Geographical Farming Application

University of Redlands

Mercedez E. Speaker

Mercedez_Speaker@redlands.edu

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The advancements in technology are continuing to transform every single aspect of the real estate industry today. This continues to create various new challenges as well as rewarding opportunities for both brokers and agents alike. As mapping capabilities in geographical information systems became accessible to the public, consumers continue to demand access to online tools from applications to websites to help them feel more educated and in control to achieve their real estate goals. This initial demand from clients came after National Association of Realtors (NAR) sold access to information available in the multiple listing service (MLS) to companies such as Zillow, Realtor.com and Trulia. "The MLS serves as a traditional resource for agents to research and create a list of homes for sale to match buyers with sellers, and to market an agent's listing to other agents who may have a potential buyer" (Gee, 2010, p. 104). These online competitors gave consumers the tools to freely search the active homes on the MLS. Who would have thought that N.A.R. Agents would see a time where they feel a need to pay these online competitors thousands of dollars per month just to be featured on their website just to get a lead? To combat these competitors, real estate agencies study to figure out better tools for clients to find their next homes, however because of this, there has become little focus on providing tools to help the Agents. If a Broker were to invest in Esri's intelligent GI systems such as ArcGIS and Business Analyst for their agency, then Agents could effectively target the serious buyers and sellers within their Geographical Farming areas to become more successful and would fill a need in the real estate industry today. The GIS application that I have provided combines MLS Remine software and Title Advantage software with Esri BAO and ArcGIS that will provide the Agents at Coldwell Banker with a method to access a neighborhood's turnover rate, demographics and tapestry and even a

home's mortgage information all in one application which can increase sales making them the top leaders in the market.

History

Coldwell Banker is known as one of the oldest real estate brands in the nation, that first was started up in 1906 by a young man named Coldwell. At this time in 1906, residents were struggling to rebuild and were forced to start all over after a violent earthquake hit in San Francisco, ruining almost all buildings and homes in neighborhoods in the city. Coldwell noticed how many sales associates were taking advantage of these vulnerable and frightened residents. All of the sales associates knew that these frightened residents were going to sell no matter what, so would offer to buy for the lowest prices imaginable, only to resell and profit immensely. This is when Coldwell became disgusted, and he knew he had to do something different. He truly saw a need as a sales associate to bring honest and knowledgeable professionals together to help consumers. Years later, Coldwell met a man named Benjamin Banker, who had the same beliefs and wanted to assist the public in the real estate world through his knowledge and experience. After eventually forming a partnership, in 1914, they made their Coldwell Banker company official. Today, Coldwell Banker organization has over 92,000 affiliated sales associates and brokers and 3,100 offices world-wide (Snow, 2018). The brave actions that Coldwell first took when he visualized a need in the real estate industry and made it a mission to be the first to provide, is the same take-action mindset that Coldwell Banker leaders strives to live by and practice well over a century later. Both men, Coldwell & Mr. Banker would be extremely proud of the leadership roles and innovative reputation that the Coldwell Banker brand has earned today, serving countries all-across the world with that same attitude of honesty and integrity that they practiced.

Once the industry began utilizing the internet to provide resources for consumers, Coldwell Banker did not wait around to watch and learn from another company potential failures. In typical Coldwell-fashion, Coldwell Banker dove right in excited about the advantages that the internet would provide and ended up being the first national brand in the real estate industry to have their own website. Their website went live in 1996, and a few years later, started receiving award recognition from it, and also was the first real estate website to introduce a tool to help buyer's search for homes online (Snow, 2018). "Although a majority of real estate website offer buying and selling advice in text format, coldwellbanker.com site offers the same information in many professionally produced videos," says University of New York student, Harold Gee in his study about internet sources available in the real estate industry.

"The importance of the spatial component that puts the geographic in GIS can hardly be overemphasized in real estate where an accepted mantra is 'location, location, location'" (Wofford & Thrall, 1997)." This exact statement perfectly sums up the importance of geography in the real estate industry, because even long before GIS capabilities and spatial analysis, a home's geographical location has always had a direct relation to residential real estate. However, today with improvements in GIS and companies constantly looking to outshine their competitor's, a company's GIS spatial strategy must constantly be evolving and adjusting according to the current times. Of course, as the leaders in innovation, Coldwell Banker was the first real estate brand to utilize the true power of big data in their application software called, the CBx Technology Suite (Snow, 2018). "Their software uses predictive analytics and machine learning to analyze markets, target buyers and sellers and provide agents with a simple platform to create unique and effective marketing plans for each listing" (Snow, 2018). One GIS application could provide sellers with insight on where their next interested buyer would be moving from. Due to this forward-thinking mindset and a reputation to keep the real estate industry evolving, I

knew that my GIS application could achieve the most success in the hands of Coldwell Banker's top GIS and application planning team, because they would be able to boldly make any necessary adjustments overtime to keep my GIS application innovative and consistently useful.

Providing a GIS system to help educate Coldwell Banker's Agents about their specific geographic farming area could provide them with data and tools that could help them reach their target market much more effectively than their competing agencies. One example that proves how effective it can be to invest in resources for their team is commercial real estate firm, Sperry Van Ness. This firm's strategy provided a user-friendly web experience with crucial maps and multimedia sales information to their top salespeople much faster than their competition (Pick, 2008, p. 34). The firm's leadership emphasizes the importance of the sales advisors, and generally plans everything in the short- and mid-term, rather than long-term strategically (Pick, 2008, p. 372). By investing in advanced tools for sale's advisors, then advisors can educate their customer base and inform them of potential opportunities that big data may have revealed.

Planning Phase

During the planning phase of my GIS application, I studied the entirety of the gap I wanted to fill in the real estate industry, and identified all of the required components needed in my application to be considered a valuable tool that management and CEO's at Coldwell Banker would want to invest in. Taking into account the GIS tools and applications already available for real estate agents today who pay their membership fees for MLS access, there still was not a detailed application to help give Agents enough answers to effectively learn the residents in their chosen Farming neighborhoods. This is why I felt that the best data that could help educate Colwell Banker Agents is one with GIS capability to further examine the demographics and tapestry of the target market audience. One MLS website and GIS application that I have incorporated in my application is called Remine, which identifies the equity

that each resident has in their home, and also the interest that residents pay based on the length of their home loan. Another beneficial feature that is included is called the “sell-score” which determines the likelihood each home will sell based on collected data and various factors. Although this information that Remine gives Agents access to is very beneficial, I chose to incorporate this information with Esri’s ArcGIS and BAO because an Agent could gather better insight on the residents in their chosen farm area by first understanding the habits and tapestry of the residents. Knowing how much equity a resident has in their home does not help Agents to depict who that resident is, nor provide Agents with a strategic plan to help them list more homes in their farm area. Although Remine is accessible to all NAR agents who have MLS access, I still do not feel this would interfere or even be considered competition since Remine is such a small piece to the entire puzzle of my application. The accurate and relative data that Esri’s BAO provides to its users when incorporated with MLS Remine and O.C. Title Advantage Software, can provide Agents with advanced insight to make predictions on where the real estate market could be headed. My application could provide CB Agents with an extremely beneficial tool to gain more listings and close more sales versus their competing agencies. Brokers from competing agencies that do not have access to advanced tools as this, may push successful agents to consider switching brokerages to work for the Coldwell Banker Team.

Cost-Benefit Analysis

- Of course investing in a GIS software in real estate tends requires a large investment, however, it is evident that across almost any industry, the most successful companies tend to be the ones that invest and utilize in the data behind a GIS. GIS is usually more expensive than a conventional IS due to the needs to gather both attribute and boundary file data (Pick, 2008). The value that investing in an advanced GIS application that is not accessible to any other competing business, puts the power in the hands of those that have the data. The intangible costs

are the most difficult costs to put a numerical value on when determining the costs of making a GIS system. However, the overall cost-benefit-analysis diagram that closely represents my GIS applications, is determining whether the costs outweigh the benefits when coupled with another system or technology. Some of the tangible costs include: supplies, design, construction of data-bases, outsourcing (GIS applications programming) consulting as well as the costs for licensing too. However, some of the tangible benefits, which completely outweigh the initial investment in a GIS system, are: efficiency from the reduced hours that an agent would be working, less costs in the future, better salaries, and over time, more data to help will help a GIS application to only become smarter and more accurate. Some intangible benefits are just assuring that over time, the data collection will continue to provide more and more benefits to a company or franchise investing in it. GIS is constantly helping businesses across all industries to better prepare for future changes and be able to see certain warning signs of change.

Analysis Phase

"In Analysis, information is gathered in different ways depending on the project type and its needs" (Pick, 2008, p. 176). During this phase of my application, I tested my farm areas, plotted the points into ArcGIS, and figured out the strengths and weaknesses of my application, and determined make various adjustments. The first step in this phase after I gathered the necessary information was plotting out the potential farm areas that I was interested in. To determine which area would be best to examine as I experimented with my Farming App, I examined a simple BAO Map with two layers: one mentioned the amount of credit card debt an area has over a twelve month period, and the other mention how many school debt balance a specific are may or may not have in the Redlands and Loma Linda area. One these layers were plotted, I was able to find a farming neighborhood in each city that had about one hundred homes in each specified geographical farming area.

The next step that I used to determine if those two areas I picked out would end up being a high enough turnover rate, was plot the streets onto the Orange Coast Title Farming App. This Application uses GIS specifically for staking out farming areas for real estate agents to determine the turnover rate. Luckily, the area next to the Redlands Country Club ended up having a 6.76% turnover rate, which was the highest turnover rate that I found. Initially, I researched that it is best to find an area that is at the very least, a 6 percent turnover rate. This was the first problem that occurred for me, but as I scanned other sources, it mentioned how certain areas could have lower turnover rates om average, but as long as I could find the areas with the best turnover rates I would be fine. As a newer agent, I partner with my Grandmother, a thirty-year top real estate professional in Redlands and surrounding areas. We found two areas with higher turnover rates that we thought could ultimately be successful areas to market. First farm area had the highest turnover rates of 6.37 percent and was right next to the Redlands Country Club on Fairway Drive and Mariposa Avenue with about seventy-three homes. The second area was in Loma Linda near the hospital, which had about one hundred homes with a turnover rate of 5.28 percent. The software was able to export each address in each potential farm area onto an excel spreadsheet so that I was able to directly import these exact addresses into Esri's BAO and Community Analyst.

While comparing and contrasting each farm area, I was careful to monitor what I found surprising and beneficial, and what traits could essentially make an Agent reconsider Farming an area. Three layers of data that I found the most interesting was when I made a Smart Map on BAO that combined the 2019 Median Household Income, Percentage of Residents that have used an Agent in the last twelve months, and Median Home Value. I also gathered infographics to help explain the tapestry of both farms as well as Financial Market Reports, that went into specific details of banking, and home loan information and even credit card usage and number of residents who typically had a zero balance on their cards as well as number of those that did.

During this phase, I also identified how the GIS would be built. For the most advanced results, my GIS application would be built through "end-user development by high-level professionals or scientists located in user departments of the organization" (Pick, 2008, p. 178). Since Coldwell Banker in Redlands is in the same city as the number one GIS mapping system in the country: Esri, I feel that Coldwell Banker CEO's should gather their top GIS and IT team leaders and have them fly to Redlands, CA to meet face to face with Esri's professionals assigned to develop this application. By traveling to Esri instead of requesting Esri professionals to travel to another requested area, substantial money would be saved as well as time. Keeping in mind the constant evolvement of GIS spatial strategies to develop the latest application, time is equally as valuable as money (if not more) to assure that a recent developed application stays ahead of competitors and provides benefits that competing agencies do not have. "In a company, the GIS design team is often located in a small independent group with members drawn from non-business backgrounds" (Pick, 2008). Considering that the GIS and IT will be responsible for working together to assure that everything is taught to agents and top management throughout all Coldwell Banker franchises in the country, it is vital that their relationship is seamless and they both understand and respect one another and the ultimate goal. If any sort of miscommunication occurs during the training process of this application, it could affect when the application goes into effect, and also affect the amount of agents at Coldwell Banker that use the software, which would defeat the purpose of having a valuable source like this available. The enthusiasm and positive mindset of everyone on board responsible for training and utilizing this application must be equal and provide agents with an excitement to not only utilize this tool, but to understand what it means to become the leader for innovation in your industry.

During my experiments of testing my farm areas in BAO, I found that both areas could not be more different. The Tapestry in Redlands Country Club area was called the Exurbanites, who were

defined as a group of wealthy and educated individuals that were 55+ years old, however very active in their communities, and enjoy various activities such as golf and gardening, as well as financially active with wide ranging investments and much more. The Tapestry of the Loma Linda farm was defined as the Golden Years, which were mostly older healthier active individuals that although did not earn as high of median household incomes as the Redlands Farm, still were very wise in their Finances, and rarely had any negative balance on credit cards, and also were very wise to have retirement funds set up such as 401 k's. I was shocked to see that the highest age group of residents in the Loma Linda farm, was females that were 85+ years and older! Understanding the tapestry and demographics of my farming areas is going to help me to effectively target the residents specifically according to who they are as individuals instead of as an entire neighborhood. For example, by knowing that the Loma Linda farm area has the biggest age group of women ages eighty-five and older, I now know that the marketing material that I send out to them to introduce myself will be much different than what I send to Residents in my Redlands farm. I will probably focus on a clear message with a simple layout and a clear area to include my contact information.

While thinking about this GIS Application I developed and how it relates when thinking about the Porter's 5 Forces in the real estate industry, I can think of a couple different strengths and competitive advantages. The two forces that I believe my GIS Application best fits under is Competitive Rivalry because this application helps Coldwell Banker sustain that competitive edge over the other agencies in this area, This application will open many opportunities for Agents, and help them close more transactions with a tool this easy to incorporate while farming or staking out exact streets and homes. The other Force that this falls under is also the threat of substitutes. With all agencies competing, it is only a matter of time that another agency develops another tool that can substitute the

other. The trick is always staying that much ahead of competing agencies so that it becomes very difficult for another substitute tool or GIS application to be preferred over yours.

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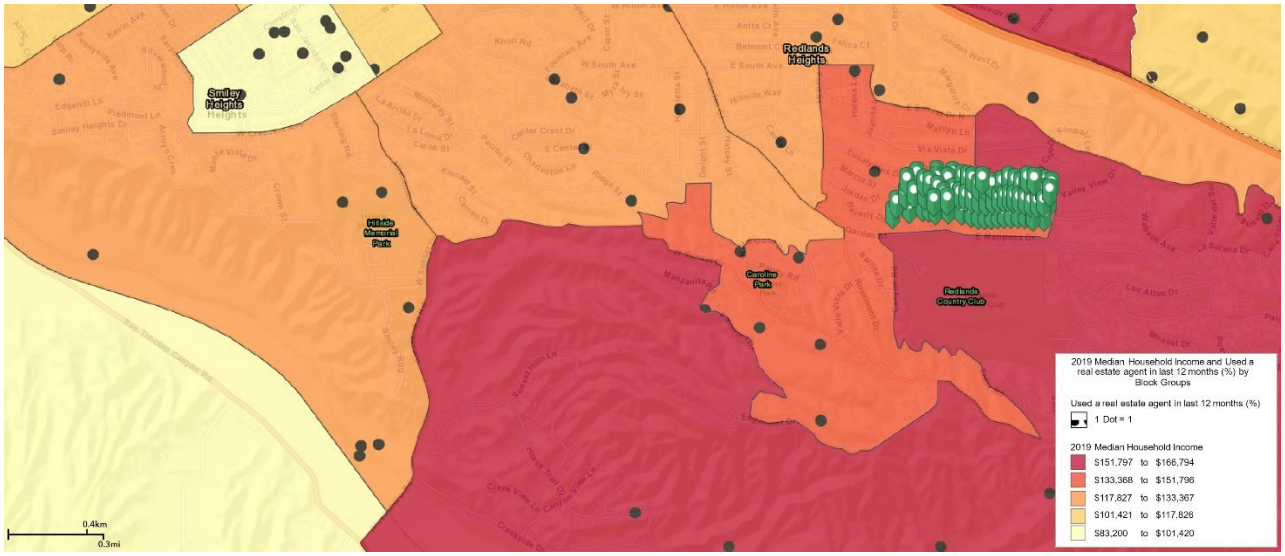
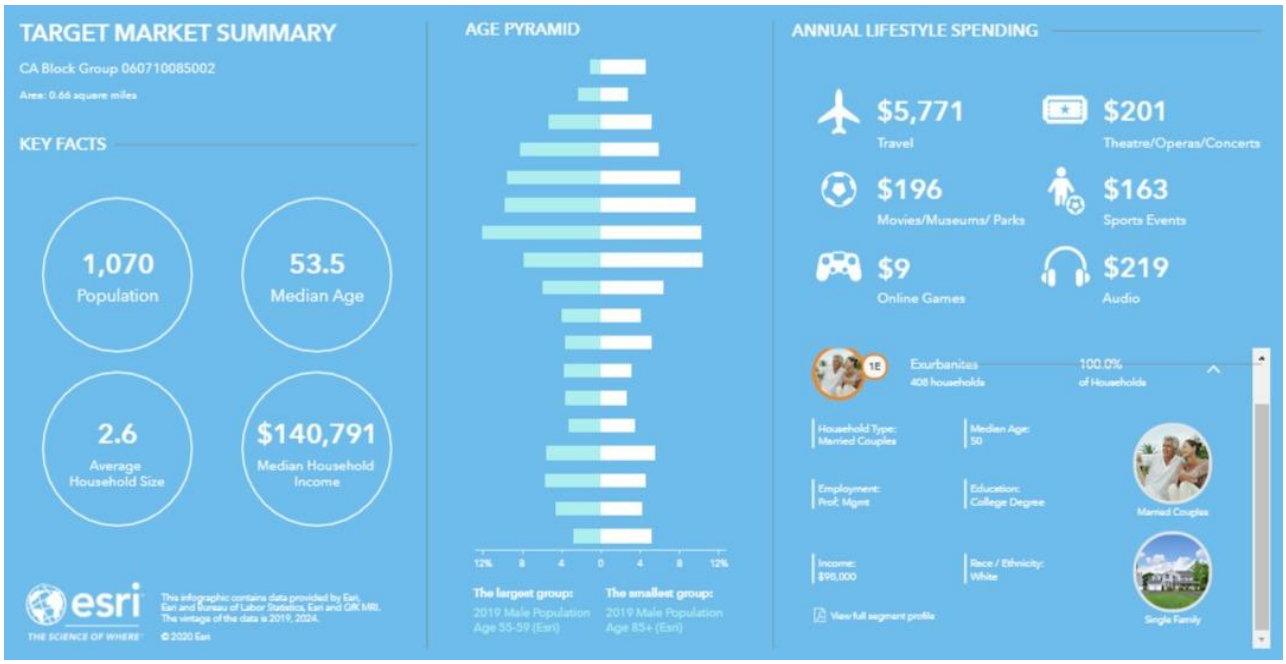
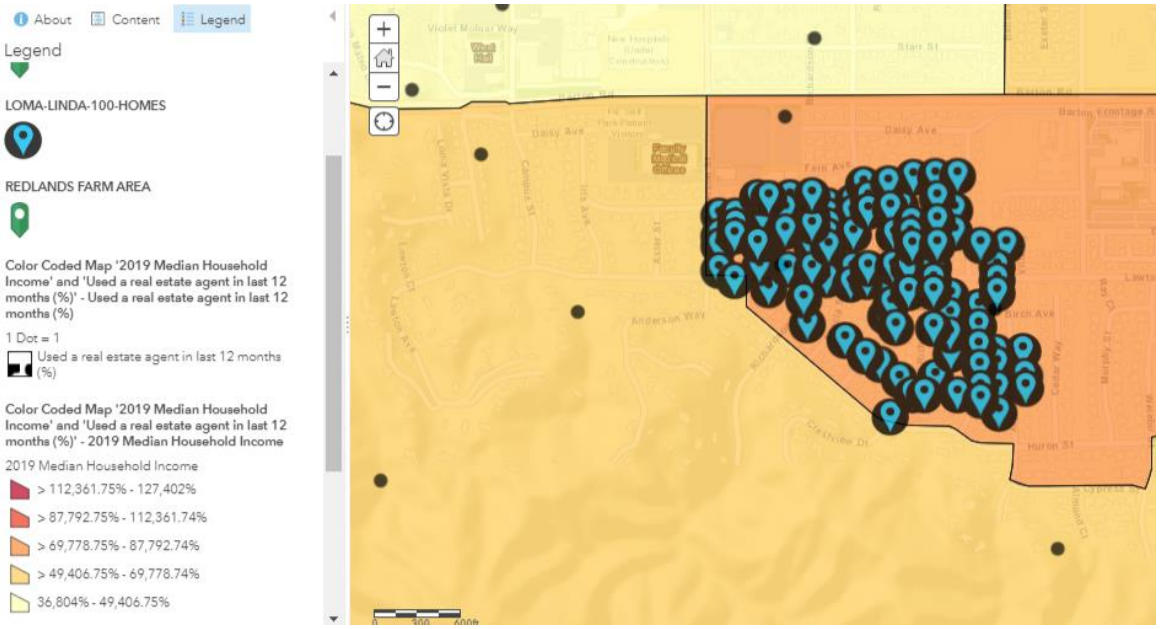
Redlands Farm shows the number of residents that have used a real estate agent in the last year.



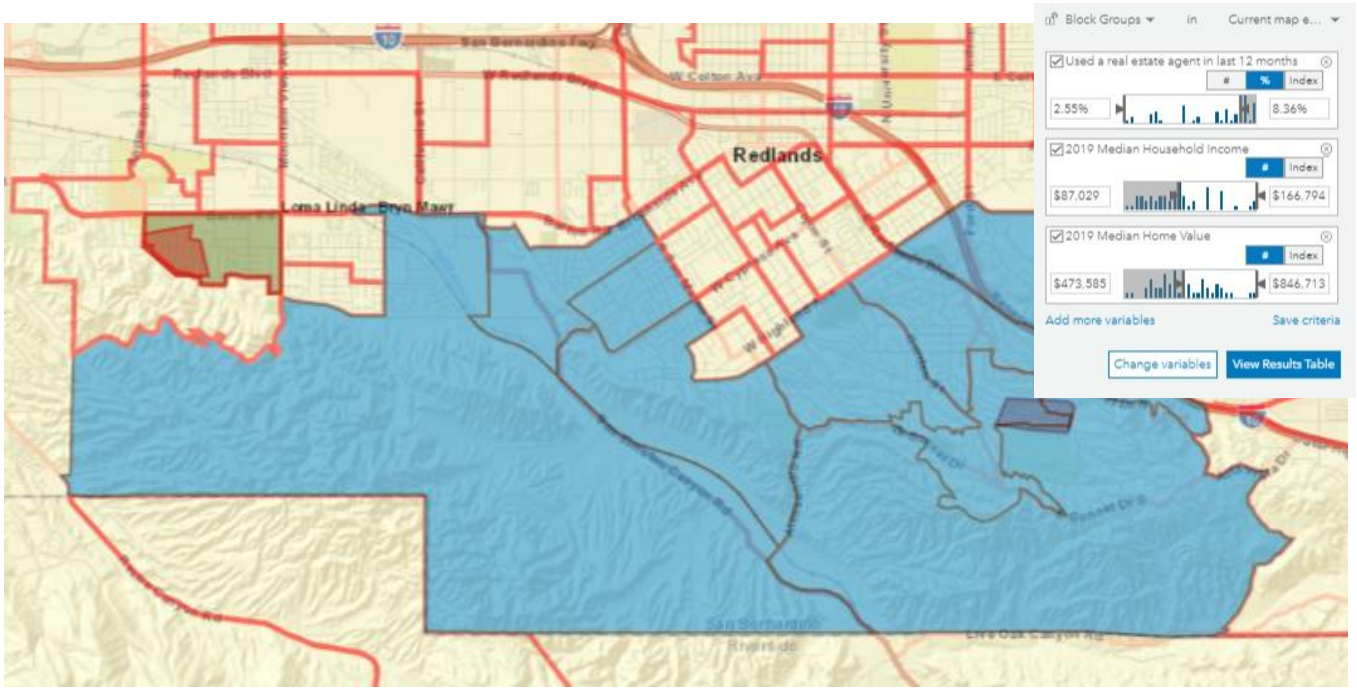
This shows Redlands Farm with Median Income in 2019



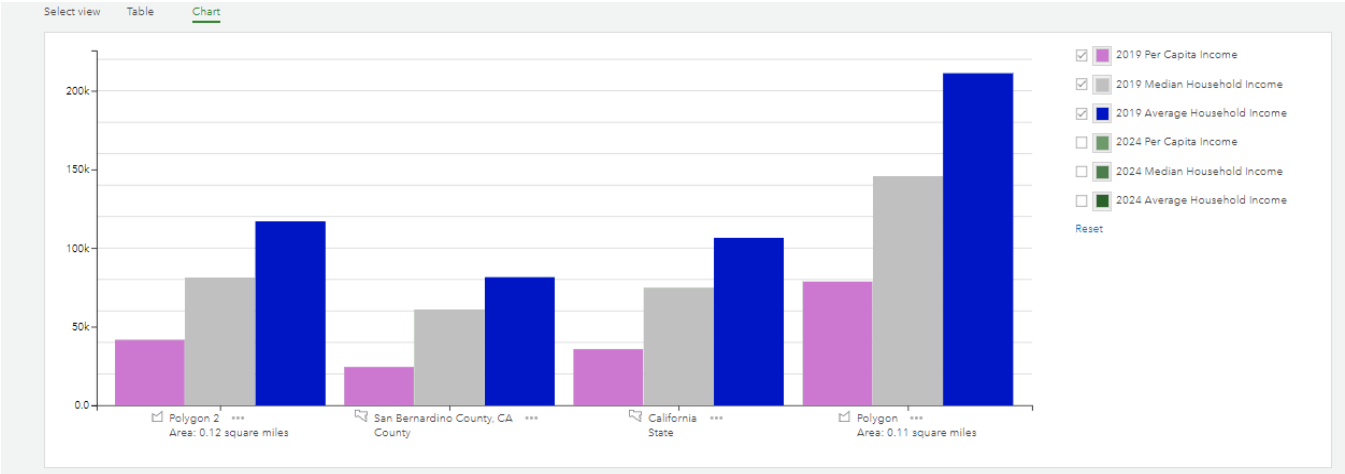
Redlands Target Market Summary



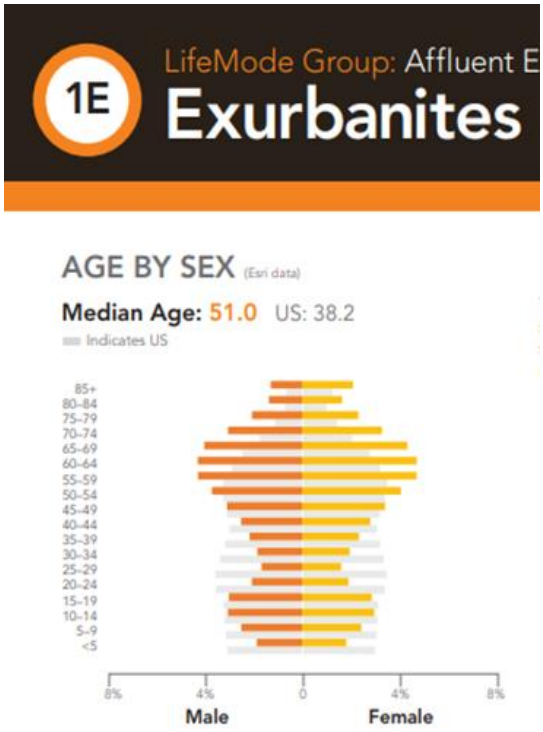
Loma Linda Target Market: 2019 Median Household Income

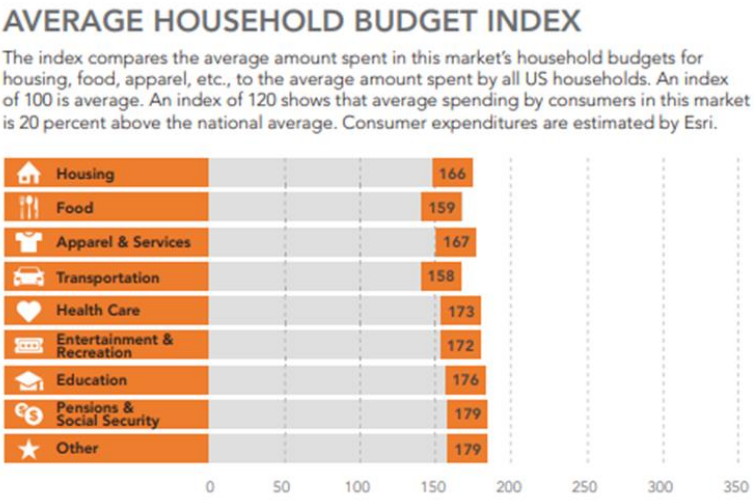


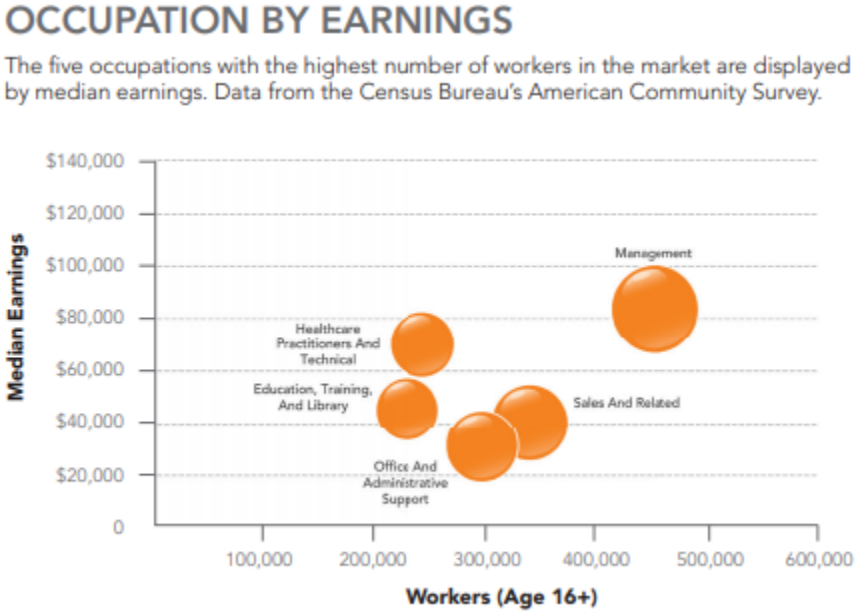
Smart Map on BAO measuring both Farms that fall under all three attributes.



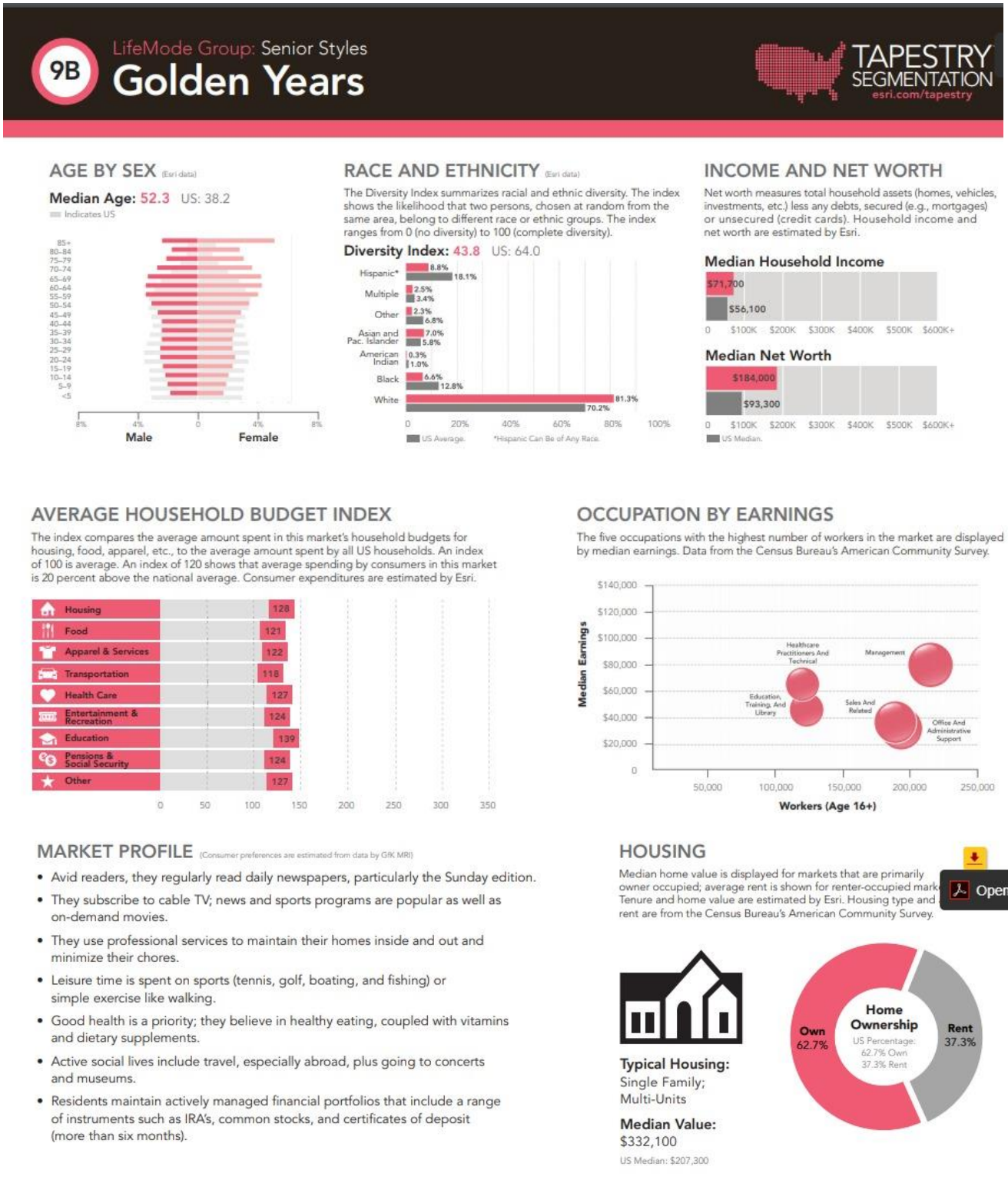
Compares both Farm areas to San Bernardino County and California Averages







Redlands Tapestry & Demographics



Loma Linda Demographics and Tapestry Details

esri

Finances Market Potential

Polygon 2
Area: 0.12 square miles

Prepared by Esri

Demographic Summary		2019	2024
Population		577	588
Population 18+		497	498
Households		198	202
Median Household Income		$81,123	$89,774
Product/Consumer Behavior	**Expected Number of Adults**	**Percent**	**MPI**
Did banking in person in last 12 months	296	59.6%	108
Bank/financial institution used: Bank of America	95	19.1%	145
Bank/financial institution used: Capital One	38	7.6%	135
Bank/financial institution used: Chase	99	19.9%	146
Bank/financial institution used: Citibank	35	7.0%	181
Bank/financial institution used: PNC	22	4.4%	128
Bank/financial institution used: U.S. Bank	18	3.6%	116
Bank/financial institution used: Wells Fargo	72	14.5%	119
Bank/financial institution used: credit union	94	18.9%	105
Bank/financial inst used: local/community bank	54	10.9%	113
Did banking by mail in last 12 months	29	5.8%	198
Did banking by phone in last 12 months	55	11.1%	114
Did banking online in last 12 months	233	46.9%	120
Did banking on mobile device in last 12 months	115	23.1%	89
Used ATM/cash machine in last 12 months	269	54.1%	102
Used direct deposit of paycheck in last 12 months	236	47.5%	109
Did banking w/paperless statements in last 12 months	157	31.6%	129
Have interest checking account	207	41.6%	145
Have non-interest checking account	147	29.6%	101
Have savings account	321	64.6%	113
Have overdraft protection	162	32.6%	120
Have auto loan	133	26.8%	129
Have personal loan for education (student loan)	20	4.0%	59
Have personal loan - not for education	13	2.6%	76
Have home mortgage (1st)	165	33.2%	107
Have 2nd mortgage (home equity loan)	31	6.2%	127
Have home equity line of credit	24	4.8%	144
Have personal line of credit	38	7.6%	220
Have 401(k) retirement savings plan	94	18.9%	118
Have 403(b) retirement savings plan	22	4.4%	140
Have Roth IRA retirement savings plan	50	10.1%	126
Have Traditional IRA retirement savings plan	87	17.5%	162
Own any securities investment	224	45.1%	139
Own any annuity	31	6.2%	225
Own certificate of deposit (more than 6 months)	27	5.4%	208
Own shares in money market fund	37	7.4%	186

Loma Linda Detailed Financial Market Potential