Abstract

Several factors contribute to the prices of homes within a given neighborhood. Street curvature is examined to determine if it increases real estate value of homes on streets displaying curvature vs. straight streets. The website www.zillow.com provides the data used in this comparison. Average prices and average prices per square foot are compared between respective data sets using two different methodologies. The first methodology compares adjacent sets of homes based on estimated prices. The second methodology compares actual sale prices over three months while spread over a larger area. Results verify that homes on curved streets exhibit higher prices but lower prices per square foot. The results are limited in use, as there are many more factors affecting home prices than street curvature alone.

Introduction

There are many factors affecting real estate prices. The biggest determinants are usually location and large-scale financial trends. My research concentrates on the location of houses, specifically the street sections they are located on and whether they are straight, curved or cul-de-sacs. The paper addresses whether street curvatures affects the price of housing on them in relation to houses on neighboring straight streets. My sample sites are in the San Fernando Valley and Simi Valley.

Hypothesis

Street curvature will affect the price of houses positively in relation to neighboring streets, which are straight. The overall price of the homes as well as the price per square foot will be higher in curved areas. Curvature will play an important role in the reduction of negative aspects of housing and the added aesthetic value will increase the value of houses on curved streets.

Literature Review

Land values are determined by several factors, many of which fluctuate from day to day such as the “Wall street” factors dealing with finance and lending. My research deals with static physical factors, namely the curvature of streets and how this affects price, if at all.

Traffic

One of the greatest benefits of living on a curved street is the reduced velocity of automobiles. Because of street curvature, automobiles are forced to slow down, less they lose traction and crash (Grammenos and Tasker, 2002). This type of street is not usually the fastest way from point A to point B, therefore street curvature tends to reduce traffic as non-resident drivers find more direct routes to their destinations.

This is good for several reasons. Along with traffic comes noise pollution. Based on a study conducted in 1981, noise adversely affects housing value. For every decibel above threshold level, houses lose .4 percent of their value (Road Engineering Journal, 1997). This is a very significant amount, especially when the average price for houses in California at about $500,000. Thus, people are willing to pay extra to avoid excess noise. Since streets exhibiting curvature reduce traffic, noise is reduced and value is higher. There is a conflict with avoiding noise, however. Proximity to highways and freeways usually raises the value of a home. However, when a home is too close, value drops due to the added noise pollution coming from heavy traffic. Therefore, there is a balance between noise reduction and distance to a main artery that maximizes price.

Cul-de-sacs

The most extreme of bends is the cul-de-sac. A cul-de-sac is basically a dead end with a wide turning radius at the end. These streets are highly sought after for possessing the qualities of curved streets but to a much higher degree (Mortgage News Daily, 2007). Traffic is far less in these locations since the road terminates in a residential area, usually leading to the only traffic being people returning home or people who are lost turning around to get back onto their street of origin. The shape of cul-de-sacs allow for interesting home shapes and landscaping. People who live here can be more creative with their land use since they are not restricted to the typical square lot that people on straight streets must deal with (Asabere, 1990)

Gridiron vs. Curved & Cul-de-sac

The majority of residential neighborhoods, particularly older ones, have made use of the gridiron scheme. This structure is basically made up of several squares with four-way intersections at every turn. This makes for a very predicable navigation and can be efficient for traffic, depending on volume. It is also the most friendly for larger vehicles such as fire trucks to navigate. Unfortunately, this layout adds several negative factors resulting in a price decrease of the homes in the area.

For reasons I will not deeply explore, crime is less in curved/cul-de-sac areas than in gridiron areas (Asabere, 1990). The most prevalent thinking is that criminals see non-gridiron areas as harder to escape from after committing a crime. The loss of visibility as well as the randomness of curvature and dead ends may give them a sense of being trapped within the neighborhood. Other reasons may be as simple as the fact that

criminals are less likely to live in these areas because the housing value is higher and there are therefore fewer criminals around.

As mentioned already, curved streets are usually associated with less traffic. This leads to a reduction in noise. Large commercial vehicles tend to stick to high-density artery streets, typically in the gridlock design. These are some of the loudest vehicles on the road and they generate far more air pollution than your standard passenger vehicle. Commercial vehicles are usually interested in the fastest way to their destination and curved streets are usually less time efficient. One of the greatest advantages to curved streets and cul-de-sacs is their lack of permeability to through traffic (Asabere, 1990).

Air pollution is a factor that can negatively affect real estate prices. While nothing can be done about the San Fernando Valley's air in general, limiting traffic in an area can reduce spot-specific pollution. Everyone has seen the black, sooty smoke coming from commercial vehicles and school busses. It's safe to assume that people would pay extra to avoid this health hazard. Curved streets limit this type of traffic. Another form of pollution associated with gridlock schemes is litter. Streets with higher traffic flow exhibit higher rates of litter in the form of paper, cigarettes, plastics and oil stains (Asabere, 1990). These are visually unappealing details that will reduce land values.

Safety is a very important determinant in land value. As previously mentioned, crime rates tend to be lower on curved/cul-de-sac streets than on straight streets. There is another aspect of safety, which is also important: curved streets offer a friendlier environment to children and the elderly. There are fewer four-way intersections in non-gridlock areas, which makes crossing the street less of a hazard. Traffic speed as well as

quantity of cars is generally reduced, making street crossings safer . Slower moving people such as the elderly benefit from the reduced traffic and tranquility. Since people with children and senior citizens greatly prize safety and tranquility, land values generally rise. These people are more likely to have money than younger people who are generally less established and place more importance on being in more action oriented locations. An added benefit of cul-de-sacs and curved streets is a sense of greater "neighborliness." People in areas with less traffic flow and greater aesthetic value are generally friendlier to each other and have a greater sense of community.

Aesthetic Appeal

Curved streets and cul-de-sacs offer greater aesthetic appeal than straight streets and gridlock areas (Grammenos and Tasker, 2002). They offer a sense of uniqueness not found on straight streets. When looking down the street of a straight road, one gets the feeling that his/her house is just one in a series of houses, all of which follow a similar plan. On a curved street, visibility of other houses is reduced and the difference in yard shapes along with the feeling of enclosure and protection are generally more appealing. There is also an aesthetic value in the randomness of bends and cul-de-sacs which gives a sense of your place of living being more separate from your organized place of work. A distinction is made between work and play that might create a better sense of peace.

Methodology

Two different research methodologies were used in order to acquire more legitimate results. The first method has the advantage in sample size while the second has an advantage in more meaningful data. sd

Method 1

Research began with careful studying of maps of the San Fernando Valley and Simi Valley. Several locations were chosen in areas containing cul-de-sacs, curved streets and straight streets. Street sections were chosen near each other to avoid price fluctuations based on other factors such as proximity to retail locations, highways, etc. There were several prerequisites for the houses I selected. Each set of houses must consist of ten units and they must be consecutive. They must be relatively near each other, preferably adjacent but no further than three streets away. They cannot be on streets with more than a single lane in each direction. Sections I chose for the "straight" category must not have any bend in them. Sections I chose for the "curved" category needed to have sufficient curvature to fit my definition. The definition used for curvature is multi-part.

1) Each house on an outward curved section must have the characteristic where if a line is drawn from the end of the front yards of the houses four units away in either direction, the line must pass at least half the width of the street towards the house across the street. If a house does not have four units in either direction, the existing curvature is to be used to estimate the expected curvature had those units been present.

2) Each house on an inward curved section must have the characteristic where if a line is drawn from the end of the back yards of the houses four units away in either direction, the line must pass at least half the length of that home towards the back yard. If a house does not have four units in either direction, the existing curvature is to be used to estimate the expected curvature had those units been present.
3) Houses located on an "S" section of a street are allowed to fail parts one and two so long as the houses on either side of them meet the requirements of one and two.

After having selected all locations, the website www.zillow.com was used to gather individual home information. The information from each home was entered into a database in Excel with the following data: address, price, square feet of home, square feet of lot. Using these values, averages were generated for the purpose of getting a big picture of the trends. Average prices of homes were calculated by adding up the prices of homes in each section and dividing by the number of homes. Average square footage was calculated by adding up the total square feet of the homes in a section and dividing by the number of homes. Once these values were attained, the average price was divided by the average square footage to get the average price per square foot. The new data was put into graphs for visualization. Further assimilation of the new values into the "bigger picture" led to even broader charts being created representing all homes in the database.

Method 2

The second method has both an advantage and disadvantage over the first method. Because www.zillow.com uses a formula to calculate the value of each home based on previous sales and general market trends, it couldn't be expected to be very accurate. For this reason, in method two, I chose only houses that had sold within the last three months for my database. This allowed me to use factual data that could not be disputed rather than estimates. Zillow allowed me to search for homes within specific zip codes with a useful tool that allowed for further narrowing down by number of rooms, bathrooms, etc. Unfortunately, because I was only using data for homes that had sold within the last three months within each zip code, my usable data was limited enough without further limiting it through the use of this tool. Ten homes on straight streets and ten homes on curved streets were selected from each zip code by using Zillow and www.latimes.com. The requirements for what I refer to as curved streets is the following:

1) Each house on an outward curved section must have the characteristic where if a line is drawn from the end of the front yards of the houses four units away in either direction, the line must pass at least half the width of the street towards the house across the street. If a house does not have four units in either direction, the existing curvature is to be used to estimate the expected curvature had those units been present.
2) Each house on an inward curved section must have the characteristic where if a line is drawn from the end of the back yards of the houses four units away in either direction, the line must pass at least half the length of that home towards the back yard. If a house does not have four units in either direction, the existing

curvature is to be used to estimate the expected curvature had those units been present.

3) Houses located on an “S” section of a street are allowed to fail parts one and two so long as the houses on either side of them meet the requirements of one and two.

Unlike method one, the requirement for proximity of homes was not very strict, only requiring that the homes be in the same zip code. Regardless, I attempted to gather the homes from as concentrated an area as I could manage. The requirements were that they must be within the same zip code, preferably in the same “neighborhood.” They cannot be on streets with more than a single lane in each direction.

My data was entered into an Excel spreadsheet the same way I entered the data for method one. Using the same formulas, I calculated the average price of homes for each category, the average square footage, and the average price per square foot. These values were then incorporated into an equation to calculate the overall averages including all data in section two, the same as was done in section one. The price per square foot is an important value because it eliminates the advantages some houses might have due to greater home size. There are several other variables, which I cannot account for in this project due to time constraints and availability of data, but calculating the price per square foot will hopefully help nullify some variables such as added rooms.

Anticipated Results

I expect to find that homes on streets that exhibit curvature will display a significant variation in price over homes on sections of street. My opinion is that

curvature of streets is less conducive to traffic and will therefore make for a more pleasant atmosphere and people will be more likely to pay higher prices for this added benefit. As mentioned in my literature review, traffic is responsible for many negative aspects, including danger when crossing streets and different types of pollution. The curved sections I study will exhibit desirable qualities and will generally sell for more money.

Site Study

My study was conducted in several small sites throughout the San Fernando Valley and Simi Valley to get a better idea of whether the phenomenon applies in general.

Results

Method 1

This data set comes from houses in Sylmar, CA. The straight street on Astoria Ave., has an average house price of $522,999. This street has a downward slope, which may affect home values. The curved street nearest to this is Bleeker St. The average price of homes on the curved section of Bleeker St. is $548,030 for a

difference of $25,031 in favor of the curved street. The houses on the straight street had a square foot value of $385 as opposed to $370 on the curved street. The appearance of the sections was very similar and neither set was near a school or other establishment that could affect value.

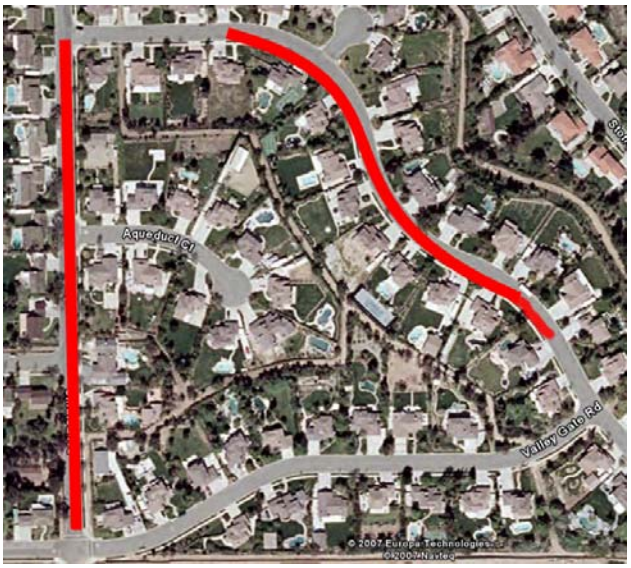
The second data set consists of homes on Gaynor St. and Index St. in Granada Hills, CA. The average price of homes on the straight section of Index St. was $568,304 and $580,171 on the curved section of Gaynor St. The average price per square foot on the straight section was $406 and the average price per square foot on the curved section was $391. Both streets appeared to be in the same neighborhood.

Data set three contains a curved street section on Lorillard St in Granada Hills and a straight section on Gunther St. in San Fernando. Although they are technically in different towns, they are only a street away from each other. Gunther St has a straight section of homes with an average price of $630,941 and

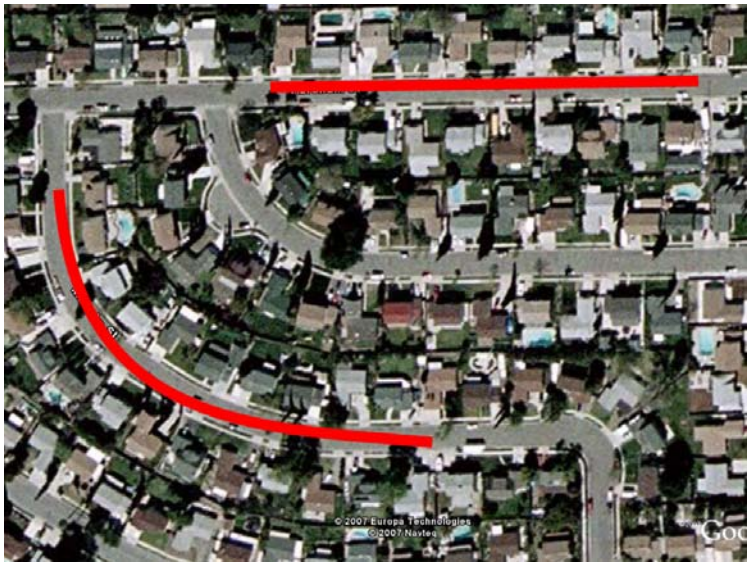
the curved section of Lorillard has an average price of $649,174 for a difference of $18,233. The straight street has a small advantage of $366 vs. $361 in price per square foot. These streets are very close together.

Area four contains two streets in Chatsworth. Keokuk Ave. has a straight section with an average value of $536,162. The curved portion of Laramie Ave has an average price of $558,216 for a difference of $22,054. The straight potion has a higher price per square foot at $388 vs. $380 for the curved portion. I typically kept some distance from schools but in this example the school was an equidistant from both streets so it was included.

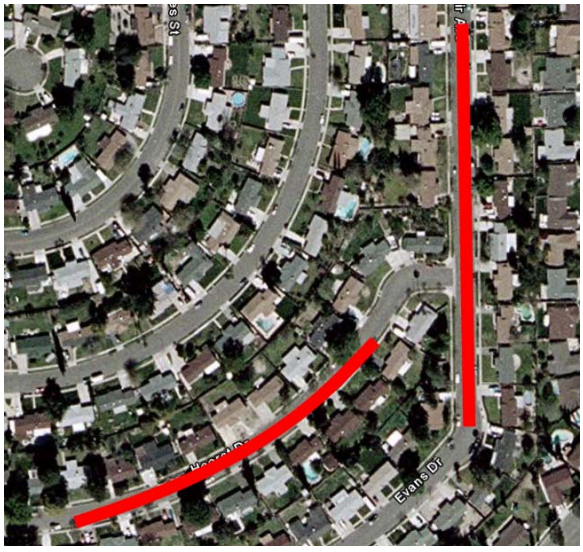
The fifth data set, located in Simi Valley, showed a significant difference in price but the typical small difference in price per square foot. This set had a straight section on Sinaloa Rd. with an average price of $827,929 and an average of $932,164 for the curved section on Bluegrass St. The average difference between the two is $104,235, which is a large amount. The curved section had a price per square foot value of $371 while the straight portion had a value of $376. This signifies that the curved section simply had larger houses. It does not signify any preference for a house on a curved street for the reasons in my hypothesis.



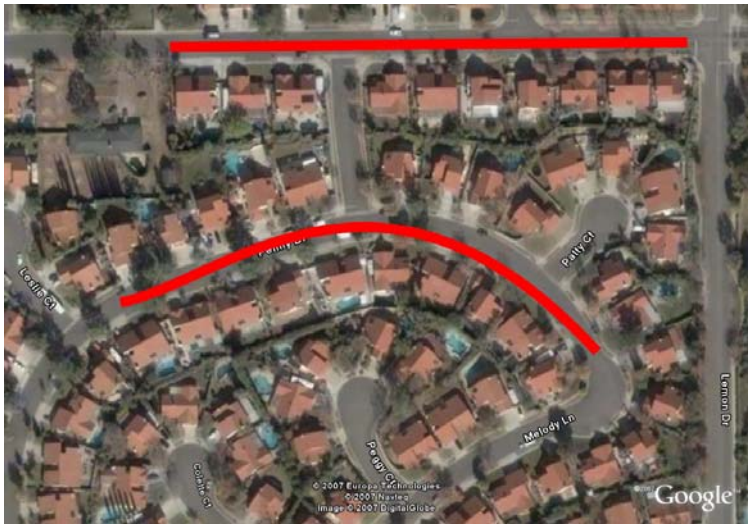
Area six is also located in the same general area of Simi Valley. Abraham Street (straight) and Malcolm Street (curved) have very similar home prices but in this case the cost per square foot is quite different between them. Abraham Street's average home price is $530,685. Malcolm Street's average price is $531,883. Based on these values alone and the general trend, it stands to reason that the cost per square foot for the curved street will be much lower than that of the straight street, and correctly so. The curved street has an average value of $344 while Abraham's average value is $363 for a difference of $21 per square foot.



Data set seven presents nothing extreme; rather it shows the opposite trend but on a small scale. The straight section of Fair Avenue has an average household price of $506,525. The average price of the curved section of Hearst Drive is $509,311, which is only about $3000 more. Hearst Drive's average price per square foot is $410 and Fair Avenue's is $399. This is a minor deviation from the overall trend.



Data set eight, also within Simi Valley contains Township Avenue for the straight section and Melody Lane & Penney Drive for the curved section. The average price for homes on the straight section is $680,887. The average price for homes on the curved section is $722,548. Price per square foot is roughly the same with $305 for the straight and $303 for the curved.

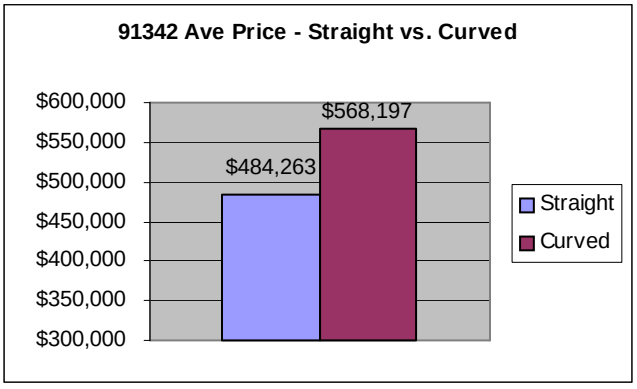


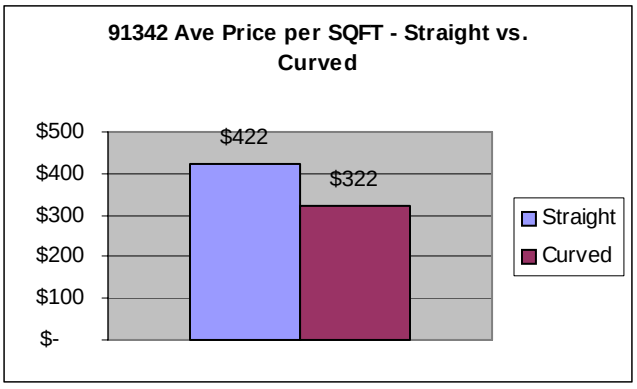
The final section in method one is in the town of Sun Valley. This is one of the only two exceptions to the general trend, where the price per square foot is slightly higher for curved houses than straight houses. In this section, Rincon Avenue's homes have an average price of $467 compared to $465 for the section of homes on Amboy. Even though the price per square foot is higher on the curved street, it is only a difference of two

dollars, making this a weak example. The average price of homes on the curved section is $511,229 and the average price of homes on the straight section is $497,223.

Method 2

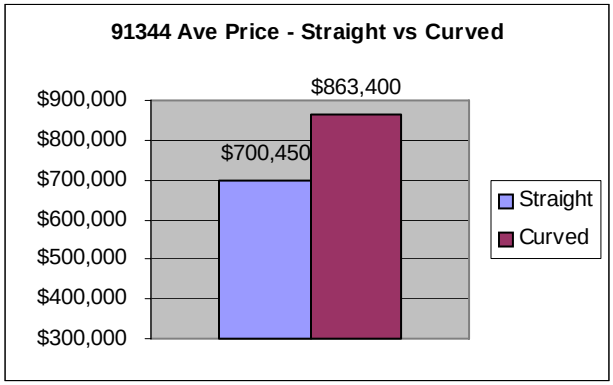
In this section, I discuss the results from a sample of 60 homes that have actually sold within the last three months. Although the sample size is probably too small, it is important to determine whether sold homes reflect the same trend seen in the estimated prices of Method one.

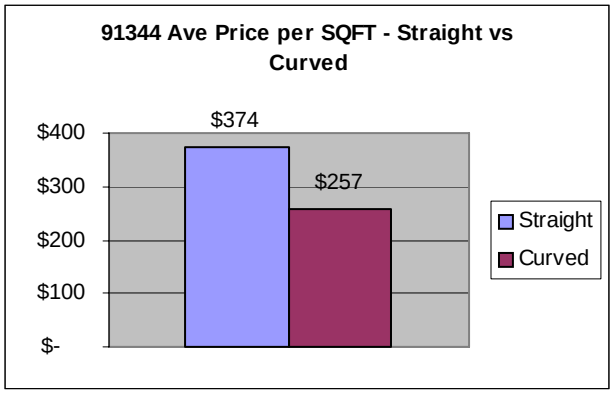




The first sampling took place in the 91342 zip code, or Sylmar, CA. Adding up the prices of ten recently sold houses on straight sections and dividing by ten yields an average price of $484,263 and a cost per square foot of $422. Adding up 10 recently sold houses in the same zip code and area on curved streets yields an average price of $568,197 and average price per square foot of $322.

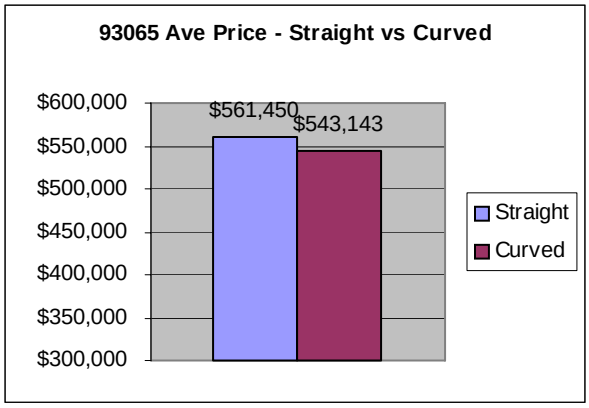
The second set of data was gathered from 91344, Granada Hills. The trend of higher prices per square foot for homes on straight streets continues in this example as well. The houses on straight sections averaged $700,450 compared to $863,400. While

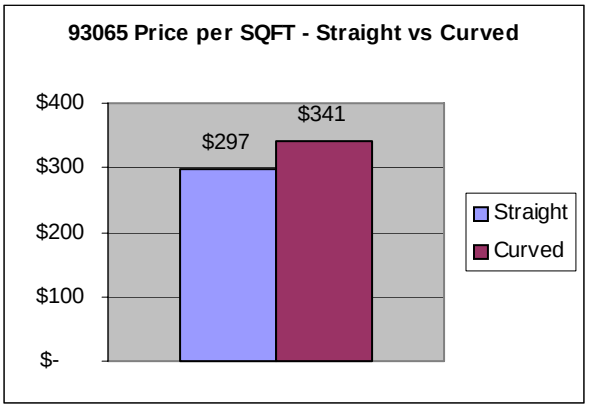




this is quite a big gap, the difference in price per s square foot is equally impressive. Houses on curved streets averaged only $257 per square foot compared to $374 for houses on straight streets. That's a difference of about 32%.

Lastly, the third set of homes does not follow the same pattern as the first two. This sample was taken from 93065, Simi Valley from homes within the same general



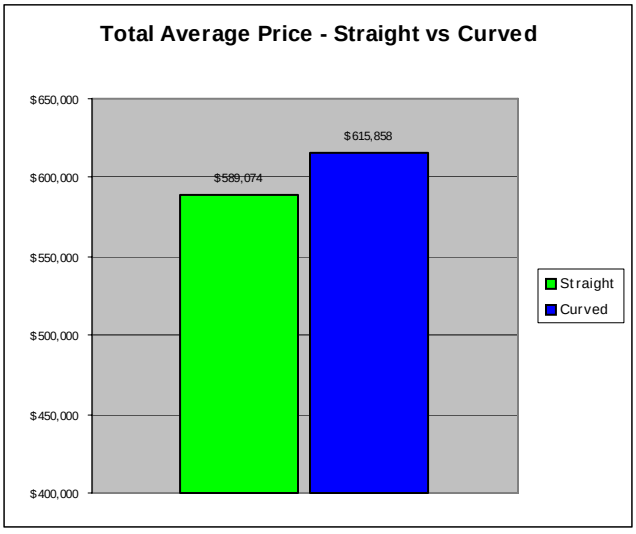


area. Homes on straight streets averaged $561,450 and homes on curved streets averaged $543,143. What's interesting is that this is the first example where neither category follows the trend. Average price per square foot is $297 for houses on straight streets and

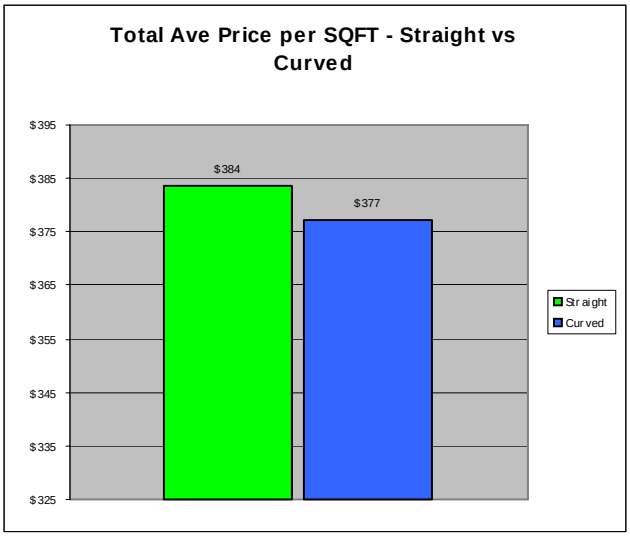
$341 for those on curved streets. It's difficult to determine what caused this without going to the sites for further investigation.

The results show that my original hypothesis is mostly incorrect. I stated that the houses on curved streets will have a higher value than houses on neighboring straight streets and this was to a certain degree true. However, the price per square foot of houses on curved streets is significantly lower than houses on neighboring straight streets. Also, the reason for the higher prices of houses that was generally displayed is attributed to a different factor than I had anticipated. The charts beginning on p.22 display combined averages for the houses in each sample.

Method 1 Total Averages

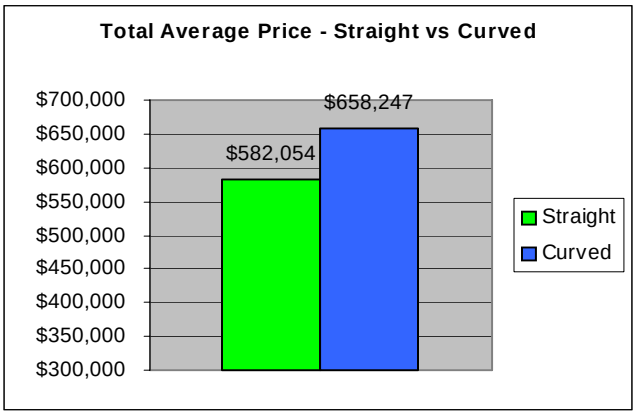


The average price of houses on straight streets vs. curved streets. Determined by adding the prices of all sampled homes and dividing by the number of homes.

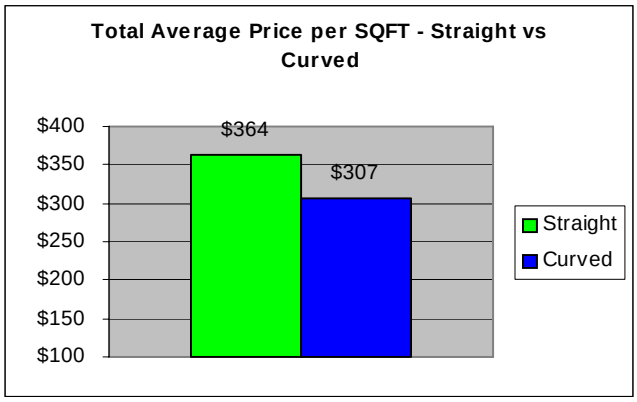


The average price per square foot of houses on straight streets vs. curved streets. Determined by adding up all samples' square footage and dividing by total price.

Method 2 Total Averages



The average price of houses on straight streets vs. curved streets. Determined by adding the prices of all sampled homes and dividing by the number of homes.



The average price per square foot of houses on straight streets vs. curved streets. Determined by adding up all samples' square footage and dividing by total price.

Analysis

I realized somewhat late into my research that this was going to be a difficult project. The nature of home prices is determined by many more factors than I had anticipated. I was forced to work with what was available to me, which leaves a great many variables open.

The vast majority of my data came from www.zillow.com. Unfortunately, I do not know the exact formula Zillow uses to determine home price estimates, but I do know that it deals with recent prices of homes in the area as well as square footage and number of rooms. It is unlikely that Zillow would not take into account whether a house is on a bend or not when coming up with an estimate. My hope is that previous sale prices of particular homes weigh heavily on current prices of those particular homes. For example, say a house sold for $600,000 and another house on the same street sold for $400,000 a

week later. The $600,000 house should not drop in price to meet a medium with the $400,000 house be because that might be ignoring a reason for why the first house sold for much more.

It's fortunate that Zillow has options on its website to search only for homes that have recently been sold. This allowed me to get hard data to weigh against the Zillow estimates. The LA Times was also valuable for the second methodology in acquiring addresses for recently sold homes. Zillow does not always show the recently sold homes clearly unless you zoom in sufficiently.

I was incorrect in my assumption that homes on bends add value due to lessened traffic and other associated benefits. The actual prices of homes on curved streets was consistently higher than those on straight streets, but for different reasons. It is probable that the shape of land plots on curved streets is more conducive to building larger homes. I can think of no other reason for why the homes were almost always larger on curved streets. This reason alone probably is sufficient explanation for the higher prices. When looking at the price per square foot, it is clear that homes on straight streets are more expensive than those on curved streets. My theory as to why this may be deals with homes not likely exceeding a certain price within a certain neighborhood.

People may not feel comfortable purchasing a home too far above the price of "comparables" in a given neighborhood. If house A is 2000 square feet and sells for $500,000 and house B is 4000 square feet, one might think house B will sell for $1,000,000. This wasn't the case in my findings. Apparently, for such a high price, people might rather move into a smaller house in a better neighborhood. People are unwilling to pay too much above the going rate for homes, regardless of extra size. This

may explain why houses on curved streets have a lower price per square foot than anticipated. It could simply be due to their larger size and therefore poorer ratio of square feet to dollars. It would be interesting to test this by sampling large and small houses on straight streets in the same neighborhoods. There are so many other variables, however, that the results would still not be very trustworthy.

The final set of data on my second methodology showed a higher value per square foot for homes on curved streets. I believe this to be mere chance based on the homes I selected. Due to the three-month sale limit I put on homes for the second method, I was forced to cover a greater distance from homes on straight streets in search of homes on curved streets. This probably led to the selecting of homes in neighborhoods with different characteristics. It was likely chance that resulted in the unexpectedly high values per square foot for homes on curved streets in this example.

Acknowledgments

I would like to thank Professor Laity for her feedback on locations to sample as well as suggestions about grammar, Mr.Sun for planting the seed which led to the idea for this project and www.zillow.com for the data I used for my research.

References

Grammenos, Fanis and Tasker, Julie "Residential Street Pattern Design for Healthy Liveable Communities." Socio-economic Series, 75 (2002)

Asabere, Paul K. "The Value of a Neighborhood Street with Reference to the Cul-de-Sac." Journal of Real Estate Finance and Economics, 3 (1990): 185-193

"Factors that Determine the Reduction in Property Values Caused by Traffic Noise." Road Engineering Journal (1997) 1 October 1997 http://www.usroads.com/journals/p/rej/9710/re971004.htm

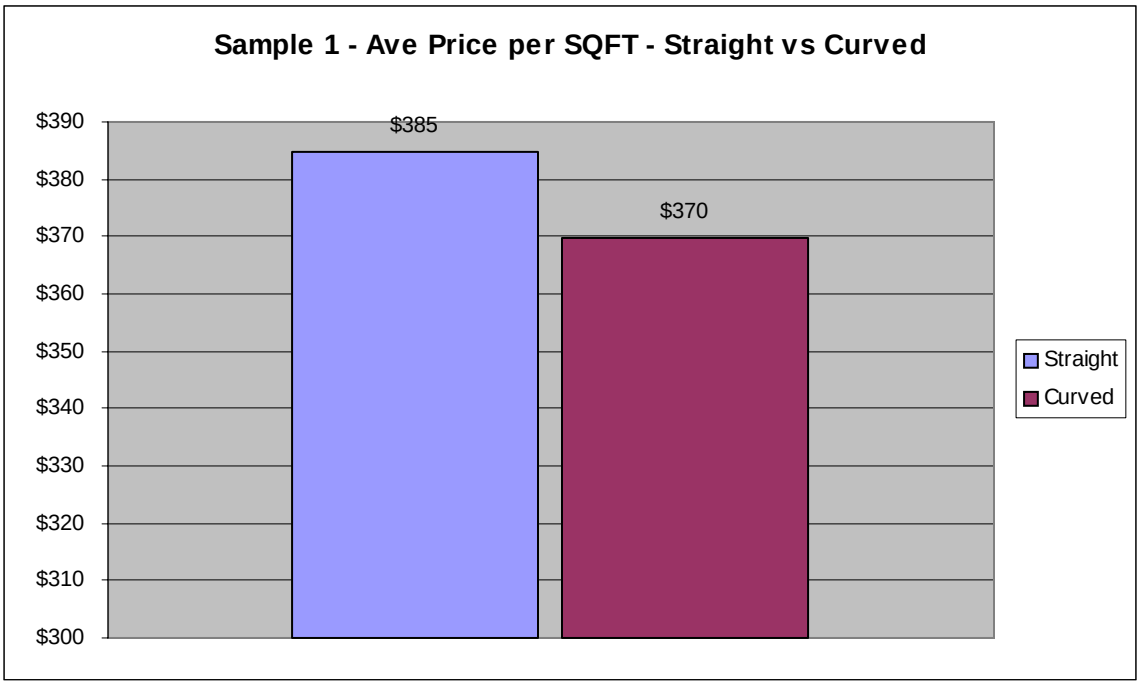
Anonymous "The Factors Affecting the Resale Value of a Home." Mortgage News Daily (2007) http://www.mortgagenewsdaily.com/wiki/Home_Resale_Value.asp

www.zillow.com

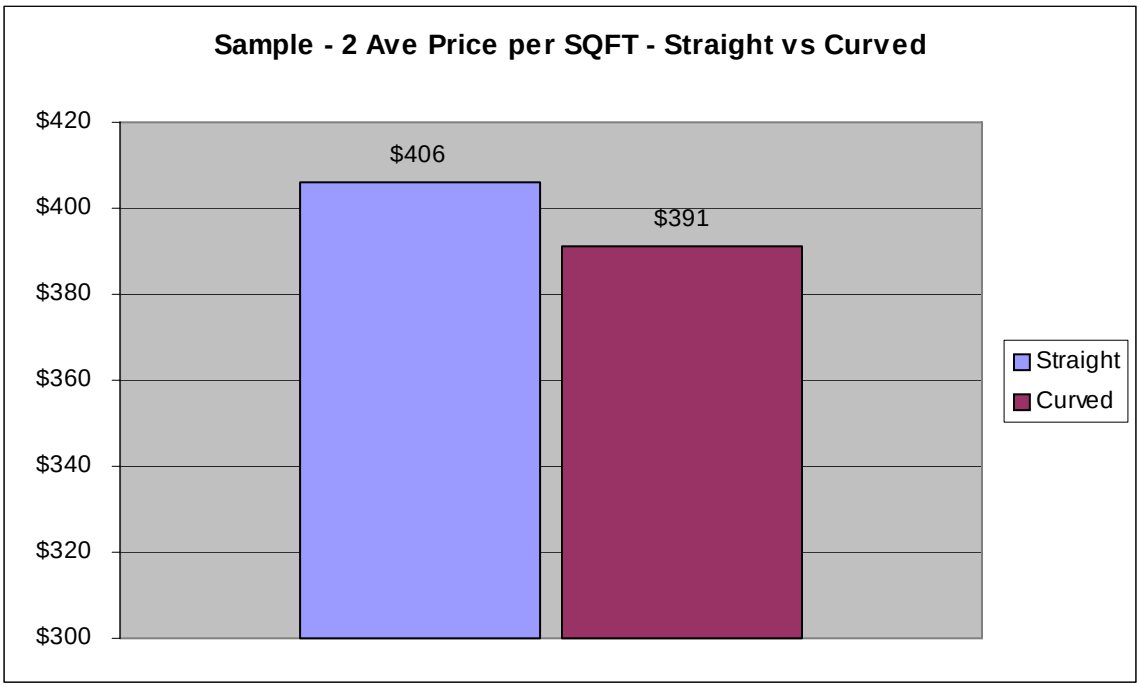
www.latimes.com

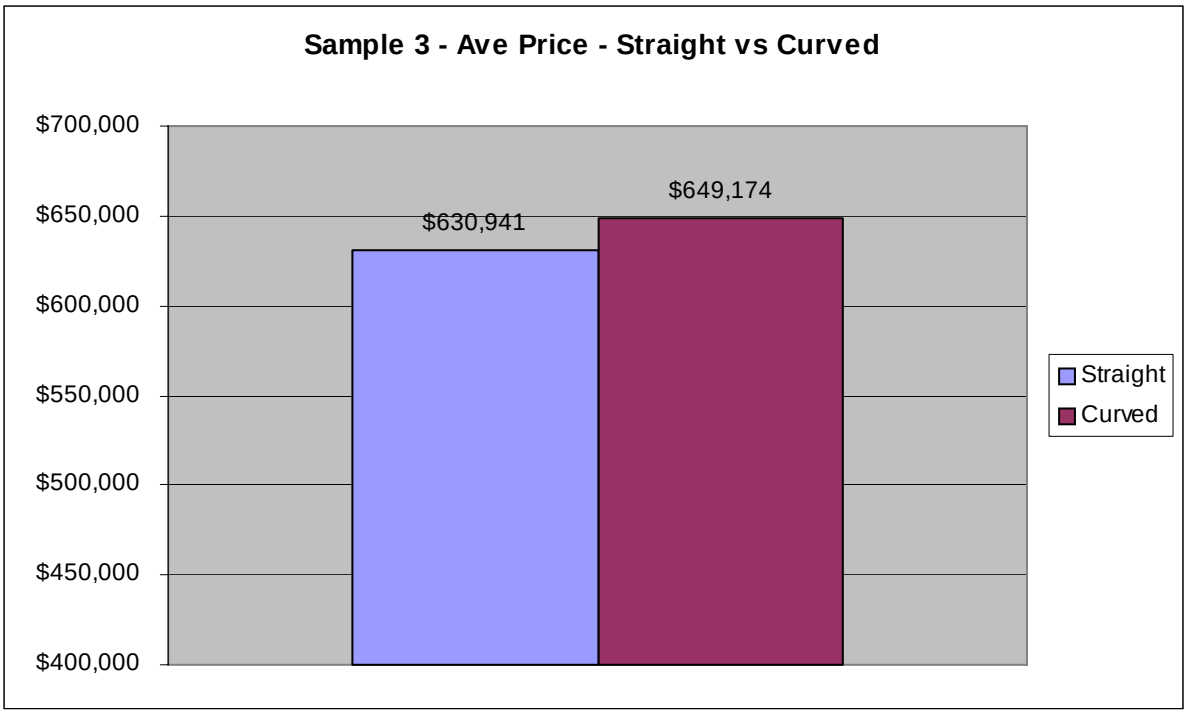
Charts & Graphs

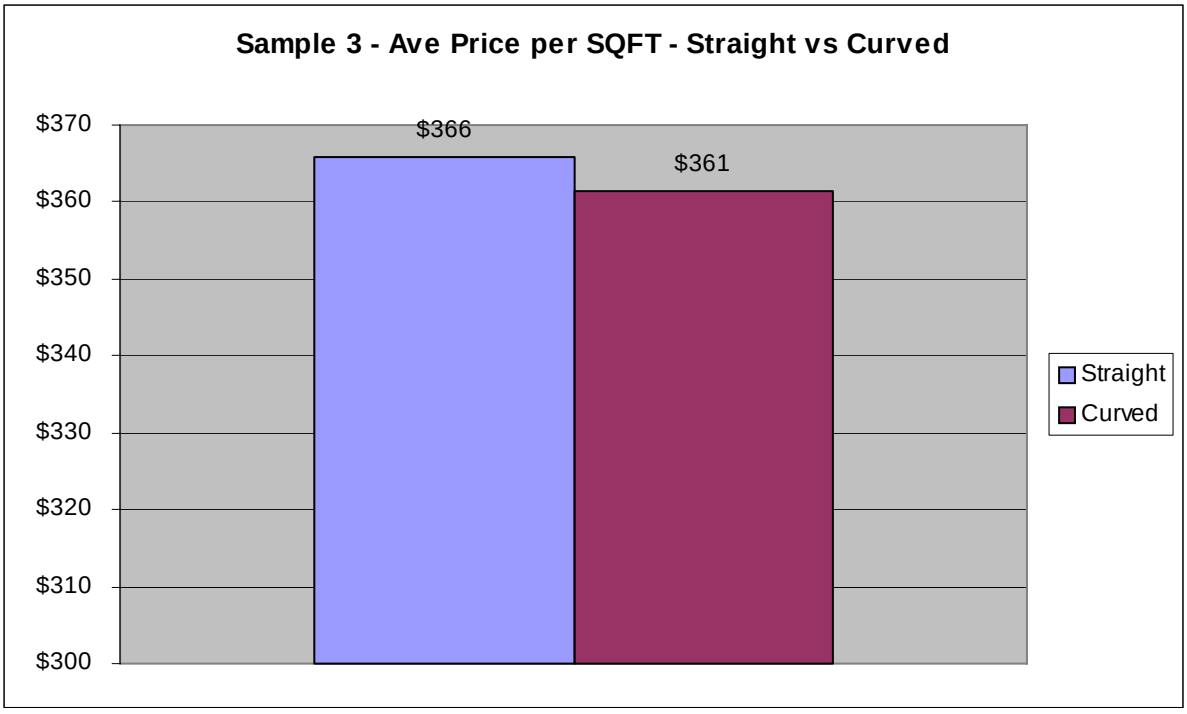
Method 1



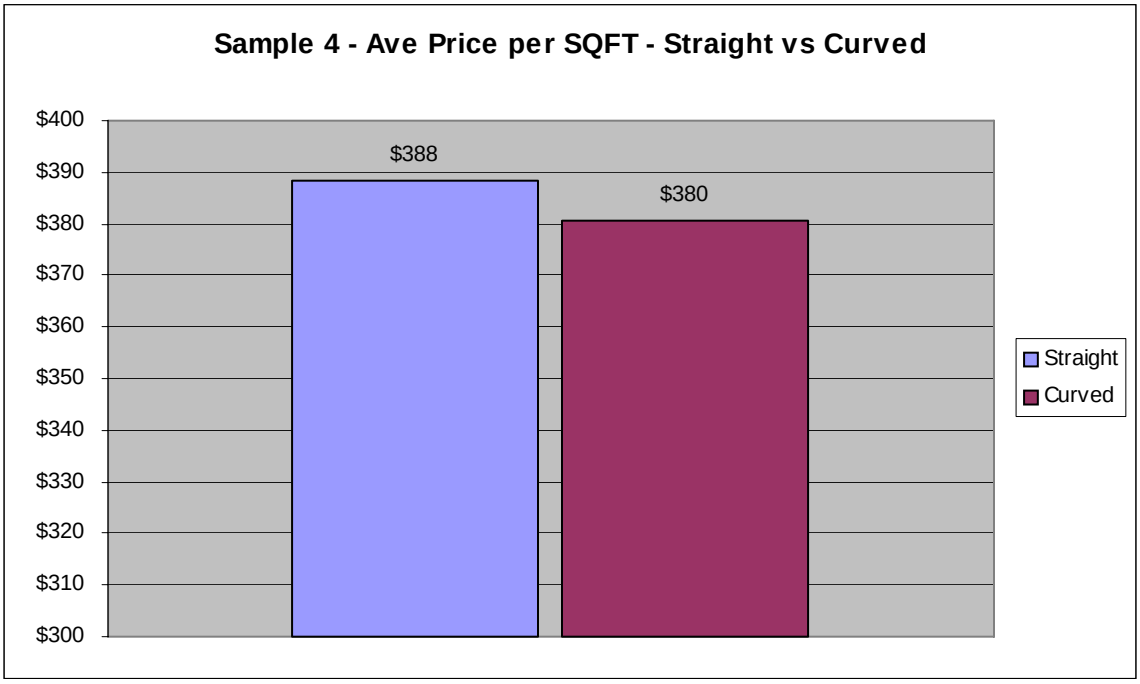

Sample 2 - Ave Price - Straight vs Curved
$600,000
$580,000
$560,000
$540,000
$520,000
$500,000
$480,000
$460,000
$440,000
$420,000
$400,000
$568,304
$580,171
Straight
Curved

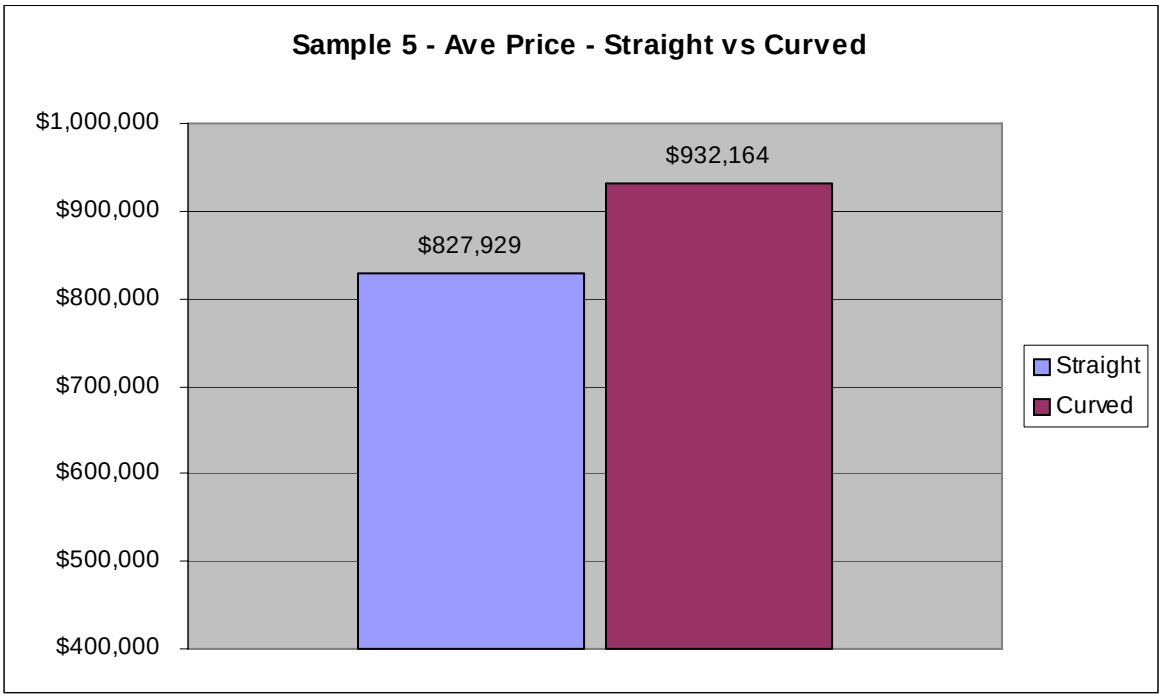

Sample - 2 Ave Price per SQFT - Straight vs Curved
$420
$400
$380
$360
$340
$320
$300
$406
$391
Straight
Curved

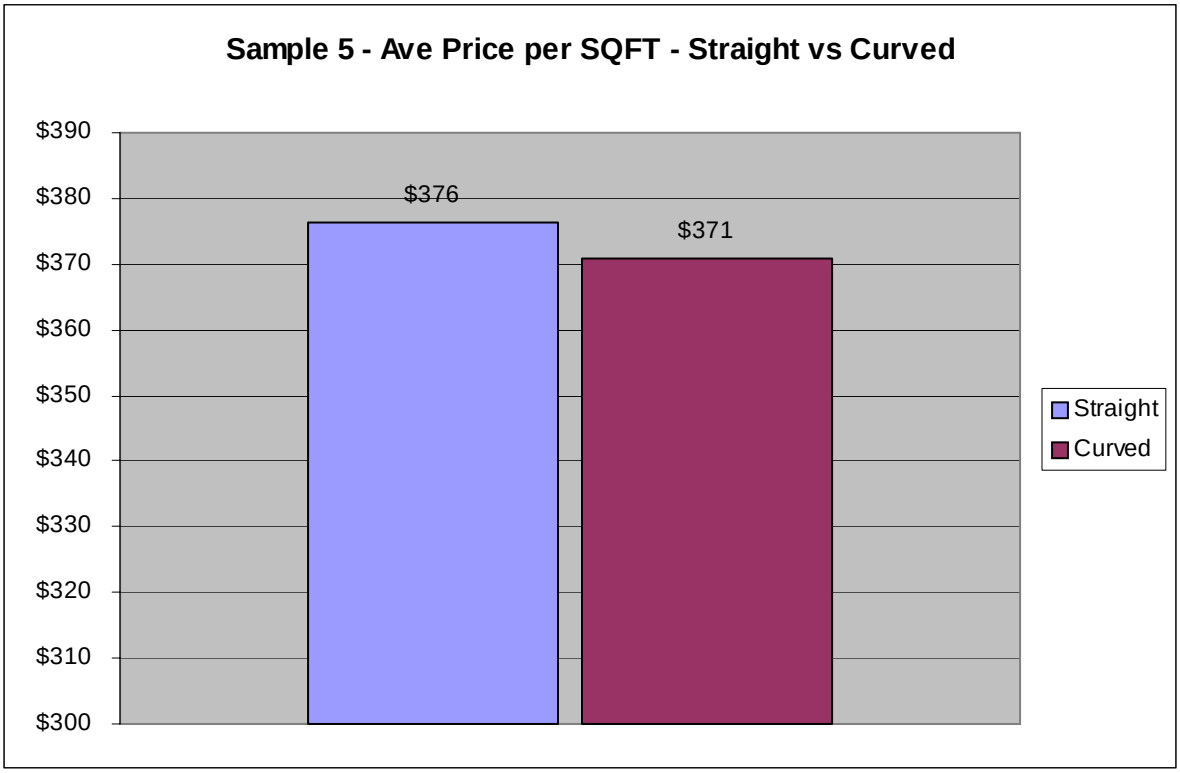

Sample 3 - Ave Price - Straight vs Curved
$700,000
$650,000
$600,000
$550,000
$500,000
$450,000
$400,000
$630,941
$649,174
Straight
Curved

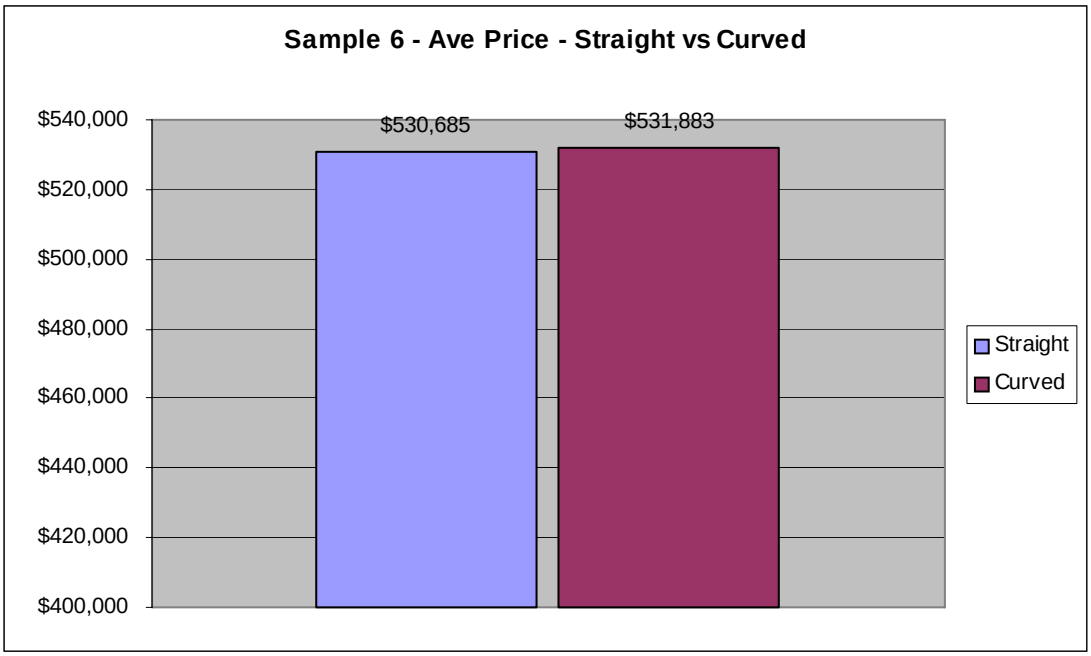

Sample 3 - Ave Price per SQFT - Straight vs Curved
$370
$360
$350
$340
$330
$320
$310
$300
$366
$361
Straight
Curved

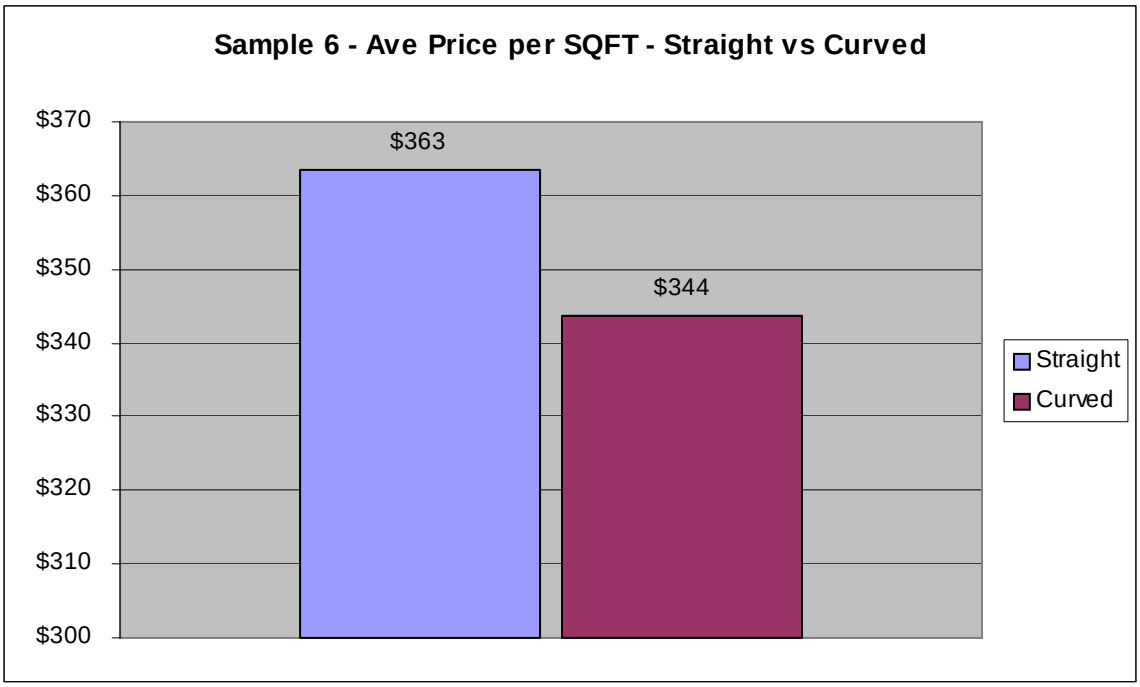

Sample 4 - Ave Price - Straight vs Curved
$580,000
$560,000
$540,000
$520,000
$500,000
$480,000
$460,000
$440,000
$420,000
$400,000
$536,162
$558,216
Straight
Curved


Sample 4 - Ave Price per SQFT - Straight vs Curved
$400
$390
$380
$370
$360
$350
$340
$330
$320
$310
$300
$388
$380
Straight
Curved

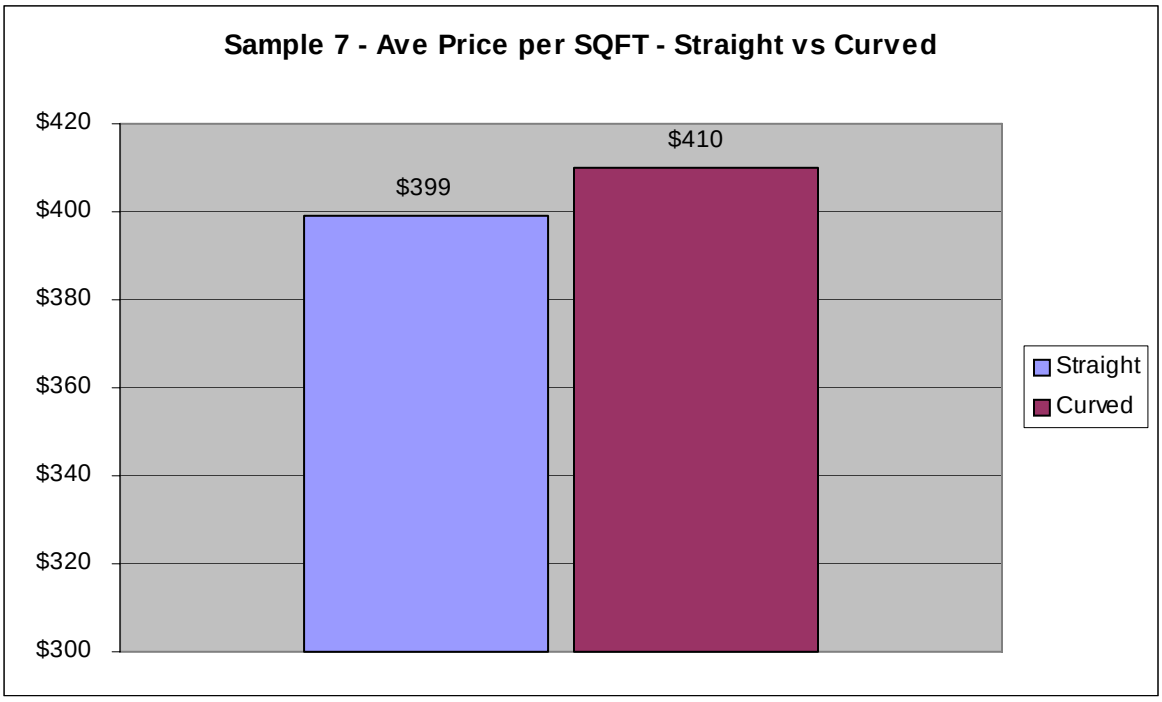

Sample 5 - Ave Price - Straight vs Curved
$1,000,000
$900,000
$800,000
$700,000
$600,000
$500,000
$400,000
$827,929
$932,164
Straight
Curved

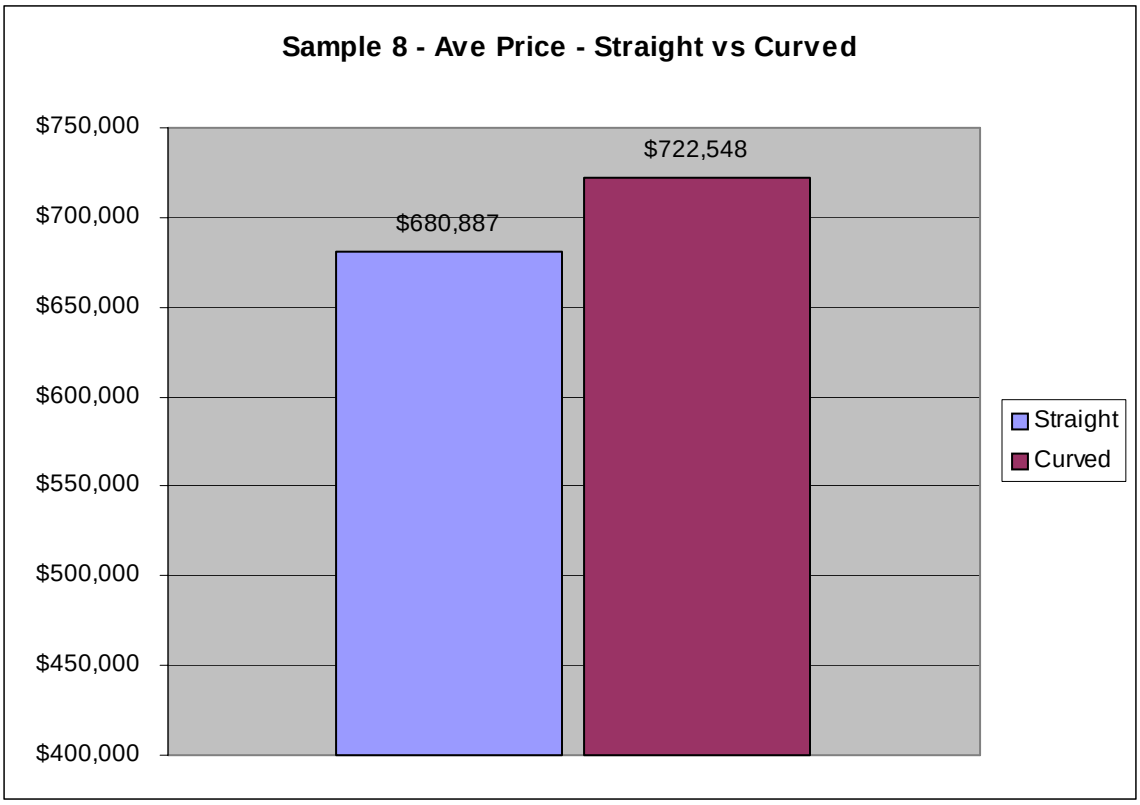

Sample 5 - Ave Price per SQFT - Straight vs Curved
$390
$380
$370
$360
$350
$340
$330
$320
$310
$300
$376
$371
Straight
Curved

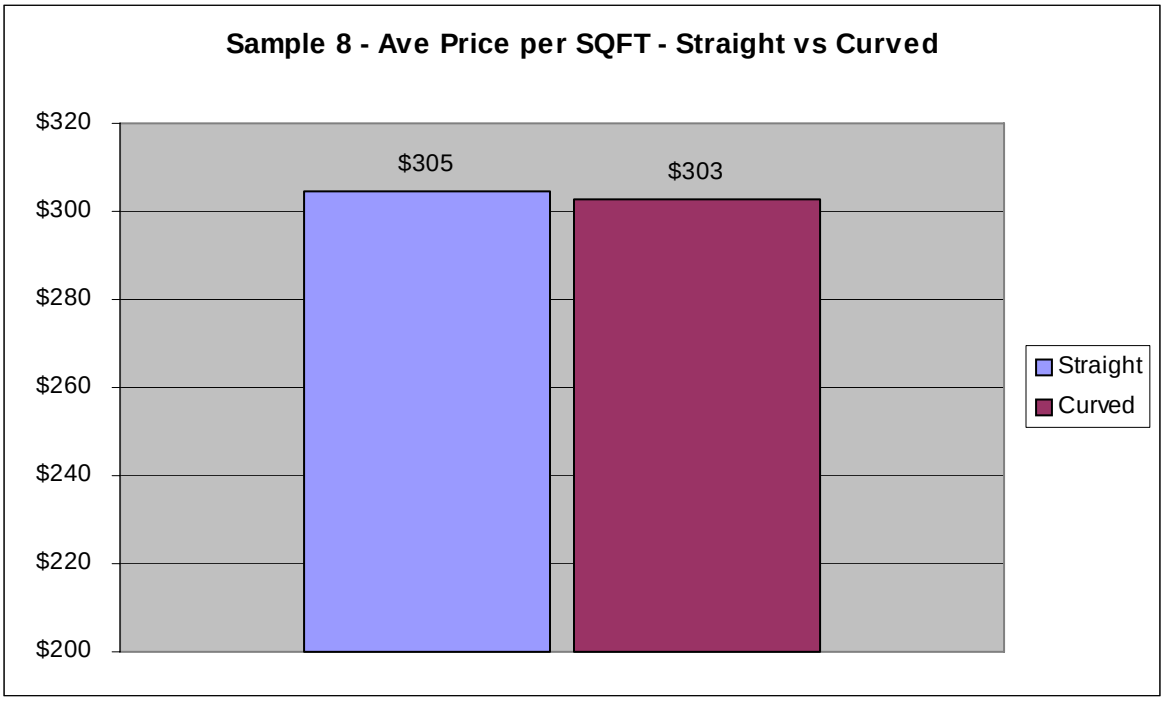

Sample 6 - Ave Price - Straight vs Curved
$540,000
$520,000
$500,000
$480,000
$460,000
$440,000
$420,000
$400,000
$530,685
$531,883
Straight
Curved

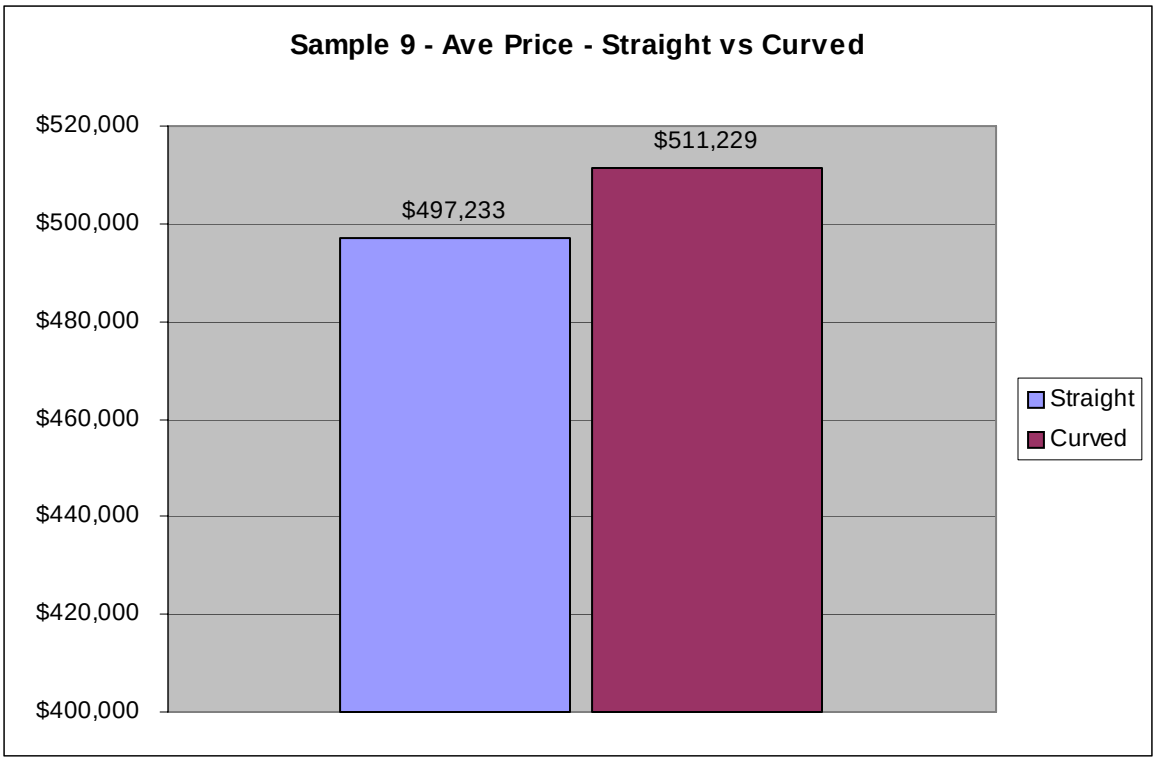

Sample 6 - Ave Price per SQFT - Straight vs Curved
$370
$360
$350
$340
$330
$320
$310
$300
$363
$344
Straight
Curved

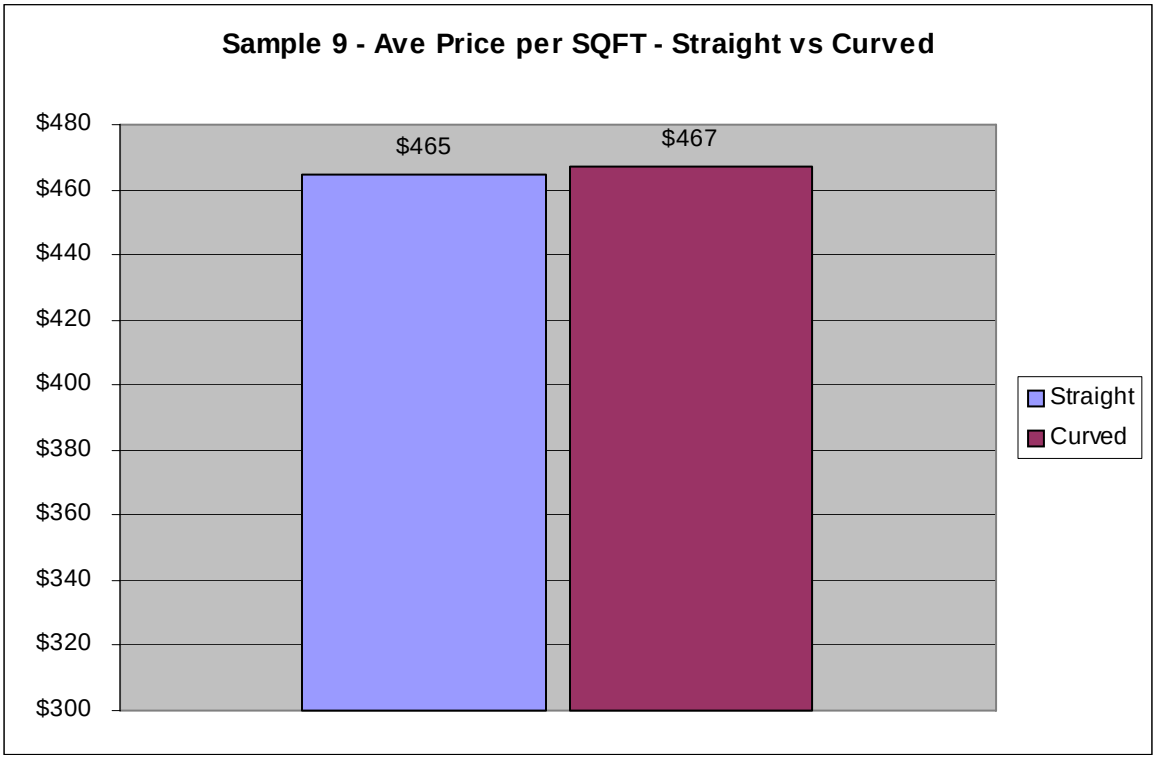

Sample 7 - Ave Price - Straight vs Curved
$520,000
$500,000
$480,000
$460,000
$440,000
$420,000
$400,000
$506,525
$509,311
Straight
Curved

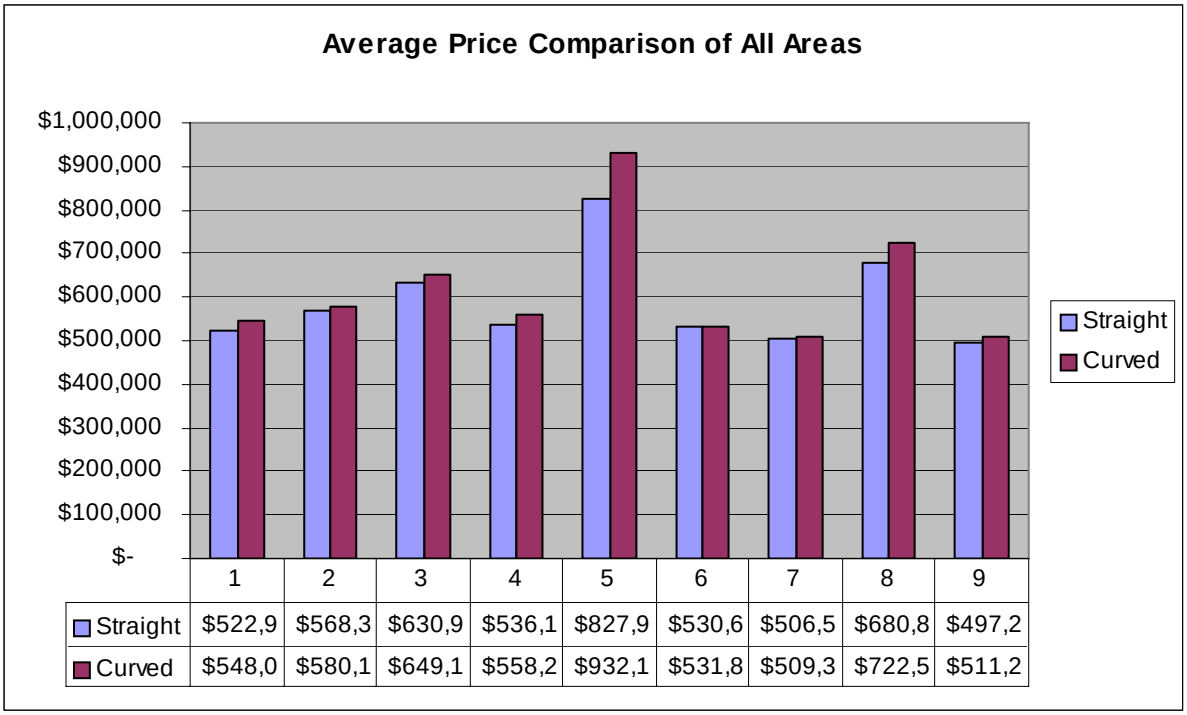

Sample 7 - Ave Price per SQFT - Straight vs Curved
$420
$400
$380
$360
$340
$320
$300
$399
$410
Straight
Curved


Sample 8 - Ave Price - Straight vs Curved
$750,000
$700,000
$650,000
$600,000
$550,000
$500,000
$450,000
$400,000
$680,887
$722,548
Straight
Curved


Sample 8 - Ave Price per SQFT - Straight vs Curved
$320
$300
$280
$260
$240
$220
$200
$305
$303
Straight
Curved

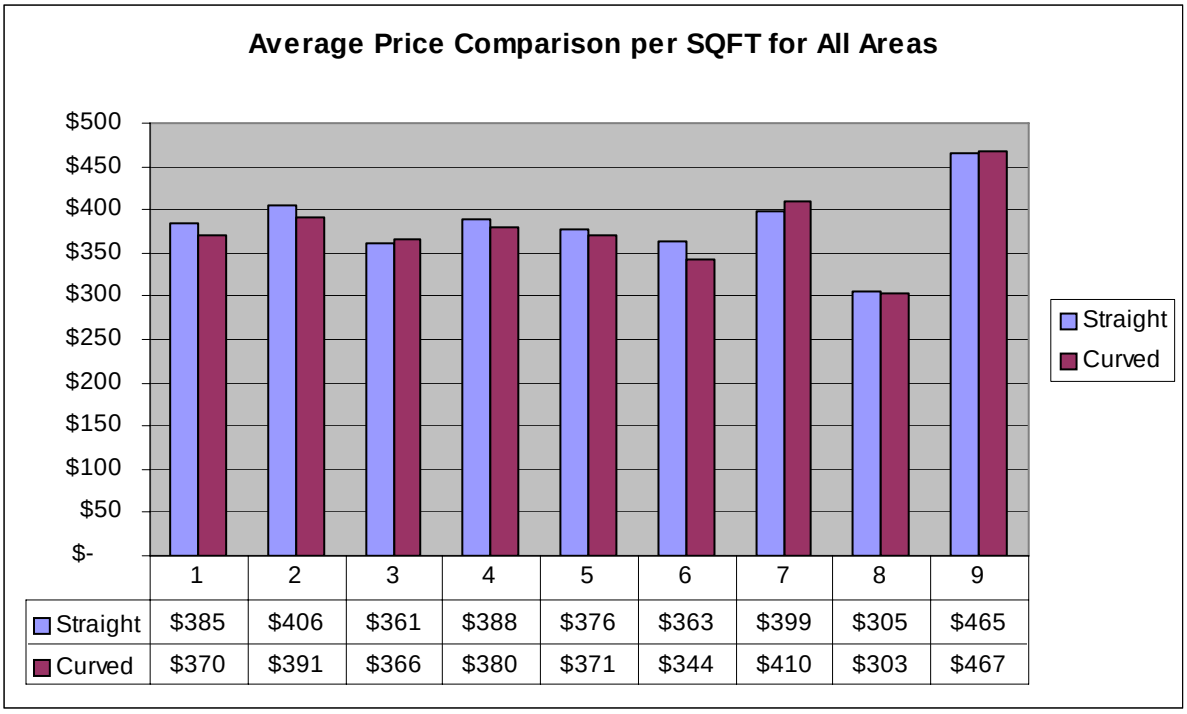

Sample 9 - Ave Price - Straight vs Curved
$520,000
$500,000
$480,000
$460,000
$440,000
$420,000
$400,000
$497,233
$511,229
Straight
Curved


Sample 9 - Ave Price per SQFT - Straight vs Curved
$480
$460
$440
$420
$400
$380
$360
$340
$320
$300
$465
$467
Straight
Curved



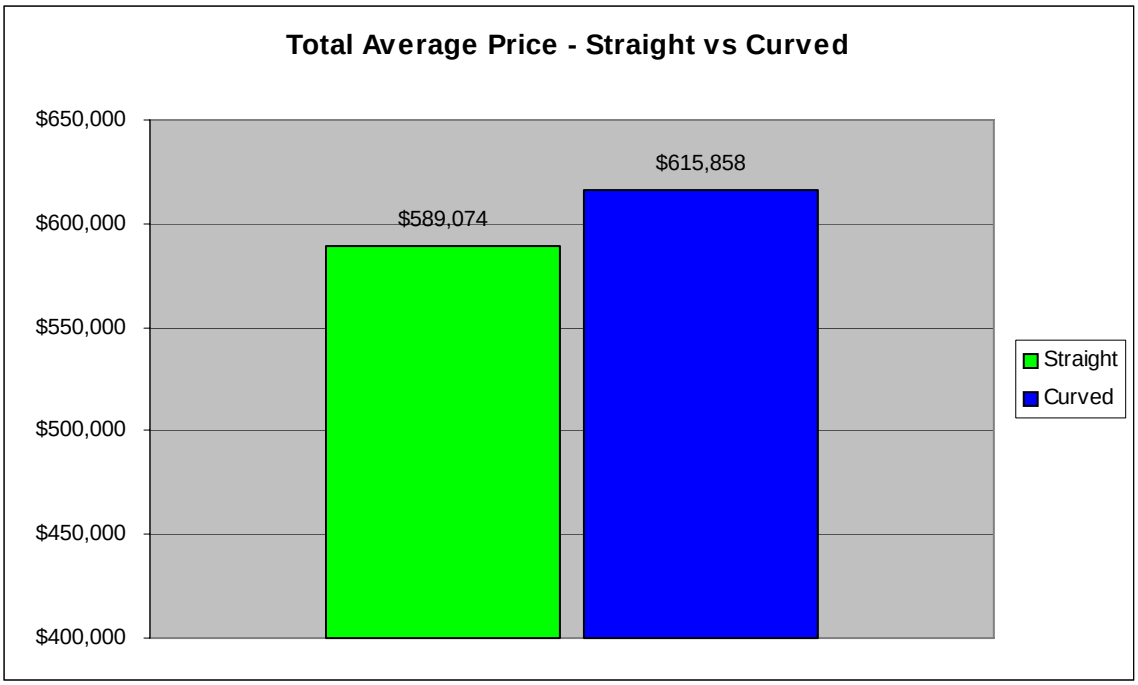
	1	2	3	4	5	6	7	8	9
Straight	$522,9	$568,3	$630,9	$536,1	$827,9	$530,6	$506,5	$680,8	$497,2
Curved	$548,0	$580,1	$649,1	$558,2	$932,1	$531,8	$509,3	$722,5	$511,2

A summary of the average price of houses on straight streets vs. curved streets. Determined by adding the prices of all homes and dividing by the number of homes. Numbers 1-9 along the X-axis refer to sampled sections found in the methodology.

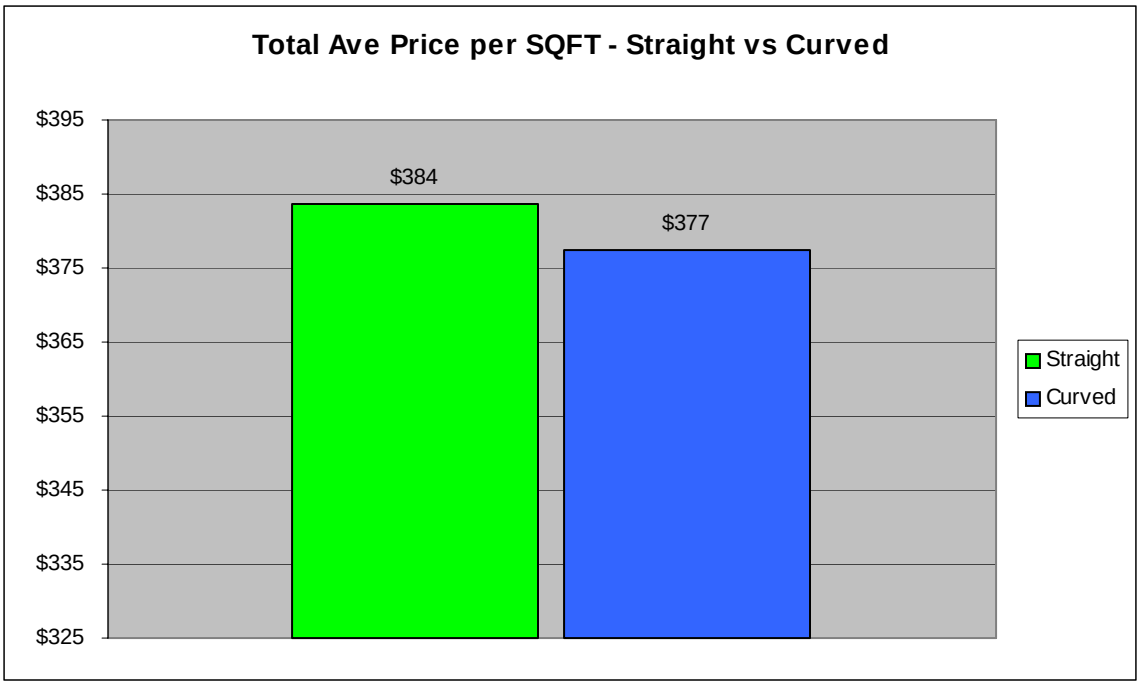


	1	2	3	4	5	6	7	8	9
Straight	$385	$406	$361	$388	$376	$363	$399	$305	$465
Curved	$370	$391	$366	$380	$371	$344	$410	$303	$467

A summary of the average price per square foot of houses on straight streets vs. curved streets. Determined by adding up all square footage and dividing by price. Numbers 1-9 along the X-axis refer to sampled sections found in the methodology.

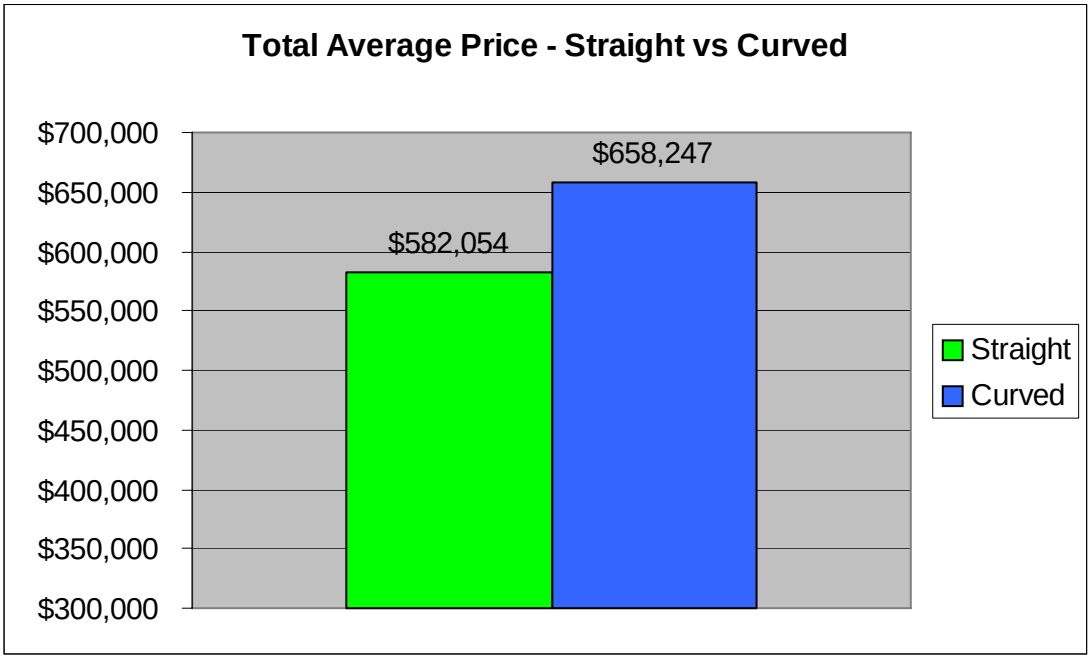


The average price of houses on straight streets vs. curved streets. Determined by adding the prices of all homes and dividing by the number of homes.

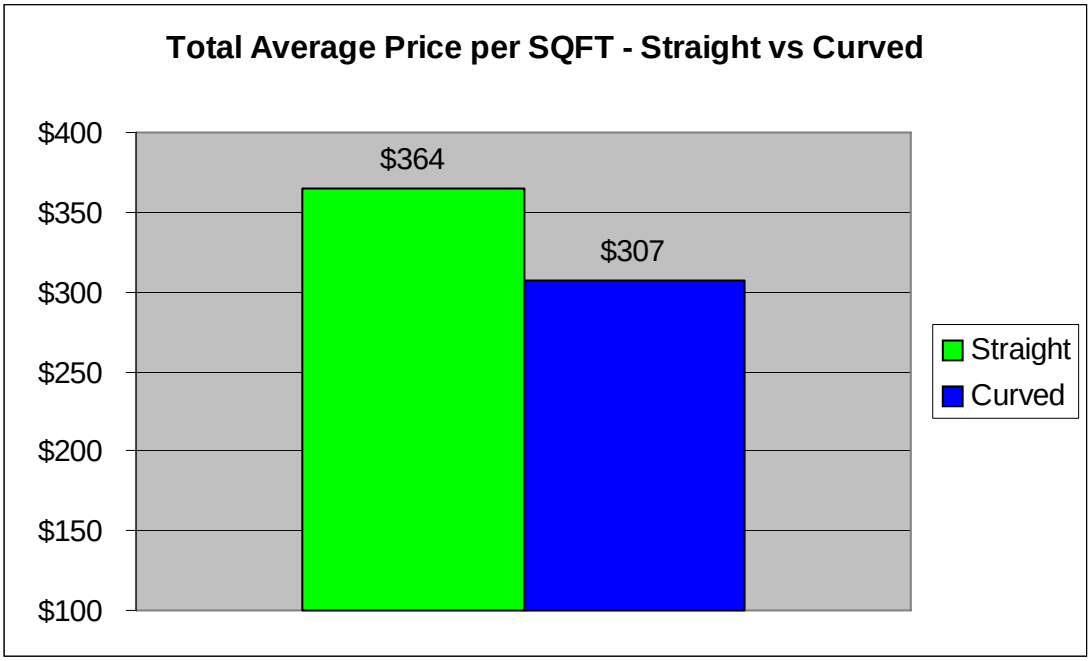


The average price per square foot of houses on straight streets vs. curved streets. Determined by adding up all samples' square footage and dividing by total price.

Method 2



The average price per square foot of houses on straight streets vs. curved streets. Determined by adding the prices of all samples and dividing by total homes.



The average price per square foot of houses on straight streets vs. curved streets. Determined by adding up all square footage of samples and dividing by total price.