SPECIAL ISSUE

brief

WINTER 2020

A Long View of Senior Housing Supply Growth

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AMERICAN SENIORS HOUSING ASSOCIATION

Living Longer Better

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A Long View of Senior Housing Supply Growth

A recent *Wall Street Journal* article titled *Boomers Want to Stay Home*. Senior *Housing Now Faces Budding Glut*[1] calls into question the future growth prospects for the senior living industry. There is little debate that barring some catastrophic change, the number of older adults will continue to rise rapidly. What are the implications of this growth on supply growth? Will this underlying population growth readily translate into future supply growth?

This is a long-term forecast of future supply and is intended to guide the reader in understanding the longer-term implications of population growth by market on future supply growth. Unlike the long-term forecasts that John Maynard Keynes had in mind, in this case, a great many people are expected to still be alive. This paper derives city-specific population forecasts to determine how much growth in supply would be expected in 138 metropolitan statistical areas (MSAs) tracked by the *Seniors Housing Construction Monitor* series[2] and is essentially updating and revisiting *A Projection of U.S. Senior Housing Demand 2015–2040 (Summer 2016)*[3], a prior ASHA Special Issue Brief on this topic. The methodology employed involves three steps: (1) forecast growth in older adults by MSA, (2) apply historical MSA-specific penetration ratios, and (3) calculate the annual growth in additional senior living units necessary to maintain a constant ratio between the population of older adults and senior living units. With the exception of nursing care, the categories addressed are the same segments tracked by the *Seniors Housing Construction Monitor* report, namely the continuing care retirement communities (CCRC), independent living (IL), assisted living (AL), and memory care (MC) *property* categories.[4] As expected, the implied future growth in supply is phenomenal. Note that this report is building on current supply figures and by applying the methodology outlined herein derives a forecast of *supply* counts for future periods. Demand forecast, while related, is not directly addressed herein[5].

There is little debate that barring some catastrophic change, the number of older adults will continue to rise rapidly.

There are numerous broader trends that may drive future penetration ratios lower, including the effect of new technologies that enable older adults to remain in more traditional housing. Forecasting fundamental shifts in future behavior is clearly speculative. This paper highlights just

how far down penetration ratios would need to fall to off-set the effect of population growth. Also, not all broader trends are expected to have negative implications on the penetration ratios. Other factors, such as the development of better product and service offerings, may *increase* future penetration ratios.

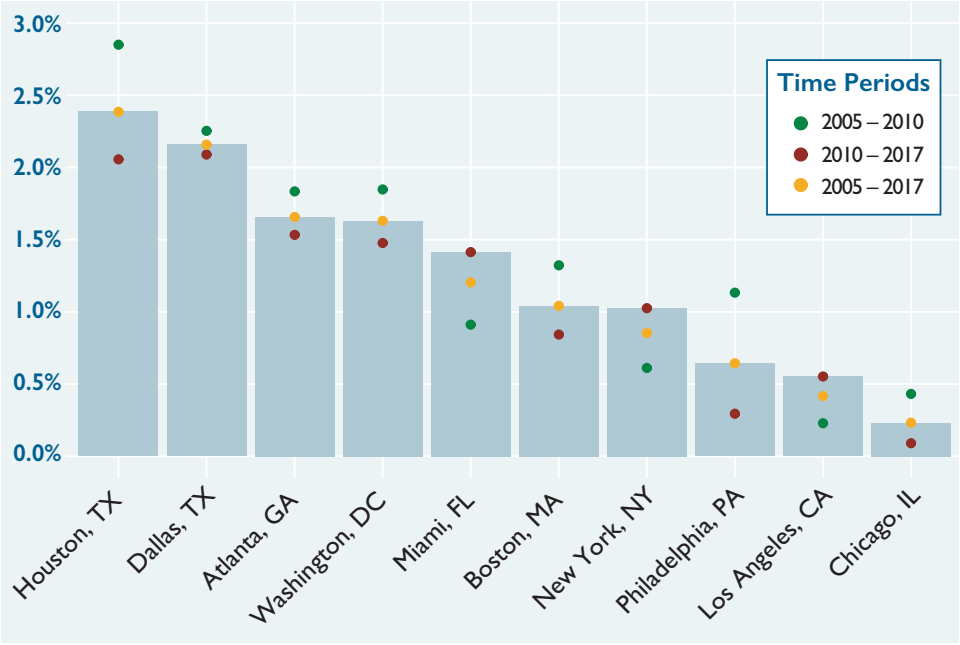
Furthermore, there are numerous additional factors that warrant consideration and analysis in the formation of a business plan, investment strategy or policy. Decision makers should also consider economic cycles, location-specific factor pricing levels such as wage levels, construction cost and capital availability, near-term occupancy and supply growth trends, and local competitive and regulatory environments.

STEP ONE: FORECAST POPULATION GROWTH FOR OLDER ADULTS BY MSA

The US Census provides forecast figures by age-cohorts for the entire US population but generally does not provide a similar forecast for smaller geographies. As with the 2018 ASHA Special Issue Brief analyzing the growth rates of older adults by state[6], MSA forecasts are based on the Hamilton-Perry method, a variant of the cohort-component population projection method.[7] This method has the advantage of minimizing the number of discretionary inputs and relies mostly on readily available historical population information. One of the few discretionary inputs is the expected future growth rate for each MSA. Hamilton-Perry takes the growth rate in overall population as an input and, based on each MSA specific age distribution and past migration patterns, provides an output of the growth rate for our target age cohort. As with penetration ratios, this analysis assumes that future overall population growth rates will generally be in line with recent historical growth rates. The future annual growth rate for total population is set to the greater of (i) the geometric average of historical population growth from 2005 to 2017 and (ii) the geometric average of historical population growth from 2010 to 2017. MSAs vary in industry composition, and accordingly, MSA population growth is industry dependent. For instance, Houston has a relatively high exposure to the energy sector. However, in assessing a range of time periods, including 2005–2010, 2010–2017 and 2005–2017, annual growth rates in fast growing MSAs such as Houston are consistently "rocket-like" in contrast to the consistently slower growing MSAs like LA and Chicago.

Other factors, such as the development of better product and service offerings, may increase future penetration ratios.

Annual MSA Population Forecast Growth Rates



The charts throughout this report spotlight the top 10 MSAs ranked by total population. Similar data for all 138 MSAs are included in Exhibit A (Population), Exhibit B (Ratios) and Exhibit C (Units).

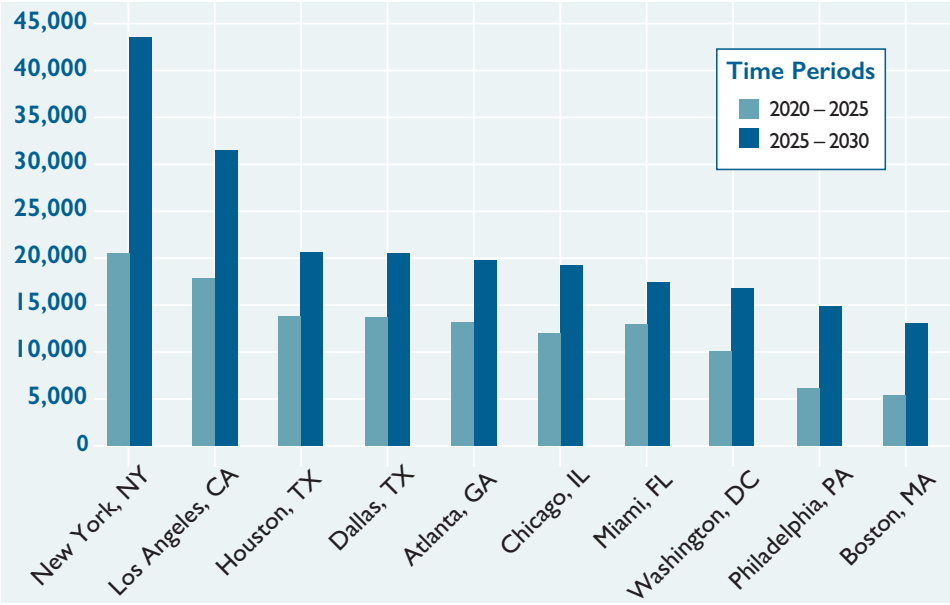
While total population growth varies widely, expected growth rates for the 80+ population are universally strong; the growth rate of older Chicagoans (first chart on following page) eclipses overall population growth rates for Houston (chart above).

It is understandable that the faster growing MSAs such as Houston and Dallas would also experience consistently high vacancy rates. Faster growing MSAs typically have lower barriers to development, a robust ecosystem of developer and development service providers, abundant capital availability, and numerous candidate sites that meet underwriting criteria, at least initially. In a prior study, we made the case that markets that historically experience supply surges are likely to continue experiencing supply surges in future cycles. (See TOPICS: Assessing Risk of Senior Living Over-Supply — A Long-Term Perspective[8]).

Estimated 80+ Annual Growth Rates — 2020 thru 2025

Different property categories of senior living will have different applicable age thresholds, but for need driven senior living categories such as assisted living and memory care, arguably age 80 is the appropriate threshold. (See TOPICS: The 75+ vs. 80+ Benchmark Choice — Is the Demand for Senior Living Overstated?[9]). A key implication of using a higher age threshold is timing of growth. Baby boomers are not expected to materially affect 80+ population growth during the 2019 to 2025 time period; but after 2025 the 80+ population increases significantly almost everywhere.

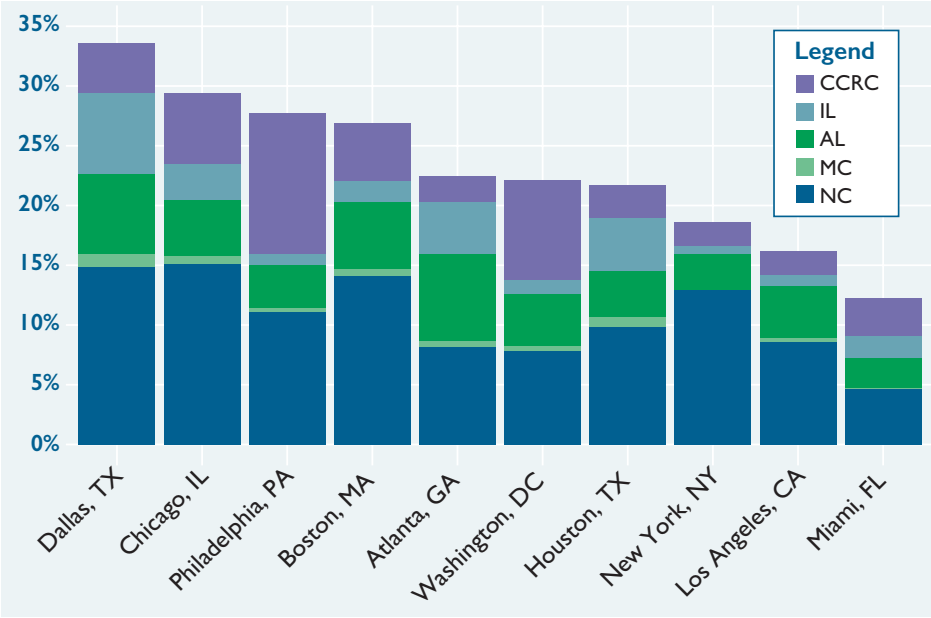
Annual Growth in 80+ Population by MSA (Sorted by Total Growth)



STEP TWO: APPLY HISTORICAL PENETRATION RATIOS

Hereafter references to penetration ratios will explicitly relate to the ratio of the 80+ population to the number of units by property category.[10] These ratios vary widely by MSA and by category; Philadelphia is especially noteworthy for an extraordinarily high ratio of CCRC units to its 80+ population. For the largest MSAs, the combined ratios range from a high of 32.8% for Dallas to a low of 12.4% for Miami.

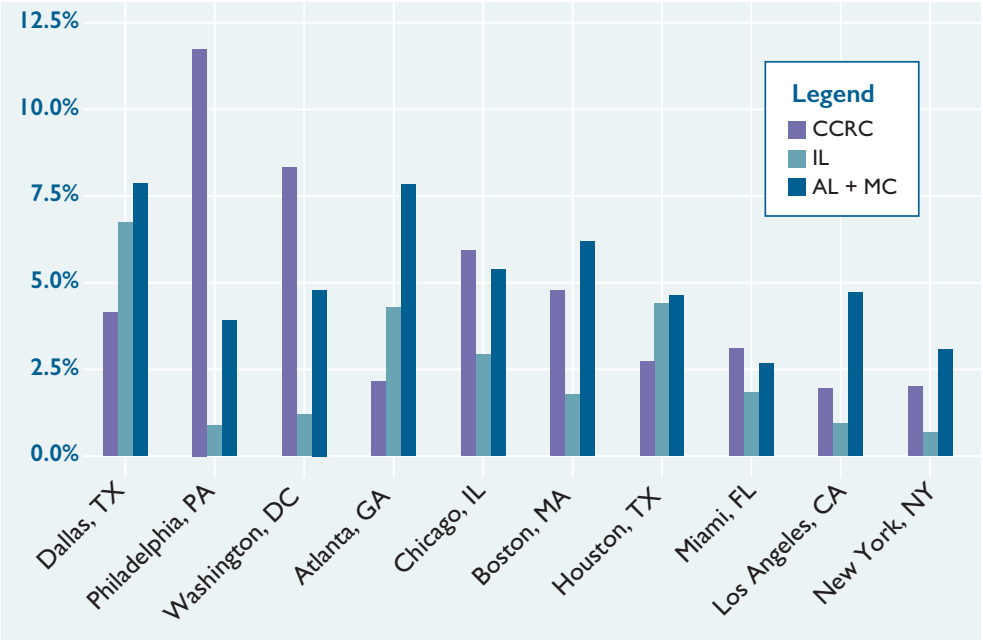
Ratio of Units to 80+ Population By Category



Perhaps with the application of effective marketing methods and as a result of other factors addressed later, markets with currently low penetration ratios may experience a material uptick in these ratios. However, many market-specific attributes, such as the income and ethnic profiles, wage levels, and regulatory environments are not expected to change substantially. Herein the assumption is that historical MSA-specific penetration ratios will persist.

Forecasted supply counts are developed for three categories: (i) CCRC properties, (ii) IL properties and (iii) an aggregation of AL and MC properties. MC property unit counts are combined with AL property unit counts because the MC property category is small. Because nursing care (NC) growth has become decoupled from population growth, it is excluded altogether.

Units to 80+ Population | CCRC vs. IL vs. AL + MC



Philadelphia and Washington have extraordinarily high ratios for CCRC properties which are off-set by relatively low penetration ratios in IL properties. Conversely, the newer, faster growing Houston and Atlanta have higher IL property ratios but lower CCRC ratios. The extraordinary concentration of CCRC properties in Philadelphia may partially explain its relatively lower AL + MC ratio. LA and NYC are overall laggards primarily due to their low CCRC and IL ratios.

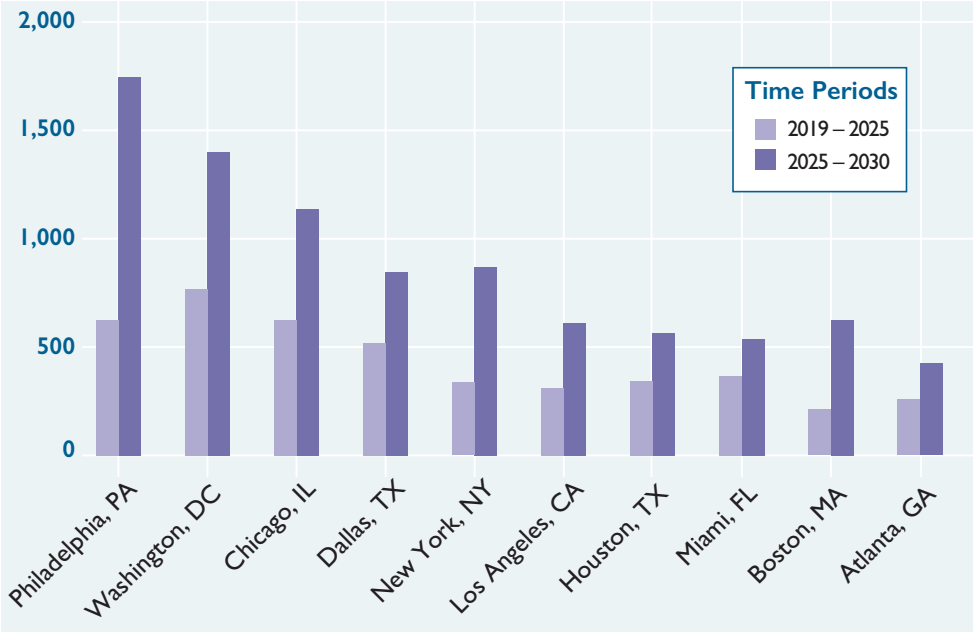
STEP THREE: CALCULATE ANNUAL GROWTH IN UNITS BY CATEGORY BY MSA

The last step is simply calculating the product of the applicable penetration ratio applied to the increase in the 80+ population.

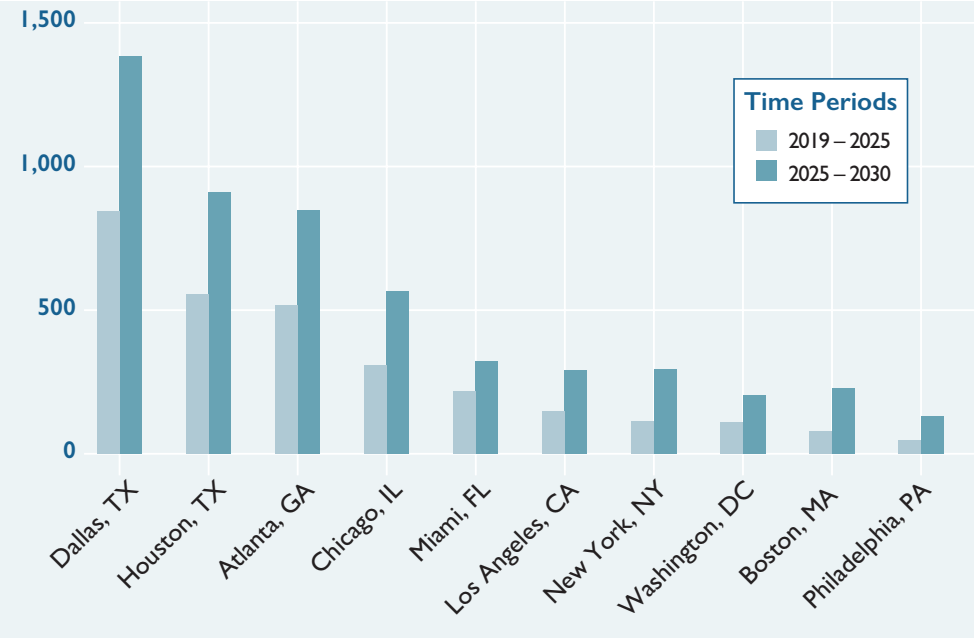
As expected, Philadelphia and Washington have the highest expected growth in CCRC properties based on their current ratios. However, over time, developers of IL properties should be able to take market share from CCRC property developers in places with relatively high CCRC ratios and relatively low IL ratios.

Conversely, developers of CCRC communities may have an opportunity to take market share from developers of IL in markets with high IL ratios and low CCRC ratios such as Dallas, Houston and Atlanta.

CCRC Units per Year

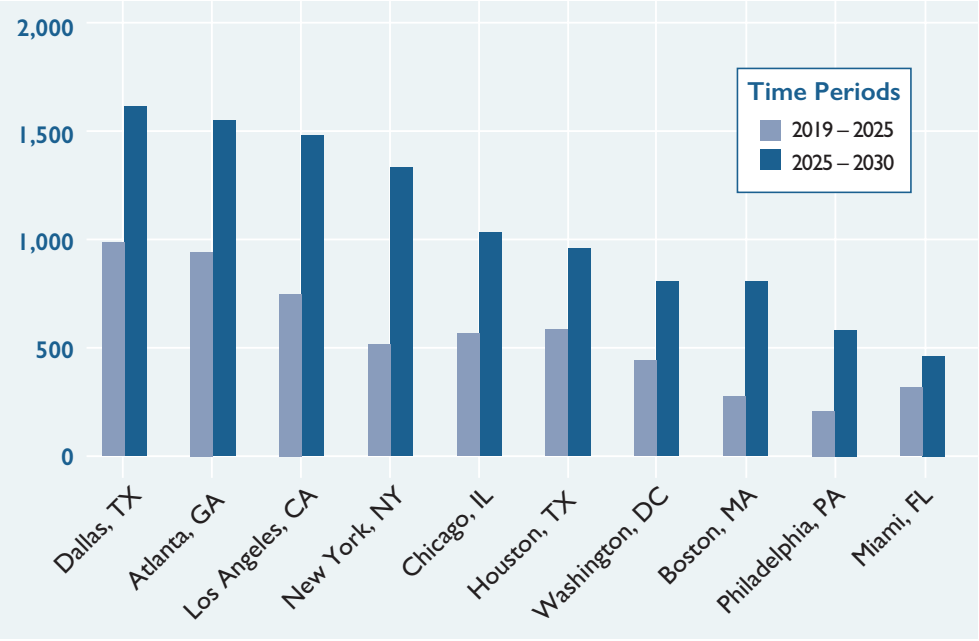


IL Units per Year



For the more need-driven combined AL+MC category, fast growing Dallas and Atlanta top the list, but due to its age profile, Houston falls farther down the list, with expected supply growth figures coming in below LA, NYC and Chicago.

AL + MC Units per Year



As stated earlier, NC has been excluded from the forecast as future NC supply is not expected to grow in proportion to the population growth of older adults. Where will all the older adults that would have previously been served by NC go? Historically, AL+MC communities benefited from taking market share from NC communities. The forecast methodology incorporates an implicit assumption that other categories of senior living will not continue to take market share from NC communities. An assumption that AL+MC communities will be successful in further taking market share from NC communities would result in materially higher supply growth estimates.

Excluding the NC property category, the aggregate annual increase for the 138 markets assessed herein is expected to almost double from 50,000 per year prior to 2025 to 90,000 units per year after 2025.

Aggregate Annual Units of Supply Growth by Property Category

(rounded to nearest 10,000 units)

PERIOD	thru 2025	2025–2030
CCRC	20,000	30,000
IL	10,000	20,000
AL+MC	20,000	40,000
TOTAL	50,000	90,000

Unlike the prior ASHA estimate, this estimate does not attempt to address growth in markets outside of the 138 MSAs studied herein.

The choice of time intervals has a significant impact on these estimates. Employing a more typical 10-year time horizon would lower annual supply growth estimates due to the relatively slower growth rates between 2015 and 2020 and between 2030 and 2035.

OPPORTUNITIES FOR IMPROVING THE FORECAST

In this simple framework, opportunities to improve long-term forecast of future supply fall into two general categories: (a) improvements in population forecasts and (b) improvements in penetration ratios.

Reliably projecting future population counts for older adults is *relatively easy*. Absent war, pandemics, dramatic shifts in migration and a sudden, radical shift in life expectancy, population growth among older adults is generally stable. The Hamilton-Perry method does effectively capture trends in increasing longevity, but implicitly assumes that the rate of longevity improvement remains constant.

Older adults are not immune from changes in local economic conditions (see TOPICS on migration[11]), but these impacts are relatively muted. In the time horizons analyzed herein, the forecast is not sensitive to the birthrate variable.[12]

Unlike forecasting future population, forecasting future penetration ratios is challenging. Difficult-to-assess factors that could exert upward pressure on future penetration ratios include:

(1) improvements in the product and service offerings that facilitate taking market share from other categories such as NC communities or traditional housing;
(2) improvements in alignment of product and service offerings with local market conditions;
(3) improvements in marketing and communication particularly related to better use of digital marketing tools;
(4) technologies that improve operational efficiencies and enlarge the pool of potential customers that can be served; and
(5) expansion of government transfer programs that either directly or indirectly support relatively lower income older adults via income or wealth transfers from more affluent older adults and/or younger age cohorts.

Alternatively, difficult-to-assess factors that could exert a downward pressure on future penetration ratios include:

(1) improvement in technologies that substantially lengthen the time period that traditional housing can remain a viable alternative for aging older adults, such as improvements in telehealth and other technologies cited in the recent WSJ article including improvements in sensors and malleable fixtures;
(2) changes in the landscape of supportive services that don't necessarily directly tie to technology, such as improved opportunities to receive care via home health care and to benefit from socializations via initiatives like the Village to Village network;

(3) changes in the ability of residents to pay for enhanced services including the decline in traditional pension plans, saving and home equity and additional limitations placed on social security benefits or reduction in government income or wealth transfer benefits to older adults;
(4) cultural shifts in the composition of population;[13]
(5) overall health improvements that prolong the period of life that can be accommodated by traditional housing;
(6) changes in key operating expense inputs such as wage cost that contract the pool of potential customers that can be served; and
(7) regulatory barriers, such as land use controls, to building new communities.

To the extent that regulatory barriers are the primary constraint to new supply, markets would be expected to experience heightened pressure on rent levels and out-migration.

The biggest opportunity for improvement in forecasting are changes to the framework all together[14]. For instance, data scientists may soon be able to mine new data sources such as web searches to better predict the future onset of memory impairment, and likewise, the future need for memory care services.[15]

Older adults are not immune from changes in local economic conditions…

CONCLUSION

Recent increases in vacancy rates and increased pressure on profit margins belies the notion that the age wave will readily translate into easy profit opportunities. Also, increased longevity doesn't necessarily translate into growth for providers of senior living services. However, the implications of expected population growth continue to be compelling. To maintain historical penetration ratios, the MSAs covered in the *Seniors Housing Construction Monitor* report will collectively require a net expansion of supply of almost 100,000 units each year between 2025 and 2030. Put another way, future penetration ratios would need to drop by over a third for supply growth rates to drop below historical rates. If the recent downward trend in senior living were due to structural factors rather than the more likely explanation that the market is experiencing a typical cycle, the implied reduction in penetration ratios would be in the vicinity of 10%.

Are we on the cusp of a fundamental shift like the one that warranted the exclusion of NC from this analysis? Perhaps. In his 1995 book, *The Road Ahead*, Bill Gates predicted that telecommuting will help save cities by drawing people away from them and removing pressure on their infrastructure.[16] Cloud-based technology tools, Facebook, and Amazon, among others, have made it possible to work, play and shop from virtually anywhere and everywhere. And yet traffic congestion in major cities has never been greater and the premium to live in great cities is as high as ever. Why? Despite phenomenal technologies that have lessened the need for in-person interactions, great cities remain great generators of wealth. Likewise, despite the emergence of great technologies noted by the WSJ and others, great senior communities can remain great generators of well-being.

Despite phenomenal technologies that have lessened the need for in-person interactions… great senior communities can remain great generators of well being.

A lot could happen between now and the year 2025 and the year 2030. Personally, I anticipate that the downward forces on future penetration ratios will indeed outweigh upward forces, but I anticipate the net effect to be on the order of magnitude of 10% to 20%, not the reduction of a third or more that would be necessary to outweigh the effects of population growth.

AFTERWORD

This analysis was built on, and benefited from, the R community and particularly benefited from packages from .tidyverse, a collection of open source R packages. In the spirit of open source community, the R script utilized herein is available in the following GitHub repository: https://github.com/FRANCESCOROCKWOOD/demographics.

The population analysis is based on openly accessible US Census data sets. Supply analysis has been derived from data from the *Seniors Housing Construction Monitor* series which is subject to licensure by ASHA from NIC. Accordingly, analysts will need to independently arrange for licensing of supply information or identify other sources or means to gauge current supply.

Open source communities such as R are expected to contribute to the development of improved tools, data and ultimately insights in supporting housing planning and forecasting needs.

Finally, I would like to recognize the contributions of Phil Downey, Matthew Whitlock and Kristen Ahrens who provided critical feedback for refining and improving this analysis.

EXHIBIT A: POPULATION

					Projected 80+ Growth Rate		Annual Increase in 80+ Population	
MSA	CBSA Code	Population 2019	Population 80+ 2019	Forecast Annual Growth Rate	Thru 2025	2025 to 2030	Thru 2025	2025 to 2030
Akron, OH	10420	706,730	29,495	0.2%	0.0%	4.6%	6	1,469
Albany, NY	10580	898,451	37,526	0.7%	3.7%	5.8%	1,503	2,931
Albuquerque, NM	10740	936,627	35,826	1.3%	6.6%	6.5%	2,788	3,801
Allentown, PA	10900	853,510	40,093	0.8%	2.6%	5.2%	1,106	2,635
Ann Arbor, MI	11460	376,268	13,317	1.2%	5.4%	7.8%	836	1,631
Asheville, NC	11700	470,283	25,717	1.5%	2.3%	6.0%	632	1,982
Atlanta, GA	12060	6,079,168	156,070	1.7%	7.1%	7.5%	13,207	19,764
Augusta, GA	12260	617,516	23,582	1.4%	3.4%	6.0%	876	1,943
Austin, TX	12420	2,264,873	49,833	3.5%	6.8%	8.6%	4,077	7,384
Bakersfield, CA	12540	924,877	21,795	1.8%	1.0%	4.9%	223	1,255
Baltimore, MD	12580	2,847,399	104,986	0.7%	2.9%	5.2%	3,273	7,014
Baton Rouge, LA	12940	857,491	30,172	1.4%	4.1%	5.7%	1,386	2,425
Birmingham, AL	13820	1,163,766	41,480	0.6%	2.7%	5.3%	1,189	2,798
Boise, ID	14260	745,768	19,760	2.5%	8.0%	8.4%	1,914	2,965
Boston, MA	14460	4,937,885	184,935	1.0%	2.8%	5.5%	5,375	13,022
Boulder, CO	14500	331,815	12,077	1.4%	7.8%	9.4%	1,163	2,097
Bridgeport, CT	14860	961,367	37,179	0.6%	3.8%	3.4%	1,518	1,634
Buffalo, NY	15380	1,141,129	49,804	0.2%	1.9%	3.8%	963	2,218
Burlington, NC	15500	167,150	9,704	1.5%	3.6%	5.1%	393	687
Charleston, SC	16700	815,479	21,725	2.5%	6.0%	7.9%	1,491	2,744
Charlotte, NC	16740	2,797,760	83,159	5.3%	10.9%	11.4%	11,880	20,954
Chattanooga, TN	16860	569,045	26,453	1.3%	3.7%	4.9%	1,081	1,796
Chicago, IL	16980	9,578,238	328,278	0.2%	3.4%	4.5%	11,981	19,193
Cincinnati, OH	17140	2,207,623	81,015	0.6%	2.4%	5.0%	2,047	5,032
Cleveland, OH	17460	2,054,947	91,664	-0.1%	1.4%	4.2%	1,272	4,434
Colorado Springs, CO	17820	753,019	21,789	2.0%	4.8%	7.4%	1,194	2,447
Columbia, SC	17900	857,993	31,204	2.0%	6.6%	6.5%	2,445	3,323
Columbus, OH	18140	2,156,961	64,713	1.9%	3.9%	6.4%	2,764	5,803
Dallas, TX	19100	7,723,432	183,761	2.2%	6.3%	6.9%	13,684	20,530
Dayton, OH	19380	801,119	36,589	-0.1%	2.1%	3.5%	825	1,526
Daytona Beach, FL	19660	701,695	45,755	4.0%	6.5%	9.3%	3,466	7,216
Denver, CO	19740	2,993,936	80,952	1.8%	4.1%	7.0%	3,699	8,057
Des Moines, IA	19780	671,508	20,398	2.0%	4.4%	5.4%	1,005	1,547
Detroit, MI	19820	4,319,067	163,007	0.1%	2.9%	4.6%	4,953	9,482
Durham, NC	20500	593,155	22,731	2.2%	4.6%	7.0%	1,182	2,373

EXHIBIT A: POPULATION (CONT.)

					Projected 80+ Growth Rate		Annual Increase in 80+ Population	
MSA	CBSA Code	Population 2019	Population 80+ 2019	Forecast Annual Growth Rate	Thru 2025	2025 to 2030	Thru 2025	2025 to 2030
El Paso, TX	21340	867,427	27,251	1.5%	4.1%	5.1%	1,234	1,898
Flint, MI	22420	402,508	17,546	-0.6%	0.3%	3.6%	53	697
Fort Myers, FL	15980	779,162	58,056	2.7%	7.1%	6.1%	5,018	5,920
Fresno, CA	23420	1,012,819	29,423	1.2%	6.4%	5.9%	2,174	2,705
Gettysburg, PA	23900	103,459	4,884	0.5%	6.4%	6.2%	361	479
Grand Rapids, MI	24340	1,158,165	42,591	4.6%	9.3%	9.1%	4,926	7,483
Greensboro, NC	24660	779,895	28,939	1.2%	4.0%	5.5%	1,267	2,175
Greenville, SC	24860	986,932	38,266	5.0%	8.4%	9.6%	3,967	6,984
Hammond, LA	25220	138,118	4,991	2.1%	-4.3%	6.0%	(202)	276
Hanford, CA	25260	155,501	4,057	1.8%	7.5%	6.8%	367	473
Harrisburg, PA	25420	584,785	27,401	1.1%	2.6%	5.7%	758	2,022
Hartford, CT	25540	1,222,326	56,964	0.5%	2.6%	4.9%	1,571	3,519
Honolulu, HI	46520	1,009,329	47,688	1.0%	2.2%	4.9%	1,099	2,864
Houston, TX	26420	7,225,339	174,068	2.4%	6.7%	7.2%	13,759	20,652
Indianapolis, IN	26900	2,110,816	65,955	2.0%	5.2%	6.1%	3,896	6,047
Jackson, MS	27140	593,646	19,257	1.3%	5.2%	6.3%	1,126	1,779
Jacksonville, FL	27260	1,557,743	52,574	1.7%	6.9%	7.6%	4,311	6,657
Janesville, WI	27500	163,684	7,055	0.4%	3.2%	5.1%	245	473
Kansas City, MO	28140	2,165,489	76,969	0.9%	2.9%	4.9%	2,385	4,839
Knoxville, TN	28940	936,857	41,944	3.3%	5.3%	8.3%	2,520	5,465
Lakeland, FL	29460	716,701	36,581	2.2%	4.5%	4.0%	1,896	2,048
Lancaster, PA	29540	554,904	27,084	1.1%	3.2%	4.6%	917	1,605
Lansing, MI	29620	485,044	15,979	0.8%	0.5%	6.1%	84	1,134
Las Vegas, NV	29820	2,303,555	70,822	2.2%	6.8%	6.7%	5,759	7,890
Lebanon, PA	30140	143,140	8,156	1.2%	4.4%	4.8%	400	541
Lexington, KY	30460	531,911	17,137	1.9%	2.5%	6.3%	457	1,419
Little Rock, AR	30780	759,058	26,769	1.4%	4.9%	6.0%	1,458	2,336
Longview, WA	31020	108,863	5,948	0.9%	1.0%	5.5%	59	389
Los Angeles, CA	31080	13,501,662	464,988	0.6%	3.5%	5.1%	17,825	31,440
Louisville, KY	31140	1,312,989	49,412	0.7%	3.1%	5.3%	1,651	3,417
Madera, CA	31460	161,037	5,181	1.3%	1.9%	5.5%	103	354
Madison, WI	31540	680,532	21,351	2.0%	5.5%	8.2%	1,311	2,718
McAllen, TX	32580	896,904	25,858	2.1%	3.7%	5.3%	1,058	1,884
Melbourne, FL	37340	602,876	40,260	1.2%	3.7%	4.5%	1,638	2,457
Memphis, TN	32820	1,365,970	40,486	0.7%	3.0%	5.0%	1,280	2,621

EXHIBIT A: POPULATION (CONT.)

					Projected 80+ Growth Rate		Annual Increase in 80+ Population	
MSA	CBSA Code	Population 2019	Population 80+ 2019	Forecast Annual Growth Rate	Thru 2025	2025 to 2030	Thru 2025	2025 to 2030
Merced, CA	32900	279,066	7,124	1.2%	6.7%	3.9%	566	433
Miami, FL	33100	6,334,207	337,717	1.4%	3.5%	3.9%	12,997	17,372
Milwaukee, WI	33340	1,592,780	61,046	0.5%	1.2%	5.0%	765	3,582
Minneapolis, MN	33460	3,696,323	126,805	1.3%	5.2%	6.9%	7,440	13,213
Modesto, CA	33700	557,568	17,632	0.9%	4.3%	5.9%	847	1,461
Monroe, MI	33780	149,197	7,059	-0.2%	6.4%	4.8%	536	533
Napa, CA	34900	143,363	7,225	0.8%	0.7%	5.2%	52	434
Naples, FL	34940	388,679	35,984	2.1%	4.9%	4.5%	2,068	2,352
Nashville, TN	34980	2,008,156	60,240	2.7%	3.8%	6.6%	2,566	5,642
New Haven, CT	35300	867,749	39,086	0.4%	4.2%	5.1%	1,807	2,742
New Orleans, LA	35380	1,306,639	43,633	1.2%	4.7%	5.8%	2,285	3,608
New York, NY	35620	20,739,857	780,444	1.0%	2.5%	4.5%	20,552	43,494
Norwich, CT	35980	271,719	10,812	0.5%	6.6%	4.0%	815	643
Ogden, UT	36260	703,744	19,382	2.8%	3.9%	6.5%	835	1,789
Oklahoma City, OK	36420	1,432,409	41,903	1.7%	3.3%	4.7%	1,468	2,545
Omaha, NE	36540	959,501	31,029	1.3%	4.7%	5.4%	1,640	2,414
Orlando, FL	36740	2,628,260	90,242	2.3%	5.7%	6.4%	5,855	8,791
Philadelphia, PA	37980	6,174,849	253,191	0.6%	2.3%	4.7%	6,174	14,875
Phoenix, AZ	38060	4,913,467	181,280	1.8%	6.7%	6.4%	14,430	18,887
Pittsburgh, PA	38300	2,336,453	119,962	0.1%	1.1%	3.9%	1,327	5,241
Pittsfield, MA	38340	126,423	7,899	0.0%	3.1%	5.6%	263	575
Port St. Lucie, FL	38940	492,245	36,028	2.0%	4.4%	5.0%	1,769	2,502
Portland, ME	38860	537,580	21,944	0.5%	4.6%	6.5%	1,117	2,059
Portland, OR	38900	2,523,035	83,510	1.4%	6.2%	7.6%	6,008	10,244
Providence, RI	39300	1,630,501	70,959	0.3%	2.2%	5.2%	1,616	4,494
Provo, UT	39340	652,817	11,689	2.8%	5.4%	6.4%	719	1,142
Punta Gorda, FL	39460	188,872	20,696	1.9%	5.5%	5.5%	1,301	1,714
Racine, WI	39540	197,038	7,399	0.2%	0.9%	5.2%	69	443
Raleigh, NC	39580	1,419,429	35,417	3.1%	8.2%	9.0%	3,593	5,950
Reading, PA	39740	423,979	17,593	0.7%	4.1%	5.0%	792	1,183
Richmond, VA	40060	1,332,162	46,104	1.2%	3.3%	5.3%	1,634	3,219
Riverside, CA	40140	4,719,792	139,839	1.5%	4.8%	5.7%	7,524	11,491
Rochester, NY	40380	1,092,191	45,386	0.7%	4.8%	6.4%	2,402	4,143

EXHIBIT A: POPULATION (CONT.)

					Projected 80+ Growth Rate		Annual Increase in 80+ Population	
MSA	CBSA Code	Population 2019	Population 80+ 2019	Forecast Annual Growth Rate	Thru 2025	2025 to 2030	Thru 2025	2025 to 2030
Rockford, IL	40420	339,057	15,524	0.1%	4.4%	4.1%	755	862
Sacramento, CA	40900	2,383,058	91,654	1.2%	4.4%	6.9%	4,509	9,233
Saginaw, MI	40980	190,300	10,172	-0.4%	1.7%	3.7%	177	450
Salt Lake City, UT	41620	1,237,162	29,186	1.4%	3.6%	5.2%	1,134	2,036
San Antonio, TX	41700	2,598,165	78,634	2.5%	5.4%	6.5%	4,920	7,798
San Diego, CA	41740	3,431,907	132,612	1.4%	4.3%	6.5%	6,368	12,493
San Francisco, CA	41860	4,846,460	181,829	1.3%	3.5%	5.4%	7,014	13,285
San Jose, CA	41940	2,047,873	69,709	1.2%	4.2%	4.4%	3,217	4,206
Santa Rosa, CA	42220	513,139	21,835	0.9%	8.2%	8.5%	2,166	3,376
Sarasota, FL	35840	836,253	71,239	1.9%	4.7%	5.2%	3,782	5,280
Scranton, PA	42540	560,071	27,154	0.4%	1.4%	3.5%	371	1,064
Seattle, WA	42660	4,004,970	129,359	1.8%	5.6%	6.9%	8,345	13,770
Sebastian, FL	42680	159,645	15,372	1.7%	2.5%	5.7%	398	1,109
Sebring, FL	42700	104,410	10,551	0.7%	3.7%	0.7%	429	92
Spartanburg, SC	43900	350,115	12,873	2.3%	4.1%	6.8%	576	1,250
Spokane, WA	44060	593,779	22,089	2.6%	8.6%	9.9%	2,315	4,111
Springfield, MA	44140	628,016	24,307	-0.3%	-0.5%	4.4%	(112)	1,107
St. Louis, MO	41180	2,821,100	111,370	0.2%	3.6%	4.3%	4,379	6,303
Stockton, CA	44700	763,372	25,567	1.2%	3.7%	5.7%	1,049	2,005
Syracuse, NY	45060	659,373	28,365	0.3%	0.4%	4.6%	105	1,452
Tampa, FL	45300	3,183,634	159,238	1.5%	2.9%	4.9%	5,038	10,123
Toledo, OH	45780	598,242	23,549	-0.5%	0.5%	3.5%	124	888
Trenton, NJ	45940	379,910	14,215	0.7%	3.1%	5.2%	468	946
Tucson, AZ	46060	1,044,275	54,914	1.0%	5.0%	5.4%	3,135	4,360
Tulsa, OK	46140	1,012,885	37,880	1.1%	3.1%	4.1%	1,260	1,973
Utica, NY	46540	295,561	15,312	0.3%	1.9%	4.7%	304	877
Vallejo, CA	46700	454,782	15,981	1.0%	1.9%	6.8%	332	1,401
Ventura, CA	37100	866,753	30,647	0.7%	7.3%	6.8%	2,609	3,453
Virginia Beach, VA	47260	1,748,707	56,533	0.7%	3.9%	5.2%	2,393	4,010
Washington, DC	47900	6,421,201	185,086	1.6%	4.8%	6.2%	10,023	16,823
Wichita, KS	48620	659,206	24,267	1.0%	4.8%	6.0%	1,291	2,105
Winston-Salem, NC	49180	734,462	29,340	4.9%	10.2%	9.7%	3,849	5,883
Worcester, MA	49340	987,817	38,794	2.4%	6.5%	8.0%	2,902	5,059
York, PA	49620	454,131	19,420	0.9%	6.9%	5.6%	1,568	1,727
Youngstown, OH	49660	537,539	29,791	-0.4%	1.7%	4.1%	527	1,416
TOTAL		236,223,579	8,569,064	1.4%	4.2%	5.8%	395,682	693,308

EXHIBIT B: RATIOS

	Current Units – 2019					Units to 80+ Population				
MSA	CCRC	IL	AL	MC	NC	CCRC	IL	AL	MC	NC
Akron, OH	1,901	729	1,809	174	4,261	6.4%	2.5%	6.1%	0.6%	14.4%
Albany, NY	1,737	883	1,621	209	4,165	4.6%	2.4%	4.3%	0.6%	11.1%
Albuquerque, NM	1,079	1,297	1,177	69	1,972	3.0%	3.6%	3.3%	0.2%	5.5%
Allentown, PA	2,688	525	2,917	267	4,582	6.7%	1.3%	7.3%	0.7%	11.4%
Ann Arbor, MI	446	592	411	101	623	3.3%	4.4%	3.1%	0.8%	4.7%
Asheville, NC	2,805	765	360	92	1,808	10.9%	3.0%	1.4%	0.4%	7.0%
Atlanta, GA	3,349	6,687	11,361	860	12,721	2.1%	4.3%	7.3%	0.6%	8.2%
Augusta, GA	374	562	950	94	2,309	1.6%	2.4%	4.0%	0.4%	9.8%
Austin, TX	2,047	3,063	3,037	839	6,566	4.1%	6.1%	6.1%	1.7%	13.2%
Bakersfield, CA	641	252	723	42	1,751	2.9%	1.2%	3.3%	0.2%	8.0%
Baltimore, MD	9,229	1,759	4,467	108	11,464	8.8%	1.7%	4.3%	0.1%	10.9%
Baton Rouge, LA	367	752	847	48	4,399	1.2%	2.5%	2.8%	0.2%	14.6%
Birmingham, AL	2,961	1,161	766	55	3,768	7.1%	2.8%	1.8%	0.1%	9.1%
Boise, ID	996	1,183	2,516	168	1,750	5.0%	6.0%	12.7%	0.9%	8.9%
Boston, MA	8,855	3,261	10,335	1,122	26,114	4.8%	1.8%	5.6%	0.6%	14.1%
Boulder, CO	107	815	904	104	1,100	0.9%	6.7%	7.5%	0.9%	9.1%
Bridgeport, CT	1,276	533	1,968	249	5,209	3.4%	1.4%	5.3%	0.7%	14.0%
Buffalo, NY	1,429	1,035	2,900	92	6,932	2.9%	2.1%	5.8%	0.2%	13.9%
Burlington, NC	134	120	247	31	—	1.4%	1.2%	2.5%	0.3%	0.0%
Charleston, SC	1,503	806	1,494	78	1,573	6.9%	3.7%	6.9%	0.4%	7.2%
Charlotte, NC	5,173	1,843	6,013	279	7,451	6.2%	2.2%	7.2%	0.3%	9.0%
Chattanooga, TN	1,170	729	1,273	82	1,871	4.4%	2.8%	4.8%	0.3%	7.1%
Chicago, IL	19,479	9,654	15,516	2,157	49,738	5.9%	2.9%	4.7%	0.7%	15.2%
Cincinnati, OH	6,963	1,988	3,357	374	12,857	8.6%	2.5%	4.1%	0.5%	15.9%
Cleveland, OH	6,730	1,470	5,589	505	14,282	7.3%	1.6%	6.1%	0.6%	15.6%
Colorado Springs, CO	1,213	730	1,557	164	1,831	5.6%	3.4%	7.1%	0.8%	8.4%
Columbia, SC	1,565	691	1,886	94	2,512	5.0%	2.2%	6.0%	0.3%	8.1%
Columbus, OH	3,516	2,287	4,282	130	8,622	5.4%	3.5%	6.6%	0.2%	13.3%
Dallas, TX	7,589	12,377	12,311	2,130	27,268	4.1%	6.7%	6.7%	1.2%	14.8%
Dayton, OH	3,975	676	1,860	165	4,721	10.9%	1.8%	5.1%	0.5%	12.9%
Daytona Beach, FL	1,693	792	2,180	164	3,253	3.7%	1.7%	4.8%	0.4%	7.1%
Denver, CO	4,825	4,976	5,945	716	8,099	6.0%	6.1%	7.3%	0.9%	10.0%
Des Moines, IA	3,429	685	1,114	68	2,396	16.8%	3.4%	5.5%	0.3%	11.7%
Detroit, MI	5,847	10,918	6,336	753	16,791	3.6%	6.7%	3.9%	0.5%	10.3%
Durham, NC	2,698	580	897	212	1,222	11.9%	2.6%	3.9%	0.9%	5.4%

EXHIBIT B: RATIOS (CONT.)

	Current Units – 2019					Units to 80+ Population				
MSA	CCRC	IL	AL	MC	NC	CCRC	IL	AL	MC	NC
El Paso, TX	439	263	516	62	1,963	1.6%	1.0%	1.9%	0.2%	7.2%
Flint, MI	—	1,011	723	—	1,332	0.0%	5.8%	4.1%	0.0%	7.6%
Fort Myers, FL	3,463	2,076	1,896	302	1,757	6.0%	3.6%	3.3%	0.5%	3.0%
Fresno, CA	1,468	843	1,083	132	2,073	5.0%	2.9%	3.7%	0.4%	7.0%
Gettysburg, PA	392	—	73	—	347	8.0%	0.0%	1.5%	0.0%	7.1%
Grand Rapids, MI	3,696	1,389	3,595	39	2,622	8.7%	3.3%	8.4%	0.1%	6.2%
Greensboro, NC	2,473	642	1,666	134	3,134	8.5%	2.2%	5.8%	0.5%	10.8%
Greenville, SC	2,215	632	2,384	214	3,098	5.8%	1.7%	6.2%	0.6%	8.1%
Hammond, LA	—	—	137	—	745	0.0%	0.0%	2.7%	0.0%	14.9%
Hanford, CA	—	118	120	—	296	0.0%	2.9%	3.0%	0.0%	7.3%
Harrisburg, PA	3,754	576	1,242	128	2,368	13.7%	2.1%	4.5%	0.5%	8.6%
Hartford, CT	2,511	1,027	2,377	388	8,943	4.4%	1.8%	4.2%	0.7%	15.7%
Honolulu, HI	1,352	372	1,002	26	792	2.8%	0.8%	2.1%	0.1%	1.7%
Houston, TX	4,764	7,682	6,699	1,372	17,192	2.7%	4.4%	3.8%	0.8%	9.9%
Indianapolis, IN	7,404	1,982	5,250	92	10,331	11.2%	3.0%	8.0%	0.1%	15.7%
Jackson, MS	727	688	597	—	2,934	3.8%	3.6%	3.1%	0.0%	15.2%
Jacksonville, FL	3,872	887	3,254	395	5,511	7.4%	1.7%	6.2%	0.8%	10.5%
Janesville, WI	254	—	382	—	578	3.6%	0.0%	5.4%	0.0%	8.2%
Kansas City, MO	8,070	3,743	3,832	346	11,023	10.5%	4.9%	5.0%	0.4%	14.3%
Knoxville, TN	478	470	2,715	225	4,068	1.1%	1.1%	6.5%	0.5%	9.7%
Lakeland, FL	833	957	1,670	32	2,809	2.3%	2.6%	4.6%	0.1%	7.7%
Lancaster, PA	10,076	497	980	34	1,916	37.2%	1.8%	3.6%	0.1%	7.1%
Lansing, MI	320	500	548	167	1,361	2.0%	3.1%	3.4%	1.0%	8.5%
Las Vegas, NV	314	1,431	2,244	238	3,443	0.4%	2.0%	3.2%	0.3%	4.9%
Lebanon, PA	1,426	131	447	—	482	17.5%	1.6%	5.5%	0.0%	5.9%
Lexington, KY	896	287	803	—	1,449	5.2%	1.7%	4.7%	0.0%	8.5%
Little Rock, AR	796	880	915	133	3,829	3.0%	3.3%	3.4%	0.5%	14.3%
Longview, WA	—	102	202	—	371	0.0%	1.7%	3.4%	0.0%	6.2%
Los Angeles, CA	9,056	4,313	20,230	1,670	39,886	1.9%	0.9%	4.4%	0.4%	8.6%
Louisville, KY	2,894	1,090	2,361	212	7,048	5.9%	2.2%	4.8%	0.4%	14.3%
Madera, CA	—	—	134	—	332	0.0%	0.0%	2.6%	0.0%	6.4%
Madison, WI	2,586	727	2,169	190	1,580	12.1%	3.4%	10.2%	0.9%	7.4%
McAllen, TX	335	314	71	34	2,335	1.3%	1.2%	0.3%	0.1%	9.0%
Melbourne, FL	344	739	1,928	214	2,506	0.9%	1.8%	4.8%	0.5%	6.2%
Memphis, TN	1,388	1,447	1,344	119	4,711	3.4%	3.6%	3.3%	0.3%	11.6%

EXHIBIT B: RATIOS (CONT.)

	Current Units – 2019					Units to 80+ Population				
MSA	CCRC	IL	AL	MC	NC	CCRC	IL	AL	MC	NC
Merced, CA	—	115	279	—	427	0.0%	1.6%	3.9%	0.0%	6.0%
Miami, FL	10,465	6,234	8,408	565	15,551	3.1%	1.8%	2.5%	0.2%	4.6%
Milwaukee, WI	6,531	2,596	6,216	750	4,487	10.7%	4.3%	10.2%	1.2%	7.4%
Minneapolis, MN	10,704	6,882	15,220	953	9,741	8.4%	5.4%	12.0%	0.8%	7.7%
Modesto, CA	491	358	940	70	1,776	2.8%	2.0%	5.3%	0.4%	10.1%
Monroe, MI	215	45	155	—	638	3.0%	0.6%	2.2%	0.0%	9.0%
Napa, CA	280	201	154	19	207	3.9%	2.8%	2.1%	0.3%	2.9%
Naples, FL	1,748	1,782	1,173	349	544	4.9%	5.0%	3.3%	1.0%	1.5%
Nashville, TN	2,066	1,908	4,526	121	6,916	3.4%	3.2%	7.5%	0.2%	11.5%
New Haven, CT	2,107	840	1,527	124	5,371	5.4%	2.1%	3.9%	0.3%	13.7%
New Orleans, LA	846	559	1,347	40	5,384	1.9%	1.3%	3.1%	0.1%	12.3%
New York, NY	15,586	5,304	23,283	619		2.0%	0.7%	3.0%	0.1%	12.9%
Norwich, CT	322	162	426	—	1,376	3.0%	1.5%	3.9%	0.0%	12.7%
Ogden, UT	379	235	1,702	66	1,654	2.0%	1.2%	8.8%	0.3%	8.5%
Oklahoma City, OK	1,912	1,758	2,688	274	5,653	4.6%	4.2%	6.4%	0.7%	13.5%
Omaha, NE	1,383	1,826	2,947	104	3,889	4.5%	5.9%	9.5%	0.3%	12.5%
Orlando, FL	4,364	1,525	5,263	191	7,037	4.8%	1.7%	5.8%	0.2%	7.8%
Philadelphia, PA	29,729	2,217	9,249	658	28,220	11.7%	0.9%	3.7%	0.3%	11.1%
Phoenix, AZ	9,713	7,501	8,650	1,674	5,950	5.4%	4.1%	4.8%	0.9%	3.3%
Pittsburgh, PA	6,674	1,766	6,720	450	12,977	5.6%	1.5%	5.6%	0.4%	10.8%
Pittsfield, MA	541	191	217	—	1,400	6.8%	2.4%	2.7%	0.0%	17.7%
Port St. Lucie, FL	281	773	1,522	54	1,543	0.8%	2.1%	4.2%	0.1%	4.3%
Portland, ME	895	1,187	1,508	379	2,404	4.1%	5.4%	6.9%	1.7%	11.0%
Portland, OR	4,672	6,987	8,392	1,003	4,235	5.6%	8.4%	10.0%	1.2%	5.1%
Providence, RI	1,045	598	3,969	200	12,668	1.5%	0.8%	5.6%	0.3%	17.9%
Provo, UT	—	401	1,129	—	932	0.0%	3.4%	9.7%	0.0%	8.0%
Punta Gorda, FL	682	—	982	—	861	3.3%	0.0%	4.7%	0.0%	4.2%
Racine, WI	—	465	749	—	573	0.0%	6.3%	10.1%	0.0%	7.7%
Raleigh, NC	2,164	2,595	2,209	109	3,104	6.1%	7.3%	6.2%	0.3%	8.8%
Reading, PA	868	381	1,607	—	1,851	4.9%	2.2%	9.1%	0.0%	10.5%
Richmond, VA	3,351	1,857	3,362	309	4,362	7.3%	4.0%	7.3%	0.7%	9.5%
Riverside, CA	2,137	2,215	5,833	640	8,112	1.5%	1.6%	4.2%	0.5%	5.8%
Rochester, NY	2,201	2,761	2,633	150	5,456	4.8%	6.1%	5.8%	0.3%	12.0%

EXHIBIT B: RATIOS (CONT.)

	Current Units – 2019					Units to 80+ Population				
MSA	CCRC	IL	AL	MC	NC	CCRC	IL	AL	MC	NC
Rockford, IL	—	62	627	120	124	0.0%	0.4%	4.0%	0.8%	0.8%
Sacramento, CA	1,182	3,053	5,829	493	5,561	1.3%	3.3%	6.4%	0.5%	6.1%
Saginaw, MI	—	120	844	—	845	0.0%	1.2%	8.3%	0.0%	8.3%
Salt Lake City, UT	276	1,010	3,009	248	2,107	0.9%	3.5%	10.3%	0.8%	7.2%
San Antonio, TX	3,169	3,843	2,482	626	10,363	4.0%	4.9%	3.2%	0.8%	13.2%
San Diego, CA	4,524	2,921	6,128	1,046	6,933	3.4%	2.2%	4.6%	0.8%	5.2%
San Francisco, CA	4,755	2,417	9,133	898	11,322	2.6%	1.3%	5.0%	0.5%	6.2%
San Jose, CA	2,553	1,655	1,918	91	4,371	3.7%	2.4%	2.8%	0.1%	6.3%
Santa Rosa, CA	544	1,105	845	146	227	2.5%	5.1%	3.9%	0.7%	1.0%
Sarasota, FL	4,292	1,774	4,184	462	3,668	6.0%	2.5%	5.9%	0.6%	5.1%
Scranton, PA	604	176	1,865	126	5,404	2.2%	0.6%	6.9%	0.5%	19.9%
Seattle, WA	5,982	6,909	10,488	1,108	7,564	4.6%	5.3%	8.1%	0.9%	5.8%
Sebastian, FL	862	475	607	32	371	5.6%	3.1%	3.9%	0.2%	2.4%
Sebring, FL	—	—	770	—	478	0.0%	0.0%	7.3%	0.0%	4.5%
Spartanburg, SC	937	—	768	—	900	7.3%	0.0%	6.0%	0.0%	7.0%
Spokane, WA	1,162	995	866	84	957	5.3%	4.5%	3.9%	0.4%	4.3%
Springfield, MA	1,127	561	1,337	44	3,870	4.6%	2.3%	5.5%	0.2%	15.9%
St. Louis, MO	9,400	3,613	5,612	590	18,410	8.4%	3.2%	5.0%	0.5%	16.5%
Stockton, CA	929	350	1,295	199	2,432	3.6%	1.4%	5.1%	0.8%	9.5%
Syracuse, NY	1,114	557	1,192	101	3,293	3.9%	2.0%	4.2%	0.4%	11.6%
Tampa, FL	7,785	3,715	10,017	1,019	11,907	4.9%	2.3%	6.3%	0.6%	7.5%
Toledo, OH	1,443	641	1,760	110	3,799	6.1%	2.7%	7.5%	0.5%	16.1%
Trenton, NJ	364	444	448	108	1,937	2.6%	3.1%	3.2%	0.8%	13.6%
Tucson, AZ	2,237	2,799	2,119	309	2,077	4.1%	5.1%	3.9%	0.6%	3.8%
Tulsa, OK	2,747	1,350	1,652	290	4,821	7.3%	3.6%	4.4%	0.8%	12.7%
Utica, NY	320	762	216	36	2,882	2.1%	5.0%	1.4%	0.2%	18.8%
Vallejo, CA	477	313	584	194	—	3.0%	2.0%	3.7%	1.2%	0.0%
Ventura, CA	460	694	2,230	130	1,624	1.5%	2.3%	7.3%	0.4%	5.3%
Virginia Beach, VA	3,624	2,168	3,002	206	5,686	6.4%	3.8%	5.3%	0.4%	10.1%
Washington, DC	15,425	2,226	8,071	795	14,489	8.3%	1.2%	4.4%	0.4%	7.8%
Wichita, KS	2,388	958	1,456	141	2,848	9.8%	3.9%	6.0%	0.6%	11.7%
Winston—Salem, NC	1,547	561	1,208	97	2,028	5.3%	1.9%	4.1%	0.3%	6.9%
Worcester, MA	1,202	463	1,326	53	6,850	3.1%	1.2%	3.4%	0.1%	17.7%
York, PA	1,499	80	1,356	—	1,358	7.7%	0.4%	7.0%	0.0%	7.0%
Youngstown, OH	2,321	121	1,240	32	4,455	7.8%	0.4%	4.2%	0.1%	15.0%
TOTAL	409,988	228,108	427,984	39,498	843,104	4.8%	2.7%	5.0%	0.5%	9.8%

EXHIBIT C: UNITS

	Annual Growth in Units					
MSA	CCRC thru 2025	CCRC 2025 to 2030	IL thru 2025	IL 2025 to 2030	AL+MC thru 2025	AL+MC 2025 to 2030
Akron, OH	(6)	95	(2)	36	(6)	99
Albany, NY	57	136	29	69	60	143
Albuquerque, NM	76	114	92	138	88	132
Allentown, PA	60	177	12	35	71	209
Ann Arbor, MI	26	55	34	72	30	63
Asheville, NC	65	216	18	59	10	35
Atlanta, GA	258	424	516	847	943	1,548
Augusta, GA	14	31	21	46	39	86
Austin, TX	156	303	234	454	296	574
Bakersfield, CA	6	37	2	15	7	44
Baltimore, MD	255	617	49	118	127	306
Baton Rouge, LA	16	29	33	60	40	72
Birmingham, AL	75	200	29	78	21	55
Boise, ID	85	149	101	177	229	403
Boston, MA	212	624	78	230	274	807
Boulder, CO	10	19	72	142	90	175
Bridgeport, CT	42	56	18	23	74	97
Buffalo, NY	17	64	13	46	36	133
Burlington, NC	6	9	5	8	12	20
Charleston, SC	91	190	49	102	95	199
Charlotte, NC	662	1,303	236	464	805	1,585
Chattanooga, TN	47	79	29	49	55	92
Chicago, IL	625	1,139	310	564	567	1,033
Cincinnati, OH	151	432	43	123	81	232
Cleveland, OH	62	326	14	71	56	295
Colorado Springs, CO	62	136	37	82	88	193
Columbia, SC	115	167	51	74	145	211
Columbus, OH	139	315	90	205	174	396
Dallas, TX	518	848	845	1,383	986	1,613
Dayton, OH	81	166	14	28	41	84
Daytona Beach, FL	115	267	54	125	159	370
Denver, CO	196	480	202	495	271	663
Des Moines, IA	148	260	30	52	51	90
Detroit, MI	147	340	275	635	179	412
Durham, NC	134	282	29	61	55	116

EXHIBIT C: UNITS (CONT.)

	Annual Growth in Units					
MSA	CCRC thru 2025	CCRC 2025 to 2030	IL thru 2025	IL 2025 to 2030	AL+MC thru 2025	AL+MC 2025 to 2030
El Paso, TX	18	31	11	18	24	40
Flint, MI	—	—	4	40	3	29
Fort Myers, FL	282	353	169	212	179	224
Fresno, CA	93	135	53	77	77	112
Gettysburg, PA	25	38	—	—	5	7
Grand Rapids, MI	379	649	142	244	372	639
Greensboro, NC	92	186	24	48	67	135
Greenville, SC	210	404	60	115	246	474
Hammond, LA	—	—	—	—	(4)	8
Hanford, CA	—	—	10	14	10	14
Harrisburg, PA	98	277	15	43	36	101
Hartford, CT	60	155	25	63	66	171
Honolulu, HI	24	81	7	22	19	62
Houston, TX	345	565	557	911	585	958
Indianapolis, IN	394	679	105	182	284	490
Jackson, MS	37	67	35	64	30	55
Jacksonville, FL	284	490	65	112	267	462
Janesville, WI	8	17	—	—	13	26
Kansas City, MO	225	507	105	235	117	263
Knoxville, TN	26	62	26	61	161	383
Lakeland, FL	42	47	49	54	86	95
Lancaster, PA	288	597	14	29	29	60
Lansing, MI	1	23	2	35	3	51
Las Vegas, NV	24	35	109	159	188	277
Lebanon, PA	63	95	6	9	20	30
Lexington, KY	23	74	8	24	21	66
Little Rock, AR	38	69	42	77	50	91
Longview, WA	—	—	1	7	2	13
Los Angeles, CA	309	612	147	292	748	1,481
Louisville, KY	86	200	32	75	76	178
Madera, CA	—	—	—	—	2	9
Madison, WI	133	329	37	93	122	300
McAllen, TX	13	24	12	23	4	8
Melbourne, FL	13	21	28	45	81	131
Memphis, TN	39	90	40	94	41	95

EXHIBIT C: UNITS (CONT.)

	Annual Growth in Units					
MSA	CCRC thru 2025	CCRC 2025 to 2030	IL thru 2025	IL 2025 to 2030	AL+MC thru 2025	AL+MC 2025 to 2030
Merced, CA	—	—	8	7	20	17
Miami, FL	368	538	219	321	316	462
Milwaukee, WI	59	383	24	152	63	409
Minneapolis, MN	573	1,115	368	717	865	1,685
Modesto, CA	21	41	15	30	43	84
Monroe, MI	15	16	3	3	11	12
Napa, CA	2	17	1	12	1	10
Naples, FL	99	114	101	116	87	99
Nashville, TN	86	194	80	179	194	435
New Haven, CT	82	148	33	59	64	116
New Orleans, LA	39	70	25	46	63	115
New York, NY	336	869	115	296	516	1,332
Norwich, CT	20	19	10	10	27	25
Ogden, UT	16	35	10	22	74	163
Oklahoma City, OK	58	116	53	107	90	180
Omaha, NE	66	108	87	142	145	237
Orlando, FL	254	425	89	149	318	531
Philadelphia, PA	625	1,747	47	130	208	582
Phoenix, AZ	702	1,012	542	781	746	1,076
Pittsburgh, PA	40	292	10	77	43	313
Pittsfield, MA	14	39	5	14	6	16
Port St. Lucie, FL	12	20	33	54	68	109
Portland, ME	39	84	51	111	81	177
Portland, OR	302	573	452	857	607	1,152
Providence, RI	18	66	10	38	71	264
Provo, UT	—	—	22	39	63	110
Punta Gorda, FL	39	56	—	—	57	81
Racine, WI	—	—	3	28	5	45
Raleigh, NC	199	364	238	436	213	389
Reading, PA	33	58	14	26	61	108
Richmond, VA	104	234	58	130	114	256
Riverside, CA	105	176	109	182	318	532
Rochester, NY	95	201	119	252	120	254

EXHIBIT C: UNITS (CONT.)

	Annual Growth in Units					
MSA	CCRC thru 2025	CCRC 2025 to 2030	IL thru 2025	IL 2025 to 2030	AL+MC thru 2025	AL+MC 2025 to 2030
Rockford, IL	—	—	3	3	32	41
Sacramento, CA	52	119	136	308	281	637
Saginaw, MI	—	—	2	5	15	37
Salt Lake City, UT	10	19	36	70	116	227
San Antonio, TX	181	314	220	381	178	308
San Diego, CA	201	426	130	275	318	676
San Francisco, CA	163	347	83	177	344	733
San Jose, CA	105	154	68	100	83	121
Santa Rosa, CA	48	84	97	171	87	153
Sarasota, FL	203	318	84	131	219	344
Scranton, PA	4	24	1	7	14	78
Seattle, WA	348	637	402	735	674	1,234
Sebastian, FL	19	62	11	34	14	46
Sebring, FL	—	—	—	—	29	7
Spartanburg, SC	38	91	—	—	31	75
Spokane, WA	106	216	90	185	86	177
Springfield, MA	(10)	51	(5)	26	(12)	63
St. Louis, MO	314	532	121	204	207	351
Stockton, CA	35	73	13	27	57	117
Syracuse, NY	1	57	1	29	1	66
Tampa, FL	221	495	105	236	313	702
Toledo, OH	3	54	1	24	4	70
Trenton, NJ	9	24	11	30	14	37
Tucson, AZ	117	178	147	222	127	193
Tulsa, OK	84	143	41	70	59	101
Utica, NY	5	18	13	44	4	14
Vallejo, CA	10	42	7	27	17	68
Ventura, CA	34	52	51	78	173	266
Virginia Beach, VA	132	257	79	154	116	228
Washington, DC	767	1,402	111	202	441	806
Wichita, KS	113	207	45	83	75	139
Winston—Salem, NC	181	310	66	112	153	262
Worcester, MA	77	157	30	60	88	180
York, PA	105	133	6	7	95	121
Youngstown, OH	29	110	2	6	16	60
TOTAL	16,522	33,237	10,759	20,393	20,424	40,237

ENDNOTES

[1] Boomers Want to Stay Home. Senior Housing Now Faces Budding Glut, by Peter Grant, WSJ, Nov 12, 2019.

[2] The Villages, FL and Portersville, CA markets, while covered in the *Seniors Housing Construction Monitor* report, are excluded in the current analysis due to ambiguity in linking these markets to an applicable core based statistical area (CBSA).

[3] ASHA Special Issue Brief, *A Projection of U.S. Senior Housing Demand 2015–2040* by Phil Downey and Larry Rouvelas, Senior Housing Analytics and Francesco Rockwood, Rockwood Pacific, Summer 2016.

[4] Note that herein a forecast of growth of say 1,000 units in the CCRC properties category would imply, based on the current composition of CCRC communities, a growth of 564 IL units, 140 AL units, 37 MC units and 259 NC units.

[5] An advantage of forecasting supply counts is that it is testable. Demand is more complicated and is strongly correlated to pricing. For instance, if an operator could deliver a form of senior housing with materially lower pricing while still delivering on the traditional value proposition, demand could change virtually overnight. In other words, demand is a set of functions, not a set of values.

[6] ASHA Special Issue Brief, *State by State 75+ Population Growth Forecast* by Francesco Rockwood and Sarah Rockwood of Rockwood Pacific and Phil Downey of Senior Housing Analytics, Winter 2018.

[7] For an exemplary overview of this methodology, see University of Virginia Weldon Cooper Center, Demographics Research Group (2019), Virginia Population Projections. Another excellent resource is *A Practitioner's Guide to State and Local Population Projections* by Stanley K. Smith, Jeff Tayman, and David A. Swanson (2013). Typically, this method is applied to 10-year intervals; herein the method is applied to 5-year intervals.

[8] TOPICS: *Assessing Risk of Senior Living Over-Supply — A Long-Term Perspective* by Frank Rockwood, Sarah Rockwood and Phil Downey, Fall 2015. TOPICS papers available at www.rockwoodpacific.com.

[9] TOPICS: *The 75+ vs. 80+ Benchmark Choice – Is the Demand for Senior Living Overstated?* by Francesco Rockwood, Sarah Rockwood and Phil Downey, Fall 2016. TOPICS papers available at www.rockwoodpacific.com.

[10] Alternate approaches to defining and applying *penetration ratios* are to (i) define penetration ratios in terms of households rather than population and/or (ii) define penetration ratios specific to each age cohort (i.e. distinct penetration ratios for each age cohort). A challenge with utilizing household counts is that they are not as readily available from official sources, so analysts usually apply their own discretionary estimates to this intermediate calculation. The challenges with the age-specific penetration ratios relate to complexity and communication. It is particularly challenging to clearly communicate a vector of penetration ratios rather a single figure and unless the distributions within the older age categories vary significantly, the added precision is limited.

[11] TOPICS: *Where and Why are 75+ Older Adults Moving & Why You Should Care?* By Francesco and Susan Rockwood, Winter 2014/2015.

[12] The Hamilton-Perry methodology does include an estimate of birthrates which is based on historical ratios of births to the population counts in age cohorts associated with childrearing, however, this component of the analysis is minor and unexpected future changes in birthrates would not materially affect the outcome of this analysis.

[13] Personally, with the exception of perhaps first-generation immigrants, I believe that the relatively lower penetration in non-white ethnic groups, after accounting for income and wealth attributes, can be improved through product and marketing refinements.

[14] Incidentally, for trade area analysis, adult caregiver ratios appear to be more strongly correlated with specific project performance. Intuitively caregiver ratios would be less applicable at an MSA-level, but perhaps adult caregiver ratios are similarly more effective in forecasting future demand growth at the MSA-level as well.

[15] See the article published by CNBC Tech *Google Is Training Computers To Predict When You Might Get Sick* by Christina Farr, May 17, 2017; also for broader approach to this opportunity to mine new data sources, see the book *Everybody Lies: Big Data, New Data, and What the Internet Can Tell Us About Who We Really Are* by Seth Stephens-Davidowitz, 2018.

[16] Los Angeles Times Book Review: Gates' Look Ahead Holds Few Surprises by Leslie Helm, Dec. 1, 1995.

ABOUT THE AUTHOR

Francesco “Frank” Rockwood, Rockwood Pacific

Frank co-founded Rockwood Pacific in 2013. Rockwood Pacific is a real estate development consultancy committed to improving options for older adults through improved decision making and the development of better communities.

Rockwood Pacific is currently serving as the development manager for several major senior living development and redevelopment projects in communities throughout Northern California including Los Gatos, Santa Rosa, Palo Alto, San Francisco, Oakland and Auburn/Grass Valley.

Prior to Rockwood Pacific, Frank served as a real estate development executive with Sunrise Senior Living, Transamerica Senior Living, Disney Development Company, the City and County of Denver, and Zeckendorf. Frank has also served as a finance executive with Transamerica Realty Services and Ziegler. Notable development projects include the conversion of Shriners Hospital of San Francisco into a senior living community, new assisted living/memory care developments in Beverly Hills, San Francisco, San Jose, Sacramento, British Columbia, Raleigh-Durham and Jacksonville, Disney’s Celebration community in Florida and the redevelopment of Stapleton Airport in Denver.

Frank received his A.B. in Applied Mathematics from Harvard College and a Master of Business Administration from BerkeleyHaas.

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