 [2,3]	26	5	11	18	84	64	207	21.8%	\$1,000 to \$1,500
\$60,000 to \$74,999 [3]	26	10	3	10	61	33	145	15.2%	\$1,500 to \$1,875
\$75,000 to \$99,999	32	21	1	7	6	1	69	7.3%	\$1,875 to \$2,500
\$100,000 to \$124,999	34	6	6	8	6	2	63	6.6%	\$2,500 to \$3,125
\$125,000 & Up	11	68	17	6	12	7	121	12.8%	\$3,125 & up
Total	164	123	51	77	287	248	950	100%	Total
% of Total	17.2%	12.9%	5.4%	8.1%	30.3%	26.1%	100%		% of Total
[1] 30% of AMI; [2] Very-Low Income (50%); [3] Low Income (80%); [4] factored at 30% of income Source: Demographics NOW; US Census & RKG Associates, Inc.									
ANNUAL RENTER DEMAND IN CARLISLE (LOW - 1%)									
Income Range	< Age 35	Age 35 to 44	Age 45 to 54	Age 55 to 64	Age 65 & 74	Age 75 & Older	Total	% of Total	Range in Monthly Rent [4]
Less than \$20,000 [1]	0.1	0.0	0.1	0.1	0.6	0.6	1.4	15%	\$500 or less
\$20,000 to \$39,999 [1,2]	0.2	0.1	0.1	0.2	0.6	0.8	2.0	21%	\$500 to \$1,000
\$40,000 to \$59,999 [2,3]	0.3	0.0	0.1	0.2	0.8	0.6	2.1	22%	\$1,000 to \$1,500
\$60,000 to \$74,999 [3]	0.3	0.1	0.0	0.1	0.6	0.3	1.4	15%	\$1,500 to \$1,875
\$75,000 to \$99,999	0.3	0.2	0.0	0.1	0.1	0.0	0.7	7%	\$1,875 to \$2,500
\$100,000 to \$124,999	0.3	0.1	0.1	0.1	0.1	0.0	0.6	7%	\$2,500 to \$3,125
\$125,000 & Up	0.1	0.7	0.2	0.1	0.1	0.1	1.2	13%	\$3,125 & up
Total	1.6	1.2	0.5	0.8	2.9	2.5	9.5	100%	Total
% of Total	17%	13%	5%	8%	30%	26%	100%		% of Total
[1] 30% of AMI; [2] Very-Low Income (50%); [3] Low Income (80%); [4] factored at 30% of income Source: Demographics NOW; US Census & RKG Associates, Inc.									
ANNUAL RENTER DEMAND IN CARLISLE (HIGH - 3%)									
Income Range	< Age 35	Age 35 to 44	Age 45 to 54	Age 55 to 64	Age 65 & 74	Age 75 & Older	Total	% of Total	Range in Monthly Rent [4]
Less than \$20,000 [1]	0.4	0.1	0.2	0.2	1.7	1.7	4.3	15%	\$500 or less
\$20,000 to \$39,999 [1,2]	0.7	0.3	0.2	0.6	1.8	2.5	6.1	21%	\$500 to \$1,000
\$40,000 to \$59,999 [2,3]	0.8	0.1	0.3	0.5	2.5	1.9	6.2	22%	\$1,000 to \$1,500
\$60,000 to \$74,999 [3]	0.8	0.3	0.1	0.3	1.8	1.0	4.3	15%	\$1,500 to \$1,875
\$75,000 to \$99,999	1.0	0.6	0.0	0.2	0.2	0.0	2.1	7%	\$1,875 to \$2,500
\$100,000 to \$124,999	1.0	0.2	0.2	0.2	0.2	0.1	1.9	7%	\$2,500 to \$3,125
\$125,000 & Up	0.3	2.1	0.5	0.2	0.4	0.2	3.6	13%	\$3,125 & up
Total	4.9	3.7	1.5	2.3	8.6	7.4	28.5	100%	Total
% of Total	17%	13%	5%	8%	30%	26%	100%		% of Total
[1] 30% of AMI; [2] Very-Low Income (50%); [3] Low Income (80%); [4] factored at 30% of income Source: Demographics NOW; US Census & RKG Associates, Inc.									

B. Conclusions

Potential rental demand in Carlisle over the next five-years for market-rate, non-age restricted rental units, as conventionally estimated using comparable data, would appear to be very

limited. The Town would need to capture a much greater share of regional rental demand than it has historically (due to the near-absence of apartment rentals in Carlisle) to support a relatively large-scale project (fifty units and above). In absolute terms, conventional methods using what comparable data is available, suggest that annual rental housing demand (combination of growth and turnover) would range between nine and twenty-eight renters per year, equating to an annual average of two to seven new units per year. The low end of the range is supportable with factors derived from census data; however, the high end assumes a somewhat higher absorption share of regional demand than can be proven by comparable analysis. The lack of documentable rental demand is due primarily to a small rental supply in a low-density environment that encourages expensive single-family homes on large lots without public utilities. In order to capture a larger share of market demand, a new project in Carlisle would likely need to offer higher levels of amenities, including unit size, and/or substantial price (rental) discounts. Doing so would result in either higher costs or lower revenues.

A multi-phase project could be considered as a means to develop rental and Chapter 40B housing in Carlisle, due to the novelty of this kind of housing in the community. Starting with perhaps twenty-four units in 2018, another twenty-four units (or perhaps thirty-six) could be added in a later phase at some point in the 2020s. However, this approach would require significant local public subsidy, particularly for infrastructure. Alternatively, Carlisle could pursue conversations with regional market-rate developers who have expressed interest in building Chapter 40B rental housing, with 75 percent of units at market rate, at a much larger scale (upwards of 100 apartments), perhaps on land that is now privately owned or, if a smaller rental project is desired, consider a non-profit-sponsored, LIHTC development, similar to Benfield Farms but not age-restricted.

Given that a potential phased, market-rate project would be three to six years in the future, the Town has time to quantify in more depth the potential demand for rental housing that would assist any potential developer and financing entity. The CAHT could survey employees working in Carlisle, either for the Town or at private companies. In 2012, Carlisle had an employment base of nearly 700 jobs. ACS data indicate that 33 percent of the local jobs in Carlisle are held by people living outside the immediate region. If 10 percent of these employees could be captured for a rental project, this would equate to 20-plus units and represent a good starting point for establishing sustainable demand for workforce housing in a town that presently has little to none.

VI. FINANCIAL AND FEASIBILITY ANALYSIS

A. Introduction

RKG prepared a financial viability analysis and a feasibility analysis of three different mixed-income hypothetical apartment projects, as requested by the CAHT. **Financial viability** refers to whether a project generates sufficient cash flow from on-going operations to cover typical mortgage debt and return on investment. **Financial feasibility** deals with whether the cost to construct the project is more or less than its “market” value based on the net operating income.

Certain assumptions about ongoing operations have been used to develop a pro forma for each scenario. The preliminary feasibility analysis incorporates another series of assumptions about total development costs. At this stage, the feasibility analysis is preliminary because the exact location for each hypothetical project is not known. Furthermore, building and site designs are not available to identify more accurately the associated costs. In each case, it is assumed that a portion of the town-owned Banta-Davis site would be developed for apartments because excess capacity at the Carlisle School’s septic system could be available for a project. The maximum capacity available would be limited to seventy-six bedrooms. The different size criteria for the three mixed-income scenarios are shown in Table VI 1, as well as a possible unit mix.

Table VVI-1 – Carlisle: Three Hypothetical Apartment Scenarios

Unit Type	Scenario 1	Scenario 2	Scenario 3
Total Units	20	32	44
One-Bedroom	6	8	24
Two-Bedroom	14	20	16
Three-Bedroom		4	4
Total Bedrooms	34	60	68
Market Units	15	24	33
One-Bedroom	4	6	18
Two-Bedroom	11	15	12
Three-Bedroom		3	3
Affordable Units	5	8	11
One-Bedroom	2	2	6
Two-Bedroom	3	5	4
Three-Bedroom		1	1
% Affordable	25%	25%	25%
Source: Town of Carlisle & RKG Associates, Inc.			

Table VI-17 exhibits key criteria from each scenario based on the analysis contained in this section of the report. Each mixed-income scenario could be financially viable. The average monthly market rents range from \$1,727 per month (Scenario 3) to \$1,863 (Scenario 2), averaging around \$1.90/SF. The estimated market values, based on an assumed capitalization rate of 6.5 percent, range from \$3.2 million to \$6.9 million, or \$161,900 to \$167,700 per unit. The preliminary development budgets indicate total costs ranging from \$3.9 million to \$10.1 million, or from \$195,860 to \$228,810 per unit, indicating that the project is not financially feasible without public subsidy. RKG attempted to refine these budget amounts with actual construction figures from the Benfield Farms project. However, the total cost at Benfield Farms (\$377,380 per unit, including hard construction costs of \$252,650 per unit) exceed the cost amounts estimated in this analysis.

B. Market and Affordable Rents

Recognizing that there are no comparable projects in Carlisle, RKG estimates the “market rent” at a hypothetical project to be as follows

- \$1,500 per month for a one-bedroom unit of 750 SF, equating to a factor of \$2.00/SF
- \$1,900 per month for a 1,000 SF two-bedroom unit, equating to a factor of \$1.90/SF
- \$2,400 per month for a 1,350 SF three-bedroom unit, equating to \$1.78/SF

As shown in Table VVI-2, these estimated market rents are equivalent to those at some of the region’s newer rental projects and they are considered reasonable, given the hypothetical nature of this analysis. The estimated rents assume building construction and amenities (project and unit) commensurate with new projects in the region and at those shown below. Carlisle’s hypothetical project would be the first mixed-income apartment development in the community. Since the town lacks the commercial activity and links to public transportation that apartment dwellers usually want or require, RKG determined that a rental structure at the high end of the range, similar to that indicated in Concord or Lexington, is not realistically achievable.

Table VVI-2 – Carlisle: Comparison of Market Rents at a Hypothetical Project to Other Projects

Project	Criteria	1-bdrm	2-bdrm	3-bdrm
Hypothetical Project in Carlisle	Unit Size in SF	750	1,000	1,350
	Market Rent	\$1,500	\$1,900	\$2,400
	Rent/SF	\$2.00	\$1.90	\$1.78
Avalon Acton	Unit Size in SF	743	1,069	
	Market Rent	\$1,500	\$1,760	
	Rent/SF	\$2.02	\$1.65	
Village at Taylor Pond	Unit Size in SF	854	1,016	
	Market Rent	\$1,591	\$1,985	
	Rent/SF	\$1.86	\$1.95	
Kensington at Chelmsford	Unit Size in SF	797	1,094	
	Market Rent	\$1,555	\$1,740	
	Rent/SF	\$1.95	\$1.59	
Arboretum in Burlington	Unit Size in SF	750	1,010	1,330
	Market Rent	\$1,655	\$1,984	\$2,469
	Rent/SF	\$2.21	\$1.96	\$1.86
Heritage at Bedford Springs	Unit Size in SF	768	1,145	1,420
	Market Rent	\$1,618	\$2,233	\$2,302
	Rent/SF	\$2.11	\$1.95	\$1.62
Concord Mews	Unit Size in SF	701	975	
	Market Rent	\$1,756	\$2,240	
	Rent/SF	\$2.50	\$2.30	
Katadin Woods in Lexington	Unit Size in SF	786	1,150	1,500
	Market Rent	\$2,002	\$2,342	\$3,705
	Rent/SF	\$2.55	\$2.04	\$2.47

Source: REIS; project websites & RKG Associates, Inc.

For estimating the monthly rents of the “affordable” units, RKG used the average of the income levels by different household sizes, and a factor of 30 percent of monthly gross income. For one-bedroom units, the average between the 60 percent and 80 percent of area median income (AMI), and the average between one- and two-person households was used, times 30 percent, and then divided by twelve (months). For affordable two-bedroom rents, the average between two- and three-person households; and for three-bedroom, the average for a four-person

household. These calculations of affordable rents are shown in Table VVI-3, as well as the market rents.

Table VVI-3 – Carlisle: Affordable Rents for Hypothetical Projects

Income by H'hold Size	1-person	2-person	3-person	4-person	5-person
Income @ 60% of AMI	\$39,660	\$45,360	\$51,000	\$56,640	\$61,200
Income @ 80% of AMI	\$47,150	\$53,900	\$60,650	\$67,350	\$72,750
AVG	\$43,405	\$49,630	\$55,825	\$61,995	\$66,975
Monthly Income	\$3,617	\$4,136	\$4,652	\$5,166	\$5,581
Rent @ 30%	\$1,085	\$1,241	\$1,396	\$1,550	\$1,674
AVG Hhold Size	1-2	2-3	4		
Rents by Type	1-bdrm	2-bdrm	3-bdrm		
Affordable Rents	\$1,163	\$1,318	\$1,550		
Market Rents	\$1,500	\$1,900	\$2,400		

Source: HUDUSER.org & RKG Associates, Inc.

C. Key Assumptions

1. Financial Viability Assumptions

RKG used several assumptions about ongoing operations of the apartment project to develop a pro forma for each scenario. These factors were applied to the effective gross income (EGI) of an assumed 100 percent market project to derive an estimate of a given expense and in turn used as the expense for a mixed-income project (75 percent market-rate, 25 percent affordable). Items such as real estate taxes and insurance were estimated on the project's assumed value, depending on the scenario. In order to estimate value, a capitalization rate of 6.5 percent was used, which is supported by the band of investment method shown in Table VVI-4.³

Table VVI-4 – Band of Investment Calculations

Band of Investment	Percent	Rate	Total
Mortgage	75%	5.0%	3.8%
Equity	25%	11.0%	2.8%
Total	100%	16.0%	6.5%

Source: RKG Associates, Inc.

For vacancy and credit loss, a 5 percent factor was applied to the Potential Gross Income (PGI) of a 100 percent market project, and this amount was transferred over to the 75 percent market project. As a result, the table for each scenario exhibits the pro forma for both a 100 percent market project and a 75 percent market project.

As a test of financial reasonableness, the potential financing of each scenario was evaluated based on another series of assumptions, namely those shown in Table VVI-4. A mortgage amount was determined to be 75 percent of an indicated value, and monthly payments were factored on an interest rate of 5 percent (fixed) for a 25-year term. The resulting mortgage payment was then multiplied by a typical debt ratio coverage factor (1.2) and compared to the annual operating income to judge financial viability. The excess income after the mortgage

³ Capitalization and equity yield rates vary depending on the developer or investor and the perceived risk associated with an outlay of capital. Given the speculative nature of developing a mixed-income apartment project in Carlisle, an 11 percent equity yield and corresponding 6.5 percent capitalization rate would be considered optimistic for institutional investors.

payment was considered the annual return to the equity, and the corresponding yield was calculated against the equity amount (25 percent of value).

2. Assumptions for the Feasibility Analysis

RKG utilized Marshall Valuation Services (MVS) to obtain a range in costs for different components for developing the hypothetical scenarios.⁴ A range (low and high) in costs was used, with the low end assuming development would occur on a portion of the Banta-Davis property while the high end assumed a parcel had to be acquired. These factors and the overall total budgets are very preliminary since plans and project details are lacking, but they serve as a proxy until more information becomes available.

- **Land acquisition:** No cost was used for the low end (Banta Davis); for the high end, a factor of \$30,000 per unit is used. Depending on the scenario, this calculates out to \$600,000 to \$1,320,000 for a site large enough to support this type of project, which is the equivalent of about three or four traditional single family building lots in Carlisle.
- **Design/Permits/Legal, etc.:** A factor of 10 percent of total value is used.
- **Roadway/Utilities:** A range of \$150 (low) to \$180 (high) per lineal foot of roadway is used, based on an assumed length (500 lineal feet) of roadway for each scenario. The high end includes a 20 percent premium to account for potential wetland and/or topography issues. These costs may be adjusted downward for the Banta Davis site because the property is currently served by a driveway.
- **Sitework/Parking:** A range from \$1,300 (low) to \$1,700 (high) per space is used, based on a parking ratio of 1 space per one-bedroom unit and 2 spaces for larger units. No consideration was given for any structured or under-ground parking, or for any extraordinary landscaping or topographical issues associated with parking areas.
- **Private Water System:** a range of \$75,000 (low) to \$100,000 (high) is used
- **Private Septic System:** an allowance of \$20,000 is used for the low-end for a connection into the existing system at the Banta-Davis site. For the high-end, a cost factor of \$6,500 per unit is used to construct an on-site septic system.
- **Fire Cistern:** A range of \$50,000 (low) to \$75,000 (high) is used.
- **Building cost:** A cost factor of \$115/SF of potential building size is used to estimate building construction, and representative of “good” quality, Class D type building construction.⁵ For comparison purposes, the cost for “excellent” quality is \$155/SF,

⁴ Marshall & Swift Valuation Service is an international published source for construction costs. Costs are derived from actual project data and are updated regularly on a regional and market-specific basis.

⁵ MVS uses a unique classification system for describing different building structure types, which differs from other building classifications used for real estate and assessment purposes. Within each major building type (A-D) building costs are further segregated according to construction build-out quality ranging from Average to Excellent. According to MVS, a Class D building is wood-framed construction, and “Good ” quality (\$115/SF) has these components:

Exterior: Good stucco or siding, some brick and stone trim, good roof; Interior: Good plaster or drywall, painted, hardwood, vinyl composition, carpet; Lighting & Plumbing: Good lighting, one bath per bedroom, TV antenna; Heat: Package AC.

according to the MVS, while the cost for “average” quality is \$84/SF. For determining a building size, the number of units were multiplied by the size (SF), and another 25 percent was added to account for common areas.

- **Contingency:** A 10 percent factor on all preceding budget items is applied to account for any unknown costs associated with the project.
- **Entrepreneurial Incentive:** A 10 percent factor applied to the total budget cost is used for this item which provides a “reward” to attract a developer to do the project. In other words, it is a developer’s fee and should not be confused with a return on investment.
- **Ball Field Relocation:** A cost of \$250,000 is assumed for each scenario proposed at the Banta-Davis site as a preliminary figure to cover the cost to relocate a ball-field to another site.

RKG attempted to refine some of these budget factors with the actual construction figures from Benfield Farms project. However, it became obvious that the total budget (\$377,380/unit) at Benfield Farms far exceeded the cost estimates for each scenario presented below.

D. Hypothetical Scenarios

1. Development of 20 units (Scenario 1)

Table VVI-5 exhibits the potential and effective gross income for the hypothetical Scenario 1. The 20-unit, mixed-income project would generate an effective gross income of \$376,800.

Table VVI-5 – Scenario 1: Potential and Effective Gross Income

Unit Type	100% Market	75% Market	Affordable	Total
One-bedroom	\$108,000	\$72,000	\$27,911	\$99,911
Two-bedroom	\$319,200	\$250,800	\$47,455	\$298,255
Potential Gross Income	\$427,200	\$322,800	\$75,365	\$398,165
Vacancy & Credit Loss (5%)	(\$21,360)			(\$21,360)
Effective Gross Income	\$405,840			\$376,805

Table VVI-6 exhibits the results of a stabilized annual operating pro forma for hypothetical Scenario 1, and the 20-unit mixed-income project generates \$210,440 in net income. This amount divided by a cap rate of 6.5 percent indicates a value of \$3.23 million, or about \$161,880/unit for the hypothetical example.

Excellent (\$155/SF) has these components Exterior: Best stucco , EIFS, or siding, brick and stone trim, heavy basic structure; Interior: Good plaster, paint, paneling, fine detail, hardwood, carpet; Lighting & Plumbing: Good fixtures, many outlets, central TV antennae, intercoms: Heat: Warm & cool air.

Average (\$84 S/F) has Exterior: Stucco/siding, some ornamentation, average code construction; Interior: Plaster or drywall, carpet, vinyl composite tile; Lighting & Plumbing: Adequate lighting/plumbing; phone & TV jacks; Heat: Forced air.

Table VVI-6 – Carlisle: Hypothetical Apartment Project Pro-Forma (Scenario 1)

Factors	Income/Expense Category	100% Market	% of EGI (Market)	75% Market	% of EGI (Mixed)
	Potential Gross Income	\$427,200		\$398,165	
-5.0%	Less Vacancy/Credit Loss	(\$21,360)		(\$21,360)	
	Effective Gross Income	\$405,840	100%	\$376,805	100%
-10.0%	Mrkt; Admin & Mgmt	(\$40,584)	-10%	(\$40,584)	-11%
-5.0%	Repairs & Maintenance	(\$20,292)	-5%	(\$20,292)	-5%
-3.0%	Utilities	(\$12,175)	-3%	(\$12,175)	-3%
\$18.56	Real Estate Taxes (\$3.03m AV)	(\$60,073)	-15%	(\$60,073)	-16%
\$4.00	Insurance	(\$12,944)	-3%	(\$12,944)	-3%
-5.0%	Replacement Reserve	(\$20,292)	-5%	(\$20,292)	-5%
-41.0%	Total Expenses	(\$166,360)	-41%	(\$166,360)	-44%
	Net Income	\$239,480	59%	\$210,445	56%
6.5%	Potential Value	\$3,684,303		\$3,237,615	

Source: RKG Associates, Inc.

A test of financial viability compares the annual net operating income (\$210,440) against a potential mortgage payment plus the DCR, based on the band of investment factors in Table VVI-4 that supports a 6.5 percent capitalization rate.

Table VI-7 – Financial Viability Worksheet

Debt & Equity Evaluation	
Total Value	\$3,237,615
Mortgage Amount (75%)	\$2,428,211
Monthly Mortgage Payment	\$14,195
Annual Mortgage Payment	\$170,341
Debt Coverage Ratio	1.20
Required Income for Mortgage	\$204,409
Net Operating Income	\$210,445
Surplus (Deficit)	\$6,036
Equity Amount	\$809,404
Annual Equity Payment before Income Taxes & Depreciation	\$40,104
Annual Equity Return	5.0%

Source: RKG Associates, Inc.

Table VI-7 exhibits the annual mortgage payment of the hypothetical project, based on the value derived in the preceding pro-forma. The project is financially viable as a surplus of \$6,000 results after meeting a typical DCR requirement (1.20). The resulting annual equity payment would be \$40,100, and indicate a yield of 5 percent based on an up-front equity amount of \$809,400.

Table VVI-8 identifies the budget components to develop hypothetical Scenario 1 and the resulting range in surplus (feasible) or loss (infeasible) balance, when measured against the previously estimated value. Assuming the project is developed at the Banta-Davis property, the preliminary budget would total \$3.92 million, or \$195,860 per unit, and a loss of \$679,560 or \$34,000 per unit. The loss increases to \$0.93 million when the allowance for a ball-field relocation is included. Assuming an alternative location is sought for Scenario 1, the total construction budget would be \$4.87 million (\$243,450/unit) and a loss of \$1.6 million (\$81,565 per unit) would result.

Table VVI-8 – Preliminary Construction Budget for Hypothetical Scenario 1

	Range in Cost		Cost Per Unit [1]		Cost Per SF [2]	
	Low	High	Low	High	Low	High
Total Value	\$3,237,615	\$3,237,615	\$161,881	\$161,881	\$140	\$140
Range in Component Costs	Low	High	Low	High	Low	High
Land Acquisition	\$0	\$600,000	\$0	\$30,000	\$0	\$26
Design/Permit/Legal etc.	\$323,761	\$323,761	\$16,188	\$16,188	\$14	\$14
Roadwork/Utilities	\$65,000	\$80,000	\$3,250	\$4,000	\$3	\$3
Sitework/Parking	\$44,200	\$55,760	\$2,210	\$2,788	\$2	\$2
Private Water System	\$75,000	\$100,000	\$3,750	\$5,000	\$3	\$4
Private Septic System	\$20,000	\$130,000	\$1,000	\$6,500	\$1	\$6
Fire-Cistern	\$50,000	\$75,000	\$2,500	\$3,750	\$2	\$3
Building Construction	\$2,659,375	\$2,659,375	\$132,969	\$132,969	\$115	\$115
Contingency @ 10%	\$323,734	\$402,390	\$16,187	\$20,119	\$14	\$17
Total Budget	\$3,561,070	\$4,426,286	\$178,054	\$221,314	\$154	\$191
Entrepreneurial Incentive	\$356,107	\$442,629	\$17,805	\$22,131	\$15	\$19
Preliminary Cost	\$3,917,177	\$4,868,915	\$195,859	\$243,446	\$169	\$211
Surplus (Loss)	(\$679,563)	(\$1,631,300)	(\$33,978)	(\$81,565)	(\$29)	(\$71)
Ball-field relocation	\$250,000					
Surplus (Loss)	(\$929,563)					

[1] 20 units; [2] 23,215 SF
Source: Marshall Valuation Services & RKG Associates, Inc. (See text for assumptions)

2. Development of 32 units (Scenario 2)

Table VVI-9 exhibits the potential and effective gross income for the hypothetical Scenario 2, and the mixed-income project of thirty-two units would have an effective gross income of \$626,240.

Table VVI-9 – Scenario 2: Potential and Effective Gross Income

Unit Type	100% Market	75% Market	Affordable	Total
One-bedroom	\$144,000	\$108,000	\$27,911	\$135,911
Two-bedroom	\$456,000	\$342,000	\$79,091	\$421,091
Three-bedroom	\$115,200	\$86,400	\$18,599	\$104,999
Potential Gross Income	\$715,200	\$536,400	\$125,600	\$662,000
Vacancy & Credit Loss (5%)	(\$35,760)			(\$35,760)
Effective Gross Income	\$679,440			\$626,240

Table VVI-10 exhibits the results of a stabilized annual operating statement for hypothetical Scenario 2, and the 32-unit mixed-income project would generate \$348,880 in net income, which results in a value of \$5.37 million or \$167,700 per unit.

Table VVI-10 – Carlisle: Hypothetical Apartment Project Pro-Forma (Scenario 2)

Factors	Income/Expense Category	100% Market	% of EGI (Market)	75% Market	% of EGI (Mixed)
	Potential Gross Income	\$715,200		\$662,000	
-5.0%	Less Vacancy/Credit Loss	(\$35,760)		(\$35,760)	
	Effective Gross Income	\$679,440	100%	\$626,240	100%
-10.0%	Mrkt; Admin & Mgmt	(\$67,944)	-10%	(\$67,944)	-11%
-5.0%	Repairs & Maintenance	(\$33,972)	-5%	(\$33,972)	-5%
-3.0%	Utilities	(\$20,383)	-3%	(\$20,383)	-3%
\$18.56	Real Estate Taxes (\$5.37m AV)	(\$99,622)	-15%	(\$99,622)	-16%
\$4.00	Insurance	(\$21,466)	-3%	(\$21,466)	-3%
-5.0%	Replacement Reserve	(\$33,972)	-5%	(\$33,972)	-5%
-40.8%	Total Expenses	(\$277,359)	-41%	(\$277,359)	-44%
	Net Income	\$402,081	59%	\$348,882	56%
6.5%	Potential Value	\$6,185,867		\$5,367,409	

Source: RKG Associates, Inc.

A test of financial viability indicates that the annual operating income (\$348,880) exceeds the required mortgage amount plus the DCR (\$338,875), as shown in Table VVI-11, by \$10,000. The resulting annual equity payment would be \$66,480, and indicate a yield of 5 percent based on an up-front equity amount of \$1.34 million.

Table VVI-11 – Financial Viability Worksheet

Debt & Equity Evaluation	
Total Value	\$5,367,409
Mortgage Amount (75%)	\$4,025,557
Monthly Mortgage Payment	\$23,533
Annual Mortgage Payment	\$282,396
Debt Coverage Ratio	1.20
Required Income for Mortgage	\$338,875
Net Operating Income	\$348,882
Surplus (Deficit)	\$10,006
Equity Amount	\$1,341,852
Annual Equity Payment before Income Taxes & Depreciation	\$66,486
Annual Equity Return	5.0%
Source: RKG Associates, Inc.	

Table VVI-12 identifies the budget components to develop hypothetical Scenario 2 and the resulting range in surplus (feasible) or loss (infeasible) balance when measured against the previously estimated value. Assuming the project is developed at the Banta-Davis site, the preliminary budget would total \$6.45 million or \$201,665 per unit, and a loss of \$1.09 million or \$33,934 is indicated. The loss increases to \$1.34 million when the allowance for the ball-field relocation is factored. Assuming an alternative location is sought for Scenario 2, the total construction budget would be \$7.94 million (\$248,250/unit), indicating a loss of \$2.6 million (\$80,520 per unit).

Table VVI-12 – Preliminary Construction Budget for Hypothetical Scenario 2

	Range in Cost		Cost Per Unit [1]		Cost Per SF [2]	
	Low	High	Low	High	Low	High
Total Value	\$5,367,409	\$5,367,409	\$167,732	\$167,732	\$137	\$137
Range in Component Costs	Low	High	Low	High	Low	High
Land Acquisition	\$0	\$960,000	\$0	\$30,000	\$0	\$24
Design/Permit/Legal etc.	\$536,741	\$536,741	\$16,773	\$16,773	\$14	\$14
Roadwork/Utilities	\$65,000	\$80,000	\$2,031	\$2,500	\$2	\$2
Sitework/Parking	\$72,800	\$91,840	\$2,275	\$2,870	\$2	\$2
Private Water System	\$75,000	\$100,000	\$2,344	\$3,125	\$2	\$3
Private Septic System	\$20,000	\$208,000	\$625	\$6,500	\$1	\$5
Fire-Cistern	\$50,000	\$75,000	\$1,563	\$2,344	\$1	\$2
Building Construction	\$4,513,750	\$4,513,750	\$141,055	\$141,055	\$115	\$115
Contingency @ 10%	\$533,329	\$656,533	\$16,667	\$20,517	\$14	\$17
Total Budget	\$5,866,620	\$7,221,864	\$183,332	\$225,683	\$149	\$184
Entrepreneurial Incentive	\$586,662	\$722,186	\$18,333	\$22,568	\$15	\$18
Preliminary Cost	\$6,453,282	\$7,944,050	\$201,665	\$248,252	\$164	\$202
Surplus (Loss)	(\$1,085,873)	(\$2,576,641)	(\$33,934)	(\$80,520)	(\$28)	(\$66)
Ball-field relocation	\$250,000					
Surplus (Loss)	(\$1,335,873)					
[1] 32 units; [2] 39,250 SF						
Source: Marshall Valuation Services & RKG Associates, Inc. (See text for assumptions)						

3. Development of 44 units (Scenario 3)

Table VVI-13 exhibits the potential and effective gross income for the hypothetical Scenario 3, and the mixed-income project would yield an effective gross income of \$804,000.

Table VVI-13 – Scenario 3: Potential and Effective Gross Income

Unit Type	100% Market	75% Market	Affordable	Total
One-bedroom	\$432,000	\$324,000	\$83,731.50	\$407,732
Two-bedroom	\$364,800	\$273,600	\$63,273	\$336,873
Three-bedroom	\$115,200	\$86,400	\$18,598.50	\$104,999
Potential Gross Income	\$912,000	\$684,000	\$165,603	\$849,603
Vacancy & Credit Loss (5%)	(\$45,600)			(\$45,600)
Effective Gross Income	\$866,400			\$804,003

Table VVI-14 exhibits the results of a stabilized annual operating statement for hypothetical Scenario 1. The 44-unit mixed-income project generates \$448,910 in net income and would indicate a value of \$6.91 million or about \$156,950 per unit.

Table VVI-14 – Carlisle: Hypothetical Apartment Project Pro-Forma (Scenario 3)

Factors	Income/Expense Category	100% Market	% of EGI (Market)	75% Market	% of EGI (Mixed)
	Potential Gross Income	\$912,000		\$849,603	
-5.0%	Less Vacancy/Credit Loss	(\$45,600)		(\$45,600)	
	Effective Gross Income	\$866,400	100%	\$804,003	100%
-10.0%	Mrkt; Admin & Mgmt	(\$86,640)	-10%	(\$86,640)	-11%
-5.0%	Repairs & Maintenance	(\$43,320)	-5%	(\$43,320)	-5%
-3.0%	Utilities	(\$25,992)	-3%	(\$25,992)	-3%
\$18.56	Real Estate Taxes (\$6.91m AV)	(\$128,199)	-15%	(\$128,199)	-16%
\$4.00	Insurance	(\$27,623)	-3%	(\$27,623)	-3%
-5.0%	Replacement Reserve	(\$43,320)	-5%	(\$43,320)	-5%
-41.0%	Total Expenses	(\$355,094)	-41%	(\$355,094)	-44%
	Net Income	\$511,306	59%	\$448,909	56%
6.5%	Potential Value	\$7,866,239		\$6,906,285	

Source: RKG Associates, Inc.

A test of financial viability indicates that annual operating income (\$448,910) exceeds the required DCR mortgage income (\$436,030) as shown in Table VVI-15, by \$12,875. The equity payment would be \$85,550, for a yield of 5 percent based on an equity amount of \$1.73 million.

Table VVI-15 – Financial Viability Worksheet

Debt & Equity Evaluation	
Total Value	\$6,906,285
Mortgage Amount (75%)	\$5,179,714
Monthly Mortgage Payment	\$30,280
Annual Mortgage Payment	\$363,361
Debt Coverage Ratio	1.20
Required Income for Mortgage	\$436,033
Net Operating Income	\$448,909
Surplus (Deficit)	\$12,875
Equity Amount	\$1,726,571
Annual Equity Payment before Income Taxes & Depreciation	\$85,547
Annual Equity Return	5.0%

Source: RKG Associates, Inc.

a) Feasibility Analysis

Table VVI-16 identifies the budget components to develop hypothetical Scenario 3 and the resulting range in surplus (feasible) or loss (infeasible) balance when measured against the previously estimated value. Assuming the project is developed at the Banta-Davis site, the preliminary budget would total \$8.04 million or \$182,810 per unit, with a loss of \$1.14 million

or \$25,847 per unit. The loss increases to \$1.39 million when the allowance to relocate the ball-field is included. Assuming an alternative location is sought for Scenario 3, the total construction budget would be \$10.1 million (\$229,800/unit) and a loss of \$3.2 million (\$71,848 per unit).

Table VVI-16 – Preliminary Construction Budget for Hypothetical Scenario 3

	Range in Cost		Cost Per Unit [1]		Cost Per SF [2]	
	Low	High	Low	High	Low	High
Total Value	\$6,906,285	\$6,906,285	\$156,961	\$156,961	\$140	\$140
Range in Component Costs	Low	High	Low	High	Low	High
Land Acquisition	\$0	\$1,320,000	\$0	\$30,000	\$0	\$27
Design/Permit/Legal etc.	\$690,629	\$690,629	\$15,696	\$15,696	\$14	\$14
Roadwork/Utilities	\$65,000	\$80,000	\$1,477	\$1,818	\$1	\$2
Sitework/Parking	\$83,200	\$104,960	\$1,891	\$2,385	\$2	\$2
Private Water System	\$75,000	\$100,000	\$1,705	\$2,273	\$2	\$2
Private Septic System	\$20,000	\$286,000	\$455	\$6,500	\$0	\$6
Fire-Cistern	\$50,000	\$75,000	\$1,136	\$1,705	\$1	\$2
Building Construction	\$5,663,750	\$5,663,750	\$128,722	\$128,722	\$115	\$115
Contingency @ 10%	\$664,758	\$832,034	\$15,108	\$18,910	\$13	\$17
Total Budget	\$7,312,336	\$9,152,372	\$166,189	\$208,008	\$148	\$186
Entrepreneurial Incentive	\$731,234	\$915,237	\$16,619	\$20,801	\$15	\$19
Preliminary Cost	\$8,043,570	\$10,067,610	\$182,808	\$228,809	\$163	\$204
Surplus (Loss)	(\$1,137,285)	(\$3,161,325)	(\$25,847)	(\$71,848)	(\$23)	(\$64)
Ball-field relocation	\$250,000					
Surplus (Loss)	(\$1,387,285)					
[1] 44 units; [2] 49,250 SF						
Source: Marshall Valuation Services & RKG Associates, Inc. (See text for assumptions)						

E. Conclusion

Table VVI-17 exhibits key criteria from of each scenario based on the preceding analyses. Each mixed-income scenario could be financially viable based on the financial assumptions used. However, the mortgage-to-value ratio would be 75 percent, indicating at least 25 percent from equity. The average monthly market rents range from \$1,727 per month (Scenario 3) to \$1,863 (Scenario 2), averaging around \$1.90/SF.⁶ The estimated project market values, based on an assumed capitalization rate of 6.5 percent, range from \$3.2 million to \$6.9 million, or \$161,900 to \$167,700 per unit.

The preliminary development budgets previously outlined indicate a range in total cost from \$3.9 million to \$10.1 million, or from \$195,860 to \$228,810 per unit.⁷ RKG attempted to refine these budget amounts with actual construction figures from the Benfield Farms project. However, the total cost equated to \$377,380 per unit, including hard construction costs of \$252,650 per unit, exceeding the cost amounts estimated in this analysis.

⁶ Scenario 3 has a higher number of one-bedroom units due to the 76-bedroom limitation at the existing septic system on the Banta-Davis property, into which each Banta-Davis scenario would connect.

⁷ For each scenario at Banta-Davis, certain cost items such as land acquisition and septic system were reduced or eliminated, and indicated a lower cost than for those scenarios at an alternative location, where land acquisition and septic system costs were included. The reader should be aware these development costs are very preliminary since the exact location for each hypothetical scenario is not known, nor are site and building plans available to identify more accurately development costs because of actual conditions that would affect development.

Table VVI-17 – Summary of Hypothetical Mixed-Income Apartment Scenarios

Criteria	Hypothetical Mixed-Income Projects		
	Scenario 1	Scenario 2	Scenario 3
Number of Unit	20	32	44
Number of Bedrooms	34	60	68
AVG Bedroom/Unit	1.7	1.9	1.5
Gross Bldgs Size (SF)	23,125	39,250	49,250
Gross Mo. Market Rent/Unit	\$1,793	\$1,863	\$1,727
Gross Mo. Market Rent/SF	\$1.92	\$1.90	\$1.93
Potential Value	\$3,237,615	\$5,367,409	\$6,906,285
Value per Unit	\$161,881	\$167,732	\$156,961
Estimated RE Taxes	\$60,073	\$99,622	\$128,199
Preliminary Construction Budget			
Banta-Davis (B-D)	\$3,917,177	\$6,453,282	\$8,043,570
B-D w/ Ball-field reloc.	\$4,167,177	\$6,703,282	\$8,293,570
Alternative Location	\$4,868,915	\$7,944,050	\$10,067,610
Preliminary Construction Budget per unit			
Banta-Davis (B-D)	\$195,859	\$201,665	\$182,808
B-D w/ Ball-field reloc.	\$208,359	\$209,478	\$121,964
Alternative Location	\$243,446	\$248,252	\$228,809
Development Surplus (Loss)			
Banta-Davis (B-D)	(\$679,563)	(\$1,085,873)	(\$1,137,285)
B-D w/ Ball-field reloc.	(\$929,563)	(\$1,335,873)	(\$1,387,285)
Alternative Location	(\$1,631,300)	(\$2,576,641)	(\$3,161,325)
Development Loss per unit			
Banta-Davis (B-D)	(\$33,978)	(\$33,934)	(\$25,847)
B-D w/ Ball-field reloc.	(\$46,478)	(\$41,746)	(\$31,529)
Alternative Location	(\$81,565)	(\$80,520)	(\$71,848)

Source: RKG Associates, Inc (See text for assumptions)

Based on the previous analysis, a development loss is indicated for each scenario regardless of location, although the potential development at Banta-Davis property without consideration of relocating the ball-field, showed the lowest overall losses ranging from \$0.68 million to \$1.14 million. These losses increase when the cost to relocate the ball-field is included. If an alternative location is used, the resulting losses increase by another \$1 million (Scenario 1) to \$2 million (Scenario 3) over the Banta-Davis scenarios. In short, each of these hypothetical scenarios appears financially viable based on typical lending criteria, but in each case, the development potential is financially infeasible without public subsidy.

1. Sensitivity

The financial viability models and the financial feasibility models required numerous input assumptions. Some of these assumptions could change and affect the outcome, such as:

- **Higher rents:** This would increase the potential gross income of a scenario; however the rental rates used in these hypothetical scenarios are already considered relatively high for a town that has no comparable projects, and do not include the higher level of amenities many renters require. Higher rents would likely require building costs to be higher due to larger unit sizes and/or finish levels. The market rents shown in Table VVI-17 for these scenario averaged around \$1.90/SF, and they would have be about \$2.70/SF for a project to be feasible at a site at the Banta-Davis property, or over \$3.40/SF to be feasible at an alternative location, assuming all costs remain the same. These “feasible rents” would exceed the high-end rent (\$2.50/SF) currently indicated in Concord or Lexington.
- **Lower capitalization rate:** This would increase the potential value; however, it would also affect the financial viability of a scenario, since the mortgage portion would likely be

reduced resulting in a higher equity amount, whose yield would have to be lowered. The mortgage interest rate (5 percent) appears reasonable at this time, given the speculative nature (for institutional financing) of developing a mixed-income project in a town that has none. Interest rates may increase in the future, causing capitalization rates to rise.

- Lower building costs and smaller units: Lower building costs may be an option; however, that rents may also be lower in order to be commensurate with the market. Smaller unit sizes would also lower construction costs but again it may lower rental rates. The economies of scale, namely, more units at a lower cost per unit, also may be applicable, but the impact would be relatively small in terms of reducing the overall deficit. When more information becomes available building costs can be re-evaluated, and the unit mix and sizes can be more accurately defined.
- Lower site development costs: The construction budgets include various site development cost items based on an unknown location or an understanding of exactly what infrastructure would be needed to support a hypothetical concept. When more information becomes available these cost can be refined.
- Real Estate Taxes: As shown in Table VVI-17, the potential real estate taxes included in the financial analysis range from \$60,000 to \$128,000 depending on scenario, and would equate to 8.8 percent to 11.3 percent of an estimated deficit of a development at the Banta-Davis site, excluding relocating the ball-field.