

Towers, Turbines and Transmission Lines

IMPACTS ON PROPERTY VALUE

Edited by

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 WILEY-BLACKWELL



Cell Phone Tower Application: Property Value Impacts

For: Karen Daniels
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Statement of Sandy G. Bond, Ph.D., SNZPI, ANZIV

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I, Sandy G. Bond, Ph.D., am an Associate Member of the New Zealand Institute of Valuers (registered Public Valuer/Appraiser), a Senior Member of the New Zealand Property Institute, the immediate Past President of the International Real Estate Society, and a member of American Valuation Partners. I was the Professor of Property Studies at Lincoln University, in New Zealand until 2014 when I returned to the U.S. My Curriculum Vitae that outlines my Professional Qualifications, is attached.

I note also that I am the author or co-author of much of the literature relating to property value impacts from proximity to cell phone towers and high voltage overhead transmission lines (HVOTLs), particularly as pertaining to New Zealand, as well the assessment of stigma relating to remediated contaminated land. My most recent related publication is the book: Bond, S. G., Sims, S. and Dent, P. (2013). *Towers Turbines and Transmission Lines: Impact on Property Value*, Oxford: Wiley-Blackwell, ISBN: 978-1-443-3007-6).

I have been asked to provide a current literature review of property value diminution for homes in close proximity to cellular phone towers for Karen Daniels. I have not inspected the property in question (1565 N Cholla Lane, Clarkdale AZ 86324) nor performed any valuation services with respect to this case. However, I have reviewed the literature pertinent to the case which I refer to herein, much of which is contained in the above mentioned book.

I understand the subject case involves the following:

- The proposed installation by Capital Telecom LLC of a monopole telecommunications tower at 1450 Arizona Highway 89-A, Clarkdale, Arizona 86324.
- The height of the proposed tower is to be 65 feet (19.8 meters) above ground level, but extendable to 85 feet (25.9 meters).
- No lighting or marking is proposed for the tower. Associated equipment shelters will be located at ground level adjacent to the tower.
- In relation to Karen and Brian Daniels' property, I understand that the proposed antennae is to be sited approximately 400 feet north-east of the property boundary and in a direct line-of-sight from their home.
- Karen and Brian's home, built in 2007, comprises the main house of 1547sf, and a double garage with a 765 sf two-story studio/guest house with loft. The home is at the northern end of a cul-de-sac overlooking the red rocks of Sedona and Mingus Mountain.

The current literature dealing with cell phone tower impacts on residential property prices is outlined next, much of which is drawn from the text Bond, S. G., Sims, S. and Dent, P. (2013). *Towers Turbines and Transmission Lines: Impact on Property Value*.

OVERVIEW OF THE CELL PHONE TOWER LITERATURE

1. INTRODUCTION

Understanding the effects of cellular phone transmitting antennas and base stations (to be referred to herein as cell phone towers) on property values is important to owners of affected property, particularly if compensation claims are to be made against such property. This literature review will look at property value impacts from both cell phone towers and High Voltage Overhead Transmission Lines (HVOTLs) and their associated pylons as both are large structures that have electromagnetic field emitting devices and that can be seen from a distance due to their height and size.

Studies show that there are public concerns about the potential health hazards from devices that emit electromagnetic fields (EMFs) such as cell phone towers and HVOTLs. Negative media attention to the potential health hazards has only fuelled the perception of uncertainty over the health effects. The unsightliness of these structures (the transmitting antennas and supporting towers or poles) and fear of lowered property values are other regularly voiced concerns about the siting of these towers.

The literature review below provides a body of knowledge for determining a range of probable price effects from the proximity to cell phone towers and similar structures (HVOTLs). Media attention to environmental hazards is mentioned briefly as this can have a significant impact on value diminution, as evidenced in some of the studies that follow. The studies outlined use a standard hedonic methodology to quantify the effect cell phone towers have on sale prices of homes located near the towers. Geographic Information Systems (GIS), where available, was used to aid the analysis of distance to the towers.

In summary, the more recent NZ cell phone tower study by Filippova and Rehm (2011) showed that the larger armed monopole type tower had a statistically significant negative impact on price. A house adjacent to the armed monopole sold for 10.7% less than a home located 100 metres (328ft) away from tower, but this price reduction reduces with distance from the tower. These results generally confirm the results found in the earlier Bond (2007) study that cell tower proximity has statistically significant and negative impact on price with this reduction in price generally increasing the closer to the tower that the home is. On average, property prices decrease by around 15% after an armed monopole type cell tower was built. This effect generally reduces with distance from the tower and is almost negligible after about 300 meters (984ft).

The US cell phone tower study by Bond and Squires (2007) was carried out in Orange County, Florida in 2004 and showed that while a tower has a statistically significant effect on prices of property located near a tower, this effect is minimal. The price of properties within 200 meters (656 feet) decreased, on average, by just below 2%. When comparing these results to those from the NZ study it appears the results from both studies based on an analysis of the whole dataset were similar. Towers have a statistically significant, but minimal, effect on the prices of proximate properties. However, what the NZ study showed was that, by analyzing the suburbs separately, substantial differences exist in the effect that towers have on property prices between

suburbs, since the distribution of the property sales prices is quite different in each. The influence of differences in suburbs needs further investigation.

A summary of the international literature on the house price impacts of proximity to HVOTLs, and their pylons, shows that although it was consistent (i.e. negative and significant) it varied between countries. In NZ, prices of homes reduced by between 5% to 27%, depending on the distance from the pylon, with the impact reducing with increasing distance from the pylon. In the UK, prices of homes within 492ft. of a HVOTL are reduced by up to 18%, and similar to the NZ study, negative impacts reduce with distance. In Canada, a direct view of either a pylon or lines exerts a significantly negative impact on property prices of between 5% and 20% depending on distance to these.

The international literature review of property value impacts from both cell phone towers and High Voltage Overhead Transmission Lines (HVOTLs) and associated pylons, follows next.

2. NEW ZEALAND CELL PHONE TOWER LITERATURE

2.1 Introduction

Few studies have been conducted to ascertain the adverse effects of cell phone towers on property values. Further, as there has been very few cell tower site cases proceeding to the NZ Environment Court little evidence of property value effects has been provided by the courts.

2.2 Independent Studies

2.2.1 Auckland Study

The most recent study completed by Filippova and Rehm (2011) was to determine if the proximity to cell towers has an impact on residential property prices. The study involved a hedonic price model analyzing sales transactions of residential properties (detached or semi-detached on their own plot of land) that sold between January 2005 and December 2007 in four Auckland regions: Manukau; Auckland City; Waitakere, and the North Shore.

Cell towers were grouped according to size: monopole and lamppost mounted. Only 46 of 521 towers were located in residential areas (the remainder were in industrial/commercial areas or in residential areas surrounded by non-residential land uses), and GIS was used to measure the distance of homes to the nearest tower. Only those homes in residential areas that are surrounded by similar residential land uses (i.e. not residential areas surrounded by non-residential land uses) and that are located within a radius of 500 meters (1640ft) of a cell tower were selected. There were 3126 house sales that met this requirement. The study area was divided into 50m increments (164ft), or bands.

For the model specifying distance by mast type, only the most visually disruptive mast, the larger more intrusive armed monopole type, had a statistically significant negative impact on price. Generally, the closer a home is to the tower the lower the house price. A house adjacent to the armed monopole sold for 10.7% less than a home located 100 metres (328ft) away from tower, but this price reduction reduces with distance from the tower.

Whilst generally confirming the results from the earlier New Zealand study, outlined next, the Filippova and Rehm study does suffer an important weakness. Only five (out of 46 towers) of the

cell tower-type (armed monopole) shown in the study to have a statistically significant impact on price, are included in the study. Had there been more of these tower types the results may have been quite different. Lastly, the market was very strong at this time, when the market in New Zealand was at the height of a property boom. Generally, in a strong market where there are fewer properties available for sale and/or strong demand, purchasers have less choice and may be more willing to live near a cell tower, than otherwise might be the case. Further, the types of towers in the study were generally smaller lamppost or micro-cell styles that are not a prominent feature on the landscape.

2.2.2 Christchurch Study

The research by Bond (2007, Bond & Wang, 2005) adopted a case study approach to determine if proximity to a cell phone tower in Christchurch has an impact on the price of a home located nearby. The City of Christchurch in the South Island of New Zealand was selected as the case study area for the research partly due to the amount of media attention this area had received in recent years relating to the siting of cell phone towers. The following two court cases were the main cause for this attention: McIntyre and others vs. Christchurch City Council [1996] NZRMA 289 and Shirley Primary School vs. Telecom Mobile Communications Ltd [1999] NZRMA 66. In summary, the Environmental Court conceded that while there is no proven health effects that there is evidence of property values being affected by alleged health and adverse visual effects.

Case study areas were selected where there were a sufficient number of property sales for analysis in the suburbs where a cell tower had been built to provide statistically reliable and valid results. Sales were required both before and after the tower was built to study the effect that the existence the tower had on the surrounding property's sale price.

The study included homes in ten residential suburbs: five case study areas (within 300 metres (984ft) of a cell tower) and five control areas (over 1km (0.62 miles) from a cell tower). The five case study areas were identified and selected, using both maps and site visits, based on a prominent armed monopole-type tower being sited within them. Further, they were selected based on the style of housing within each being relatively homogeneous to enhance the results of the econometric analysis.¹

The five suburbs selected were Beckenham, Papanui, Upper Riccarton, Bishopdale and St Albans. However, there were no more sales data available after a tower was built in the Upper Riccarton suburb hence it was not included in the individual suburb analysis discussed below, but was included in the combined dataset. The control suburbs selected included: Spreydon, Linwood, Bromley, Avonhead and Ilam. As noted above, the suburbs with towers in them were visited to confirm the size of the tower (armed monopole towers only were of interest) and that the towers were highly visible from various vantage points. Based on prior studies, as visibility/aesthetics is important it was assumed that if residents are not aware of the towers they will have no impact on price.

A total of 10,704 property sales that occurred between 1992 and 2002 were obtained (approximately 1000 sales per suburb). From 1992 to 2002, the period the sales data are selected

¹ By holding housing style variables constant.

from, the property market in NZ was quite mixed including rises and falls in prices (REINZ, 2009). This is in contrast to the Filippova and Rehm (2011) study which was conducted during the market boom (2005-2007).

The data for each observation property consisted of the property address and the geographical {x, y} coordinates that relate to the property's absolute location. After data cleaning, allowing for missing data and incorrect coding, there were 9,514 geo-coded house sale transactions.

The independent dataset was limited to those available but included variables that correspond to property attributes known and suspected to influence price such as floor area (m²); land area (ha); age of the house (the year the house was built); category of residential property (for example, stand-alone dwelling, attached apartment, etc); quality of the principal structure (as assessed by a valuer); and roof and wall materials; sales date (month and year); time of sale based on the number of quarters before or after the cell tower was built (to help control for movements in house prices over time).

Variables for cell tower existence and proximity were included: TOWER (a dummy variable indicating whether the sale occurred before or after the cell tower was built); Inv.dist (the inverse of the square root distance to a cell tower on the non-zero distances to measure the effect of distance on property price) and DIST (distance rings comprising four levels defined around the cell tower, from level "0" which denotes there was no cell tower built when the properties were sold, the second level "1" denotes the distance between sold homes and the tower is in the range of 0 to 300 meters (0 to 984ft), the third level "2" denotes the distance is between 301 to 600 meters (987.5 to 1968ft), and the fourth level "3" which denotes the distance between sold properties and the cell tower is greater than 600 meters (1968ft)). A reason for not having smaller distance bands, as in the Filippova and Rehm (2011) study, is that in each distance band there would be too few sales and the model would become unstable (Christchurch is a less dense and smaller city than Auckland, with fewer sales occurring within short distances).

While views, particularly water views, have been shown in previous empirical studies to be an important attribute affecting sale price, the flat contour of the landscape where the homes are located, together with the suburban nature of the environment surrounding these, precluded any enhanced views from being obtained. Thus, a view variable was not included in the analysis. View-shed of the tower from each home was also not assessed due to the large number of sales in the data set that would have to be individually inspected. It was felt that it is not merely the view that may impact on price, but also proximity to a tower due to the potential effect this may have on health, cell phone coverage, and neighbourhood aesthetics. Hence, view of a tower was also not included as an independent variable.

2.2.2a Results from analysis of the dataset as a whole:

When all suburbs were analyzed together, the results indicate a negative relationship between the presence of a tower and price. Quantitatively, the presence of a tower decreases price by 2.3% when other explanatory variables are held constant. Although this percentage is small a cell tower does have a significant negative influence on price.

A model was analyzed that included a variable to measure the effect of distance to a cell tower has on price. The results show that price decreases as the distance between a cell tower and a property decreases, when all other explanatory variables are held constant. For example, when the distance between a cell tower and a property is 50 meters, the price of the property will drop by 5.07%. Distance has a larger negative effect on price than does the mere presence of a cell tower, as indicated in the previous model. Table 1, below, gives the magnitude of the decrease in property prices for the different distances between the cell tower and the properties.

Distance	Decrease in price (%)	Increase in distance
10m (32.8ft)	10.99	-
50m (164ft)	5.07	40m (131ft)
100m (328ft)	3.61	50m (164ft)
200m (656ft)	2.57	100m (328ft)
500m (1640ft)	1.63	300m (984ft)

From Table 1, it appears that the effect on property price is negligible after 300 meters from a cell tower. This is similar to the findings of other proximity studies (see for example, Hamilton and Schwann 1995 and Strand and Vagnes 2001).

A third multiple regression model included a categorical distance variable, taking values 0, 1, 2, 3. Each number represents a predetermined circular distance ring around the cell tower. The first two categories of the distance variable are strongly significant in the model. However, category 3 which represents a distance greater than 600 meters from a property to a cell tower is insignificant in the model. Prices of properties located between 0 and 300 meters from a cell tower decrease by 2.74% while those located between 301 and 600 meters from a tower will decrease by 2.87% relative to properties that sold prior to the tower being built when holding other explanatory variables constant. Thus, a cell tower has a significant, albeit minimal, effect on prices of property located within 600 meters of a tower.

The discussion above relates to the results from an analysis of the whole dataset. These indicate that cell towers have a statistically significant, but minimal, effect on the prices of proximate properties. However, differences might exist in the effect that cell towers have on property prices between suburbs, since the distribution of the property sales prices is quite different in each. Accordingly, the following section focuses on investigating whether or not the presence of a cell tower has an impact on property prices within each of the suburbs.

2.2.2b Results from analysis of each suburb:

In summary, the effect of proximity to a cell phone tower reduces price by 15%, on average. This effect reduces with distance from the cell phone tower and is negligible after 300 meters. However, there are differences in the results between suburbs. In some on the models (all suburbs, Bishopdale and Papanui), the closer to the cell tower a property is the greater the decrease in price, yet in St Albans the results actually shows the reverse effect with prices increasing closer to the cell tower. Table 2, below, summarizes the results. Some explanations for the differences are offered next.

Table 2: Individual Suburb Analysis

Model:	Presence of TOWER	Measure of Distance	DIST1 0-300m	DIST 2 301-600m	DIST 3 >600m
All Suburbs	-2.3%	50m @ -5.07% 100m@ -3.61%	-2.7%	-2.87%	Insignif.
St Albans 1994	+16%	50m@ +13.6% 100m@ +9.4%	+15.6%	+16.5%	+15.5%
Beckenham 2000	-16.56%	97m @-25.13%	-15.9%	-15.9%	-18.37%
Bishopdale 1994	-9.39%	50m @-20.4% 100m@ -15%	-12.54%	-8.96%	
Papanui 2000	-7.85%	177m @-15.5%	Insignif.	-14.36%	-6.48%

The difference in results between suburbs may be due to the date that the towers were constructed. The effect of TOWER on price was similar in the two suburbs where the towers were built in the year 2000 (Papanui and Beckenham). This may be due to the much greater media publicity given to cell towers after the two legal cases in Christchurch in 1996 and 1999, respectively. The other suburb that indicated a tower increased prices (St Albans), had towers built in them in 1994, prior to the media attention.

However, the results for Bishopdale were similar to the other two suburbs that showed a negative effect on price even though the cell tower in Bishopdale was built in 1994 prior to the adverse publicity. Whilst this result may seem contrary to the above explanation, the explanation may still hold when considering the number of sales before and after the cell tower was built in each suburb. For example, in Bishopdale only 38 properties (3.8% of total sales for the suburb) sold after the cell tower was built compared to 6.8% of sales in Papanui, 15.15% of the sales in Beckenham and 44.68% of the sales in St Albans. This low number of sales may mean that the results are not fully representative of all properties that sold in Bishopdale after the cell tower was built.

The expectation was that the negative effect on price of proximity to a cell tower would be greater the closer a property was to a cell tower, reducing with distance from it. While this was the case for two suburbs (Bishopdale and Papanui) the results were mixed. This may be due to how visible the cell tower is from each property that will be affected by topographical differences, objects such as trees and buildings that may conceal it. Whilst the suburbs with towers in them were visited to confirm the size of the tower (macro towers only were of interest) and that the towers are highly visible from various vantage points, not every property was visited to measure the view of the tower from each. The distance variable alone may be an imperfect measure of the effect of living close to a cell tower, with visibility being an important variable to include in future studies.

2.2.2c Limitations of the Study

The main limitation affecting this study, as with the Filippova and Rhem study, was in finding case study areas where cell towers were highly visible from the majority of homes. Whilst the

distance of each tower to each house that sold was measured using a GIS, and each of these towers were inspected to verify the general visibility of these from the street, line-of-sight views of the tower from each home were not measured. The results may have been different if the views of the towers had been assessed and included in the models. Factors that could affect results from similar studies are the distance that homes are from the cell tower, the style and appearance of the cell tower, how visible it is to residents, and the socio-economic make-up of the resident population.²

3. FLORIDA CELL PHONE TOWER LITERATURE

The cell-phone tower study carried out in Florida in 2004 by Bond and Squires (2007) to assess the effect that distance to a tower has on residential property prices follows on from the New Zealand (NZ) studies outlined above.

As with the NZ study, part of the selection process was to find case study areas where a tower had been built that had a sufficient number of property sales (before and after tower construction) to provide statistically reliable and valid results. Case study areas were selected using both GIS maps that showed the location of cellular phone towers, and sale price and descriptive data about each property located in Orange County. The maps and sales data were obtained from the Florida Geographic Data Library (FGDL).³ Twenty towers were selected to construct a dataset for the study.

Residential properties that sold between 1990 and 2000, the years during which the towers were constructed, and that are closest to the twenty towers were selected. The final areas were selected after site visits had been made to verify that each mapped tower existed, to confirm the location of the homes to the tower, and to ensure non-selected towers were not located near the homes that might impact on the study results. Overall, 5783 single-family, residential properties were selected from northeast Orange County, Florida.

3.1 Results

Various empirical models were selected and progressively tested. Two models were chosen that best represent the relationships between the variables. The first model was developed to investigate the effect of tower construction on the price of homes by comparing sales prices prior to tower construction to sales prices after tower construction. Results from Model 1 suggest that the price of residential properties sold after the construction of a tower increases by 1.47%.

Model 2 includes distance-based measures indicating the property's explicit location, with respect to the closest tower. The results clearly show that the price of residential property increases with the distance from a tower. As distance from the tower increases by 10 feet (3m), price of a residential property increases by 0.57%. In general, the results show that while a tower has a statistically significant effect on prices of property located near a tower, this effect is minimal (below - 2%).

² Prior research indicates that social class is an important variable influencing people's response to environmental detriments, see for example, Dale *et al.* 1999.

³ FGDL is an assemblage of virtually every geographic data set for Florida that the GeoPlan Center of the University of Florida was able to obtain (mostly from government sources, including the Federal Communications Commission).

4. NZ AND FLORIDA STUDIES COMPARED

When comparing the Florida results to those from the NZ study it appears the results from both studies based on an analysis of the whole dataset were similar. Towers have a statistically significant, but minimal, effect on the prices of proximate properties. However, what the NZ study showed was that by analyzing the suburbs separately substantial differences exist in the effect that towers have on property prices between suburbs, since the distribution of the property sales prices is quite different in each. It is possible that if the Florida study had analysed suburbs separately similar differences would have been found.

Note that in NZ, there are fewer structures such as high voltage overhead transmission lines, cellular phone towers, and billboards on the skyline that provide visual distractions than there are in Orange County, Florida. As a result, it is possible that the Florida residents simply become accustomed to these features and so notice them less.

5. HVOTLS STUDIES

5.1 Introduction

High Voltage Overhead Transmission Lines (HVOTLs) and their associated pylons are similar to cell phone towers: they are both large structures that have electromagnetic field emitting devices and that can be seen from a distance due to their height and size. While media attention tends to concentrate on the potential negative health effects from living near HVOTLs, according to a major review and analysis of the literature by Kroll and Priestley (1992), studies reporting a negative market reaction to HVOTLs tend to suggest that it was not the health and safety issues that influenced the market but other factors such as unsightliness, visual and aural pollution. It was these elements that proved to be more successful in court action, especially in the US for claims of reduced property prices, increase in marketing time and decrease in sales volume (see Kinnard and Dickey, 1995).

In the US, Canada and Australia, HVOTLs are generally situated in a Right-of-Way (ROW); a corridor of land where building construction is prohibited. Homes abutting a ROW are likely to benefit from additional green space and increased privacy, therefore any negative impact on value from a proximate HVOTL may be diminished. In the UK and New Zealand (NZ) there is no requirement for a ROW and, as a consequence, the findings from studies undertaken in the US are not directly comparable to the results from the UK or NZ studies (discussed below).

5.2 US HVOTLs Studies

As noted above most power lines in the US are located in a right of way (ROW) corridor where residential construction is prohibited (unlike in NZ and the UK). A summary of the literature that measures proximity to HOTLs using the standard hedonic modeling approach, is detailed in Table 3, below (adapted from Chapter 6, in Bond, Sims and Dent, 2013). The studies have found a 0% to 12% decrease in values for proximate properties with negative price impact diminishing with distance from the HVOTLs. However, there is no known academic study in the US that utilizes GIS-based view shed analysis in order to provide a more scientific definition of the view corridor/quality as well as the distance of the view.

Table 3 - North American Studies of the Price Impacts of Power Lines					
Study	Location	Sample Dates	Sample Size	Percentage Decrease in Price	Power LineType
Chalmers and Voorvart (2009)	New England	1998-2007	1,286	a) No evidence of systematic effects of either proximity or visibility b) Properties encumbered with an easement are affected	345 Kv
Colwell (1990)	Decatur, Illinois	1968-1978	200	a) -6.6% at 15 m (50 feet) b) -2% at 61m (200 feet) c) -Price impacts decrease over time	138 Kv
Colwell and Foley (1979)	Decatur, Illinois	1968-1978	200	a) -8.8% at 15 m (50 feet) b) -3.6% at 61m (200 feet)	138 Kv
Des Rosiers (2002)	Greater Montreal	1991-1996	507	a) -10% for direct view b) -14% where setback is 15 metres (50 feet) c) -15-20% for higher price properties	315 Kv
Hamilton and Schwann (1995)	Vancouver	1985-1991	12,907	a) -6.3% for properties adjacent to a HVTL at 100m b) -1.1% at 200m	60 Kv - 500 Kv
Ignelzi and Priestley (1991)	North of Berkley, CA	1976-1989	1,816	a) -1% effect on sales prices of most properties at 91m (300 feet) b) Adverse effects can range up to -12%	115 Kv - 230 Kv
Jackson (2010)	Rural Wisconsin	N/A	385	a) -1.1% to 2.4% discount for parcels (not statistically significant) b) easement area -16.0% to 35.3%	115 Kv - 345 Kv
Kinnard (1967)	Hartford, Connecticut	1954-1964	791	a) Limited impact of -3% at 61m (200 feet) b) Tends to decrease substantially over time	Varied
Kinnard, Mitchell, and Webb (1989)	Orange County, New York	1983-1987	376	a) No measurable price impact for adjacent vacant lots b) -6.20% at 61m	345 KV
Mitchell and Kinnard (1996)	Orange County, New York	1983-1987	376	No measurable price impact for adjacent vacant lots	345 KV
Wolverton and Bottemiller (2003)	Oregon/Washington	1989-1992	712	a) No price sensitivity for abutting an HVTL right of way. b) No evident difference in appreciation rates	115 Kv - 500 Kv

5.3 NZ HVOTLs Studies

Bond and Hopkins (2000) study the impact that proximity to HVOTLs has on transaction prices of homes in Newlands, a northern suburb of Wellington (the capital city of NZ) that is crossed by two 110KV transmission lines (erected in 1924 and 1931, respectively) with 26 meter (85.3ft) high steel pylons located on private land. Most of the residential development in the suburb occurred subsequent to the erection of these lines during the 1960s and the 1970s. The terrain throughout the suburb is hilly and the HVOTLs were built on hilltops within the suburb making them very prominent. The suburb has panoramic views of the Hutt Valley, central Wellington and the Wellington harbor.

As GIS did not exist at the time of the research to measure distance accurately between homes and pylons and lines, detailed maps, including street, aerial, and topographical, were obtained and the location of the pylons and approximate position of the lines were hand drawn onto the map. From here distances were hand measured from the pylons to the houses, through use of a scale rule. Specified distance bands from the pylons were also drawn onto the map to help indicate the number and location of homes within each band. The distance rings selected of 50m (165ft) were within the range of distances used in other similar proximity studies of the effects of HVOTLs, hazardous waste and railway tracks on property values

Based on the methodology developed by Priestley and Ignelzi (1989), multiple regression analysis in a hedonic framework was used to test the hypothesis that being located close to HVOTLs has a negative impact on value. Sales data were analyzed over the three-year time frame from 1989 to 1991, inclusive. This time interval also provided sufficient sales (330) within 300 meters (984 feet) of HVOTLs to make the regression equation statistically reliable and to give confidence in results.

The results of the hedonic study show that the effect of having a 'pylon' close to a particular property is significant and has a negative effect of 20% at 10-15 meters (33-49ft) from the pylon, decreasing to 5% at 50 meters (164ft). This effect diminishes to a negligible amount after one hundred meters (328ft). The presence of transmission lines in the Newlands area has a minimal effect reducing value by around 1% for those properties directly under the line, and is not a statistically significant factor in the sales price.

However, due to the variable nature of the terrain in the Newlands area the result is perhaps unsurprising. The topographical variances render the distance measures inaccurate predictors of degree of impact. As such it is likely that these results underestimate the true effects of the transmission lines. More recent studies, such as the UK studies outlined below, take account of the terrain and other features that might impact on the degree of visibility of the HVOTLs, by including a line of sight variable, and indicate the advancement in methodology since this early study was conducted.

5.4 UK HVOTLs Studies

One of the problems facing researchers in the UK was, and to some degree still is, the lack of available information on property transactions. First, prior to 2005, transaction data for England and Wales was not freely available. For this reason, studies before 2004 focused almost exclusively on public and professional attitudes towards distribution equipment and suggested that attitudes were generally negative towards the presence of HVOTLs near residential buildings (Gallimore and Jayne, 1999; Jayne, 2000).

As gathering transaction data is difficult in England and Wales, Scotland was chosen as the site for the study by Sims and Dent (2005). They used a similar methodology to the NZ study outlined above but included the degree of visibility of the lines and pylons. Their results were similar. They found, that there is a causal relationship between selling price and both the physical distance from a pylon (as opposed to a HVOTL) and the degree of visual encumbrance of a HVOTL. By using frequency analysis to determine the impact on selling price at various

distances from the nearest pylon, they found that that the value of property within 100 meters (328ft) of a pylon can be reduced by 17-24 per cent (an average of 21 per cent) compared to a similar house sited 400m (1312ft) away. Further, similar to the NZ study, the presence of a pylon was found to have a more significant negative impact on value than the line.

5.5 Summary of the HVOTLs Studies

The impact of HVOTLs and their pylons on property values varied between countries, although it was consistent (i.e. negative and significant). In NZ, prices of homes between 10 to 50 meters (33- 164ft.) from a pylon reduced in value by between 5%-27%, depending on the distance to the pylon, with this effect diminishing to a negligible amount after 100 meters (328ft). In the UK, prices of homes within 150 meters (492ft.) of a HVOTL are reduced by up to 18% and the presence of a pylon could reduce price by up to 20.7%. All negative impacts appeared to reduce with distance and were negligible at around 250 meters (820ft.). In Canada, a direct view of either a pylon or lines exerts a significantly negative impact on property prices of between 5%-20% depending on distance to these.

6. CONCLUSION

Each geographical location is unique and the factors that influence the degree of negative reaction to cell phone towers and that impact on property price are manifold. Some of these factors are as follows: the height, style, and appearance of the antennas and towers, how visible these are to residents and how they perceive such views; the kinds of health risks and disamenities residents associate with cell phone towers; the extent and frequency of negative media attention to the potential health effects from EMFs emitted by cell phone towers; the marketability of homes near cell phone towers; and the market conditions existing at the time (i.e., rising or falling housing prices) and the socio-economic make-up of the resident population.

As mentioned in the covering letter, I have not inspected the property at 1565 N Cholla Lane, Clarkdale AZ 86324 nor performed any valuation services with respect to this case. However, I would expect, based on the information supplied, that any value diminution would be based on the view and proximity of the cell tower in relation to 1565 N Cholla Lane (the subject property).

I hope that the literature review and outline of the factors that influence value of homes near cell phone towers will provide a guide of the likely impact of the proposed Capital Telecom cell phone tower on your home's value. Should you have any questions or need further explanation please contact me.

7. PROFESSIONAL QUALIFICATIONS

A complete Curriculum Vitae is attached hereto.

Respectfully Submitted,



Sandy Bond, Ph.D., SNZPI, ANZIV

References

Bond, S.G. (2007). "Cell Phone Tower Proximity Impacts on House Prices: a New Zealand Case Study", *Pacific Rim Property Research Journal*, vol. 13, no. 1, pp. 63-91.

Bond, S. and Hopkins, (2000) "The impact of transmission lines on residential property values: results of a case study in a suburb of Wellington, NZ". *Pacific Rim Property Research Journal*, 6(2): 52-60.

Bond, S. G., Sims, S. and Dent, P. (2013). *Towers Turbines and Transmission Lines: Impact on Property Value*, Oxford: Wiley-Blackwell,

Bond, S. G. and Squires, L. (2007). "The Effects of Distance to Cell Phone Towers on House Prices in Florida", *The Appraisal Journal*, Fall.

Bond, S.G. and Wang, K. (2005). "The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods", *The Appraisal Journal*, Volume LXXIII, No.3, pp.256-277.

Filippova, O. and Rehm, M. (2011). "The Impact of Proximity to Cell Phone Towers on Residential Property Values", *International Journal of Housing Markets and Analysis*, Vol. 4, Issue 3, pp. pp.244 - 267.

Gallimore, P. and Jayne M. (1999) High Voltage Overhead Transmission Lines and Public Perception of Risk Report produced with the aid of RICS Education Trust Fund.

Hamilton, S. and Schwann, G. (1995), Do High Voltage Electric Transmission Lines Affect Property Value? *Land Economics*, Issue 71: No. 4, pp. 436-444.

Jayne, M.R., (2000) "High Voltage Overhead Transmission Lines and Public Risk" The RICS Research Foundation Report Series.

Kinnard, W. and Dickey, S. (1995). "A primer on proximity impact research: residential property values near high voltage transmission lines", *Real Estate Issues*, 20(1), pp. pp. 23-29.

Kroll, C. and Priestley, T. (1992), *The Effects of Overhead Transmission Lines on Property Values: A Review and Analysis of the Literature*, Edison Electric Institute, July.

Priestley, T. and Ignelzi, P.C. (1989). *A Methodology for Assessing Transmission Line Impacts in Residential Communities*. Edison Electric Institute, Washington DC, June.

REINZ (2009), House Price Index July 2009,
https://www.reinz.co.nz/shadomx/apps/fms/fmsdownload.cfm?file_uuid=15CE90FB-18FE-7E88-4294-2A00428CCB23&siteName=Reinz [accessed 27 October 2011].

Sims, S. and Dent, P. (2005). 'High voltage overhead power lines and property values: a residential study in the UK'. *Urban Studies*, 24 (4), pp.665 – 94.

Strand, J. and Vagnes, M. (2001), 'The Relationship Between Property Values and Railroad Proximity: A Study Based on Hedonic Prices and Real Estate Brokers' Appraisals', *Transportation*, 28:2, p. 137.

'The valuation profession, the legal profession, property industry participants in general and students will welcome publication of this book. Investors, environmental groups and affected property owners will find essential information for use in their decision-making, development objections and claims. My hope is that [it] will provide answers where required and that it will help to improve the professional standard of valuations and appraisals internationally. I trust that it will also raise the standard of testimony in damages cases. If so, the editors and contributors will have succeeded in documenting the state of the art in this relatively unexplored terrain.'

From the Foreword by Dr Valmond Ghyoot, Emeritus Professor of Real Estate, University of South Africa

As a reference source, this book will help quantify the negative impacts on property values of high voltage overhead transmission lines, cell phone towers, and wind turbines. It gives a modern perspective of the concerns property owners have about the siting of industrial structures used to transmit or generate various forms of energy and how these concerns impact on property values.

Studies reveal concerns the public have about devices and structures that emit electromagnetic fields (EMFs) due to their potential health hazards. Despite some research reports suggesting there are no potential adverse health hazards from high voltage overhead transmission lines (HVOTLs) and towers, there is still on-going concern about the siting of these structures due to fears of health risks from exposure to EMFs, changes in neighbourhood aesthetics and loss in property values. The siting of wind turbines is also receiving community opposition due to noise, light flicker, aesthetic concerns, and loss in property values. The extent to which such attitudes are reflected in lower property values is not well understood.

Towers, Turbines and Transmission Lines: impacts on property value outlines results of studies conducted in the US, the UK, Australia and New Zealand and offers guidance to valuers as well as to property/real estate appraisal students and property owners around the world. The book provides defensible tools that are becoming widely accepted to assess the effect that these environmental detriments have on property prices.

The Editors

Dr Sandy Bond is the Professor of Property Studies in the Commerce Faculty at Lincoln University in Christchurch, New Zealand. She is a Registered Property Valuer and Senior Member of the Property Institute of New Zealand (SPINZ), the President-elect (2013) of the International Real Estate Society and a Past President of the Pacific Rim Real Estate Society (PRRES). She has lived and worked in NZ, the USA, UK, and Australia and her career has encompassed property valuation, valuation consultation, academic research and university teaching.

Dr Sally Sims is a senior lecturer in the Department of Real Estate and Construction at Oxford Brookes University, UK. She was a Member of the Stakeholders Advisory Group on EMF and is a member of the Editorial Advisory Board for the *International Journal of Housing Markets and Analysis*.

Peter Dent is a Fellow of the Royal Institution of Chartered Surveyors. He has held various posts at Oxford Brookes University, UK, most recently as the Comerford Climate Change Fellow in the Department of Real Estate and Construction. He has had considerable experience of managing both academic development and research projects both in the UK and overseas.

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Curriculum Vitae: Dr Sandy Bond

Name: BOND, Sandy Gale **Title:** Professor
Date of Birth: 26 January 1964, Wellington, New Zealand
Address: 1093 A1A Beach Blvd #332, St Augustine, Florida 32080-6733,
Position (to 2014) Professor of Property Studies, Ag. Mgt. & Property Studies Department
Faculty of Commerce,
Lincoln University, Lincoln, Canterbury, NZ

QUALIFICATION AND DISTINCTIONS:

(i) Academic

Degrees

	<i>University</i>	<i>Date Granted</i>
Doctor of Philosophy	Curtin University of Tech., WA	2001
Master of Business Studies	Massey, NZ	1997
Graduate Diploma in Business Admin.	Massey, NZ	1993
Bachelor of Business Studies (VPM)	Massey, NZ	1984

Certificates

	<i>Source</i>	
Financial Planning	Financial Planning Group	1997

(ii) Professional/Memberships

	<i>Institute</i>	
Member of the NZ GBC	Green Building Council of NZ	2010
Senior Member of PINZ	Property Institute of NZ	2002
Associate member of NZIV	NZ Institute of Valuers	1989
Registered Property Valuer	NZ Institute of Valuers	1988

Fellowships, Awards

	<i>Source</i>	
PINZ Academic Achievement Award	Property Institute of NZ	2010
PRRES Achievement Award	Pacific Rim Real Estate Soc.	2002
Best Conference Paper Award	Pacific Rim Real Estate Soc.	2001
NZIV Presidential Citation	NZ Institute of Valuers	1997

CAREER BRIEF

(i) Academic

Date: 2015
Employer: Flagler College, St. Augustine, Florida, USA
Title: Adjunct Professor

Date: 2010 to 2014
Employer: Lincoln University, Christchurch, NZ
Title: Professor (tenured)

Date: 2007 to 2009.
Employer: Curtin University of Technology, Perth, Western Australia
Title: Senior Lecturer

Date: 2005 to 2006
Employer: University of North Florida, Jacksonville, Florida, USA
Title: Visiting Assistant Professor & Adjunct Professor

Date: 2001 to 2005.
Previous Employer: University of Auckland, Auckland, New Zealand
Title: Senior Lecturer

Date: 1991- 2000
Employer: Massey University, Palmerston North, New Zealand
Title: Lecturer (tenured)

Teaching:

I have taught and developed undergraduate and postgraduate courses (at the Bachelors, Diploma, Masters and PhD levels) both internally and extramurally (by correspondence) as well as in block-course mode (extramural plus an intensive five day on-campus course) in property related subjects (valuation, property management, investment, market analysis, sustainable development) within Australia (CU), NZ (MU, UA and LU), and the USA (UNF). (See list below for details).

Special Projects:

- Chair, Pacific Rim Real Estate Society Conference, Christchurch New Zealand, 2014
- Recruited onto an expert panel to advise the Government (The NZ Earthquake Commission) on valuation methodology for compensation purposes, 2012.
- Authored “Guidance Note 3: The Valuation of Contaminated Land” for the NZ Institute of Valuers.

Research Funding

Funding source	Amount	Topic	Term (start & end dates)
Graduate Assistant Package, Lincoln University	120 hours @ \$22/hour	The impact of the Canterbury earthquake on the commercial office	Nov. 2013 to Feb. 2014
Lincoln University Research Fund	\$10,734	The impact of the Canterbury earthquake on the commercial office and residential housing markets	6/2012 to 12/2013
Summer Research Assistant Package	120 hours @ \$22/hour	Energy Efficiency of NZ Homes: The real estate industry perspective	Nov. 2011 to Feb. 2012
Lincoln University Research Fund	\$10,500	Drivers and barriers to sustainability in residential buildings	4/2010 to 12/2011
Australian Research Council Discovery Grant with Sustainability Professor Peter Newman	\$100,000	Drivers and barriers to sustainability in residential and commercial buildings	01/2009 to 01/2011
Auckland University Internal Research grant	\$7,000 NZ	The impact of cellular phone towers on property values in NZ.	01/2003 to 09/2003
Pro Vice-Chancellor’s International Doctoral Fellowship	\$24,000 pa (taxable)	Measuring the Effects of a Previously Contaminated Site on the Redeveloped Residential Property Values	2/1999 to 12/2000
Curtin Divisional Postgraduate Award	\$22,000 AU pa (tax-free)	As Above	2/1999 to 12/2000

Consultancy Projects:

- 2012-2015: Requested by national law firm Chapman Tripp to join a panel of four real estate experts from around NZ to advise the NZ Government (Earthquake Commission) on valuation methodology

related to compensation for real estate damaged land caused by the Canterbury earthquakes of 2010-2011. The final report went before the New Zealand High Court for approval in 2014.

- 2011-2014: Joint project with CBRE, an international commercial real estate services provider, research the impacts of the Canterbury earthquakes on the commercial office market. Office occupants were surveyed at 6 monthly intervals to ascertain their attitudes and whether these changed over time as the city rebuild commenced. The 22 February 2011 Canterbury earthquake had a devastating impact on Christchurch real estate with significant damage caused to land and buildings. As at June 2013, around 400 commercial buildings have been demolished and another 95 identified to be demolished in central Christchurch. The research was jointly funded by a 2011 and 2012 Lincoln University, Commerce Faculty postgraduate assistant package. The outcomes of this research include industry based publications and two international conference papers, and a peer-reviewed journal article.
- 2008: Assess the potential Highest and Best Use and value of Waitai Station, consisting of 2,050 Ha of prime coastal land on D'Urville Island, in the South Island of NZ, for Greenfield Advisors, a real estate and business research firm headquartered in Seattle, Washington.
- Cell-phone tower & high voltage overhead transmission lines research:
 - Value impacts from cell-phone towers sited near homes - Porirua residents' action group (Wellington, NZ), 2005.
 - Impacts from high power overhead transmission lines on property values in Tsawwassen, BC, Canada for Greenfield Advisors - legal class-action case, 2005.

(ii) Valuation Profession

Date: 2013 to current
Title: Property Consultant, American Valuation Partners
Work Experience: Advice on complex valuation issues

Date: 1990 (6 months)
Employer: Valuation Office, Inland Revenue, London, United Kingdom.
Title: Registered Valuer.
Work Experience: Assessing property values for taxation and stamp duty purposes.

Date: 1986-1989
Employer: Harcourts Valuations Limited, Wellington, New Zealand
Title: Registered Valuer
Work Experience: Valuing residential, commercial and industrial properties and assets throughout NZ. Other work included retail and office rental assessments and negotiations.

Date: 1985-1986
Employer: Valuation Office, Government Valuation Department, Wellington, New Zealand
Title: Valuer
Work Experience: Valuing residential and commercial properties primarily for rating purposes, assessing office rentals, processing objections to government valuations, and defending valuations in tribunal.

ACADEMIC & PROFESSIONAL POSITIONS HELD

	Membership Details	Positions of responsibility
1988 ongoing	<ul style="list-style-type: none"> ● Senior Member of the Property Institute of New Zealand (SPINZ) ● Registered Property Valuer ● Associate Member of the NZ Institute of Valuers (ANZIV) 	<ul style="list-style-type: none"> ● Continuing Professional Development Convener for PINZ,

1994 to 2004	Board of the Pacific Rim Real Estate Society (PPRES)	<ul style="list-style-type: none"> • President (2 years) • Secretary • Newsletter editor • PPRE Awards committee
2001 ongoing	Editorial Board of the Pacific Rim Property Research Journal	<ul style="list-style-type: none"> • Editor/Referee
1997 ongoing	Director to the Board of the International Real Estate Society (IRES)	<ul style="list-style-type: none"> • President (2014) • Secretary • Newsletter editor • IRES Awards committee
2009 to 2014	University Committees: <ul style="list-style-type: none"> • Chair of Commerce Faculty Research Committee • Academic Board • Commerce Liaison Committee • School Teaching & Learning • Centre for Research in Applied Economics • Review Sub-Committee of Human Research Ethics • Commerce Management Team • Staff Club Committee 	<ul style="list-style-type: none"> • Faculty representative • Professorial Representative
1992- 2004	Other University Committees: <ul style="list-style-type: none"> • Faculty Board • Equal Employment Opportunities (EEO) Policy • Personal Financial Planning Taskforce • Faculty Timetable • Staff Development 	<ul style="list-style-type: none"> • Department Representative

INTERESTS

- Running (member of the Ancient City Road Runners, St Augustine, FL), yoga, biking, hiking
- Travel
- Wine Tasting

RESEARCH and PUBLICATIONS:

I have published over thirty-five articles in a wide range of national and international property journals. The following list includes only the most recent articles published. Others are included to reflect my range of research interests.

* Indicates papers co-authored with research students I have supervised. They conducted most of the research and analysis under my guidance and I wrote the final publishable paper.

** Indicates papers co-authored with eminent US and UK professors/academics. My contribution relates to the research conducted in NZ as part of the international comparisons.

(i) Thesis

Bond, S.G. (2000). *“Post Remediation Stigma: Fact or Fiction? Measuring the Effects of a Previously Contaminated Site on the Redeveloped Residential Property Values”*, Curtin University of Technology.

(ii) Book

Bond, S. G., Sims, S. and Dent, P. (2013). *“Towers, Turbines and Transmission Lines: impacts on property*

value”, Oxford: Wiley-Blackwell, ISBN: 978-1-4443-3007-6.

(iii) Book Chapters

Bond, S. G. & Worzala, E. M. (2014), “Investing in Green Buildings”, in *Private Real Estate: Markets and Investments*, Eds. K.H. Baker and P. Chinloy, Oxford University Press, New York, Chapter 14, pp.234-255. ISBN: 978-0-19-938875-2.

Bond, S.G. (2003). “Challenges Confronting Property Valuation Practitioners in Australasia”, in *Research Issues in Real Estate Monograph Series: Essays in Honour of William N. Kinnard Jr.* Eds. E.M. Worzala and C.F. Sirmans, Kluwer Academic Publishers, Boston, Chapter 7, pp. 103-116.

Bond, S.G. (2002). "Do Market Perceptions Affect Market Prices? A Case of a Remediated Contaminated Site", in *Real Estate Valuation Theory*, eds. K. Wang and M.L. Wolverton, Kluwer Academic Publishers, Boston, Vol. 8, pp. 285-321.

**Kinnard, W.N., Worzala, E.M., Bond, S.G. & Kennedy, P.J (2002). "Comparative Studies of United States, United Kingdom and New Zealand Appraisal Practice: Valuing Contaminated Commercial Real Estate", in *Real Estate Valuation Theory*, eds. K. Wang and M.L. Wolverton, Kluwer Academic Publishers, Boston, Vol. 8, pp. 201-226.

(iv) Refereed Journal Articles

Bond, S.G. (2015), Californian Realtors’ Perceptions towards Energy Efficient “green”, *Journal of Sustainable Real Estate* (due for publication).

Bond, S.G. (2015), “Residents’ perceptions of risk towards residential property in Canterbury NZ subsequent to the earthquakes”, *International Journal of Disaster Resilience in the Built Environment*, (due for publication).

Bond, S.G. (2013), Assessing New Zealand Household’s Home Use Behaviours: How Energy Efficient Are They? *Pacific Rim Property Research Journal*, Vol. 19, No. 1, pp.17-41.

Bond, S. G. and Perrett. G. (2012). The Key Drivers and Barriers to the Sustainable Development of Commercial Property in New Zealand, *Journal of Sustainable Real Estate*, Vol.4, No. 1, pp.48-77.

Bond, S. G., Moricz, Z. and Wong, C. (2012). “The Impacts of the Canterbury Earthquakes on the Commercial Office Market in Christchurch, NZ”, *Pacific Rim Property Research Journal*, Vol. 18, No.4. pp. 389-405.

Md Yassin, A.B., Bond, S.G., McDonagh, J. (2011). “Developing Guidelines for Riverfront Developments in Malaysia”, *Pacific Rim Property Research Journal*, Vol. 17, No.4. pp. 511-529.

Md Yassin, A.B., Bond, S.G., McDonagh, J. (2011). “Water front development in Malaysia: do we have sustainable governance?”, *Pacific Rim Property Research Journal*, Vol. 17, No.3. pp. 336-356.

Bond, S.G. (2011), “Barriers and Drivers to Green Building in Australia and New Zealand” *Journal of Property Investment and Finance*, Vol. 29, Issue 4/5, pp.494 – 509.

Bond, S.G. (2011), “Residential Property Development Professionals Attitudes Towards Sustainable Development in Australia,” *International Journal of Sustainable Development and Planning*, Vol. 6, No. 4, pp. 474-486.

- Bond, S.G. (2010). "Lessons from the Leaders of Green Designed Commercial Buildings in Australia", *Pacific Rim Property Research Journal*, Vol. 16, No.3. pp.314-338.
- Bond, S.G. (2010). "Community Perceptions of Wind Farm Development and the Property Value Impacts of Siting Decisions?" *Pacific Rim Property Research Journal*, Vol. 16, No.1. pp.52-69.
- Bond, S.G. (2008). "Attitudes towards the development of wind farms in Australia", *Journal of Environmental Health Australia*, Vol. 8, No.3, pp. 19-32.
- Bond, S.G. (2008). "The Impact of Feng Shui on Residential Property Prices in Western Cultures", *Journal of International Housing Markets and Analysis*, vol. 1, no.1, pp. 81-101.
- Bond, S.G. (2007). "Cell Phone Tower Proximity Impacts on House Prices: a New Zealand Case Study", *Pacific Rim Property Research Journal*, vol. 13, no. 1, pp. 63-91.
- *Bond, S. G. and Squires, L. (2007). "The Effects of Distance to Cell Phone Towers on House Prices in Florida", *The Appraisal Journal*, Fall, Vol. LXXV, No.4, pp. 362-370.
- *Bond, S.G. & Sakornvanasaak, P. (2006). "The Assessment of Current Valuation Practices as Applied to Local Authority Infrastructural Assets", *Pacific Rim Property Research Journal*, March, vol. 12, no.1, pp. 38-54.
- *Bond, S.G. and Wang, K. (2005). "The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods", *The Appraisal Journal*, Volume LXXIII, No.3, pp.256-277.
- *Bond, S.G., Beamish, K. (2005). "Cellular Phone Towers: Perceived Impact on Residents and Property Values", *Pacific Rim Property Research Journal*, vol. 11, no. 2, pp. 158-177.
- *Bond, S.G. and Cook, D. (2004). "Residents' Perceptions towards Asbestos Contamination of Land and its Impact on Residential Property Values", *Pacific Rim Property Research Journal*, Vol. 10, No.3, pp.328-352.
- Bond, S.G. (2001). "The Use of Conjoint Analysis to Assess the impact of Environmental Stigma". *Pacific Rim Property Research Journal*, Vol.7, No.3, pp 182-194.
- **Bond, S.G., Kinnard, W.N., Kennedy, P.J., and Worzala, E.M. (2001). "An International Perspective on Incorporating Risk in The Valuation of Contaminated Land". *The Appraisal Journal*, July, pp.258-265.
- Bond, S.G. (2001). "Stigma Assessment: The Case of a Remediated Contaminated Site". *Journal of Property Investment and Finance*, Vol. 19, No.2, pp. 188-210.
- **Bond, S.G. & Kennedy, P.J (2000). "The Valuation of Contaminated Land: Methods adopted in the United Kingdom and New Zealand". *Journal of Property Investment and Finance*. Vol. 18, No. 2, pp. 254-271.
- *Bond, S.G. & Hopkins, J. (2000). "The Impact of Transmission Lines on Residential Property Values: Results of a Case Study in a Suburb of Wellington, New Zealand". *Pacific Rim Property Research Journal*, Vol.6, No. 2, pp.52-60.
- **Bond, S.G., Kinnard, W.N., Worzala, E.M., and Kapplin, S.D. (1998) "Market Participants Reactions Toward Contaminated Property In New Zealand and America". *Journal of Property Valuation and Investment*, Vol.16, No.3, pp.251-272.

****Bond, S.G. & Dent, P. (1998). "Efficient Management of Public Sector Assets". *Journal of Property Valuation and Investment*, Vol.16, No.4, pp.369-385.**

(v) Non-refereed Journal Articles:

Engström, P., Bond, S.G. (2013), What Do Homebuyers Want? Household Trends and Buyers Preferences, *Australia and New Zealand Property Journal*, Vol. 4, No.4, pp. 364-370.

Bond, S. G. & Watts, C. (2010). "Public attitudes towards proposed wind farms: A Trans-Tasman comparison". *Australia and New Zealand Property Journal*, Vol. 2, No.8, pp. 494-511.

Bond, S. G. (2009). "The tale of two windy cities: public attitudes towards wind farm development". *School of Economics and Finance Working Paper Series 09.03*, Bentley, Western Australia: School of Economics and Finance, Curtin Business School.

Bond, S.G. (2003). "Issues Facing Valuers in Australia: Lessons for Thai Appraisers". *Thai Appraisal Journal*, Vol. 2, No.2, April-June, pp. 14-15.

Bond, S.G., (2002). "Challenges Confronting Property Valuers in Australasia," *New Zealand Property Journal*, July, pp. 7-13.

Bond, S.G., (2000). "Know Thy Legislation: The Case of Decontaminated Sites in Western Australia", *Australian Property Journal*. Vol. 36, No. 4, pp. 312-316.

(vi) Professional Publications

Bond, S. G. and New Zealand Institute of Valuers. (1998). *New Zealand Institute of Valuers Guidance Note 3: The Valuation of Contaminated Land. Draft*. New Zealand Valuers' Technical Handbook.

(vii) Reviews and comments:

Bond, S.G. (2000). "Book Review: A Spreadsheet Approach to Business Quantitative Methods". *Pacific Rim Property Research Journal*, Vol.6, No. 2, pp.62-63.

CONFERENCE PRESENTATIONS

I have made over forty presentations at conferences and seminars both nationally and internationally in the past ten years. The following list shows only the most recent presentations made.

Bond, S.G., Pacifici, C. and Newman, P. (2015). Real Estate Agents' Perceptions towards Energy Efficient "green" Housing. *American Real Estate Society Conference*, Sanibel Harbor Marriott, Fort Myers, Florida, USA , April 14-18, 2015.

Bond, S.G. and Dirmisi, S. (2014). Using GIS to Measure the Impact of the Canterbury earthquakes on House Prices in Christchurch, NZ, *Latin American Real Estate Society Conference*, 18- 20 September 2014, Rio de Janeiro, Brazil.

Bond, S.G. (2014). Residents' perceptions relating to residential property in Canterbury NZ post the earthquakes, *American Rim Real Estate Society Conference*, 1- 5th April, San Diego, California, USA.

Bond, S.G. (2013). "Commercial Office Occupiers' Perceptions of Office Market in Post-Earthquake Christchurch, New Zealand", *European Real Estate Society Conference*, Vienna, Austria, 3-6th July.

Bond, S.G. (2013). "Investigating NZ Household's Energy Use Behavior's", *American Rim Real Estate Society Conference*, 10- 13th April, Big Island, Hawaii, USA.

Bond, S.G., Moricz, Z., Wong, C. (2012). "The Impacts of the Canterbury Earthquake on the Commercial Office Market in Christchurch, NZ", *European Real Estate Society Conference*, 13-16 June, Edinburgh, Scotland.

Bond, S.G. and Perrett, G. (2012). "Key Drivers and Barriers to the Sustainable Development of Commercial Property in New Zealand", *American Real Estate Society Conference*, 17- 21st April, St. Petersburg, Florida, USA.

Bond, S.G. (2012). "Assessing NZ Householders' Energy Use Behaviours: A Pilot Survey", *Pacific Rim Real Estate Society Conference*, 15-18 January, Adelaide, Australia.

Bond, S. G., Pacifici, C. and Newman, P. (2011). "Residential Stakeholders' Perceptions towards Sustainability in Housing: An Update", *American Real Estate Society Conference*, 13-16th April, Seattle, USA.

Bond, S. G., Pacifici, C. and Newman, P. (2011). "Sustainability in Housing – Perceptions of Real Estate Agents, Building Professionals and Householders", *Pacific Rim Real Estate Society Conference*, 17-19th January, Gold Coast, Australia.

Bond, S.G. (2010). "Drivers and barriers to Green Buildings in Australia and New Zealand", *Valuation Colloquium*, 11-13 November, Greenville, South Carolina, USA.

Bond, S.G. (2010). "Australian Householders' Attitudes Towards Sustainability in the Home", *European Real Estate Society Conference*, 24-26th June, Milan, Italy.

Bond, S.G. (2010). "Drivers and barriers to sustainable development in Australia", *American Real Estate Society Conference*, 14-17th April, Naples, Florida.

Bond, S.G. (2010). "Drivers and barriers to sustainability in residential and commercial buildings", *Pacific Rim Real Estate Society Conference*, 23-27th January, Wellington.

Bond, S.G. and Watts, C. (2009). "Public Attitudes Towards Proposed Wind Farms: A cross country comparison ", *European Real Estate Society Conference*, 24-29 June, Stockholm, Sweden.

Bond, S.G. (2009). "A Tale of Two Windy Cities: Public Attitudes Towards Wind Farm Development", *Pacific Rim Real Estate Society Conference*, 18-22nd January, Sydney.

Bond, S. G. (2008). "Attitudes towards the development of Wind Farms in Australia", *17th Annual AREUEA International Conference*, 4-8 July, Istanbul, Turkey.

Bond, S. G. (2008). "The Impact of Feng Shui on Condominium Prices", *Pacific Rim Real Estate Society Conference*, 20-23rd January, Kuala Lumpur, Malaysia.

Bond, S. G. (2007). "The Impact of Feng Shui on Residential Property Prices in the West", *European Real Estate Society*, 29-30th June, London, UK.

*Bond, S.G. and Squires, L. (2006). "Using GIS to Measure the Impact of Distance to Cell Phone Towers on House Prices in Florida", *American Real Estate Society Conference*, April 19-22, Key West Florida, USA.

*Bond, S.G. and Xue, J. (2005). "Measuring the Impact of Distance to Cell Phone Towers on House Prices: A New Zealand Case Study", American Real Estate Society Conference, April 13-16, Santa Fe, New Mexico, USA.

*Bond, S.G. and Xue, J. (2005). "Cell Phone Tower Proximity Impacts on House Prices: A New Zealand Case Study", European Real Estate Society and International Real Estate Society Conference, June 15-18, Dublin, Ireland.

*Bond, S.G. and Wang, K. (2004). "The Siting of Cell Phone Towers in Residential Neighborhoods: Do Home-owners Care?" American Real Estate and Urban Economics Association International Real Estate Conference, July 29-31, Fredericton, New Brunswick, Canada.

*Bond, S.G. and Beamish, K. (2004). "Residents' Perceptions Towards Living Near Cell Phone Towers", American Real Estate Society Conference, April 20-24, Captiva Island, Florida, USA.

*Bond S.G., Sakornvanasak, P., (2004). "The Assessment of Current Valuation Practices as Applied to Local Authority Infrastructural Assets," Pacific Rim Real Estate Society Conference, January 25-27, Bangkok, Thailand.

*Bond, S.G., McMahon, N., Beamish, K. (2003). "Do Cellular Phone Base Station Towers Affect Residential Property Values?" European Real Estate Society Conference, June 10-13, Helsinki, Finland.

Bond, S.G. (2003). "Challenges Confronting Property Valuation Practitioners in Australasia", Pacific Rim Real Estate Society Conference, January 19-22, Brisbane, Australia.

*Bond, S.G., Mun, S., Sakornvanasak, P., and McMahon, N (2003). "The Impact Of Cellular Phone Base Station Towers On Property Values", Pacific Rim Real Estate Society Conference, January 19-22, Brisbane, Australia.

Bond, S.G. (2002). "Completing a PhD: Challenges and Pitfalls", Doctoral Seminar, Pacific Rim Real Estate Society Conference, January 20th, Christchurch, New Zealand.

Bond, S.G. (2001). "The Importance of Property Attributes From the Buyers Perspective: A case study of remediated contaminated land". AREUEA's Tenth Annual International Real Estate Conference, Cancun, Mexico, May 6-8.

Bond, S.G. (2001). "Conjoint Analysis: Assessing Buyer Preferences for Property Attributes to Assist with the Estimation of Land Contamination Stigma". The Seventh Pacific-Rim Real Estate Society Conference. Adelaide, Australia 21-24 January. **This paper won the "Best Conference Paper Award"**.

Bond, S.G. (2000). "Do Market Perceptions Affect Market Prices? A Case Study of a Remediated Contaminated Site. Sixteenth American Real Estate Society Conference, Santa Barbara, California 29 March to 1 April.

Bond, S.G. (2000). "Post-remediation Stigma: Fact or Fiction? Measuring the Effects of a Previously Contaminated Site on the Redeveloped Residential Property Values". Doctoral Seminar, Sixteenth American Real Estate Society Conference, Santa Barbara, California 29 March to 1 April.

Bond, S.G. (2000). "Estimating Stigma of Ex-contaminated Land: The "Buyer Beware" Principle

Reigns". The Sixth Pacific-Rim Real Estate Society Conference. Sydney, Australia 23-27 January.

Bond, S.G. (1999). "Post-remediation Stigma: Fact or Fiction? The effect of a site's contaminated history on the value of the remediated property." Acer National Business Education and Research Conference, 14 – 15 October. Perth, WA.

****Bond, S.G., Kinnard, W.N. Jr., Kennedy, P.J. & Worzala, E.M. (1999) "How Valuers in the United Kingdom, New Zealand and the United States Incorporate Risk Into Their Valuations of Contaminated Property". The Fifth Pacific-Rim Real Estate Society Conference, in conjunction with The Asian Real Estate Society & The International Real Estate Society. Kuala Lumpur, Malaysia 26-30 January.**

****Bond, S.G., Kinnard, W.N. Jr., Worzala, E.M. & Kennedy, P.J. (1999). "Comparative Studies of United States, United Kingdom and New Zealand Appraisal Practice: Valuing Contaminated Property". Fifteenth American Real Estate Society Conference. Tampa, Florida April 7-10.**

****Bond, S.G. and Kennedy, P.J. (1998) "The Valuation of Contaminated Land: New Zealand and United Kingdom Practice Compared". The Fifth European Real Estate Society, in conjunction with The International Real Estate Society and The American Real Estate and Urban Economics Association Conference, Maastricht, Netherlands, 10-13 June.**

****Bond, S.G., Kinnard, W.N. Jr., and Worzala, E.M. (1998). "The Valuation of Contaminated Land and Property: Identifying the Appropriate Methodology and Procedures". The 19th Pan Pacific Congress, Singapore, 19-24 April.**

Bond, S.G. (1998). "The Appraisal of Contaminated Land in New Zealand Practice". The Fourteenth Annual American Real Estate Society Conference, Monterey, California, USA, 15-18 April.

****Bond, S.G., Kinnard, W.N., Worzala, E.M. (1998). "Lenders' and Investors' Attitudes and Policies Toward Property Contamination", The Fourth Pacific Rim Real Estate Society Conference, Curtin University of Technology, Perth, Western Australia, 19-21 January.**

****Bond, S.G., Kinnard, W.N., Worzala, E.M., and Kapplin, S.D. (1997). "Comparison of New Zealand and US Institutional Lenders' and Investors' Attitudes and Policies Toward Property Contamination", The Thirteenth American Real Estate Society Conference, in conjunction with The International Real Estate Society Meeting, Sarasota, Florida, 16-19 April.**

Bond, S.G. (1997). "“Public Good” Assets - Identifying the Appropriate Valuation Methodology”, AIC Conferences:“Practical Strategies for Effective Asset Management in the Public Sector”, Wellington, 28-29 May.

****Kinnard, W.N., Bond, S.G., Syms, P.M., Delottie, J.W. (1997). "Effects of proximity to High-voltage Transmission Lines on Nearby Residential Property Values: An International perspective on Recent Research", American Real Estate and Urban Economics Association, University of California at Berkeley, 31 May - 2 June.**

Bond, S.G. (1996). "The Impact of Transmission Lines on Property Values". Twelfth American Real Estate Society Conference, South Lake Tahoe, California, USA, 27-30 March.

****Bond, S.G. & Dent, P.R. (1996). "The Valuation of Public Sector Assets: Identifying the Appropriate Methodology". Fifth Annual American Real Estate and Urban Economics Association Conference, Orlando, Florida, USA, 23-25 May.**

Bond, S.G. (1995). "Running a Flying Circus: Taking Courses to Students", Inaugural Pacific Rim Real Estate Society Conference Proceedings, Melbourne, Australia, 23-25 January, pp 366-371.

**Bond, S.G. and Dent, P.R. (1994). "Valuation of Public Sector Assets: Identifying the Appropriate Methodology". Inaugural European Real Estate Society Conference Proceedings, Amsterdam, November.

Bond, S.G. (1994). "Education in The Valuation Profession in New Zealand", Poster presented at the Inaugural European Real Estate Society Conference, Amsterdam, November.

Bond, S.G. (1994). "Leisure Centres in the 1990s: Balancing Social and Community Responsibilities with Profit Motives", 4th Australasian Real Estate Educators' Conference Proceedings, Auckland.

Bond, S.G. (1994). "The Valuation of Non-Market, Non-Investment Property: Beyond the Three Approaches Doctrine", 4th Australasian Real Estate Educators' Conference Proceedings, Auckland.

Invited Panelist

Bond, S.G. (2013). One of five panelists on The International Real Estate Society (IRES) *Teaching and Researching Abroad* panel, Thursday 11th April at 10:20-11:40am at the ARES conference, Big Island of Hawaii.

Jones, L., Scawthorn, C., Plumlee, G., Bond, S., Eisenman, D., Allen, R. (2013) National Conference: Disasters and Environment: Science, Preparedness, and Resilience, Panel Session: *Impacts of Earthquakes on the Environment and Human Health*, Washington DC, 15-17 January 2013.

Bond, S.G. (2001). "Challenges Confronting Property Valuation Practitioners in Australasia". *AREUEA's Tenth Annual International Real Estate Conference*, Cancun, Mexico, May 6-8.

Bond, S.G. (1999). "International Real Estate", *The Fifth Pacific-Rim Real Estate Society Conference, in conjunction with The Asian Real Estate Society & The International Real Estate Society*, Kuala Lumpur, Malaysia 26-30 January.

Seminar presentations:

Bond, S.G. (2013). "Sustainability and Commercial Real Estate: An International Perspective". Presentation to the Real Estate Club and real estate students in the Carter Real Estate Center, College of Charleston, Charleston, South Carolina, USA, 25 February.

Bond, S.G. (2013). "Public Attitudes Towards Proposed Wind Farms: A cross country comparison". Presentation at The Spring 2013 Planning, Design & Built Environment Colloquium, College of Architecture, Arts & Humanities, Clemson University, South Carolina, USA, 22nd February.

Bond, S. G. and Watts, C. (2013), *Public Attitudes Towards Proposed Wind Farms: A cross country comparison*. Presentation to University of Florida faculty/doctoral students, Gainesville, Florida, USA, 22nd January.

Bond, S.G. (2012). Faculty of Commerce seminar "*The Impacts of the Canterbury Earthquake on the Commercial Office Market in Christchurch, NZ*", 23 May.

Bond, S.G. (2012). "Drivers & Barriers to sustainable building development", U3A Okeover 10.30-11.45am, May 31st.

- Bond, S.G. (2011). "Earthquake related Research", *Commerce Liaison Meeting*, Lincoln University, 13 July.
- Bond, S.G. (2011). "Research aimed at solving globally significant property issues", *Professorial Address Lincoln University*, 27th July.
- Bond, S.G. and Newman, P. (2011) "Drivers & Barriers to Green Building in Australia: Post Occupancy", *Green Building Summit*, Property Council of NZ and Green Building Council of NZ, Auckland, 24 March.
- Bond, S.G. and Newman, P. (2010) "Drivers & Barriers to Green Building in Australia", *Energy Management Association of New Zealand (EMANZ) Teleconference Seminar for members*, Christchurch, 19 October.
- Bond, S.G. and Newman, P. (2010). "Drivers & Barriers to Sustainable Development in Australia", *The Institute of Refrigeration Heating Air Conditioning Engineers of New Zealand (IRHACE) 20th Annual Conference*, Wellington 7th May. **Keynote Address.**
- Bond, S. G. (2010). "Feng Shui and Property Value", *Workers' Educational Association Northwest Branch*, May 14th.
- Bond, S.G. (2010). "Valuing Green Buildings: What you need to know", *Canterbury/Westland Branch of PINZ AGM Seminar*, Christchurch, 17th February.
- Bond, S. G. and Newman, P. (2010). "Drivers and Barriers to Green Buildings in Australia", *Green Building Council of New Zealand Seminar*, Bank of New Zealand, Wellington, January 28th.
- Bond, S.G. (2009). "Best of the Best in Green Design: Drivers & Barriers to Sustainable Development in Australia", *School of Economics & Finance Research Symposium*, Swan Valley, WA, 3rd December.
- Bond, S. G. (2009). "Drivers and barriers to sustainability in residential and commercial buildings", *Economics & Finance and CRAE Seminar Series*, Curtin University of Technology, September 24th.
- Bond, S.G. (2008). "The Tale of Two Windy Cities: Public attitudes towards wind farm development", *Inaugural School of Economics & Finance Research Symposium*, Yanchep, WA, 4th December.
- Bond, S.G. (2008). "Attitudes towards the development of wind farms in Australia", *School of Economics & Finance Retreat*, Curtin University of Technology, Yellingup, WA, 29th August.
- Bond, S.G. and Xue, J. (2007). "Cell Phone Tower Proximity Impacts on House Prices: A New Zealand Case Study", *Curtin Corner*, Curtin University of Technology, Perth, WA, July 27th.
- Bond, S. G. and Squires, L. (2007). "Using GIS to Measure the Impact of Distance to Cell Phone Towers on House Prices", *Economics & Finance and CRAE Seminar Series*, Curtin University of Technology, March 8th.
- Bond, S. G. (2007). "The Impact of Feng Shui on Residential Property Prices in the West", *Economics Seminar Series*, University of Western Australia, May 4th.
- Bond, S.G (2003). "Valuation", Wellington Property Investors' One Day Seminar, May 3, Wellington.
- Bond, S.G. (2003) "Valuation", Entrepreneur Success Centre Mentoring Group Seminar, September 29, Auckland.

Bond, S.G., (2002). "Challenges Confronting Property Valuation Practitioners in Australasia". New Zealand Property Institute, Manawatu Branch, CPD Seminar, September 11, Palmerston North, New Zealand

Bond, S.G. (2002). 'Post-remediation Stigma: Fact or Fiction? The Effect of a Site's Contaminated History On The Value of The Remediated Property'. NZ Federation of Graduate Women, February 14th, Parnel, Auckland.

Bond, S.G. (1999). "Contaminated Land: What is it Worth?" Contaminated Sites Legislation Public Forum, Communities for a Clean Environment, December 11, Perth, WA. (Because of the significance of this topic the forum was filmed and presented on Television Nine's news that evening).

AESTHETIC DAMAGE TO THE VIEW FROM PROPOSED CELL TOWER

Who would be a good judge of aesthetics to be qualified to make a statement that there would be damage resulting from a cell tower marring a panoramic red rock view?

My name is Karen Farrington Daniels (previously Karen F. Guardenier)

My major in college was Art and Design.

I have been an artist from 1967 to present.

I was Co-owner of Farrington Galleries, Key West FL from 1973 -1985

I have had many one-women shows including a major show held at the Art and Historical Society at the historic fort of Martello Towers, Key West, FL

Enclosed herein are a few newspaper clippings of some of my shows.

Due to years spent travelling around the world on sailing vessels, then moving to AZ and building our home, I have not had any recent shows, but I have just completed the construction of my art studio in order to resume my artwork. The proposed tower will be in the view from my art studio.

As an artist, I believe that I have a very critical eye and the ability to determine if a foreign body, such as a cell tower, sticking up in the air in front of a beautiful panoramic red rock mountain view would be an eyesore or not, and whether it would cause any aesthetic damage. In my opinion, as an artist, it absolutely would. Even making that tower appear to be a tree would not change the outcome as these fake trees do not duplicate nature and would be an affront to the intelligence if anyone thought that they would just blend into the scenery, especially when located on a barren lot.

This proposed cell tower will do unrepairable damage to the aesthetics of the skyline of Clarkdale and would be the first most prominent thing that visitors would see when driving into town on 89A or on route to Jerome.

Anyone who claims that the tower will not cause huge aesthetic damage to our town's view shed, from many viewpoints, which our Town General Plan professes to make a high priority to protect, is either blind, has no appreciation or sensitivity to beauty....or is not telling the truth.



EXHIBITING ARTIST — Karen Guardenier with her husband, Mario Borra, seen at the reception opening her show at the Key West Art Center on Sunday evening. Citizen staff photo.

Karen Guardenier's show at Art Center

By STEPHEN LANGFORD
The Key West Art Center, 301 Front Street, opened an exhibit of various works by Karen Guardenier with an invitational reception last Sunday evening, the show will continue until April 5. The Art Center is open every day, Sundays included, and admission is free.

Ms. Guardenier offers evidence (and very convincing evidence it is, too) that Key West painters need not rely solely on pretty pelicans, curvaceous coconut palms, and shrimp boats. They do not if they are as versatile and original as this remarkably gifted young artist.

She has sought out new subject matter, and she does not hesitate to try out new techniques, new points of view, and even new media. Her prime concern, of course, is her paintings, but one cannot ignore her beautiful silver jewelry mounted to perfection on driftwood. Her weavings continue this refreshing versatility, with here a trace of landscape that suggests nineteenth century Japanese woodblock prints and there just a memory of the Guatemalan passion for formalized design.

Ms. Guardenier has lavished

great talent on her graphics, which range from the dignified monumentality of a Rembrandt (strong language, to be sure, but set!) to the delicacy of a dragonfly's wing (maybe you call this insect a mosquito-hawk or a darling-needle).

This young lady has given the new lease on life, and it is doing just fine in her capable hands. At this late date, there is no gainsaying the fact that already multiples are enormously popular and will doubtless continue to be so for some time in the future.

A man named Whistler enjoyed an incredible popularity because of his etchings. It is not unreasonable to think that henceforth one of this young artist's prints will be cherished with as much pride as was the famous Painted Butterfly. This brash comment is not intended to minimize her paintings, which equally reflect her most welcome originality and variety.

A willingness to experiment is one thing, and the ability to do it successfully is quite another. It may sound silly to talk of cutting up a painting of a portrait with a hibiscus and framing it as two

arrangement, and an upstairs porch of a fine old Conch house with a realistic arrangement of potted plants.

The study of the sleeping child (a large canvas) falls a little short of this sweet perfection. The modeling of the youngster's body lacks the three-dimensional quality to give it conviction, but here again, all hail this young artist's willingness to experiment.

In the not too far distant future, Karen Guardenier can expect a difficult day, that day when she is going to feel compelled to decide which of her talents she wants to pursue to its fullest development.

When she does, many of you are going to feel awfully glad you rushed down to the Art Center and bought your favorite piece of her work while you could still afford it.

Our yellow chamomile gloves and whangee stick, please, Mrs. Murezzayovd.

pictures, hanging side by side, to say that a charming beach scene had suffered the fate of Gaul — divided into three parts — must be wildly irresponsible, but truth to bell, it works: any part of either canvas has its own entity and is sufficient hanging alone.

The same is true of her octagonal flower study — there is no feeling there is anything freaky about the brilliant blossoms. Ms. Guardenier's pleasure in new points of view is demonstrated in her painting of the shark, which the viewer sees from the bottom looking up at the belly of the gray monster as he swims just below the surface of the water.

there is anything in new points of view is demonstrated in her painting of the shark, which the viewer sees from the bottom looking up at the belly of the gray monster as he swims just below the surface of the water.

Pure lyric poetry, although written with an artist's brush instead of a gopher quill, are the paintings of the driftwood showing the simple dignity of a pine-knot against a background of other flowers, an exquisite flower

Art Center to present new show

The Key West Art Center will take pleasure in presenting the one-woman show of local artist, Karen Guardenier, opening with an invitational reception on Sunday, March 16, from 7 to 9 p.m.

This versatile young artist began her art studies in the American School of Tangier, Morocco; then on to a year course in drawing, design, and painting at Florida State University, Tallahassee.

Further art studies were pursued at Tulane University, New Orleans. A course of jewelry making was completed under Charles Topping. Tapestry weaving and etching were self-taught.

"Admixture" is the best word for describing Karen's upcoming show with its many-sided expressions of art form. This will be her first one-woman show. Exhibited will be oil paintings, tapestry works, etchings, silver and gold sculpture.

She has a pencil drawing in the permanent collection of Florida State University, and has exhibited in Sidewalk Shows, the Key West Art Center, Farrington Art Galleries.

This exhibition will run through April 5. Admission free.

Conch Chowder ^{sfm}

By DOROTHY RAYMER

International Airport, South Roosevelt Blvd., A1A, facing the Atlantic Ocean.

Chairman of the event is Charles Munder.

At Art Center

Other art news includes the one-woman show of Karen Guardenier, with an invitational reception, Sunday, March 16, 7 to 9 p.m. at the Key West Art Center, 301 Front Street. This is nice timing, for the East Martello show closes an hour earlier.

Karen is the daughter of Kay and Richard Farrington of Farrington Galleries. She will exhibit paintings in oil, etchings, tapestry works and silver and gold sculpture. This is her first solo effort although she has shown her work in sidewalk shows and at the Key West Art Center as well as the Farrington Galleries.

The exhibition runs through April 5, and there is no admission fee.



east martello gallery & museum
300 S. Roosevelt Blvd.
(At Airport Entrance)

The Key West Art And Historical Society
presents
KAREN GUARDENIER
STAINED GLASS
PAINTINGS
TAPESTRIES
April 7 - April 27

East Martello Gallery and Museum
350 S. Roosevelt Blvd.
(At Airport Entrance)
Key West, Florida

karen f. guardenier

Martello artist goes multi-media

By BARBARA HODGENS
Special to The Citizen

The multi-media art of Karen Guardenier will be featured in a one-woman show at East Martello Gallery and Museum from April 7 through 27.

The exhibit will open the evening of April 6 with a preview and reception exclusively for members of the Key West Art and Historical Society and their guests. The preview will be preceded by the Society's annual membership meeting.

Since Mrs. Guardenier chooses to employ a wide variety of media, techniques and styles, an exhibit of her work has the appearance of having been done by several different artists. Her show will include painting, tapestries and stained glass works.

Some of the paintings for this show were done with traditional oils on primed canvas. Others were done with acrylics using a staining technique on raw canvas.

The artist says she likes to do her "own translations" of what she sees, often using different color schemes than those seen in nature. She doesn't like to be confined to any one particular "style" and prefers to be free to express herself in different ways.

According to the artist, sometimes she prefers to work in a style that is very tight and controlled; at others loose and impressionistic. She says she feels "refreshed" by switching from one media to another and usually has three or four different art works in progress at once.

Mrs. Guardenier says she especially enjoys painting vistas — scenes big enough to give the viewer the impression of being able to step into them — because she "wants her work to be intimately experienced."

In her stained glass work she breaks away from the traditional Victorian patterns, preferring more modern designs. She often selects designs — like architectural gingerbread — that are especially relevant to the Florida Keys, Guardenier points out.

The artist says she was originally inspired to experiment with stained glass as an art form because of the prevalence and brilliance of sunlight in the Keys. "I became captivated by the mutable effects that result from changes in light on the glass," she explains.

According to Guardenier one drawback. She's found in working with stained glass — especially the type she uses — is its expense. For this reason her glass works are done primarily, on a commission basis.

The tactile quality of tapestry and the opportunity to develop formats as she works are what the artist claims attract her to this media.

Finding the wool traditionally used for tapestries too heavy for the keys' southern climes, she says she prefers to work with natural materials — silk and objects such as shells that enable her to develop a tapestry into a more three-dimensional piece.

Karen Guardenier, nee Farrington, acquired her first art training while attending high school at the American School of Tangier, Morocco. She continued her art studies at Florida Keys Community College, Florida State University, Tulane University and Lighthouse Art School. She also studied with individual artists. She is self-taught in stained glass and tapestry.



CONCH SHOWERS

By DOROTHY RAYMER

Something new

and Dick Farrington the Farrington Galleries Sands Restaurant and Club, 1435 Simonton with an afternoon tea, Sunday, October 31, the special guests were (USN retired) Bill Pack charming wife, Nic. Packs are old friends of Farringtons from the years Pack was on active duty as an officer. They drove to Key West from Pompano for the opening of the galleries. A good reception of Key Westers present for the delightful afternoon at which champagne and a variety of tasty refreshments were served from 3 to 5

Farrington Galleries are in European work with local artists among them Paul Stevens Jr., Jean and Belle Anti (Belanti) sculpture as well as oils exhibit.

Location of the gallery is in a former beauty salon. The interior is carpeted in blue-green with beautiful appointments and furnishings.

Range of selection

Paintings are chiefly in oils with a sprinkling of watercolor including a Zodiac. Especially notable, are the portraits in handsome frames. Still lifes, seascapes,

landscapes, portrait studies and floral studies are in the remarkable collection.

The prices are moderate even though the major portion of art is imported. Most of the artists are from Naples, Italy, where the Farringtons were stationed on tour of duty for two years.

Dick became personally acquainted with a number of the Neapolitan group and also with painters from other sections. He has a list of over 40 artists.

One of the group is a Frenchman, Georges Patin, who was schooled in Antwerp, Belgium and is influenced by the old Flemish period, and by the famous Dutch impressionist, Andre Malaroux.

I was personally drawn to the large painting of Mario Tano, one of the new Impressionists, who has captured a pulsing impression of New York City where he spent his youth after his family immigrated there from Genoa.

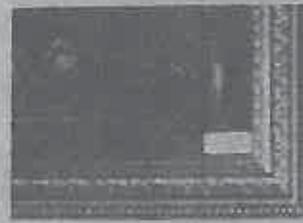
Star gazing

Farrington's list is starred with names of some of the best known artists of today, each with a different style. One is Mario Longanesi, who has done breath-taking marine oils. Another artist who does seascapes, but also creates Italian street scenes, is Colombe Antonia.

Character studies are exhibited by Francesco Petrillo who, in 1963, won the Gold Medal at the Terminus Exhibition. One of the few women artists is Louisa Roos, who has an oriental aspect to what is called "sponge technique."

All the subjects are not of Italy. There are French vistas by Antonio De Vity who studied in Paris and is famed for street scenes.

Piero Lanfani does coastal and harbor scenes with a palette knife. Antonio Alda turns chiefly to the sea, perhaps as a result of his early life on his father's fishing boat.



welcome browsing. The owners themselves are a warm inducement to linger, and there are so many different subjects to admire. I predict many more purchases will be enhanced as a

Farringtons open new art gallery

The Farrington Galleries, Richard Farrington heading reception. The gallery specializes in imported paintings and sculpture.

Citizen Staff Photo, John Wise

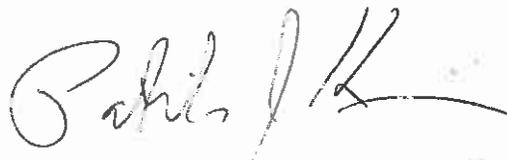
TO WHOM IT MAY CONCERN,

OUR FRIEND AND NEARBY NEIGHBOR, KAREN DANIELS, HAS INFORMED US THAT A CELL TOWER HAS BEEN PROPOSED FOR THE VACANT LOT NEAR NATE'S COWBOY CAFE. IN OUR OPINION, THAT IS A HORRIBLE LOCATION. THE CELL TOWERS ARE UGLY, ESPECIALLY THE ONES THEY TRY TO DISGUISE, AND MAR AN OTHERWISE AMAZING VIEW. ALL OF THE HOMEOWNERS IN THAT AREA WILL HAVE TO PUT UP WITH THAT EYESORE AND WILL, THROUGH NO FAULT OF THEIR OWN, EXPERIENCE PROPERTY VALUE LOSS. IF I WERE IN THE MARKET FOR ONE OF THOSE HOMES AND LEARNED OF THE CELL TOWER PROPOSAL, I WOULD CERTAINLY REDUCE MY OFFER.

RESPECTFULLY,



CARRIE KINNISON
2041 SUSAN AVE.
CLAREDALE



PATRICK J. KINNISON

The current 65' tower that is proposed can handle three carriers, as is shown on the enclosed blueprint, photographed by Rennie Raddocia . What will happen when the fourth and fifth carrier comes to Telecom wanting to rent space on their tower? Telecom will probably come back to Clarkdale and request that the Town pass a variance in order for them to be able to raise the tower to 85'. This is what they initially requested. This is what they want. This is what they have already gotten permission for from the FAA. They have already stated in their Legal Notice that this tower will have the capability to be raised to 85'. You can believe that they are planning on it.

However, if the Town does not agree to allow the tower to be raised to 85', Telecom will just apply to install another tower on the same lot. The precedent will have been set. It will slide right through with all the skids having already been greased. I am sure Mr. Phil Terbell will be delighted to see his monthly rental income doubled.

And that lot right across the road from our homes may someday become an antenna farm and our area of town will become a blighted area. It is only a matter of time. Please do not do this to us!

What happened to our Town Code where we were promised that no adverse effects would be allowed to harm us by a Conditional Use Permit project? Why are these adverse effects, that are real to us and will change our lives forever, being discounted?

What happened to all the months of study and work we did writing our Town General Plan, where we all had visions of keeping Clarkdale as a wonderful and beautiful place to live, protecting natural areas and views?

What happened to all of the excitement over the new planned future Town Park at Mescal Spur and Old Jerome Highway? This tower will be rearing its ugly head over our children at play. Or worse, the park will never become a reality as the sales of lots at the Crossroad of Mingus slow down because of the visual blight many lots will have and never reach their 65% projected mark when they would construct the park.

Is the Town so afraid of litigation by Telecom that it is allowing Telecom to come into our town and take over our thinking? They will build their tower, rent space out to two or three carriers and their job is done and their money

is made. They will go home to New Jersey leaving us to live with the aftermath and destruction of our lives and our town.

The CRS Report to Congress states that **Aesthetic loss is a REAL thing and that many municipalities have successfully used aesthetics alone as an excuse to reject a tower permit and their case has been upheld in Federal Court.**

In that same report, it has been established that **property value loss has been held up in court as a valid reason to reject a cell tower permit.** We've been told how difficult it is to "prove" property loss, but somehow municipalities all over the country have done so using ONLY the testimonies of Realtors and Appraiser's OPINIONS, because it is general knowledge that they are the ones who have a finger on the pulse of the markets and they know what affects the selling price of homes.

And amazingly, **just the loss of a person's ability to enjoy one's own home has been used successfully and held up in Federal Court as a valid reason to reject a tower.** I can testify that I will not be able to enjoy my home with the tower viewed from almost every door and window of my home. It will take over my life. It may even cause my husband and I to separate as I will not be able to live with the tower in my face every day and my husband refuses to move after all the hard work we put into building our home. That would be the worse adverse effect on our lives.

So if you fear Telecom suing the Town if you use any of the above reasons, all you need to do is provide them with a written statement along with the "substantial evidence" that will be provided to you and **if YOU accept it as adequate to support a conclusion, then that will stand up in court, and Telecom knows this and will not risk litigation against Clarkdale. PERIOD.**

And I would be willing to bet that if you reject this CUP, another site will miraculously manifest itself.

Please take the side of your residents in this matter. More than 230 of us signed the enclosed petition to say that we do not want the tower near our homes

65'-0"
CENTRAL TOP OF PROPOSED LESSEE MONOPOLE

61'-0"
CENTERLINE OF PROPOSED LESSEE ANTENNAS

PROPOSED LESSEE
ICE BRIDGE
PROPOSED LESSEE
STATE APPROVED
PREFABRICATED
EQUIPMENT SHELTER

FUTURE CARRIER
SPACE

8'-0"

PROPOSED LESSEE
REMOTE RADIO HEADS
AND J-BLOCKS - REFER
TO SHEET "7-2" FOR
FURTHER INFORMATION

PROPOSED LESSEE
ANTENNAS - REFER TO
SHEET "7-2" FOR
FURTHER INFORMATION

FUTURE MONOPOLE
BY OTHERS

FINISH GRADE

PROPOSED LESSEE
REMOTE RADIO HEADS
AND J-BLOCKS - REFER
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FURTHER INFORMATION

PROPOSED LESSEE
ANTENNAS - REFER TO
SHEET "7-2" FOR
FURTHER INFORMATION

FUTURE MONOPOLE
BY OTHERS

2.4

10

Mr. Rennie Radoccia
Architecture Works Green, Inc.
1550 Abbey Road S
Clarkdale, Arizona 86324

Dear Rennie:

Per your request I have contacted appraisers in Flagstaff, Phoenix and Prescott in order to determine whether any of them was aware of a study/analysis which would indicate the effect, if any, of locating a cellular phone tower within 500 feet of a single family residence. None of the appraisers was aware of such a document.

I then spoke with several long time real estate agents and brokers to get their opinions, based on local experience. No one I questioned saw the presence of a cellular tower as a positive or neutral factor. Despite the fact there are articles available that state the chance of getting cancer from living near a cellular tower is negligible, some persons prefer (according to the real estate agents), for health reasons, not to live near either overhead power lines or cellular towers.

The other reason given by the real estate agents for potential buyers preferring not to live near a cellular tower has to do with aesthetics. There is not much doubt that views can be negatively affected by cellular towers.

To summarize, in speaking with local real estate agents I found their opinions to be unanimous, in that marketability and market values are likely negatively affected by the presence of a cellular tower within 500 feet of a single family residence. The purpose of my investigation was to ascertain what effect, if any, cellular towers within 500 feet of a single family residence have on the marketability of the residence. No attempt was made to ascertain the extent to which market value was affected. This report is not an appraisal.

Very truly yours,
Glenn Straub

Mr. Rennie Radoccia
Architecture Works Green, Inc.
1550 Abbey Road S
Clarkdale, Arizona 86324

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Very truly yours,
Glenn Straub

**COLDWELL
BANKER**

**MABERY
REAL ESTATE**

1075 HWY 260
COTTONWOOD, AZ 86326-4695

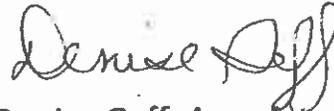
BUS. (928) 634-9536
TOLL FREE (800) 668-8561
FAX (928) 634-6790
PROPERTY MANAGEMENT (928) 634-3152

Dear Karen,

I have spoken with several Realtors who agree having a cell tower nearby may have a negative effect and marketability of a home by blocking views as well as health concerns.

As a Real Estate Broker, I believe a cell tower within 500 ft of a home would definitely affect the value of the property.

Sincerely,



Denise Gaff, Associate Broker

Coldwell Banker Mabery

A number of organizations and studies have documented the detrimental effects of cell towers on property values.

1. The Appraisal Institute, the largest global professional membership organization for appraisers with 91 chapters throughout the world, spotlighted the issue of cell towers and the fair market value of a home and educated its members that a cell tower should, in fact, cause a decrease in home value.



The definitive work on this subject was done by Dr. Sandy Bond, who concluded that "media attention to the potential health hazards of [cellular phone towers and antennas] has spread concerns among the public, resulting in increased resistance" to sites near those towers.

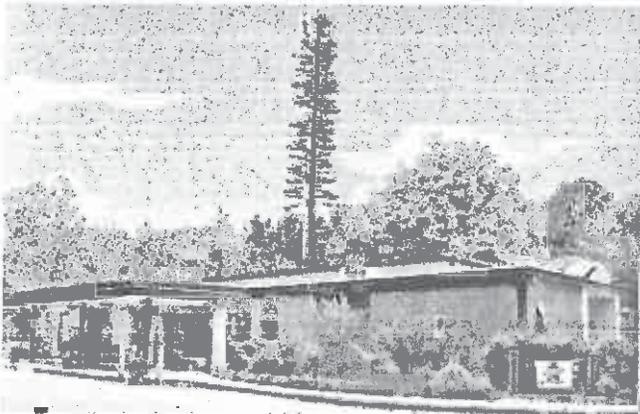
Percentage decreases mentioned in the study range from 2 to 20% with the percentage moving toward the higher range the closer the property.

These are a few of her studies:

- a. **"The effect of distance to cell phone towers on house prices"** by Sandy Bond, Appraisal Journal, Fall 2007, see attached. Source, Appraisal Journal, found on the Entrepreneur website, [http://www.prrres.net/papers/Bond Squires Using GIS to Measure.pdf](http://www.prrres.net/papers/Bond%20Squires%20Using%20GIS%20to%20Measure.pdf)
- Sandy Bond, Ph.D., Ko-Kang Wang, **"The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods,"** The Appraisal Journal, Summer 2005; see attached. Source: Goliath business content website, http://goliath.ecnext.com/coms2/gi_0199-5011857/The-impact-of-cell-phone.html
- Sandy Bond also co-authored, **"Cellular Phone Towers: Perceived impact on residents and property values"** University of Auckland, paper presented at the Ninth Pacific-Rim Real Estate Society Conference, Brisbane, Australia, January 19-22, 2003; see attached. Source: Pacific Rim Real Estate Society website, [http://www.prrres.net/Papers/Bond The Impact Of Cellular Phone Base Station Towers On Property Values.pdf](http://www.prrres.net/Papers/Bond%20The%20Impact%20Of%20Cellular%20Phone%20Base%20Station%20Towers%20On%20Property%20Values.pdf)

2. Industry Canada (Canadian government department promoting Canadian economy), **“Report On the National Antenna Tower Policy Review, Section D — The Six Policy Questions, Question 6. What evidence exists that property values are impacted by the placement of antenna towers?”**; see attached. Source: Industry Canada <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08353.html> website,

3. New Zealand Ministry for the Environment, **“Appendix 5: The Impact of Cellphone Towers on Property Values”**; see attached. Source: New Zealand Ministry for the Environment website, <http://www.mfe.govt.nz/publications/rma/nes-telecommunications-section32-aug08/html/page12.html>



On a local level, taxpayers have informed local school board, county government and administrative offices and state legislative officials.

1. **Santa Cruz, CA:** Also attached is a story about how a preschool closed up because of a cell tower installed on its grounds; “Santa Cruz Preschool Closes Citing Cell Tower Radiation,” Santa Cruz Sentinel, May 17, 2006; Source, EMFacts website: <http://www.emfacts.com/weblog/?p=466>.

2. **Merrick, NY:** For a graphic illustration of what we don't want happening here in DeKalb County, just look at Merrick, NY, where NextG wireless facilities are being installed, resulting in declining home real estate values. Look at this Best Buyers Brokers Realty website ad from this area, “Residents of Merrick, Seaford and Wantaugh Complain Over Perceived Declining Property Values: <http://www.bestbuyerbroker.com/blog/?p=86>.”

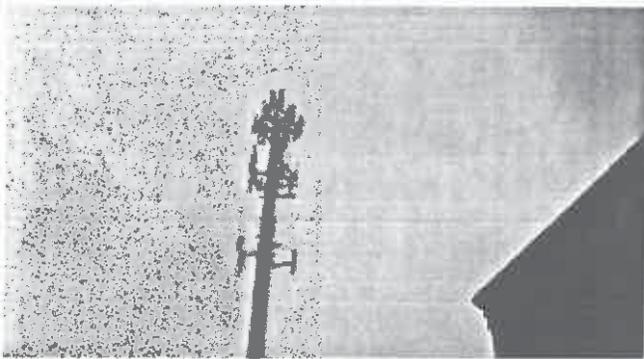
3. **Burbank, CA:** As for Burbank, at a City Council public hearing on December 8, 2009, hillside resident and a California licensed real estate professional Alex Safarian informed city officials that local real estate professionals he spoke with agree about the adverse effects the proposed cell tower would have on property values:

“I've done research on the subject and as well as spoken to many real estate professionals in the area, and they all agree that there's no doubt that cell towers negatively affect real estate values. Steve Hovakimian, a resident near Brace park, and

a California real estate broker, and the publisher of "Home by Design" monthly real estate magazine, stated that he has seen properties near cell towers lose up to 10% of their value due to proximity of the cell tower...So even if they try to disguise them as tacky fake metal pine trees, as a real estate professional you're required by the California Association of Realtors: that sellers and licensees must disclose material facts that affect the value or desirability of a property including conditions that are known outside and surrounding areas."

(See City of Burbank Website, Video, Alex Safarian comments @ 6:24:28, http://burbank.granicus.com/MediaPlayer.php?view_id=6&clip_id=848)

Indeed, 27 Burbank real estate professionals in December 2009, signed a petition/statement offering their professional opinion that the proposed T-Mobile cell tower at Brace Canyon Park would negatively impact the surrounding homes, stating:



"It is our professional opinion that cell towers decrease the value of homes in the area tremendously. Peer reviewed research also concurs that cell sites do indeed cause a decrease in home value. We encourage you to respect the wishes of the residents and deny the proposed T-Mobile lease at this location. We also request that you strengthen your zoning ordinance regarding wireless facilities like the neighboring city of Glendale has done, to create preferred and non preferred zones that will protect the welfare of our residents and their properties as well as Burbank's real estate business professionals and the City of Burbank. Higher property values mean more tax revenue for the city, which helps improve our city."

(Submitted to City Council, Planning Board, City Manager, City Clerk and other city officials via e-mail on June 18, 2010. To see a copy of this, scroll down to bottom of page and click "Subpages" or go here: <http://sites.google.com/site/nocelltowerinourneighborhood/home/decreased-real-estate-value/burbank-real-estate-professionals-statement>)

4. And, of course, you can look at our website, www.GETtheCELLoutATL.org for the long history we have had of fighting for the rights of our schools, children and neighborhoods here in DeKalb County, GA, a suburb area near Atlanta.

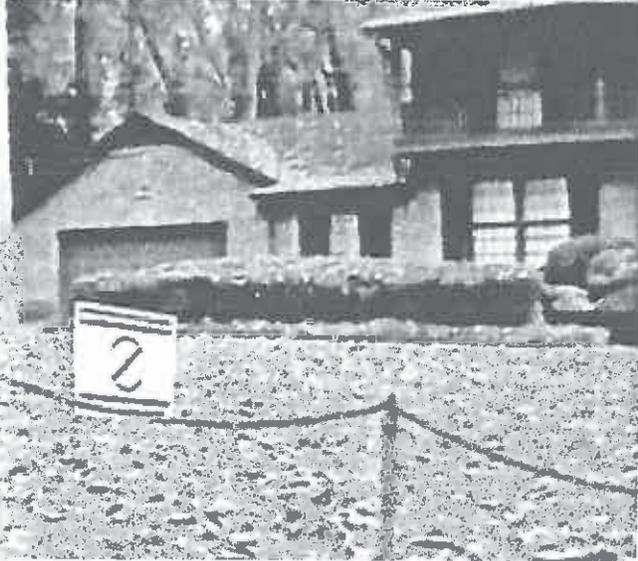
Here is a list of additional articles on how cell towers negatively affect the property values of homes near them:

•The Observer (U.K.), "Phone masts blight house sales: Health fears are alarming buyers as masts spread across Britain to meet rising demand for mobiles," Sunday May 25, 2003 or go here:

<http://www.guardian.co.uk/money/2003/may/25/houseprices.uknews>

• "Cell Towers Are Sprouting in Unlikely Places," The New York Times, January 9, 2000 (fears that property values could drop between 5 and 40 percent because of neighboring cell towers)

• "Quarrel over Phone Tower Now Court's Call," Chicago Tribune, January 18, 2000 (fear of lowered property values due to cell tower)



• "The Future is Here, and It's Ugly: a Spreading of Techno-blight of Wires, Cables and Towers Sparks a Revolt," New York Times, September 7, 2000

• "Tower Opponents Ring Up a Victory," by Phil Brozynski, in the Barrington [Illinois] Courier-Review, February 15, 1999, 5, reporting how the Cuba Township assessor reduced the value of twelve homes following the construction of a cell tower in Lake County, IL. See attached story:

<http://spot.colorado.edu/~maziara/appeal&attachments/Newton-43-LoweredPropertyValuation/>

• In another case, a Houston jury awarded 1.2 million to a couple because a 100-foot-tall cell tower was determined to have lessened the value of their property and caused them mental anguish: Nissimov, R., "GTE Wireless Loses Lawsuit over Cell-Phone Tower," Houston Chronicle, February 23, 1999, Section A, page 11. (Property values depreciate by about 10 percent because of the tower.)



NATIONAL
ASSOCIATION of
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OFFICIAL MAGAZINE OF THE NATIONAL ASSOCIATION OF REALTORS®

Cell Towers, Antennas Problematic for Buyers

Daily Real Estate News | Friday, July 25, 2014

An overwhelming 94 percent of home buyers and renters surveyed by the National Institute for Science, Law & Public Policy (NISLAPP) say they are less interested and would pay less for a property located near a cell tower or antenna.

What's more, of the 1,000 survey respondents, 79 percent said that under no circumstances would they ever purchase or rent a property within a few blocks of a cell tower or antennas, and almost 90 percent said they were concerned about the increasing number of cell towers and antennas in their residential neighborhood.

Trouble Spots for Buyers:

- [Home Owners Object to Cell Tower Installations](#)
- [Field Guide to Cell Phone Towers](#)
- [6 Ways a Home May Turn Off Buyers](#)
- [6 Ways to Turn Off Buyers at Open Houses](#)

The survey, "Neighborhood Cell Towers & Antennas—Do They Impact a Property's Desirability?" also found that properties where a cell tower or group of antennas are placed on top of or attached to a building (condominium high-rise, for instance) is problematic for buyers.

"A study of real estate sales prices would be beneficial at this time in the United States to determine what discounts home buyers are currently placing on properties near cell towers and antennas," says Jim Turner, chair of NISLAPP.

The NISLAPP survey echoes the findings of a study by Sandy Bond of the New Zealand Property Institute and past president of the Pacific Rim Real Estate Society (PRRES). "The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods," which was published in *The Appraisal Journal* in 2006, found that buyers would pay as much as 20 percent less for a property near a cell tower or antenna.

Source: "[Neighborhood Cell Towers & Antennas—Do They Impact a Property's Desirability?](#)" National Institute for Science, Law & Public Policy (June 2014)

Home Owners Object to Cell Tower Installations

Daily Real Estate News | Monday, November 19, 2012

Many home owners across the country are trying to stop cell phone towers from being placed in residential areas, arguing that the “eyesores” decrease home values.

The pushback has prompted wireless companies to get creative with installation. In Phoenix, the companies have been disguising cell phone towers as palm trees.

But residents in a neighborhood in Mesa, Ariz., are speaking out against the installation of another “cell phone tower palm.” The 70-foot AT&T cell phone tower is made to look like a palm tree, but has no actual palm trees surrounding it.

"I do realize that AT&T needs this cell phone tower—we're not against the tower itself. It just doesn't need to be so close to our homes," Cory Barham, who lives about 400 yards from the proposed tower, told AOL Real Estate. "Apart from the tower being so tall, we all feel that property values will go down if they build it so close. Most people I know wouldn't want to buy a house near a cell phone tower."

Cell phone towers have long been viewed by residents across the country as eyesores, and some residents have expressed health and radiation concerns from the towers too (although the American Cancer Society, based from research, says that it is unlikely.)

Source: “Cell Towers Near Homes? Battle in Mesa, Ariz., Typifies Fears Nationwide,” AOL Real Estate (Nov. 16, 2012)

"Would the proposed cell phone tower sitting in your residential subdivision pass an FHA home loan appraisal? Visit the HUD website to view the current guide for your state at: www.hud.gov Below is a copy section of 4150.2, 2-2, which I have high lighted." - Jane Celltower



U. S. Department of Housing and Urban Development

HANDBOOK 4150.2 Valuation Analysis for Home Mortgage Insurance for Single Family One- to Four- Unit Dwellings July 1, 1999

2-2 SPECIAL NEIGHBORHOOD HAZARDS AND NUISANCES

Physical conditions in some neighborhoods are hazardous to the personal health and safety of residents and may endanger physical improvements. These conditions include unusual topography, subsidence, flood zones, unstable soils, traffic hazards and various types of grossly offensive nuisances.

When reporting the appraisal, consider site hazards and nuisances. If site hazards exist and cannot be corrected but do not meet the level of unacceptability, the appraisal must be based upon the current state.

If the hazard and/or nuisance endangers the health and safety of the occupants or the marketability of the property, mark "YES" in VC-1 and return the unfinished appraisal to the lender.

The lender, who is ultimately responsible for rejecting the site, relies on the appraiser's site analysis to make this determination. Guidelines for determining site acceptability follow. The appraiser is required to note only those *readily observable* conditions.

A. UNACCEPTABLE SITES

FHA guidelines require that a site be rejected if the property being appraised is subject to hazards, environmental contaminants, noxious odors, offensive sights or excessive noises to the point of endangering the physical improvements or affecting the livability of the property, its marketability or the health and safety of its occupants.

Rejection may also be appropriate if the future economic life of the property is shortened by obvious and compelling pressure to a higher use, making a long-term mortgage impractical.

These considerations for rejection apply on a case-by-case basis, taking into account the needs and desires of the purchaser. For example, a site should not be considered unacceptable simply because it abuts a commercial use; some commercial uses may not appeal to a specific market segment while other commercial uses may.

If the condition is clearly a health and safety violation, reject the appraisal and return it to the lender. If there is any doubt as to the severity, report the condition and submit the completed report. The lender must clear the condition and may require an inspection or reject the property.

For those conditions that cannot be repaired, such as site factors, the appraised value is based upon the existing conditions.

B. TOPOGRAPHY

There are special hazards caused by unique topography. For example, denuded slopes, soil erosion and landslides often adversely affect the marketability of hillside areas. When evaluating the site, consider earth and mud slides from adjoining properties, falling rocks and avalanches. These occurrences are associated with steep grades and must be considered in the site analysis.

I. NEIGHBORHOOD CHANGE CONSIDERATIONS

As time passes, desirability changes residential areas in any site. Therefore, give special consideration to the following:

- **infiltration of commercial, industrial or nonconforming use**
- **positive and negative effect on value of gentrification**
- **changes in the mobility of people (employment shifts)**
- **weakly enforced zoning regulation or covenants**

J. MARKETABILITY

The demand for home ownership in a neighborhood is directly related to the marketability of the homes in the neighborhood or in competitive neighborhoods. Home ownership rates, vacancies and the marketing time of dwellings in a neighborhood help the appraiser determine the strength of market demand and the extent of supply.

K. SMALL COMMUNITY MARKET PREFERENCES

A small town may have its own set of standards in architectural design, livability, style of mechanical equipment, lot size, placement of structures, nature of street improvements and in all features of the physical property and environment. Judge each in light of local standards and preferences.

L. OUTLYING SITES AND ISOLATED SITES

The segment of the market interested in purchasing homes in these sites compares the advantages and disadvantages of other outlying or isolated sites.

CELL TOWERS DO AFFECT HOME PROPERTY VALUES!

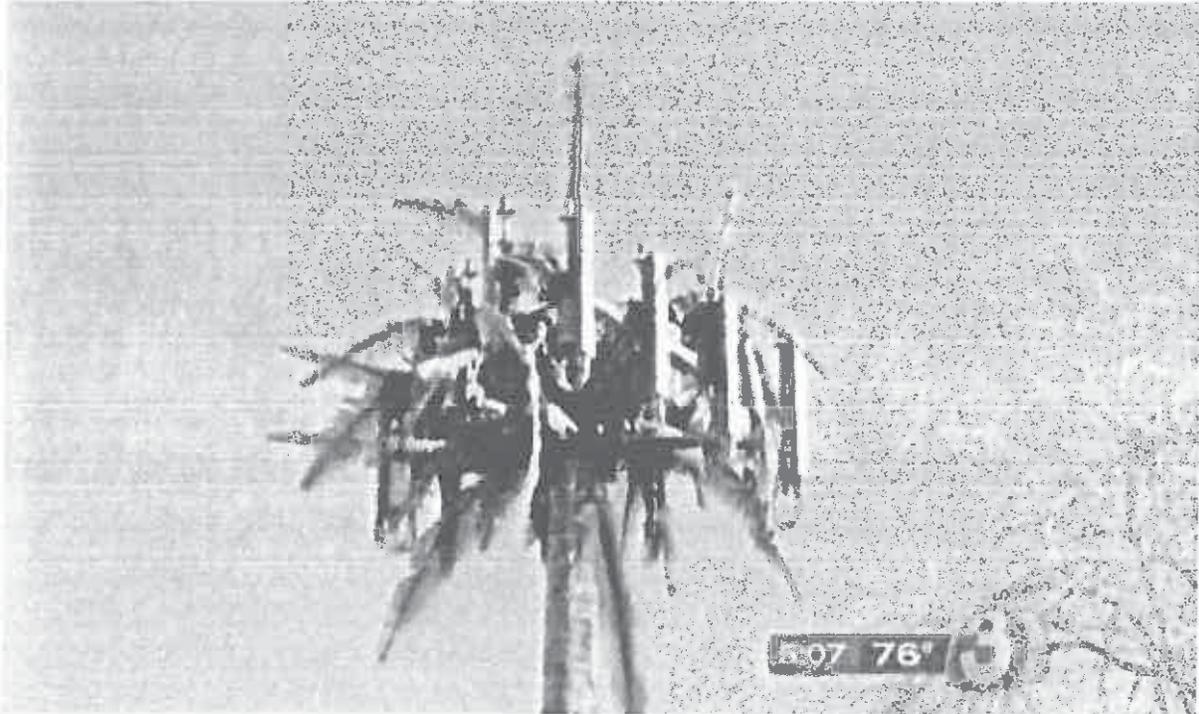
"If you desire to sell your home, you are legally bound to a disclosure statement. Which would include listing the cell tower in your area. T-Mobile, or any other cell phone company who sits a cell tower within residential property, should pay for our homes lowered property values!" - Jane Celltower

Cell Towers Near Homes? Battle in Mesa, Ariz., Typifies Fears Nationwide

Krisanne Alcantara Nov 16th 2012 7:05PM

Updated Nov 20th 2012 12:54PM

05534105



Channel 3 News, Mesa, Arizona

Though palm trees evoke an idyllic desert oasis, that's hardly the case for frustrated residents of Mesa, Ariz. That's because a "palm tree" set to be planted in the Phoenix suburb isn't what it seems: It's a camouflaged cellular tower.

In late October, the Federal Communications Commission ordered service provider AT&T to construct the now-infamous "cell phone tower palm" on a vacant lot in a residential neighborhood of East Mesa in order to fill gaps in the community's service coverage. To make the tower less obtrusive, AT&T plans to disguise it as a palm tree (like the tower pictured above) -- except that, at 70 feet tall and with no actual palms around it, it would be obvious that it's not a real tree. Residents liken the action of disguising the tower to "putting lipstick on a pig."

"We live in a residential area of one-story homes, and our nearby commercial area has buildings with a maximum height of 30 feet," David M. Brown, a six-year Mesa resident, told AOL Real Estate. "They say they want to contextualize this palm-tree tower by putting three or four actual palm trees around it. But

real palm trees aren't anywhere near 70 feet tall, and [it would] take years before they'd reach that height. It would literally tower above the community."

The brouhaha in East Mesa spotlights ongoing battles around the country over the construction of cell phone towers in residential areas. Aside from cell towers being considered "eyesores," some residents and experts argue that they are dangerous. Long-term exposure to radiation from cell towers is suspected by some of causing cancer and other maladies, though the American Cancer Society says that most scientists view that as unlikely.

But any possible health risk from the cell tower has further stoked the opposition from Mesa residents, who said they are outraged because they were given little warning or information before the plan to erect the cell phone tower was finalized. An AT&T spokesperson said, however, that the company strictly followed the City of Mesa's notification requirements. Residents received a letter in the mail from the site acquisition firm, the FM Group, on behalf of AT&T on Oct. 29 informing the community that a final decision would be reached by Nov. 13.

Due to severe backlash from residents, the vote was delayed indefinitely by the Mesa Board of Adjustment until a community meeting was to be held, currently scheduled for early December. It's a delay that gives residents more time to protest the construction of the tower – even though many recognize the demand for better service coverage in the area.

"I do realize that AT&T needs this cell-phone tower – we're not against the tower itself. It just doesn't need to be so close to our homes," said East Mesa resident Cory Barham, who lives about 400 yards from the site of the proposed cell tower. "Apart from the tower being so tall, we all feel that property values will go down if they build it so close. Most people I know wouldn't want to buy a house near a cell phone tower."

According to Barham and Brown, plummeting real estate values is one of the biggest concerns of East Mesa residents, and local Realtors agree.

"I would predict that the real estate market in Mesa would take quite a hit if they were to go ahead and build the tower," said Realtor Carole Wilson, who is based in Maricopa County, which includes Phoenix and Mesa. "So I absolutely understand the concern."

Particularly in a lower-middle-class area like East Mesa, which already has been hit hard by the housing crisis (resale home values in the area have plunged up to 60 percent), throwing an obtrusive and potentially dangerous cell tower into the mix would be like "twisting the knife," residents said.

"My feeling is that most of our community is against the building of this cell phone tower," added Barham. "We don't want it anywhere near our homes and our families."

According to the project's architect, Michael Fries, three alternative locations for the tower have been examined in the wider Mesa area, but either zoning was not possible in those locations or the owner of the lot declined to negotiate. *(Story continues after the video.)*

'Who Knows What's a Safe Level?'

Amid forceful community backlash, AT&T defended itself, saying that it is continually working with the East Mesa community to listen to and allay residents' concerns. AT&T has been especially focused on pacifying widespread concern regarding an alleged link between cell phone towers and diseases such as cancer. The service provider continues to reassure worried residents such as Barham that studies on the topic remain inconclusive and that all necessary health and safety regulations set by the FCC will be strictly adhered to.

"AT&T operates its networks in compliance with FCC-required emission standards," AT&T spokesman Dave Cieslak told AOL Real Estate. "And this proposed site will also be operated within FCC standards for health and safety."

But these FCC standards, according to Dr. Joel Moscowitz, director of the Center for Family and Community Health at the University of California, are based upon findings that are both outdated and limited in scope. According to Moscowitz, the health and safety regulations implemented by the FCC are based on research conducted in 1996 and only take into account the thermal effects of "microwave radiation" disseminated by cell transmission towers. They do not take into account non-thermal effects of exposure, Moscowitz said.

"Though it's harder to make causal inferences with cell towers [versus cell phone usage], a fair amount of studies show that long-term exposure around cell towers increases the risk of health problems that are largely neurological in nature," said Moscowitz. "For example, ringing of ears, headaches, memory problems, allergy-like symptoms, increased electro-sensitivity and potentially a greater risk of cancer."

Moscowitz's conclusions have been echoed by several international studies. A recent study in Ukraine suggests that exposure to cell phone towers substantially induces cancer progression in humans:

"The carcinogenic effect ... is typically manifested after long-term exposure," the study states. "Nevertheless, even a year of operation of a powerful base transmitting station for mobile communication resulted in a dramatic increase of cancer incidence among population living nearby."

Another recent study in Germany linked cell phone base stations to a significant negative impact on sleep quality for nearby residents. Civic bodies across the world have also been wary of a link between cell phone tower exposure and health risks. The Brihanmumbai Municipal Corp. in India recently banned the installation of cell phone towers near educational institutions and hospitals. (Implementing such bans is difficult in the United States, where the Telecommunications Act of 1996 prohibits state and local governments from regulating the placement of cell phone towers on the basis of possible health effects, if the facilities meet FCC standards for emissions).

Moscowitz warned that though there are findings that show there are no harmful effects of cell tower exposure, these can be traced back to researchers and organizations " beholden to the telecommunications industry" and that have a huge but largely hidden conflict of interest.

Despite questions surrounding the impact of cell phone towers on health, Cieslak said that AT&T still plans to move forward with the zoning process and that construction on its Mesa tower is expected to begin once a community meeting has taken place and "all government approvals have been acquired." Both the FCC and AT&T maintain that exposure to residents is at low and safe levels.

"But who knows what is a safe level?" Moscowitz asked.

A Widespread Problem

As of 2010, there were 252,000 cell towers in the U.S. alone, and the concerns over the AT&T tower in Mesa is certainly not a lone case. Over the years, residents across the country have fought proposed cell phone towers in their neighborhoods, echoing many of the same concerns as the residents of East Mesa.

In 2010, 700 El Cerrito, Calif., residents protested the construction of a proposed T-Mobile tower there. In 2011, homeowners in Eureka Springs, Ark., fought unsuccessfully to halt the construction of a 200-foot-tall Smith Communications Tower in town. And in a similar case, irate Raleigh, N.C., residents failed to stop construction of a 180-foot-tall AT&T cell phone tower "in their backyard."



KVIA-7 Though the construction of the towers does go ahead in many places where they've caused controversy, sometimes communities do triumph over telecommunications companies.

Last year, the city of Las Cruces, Texas, shut down a request to erect a 60-foot Verizon cell-phone tower in the neighborhood. That move may or may not have been subtly influenced by an incident in which a metal "palm tree frond" fell from a cell tower in nearby El Paso and punctured the windshield of a car (pictured at left) injuring its driver. The city of Rockland, Maine, rejected a proposal to erect a 100-foot cellphone tower earlier this year. Similarly, in Belmont Shore, Calif., the Bay Shore Community Congregational Church shut down negotiations to have a cell tower installed into the bell tower of their church, despite the lure of big money for its coffers.

"There were oppositions from the local residents, particularly in homes directly surrounding the church," said Bay Shore Community Congregational's pastor, Rev. Charles Ensley. "Thus, we did not

figure it was in the best interest of the community or the congregation, so construction did not go ahead."

The residents of East Mesa are hoping for a similar fate. Both Brown and Barham said that their community is not interested in engaging in a messy "David-and-Goliath" battle. They'd rather sit down and discuss options and alternatives with AT&T and the Board of Adjustment. According to Brown, East Mesa residents aren't concerned with winning against "the big, bad telecommunications giant" -- they simply want to preserve their community.

"AT&T has been helpful and kind, everyone involved has been very helpful," Brown said. "We're not looking for villains here. We're looking for solutions."



Many properties can exhibit some form of obsolescence – either functional, external or both. Don't know what that it means? You're not alone. Real estate classes often dart past these terms because real life situations that occur nationwide are difficult to cite. Yet as an

appraiser I encounter homes with one or more of the following examples every week.

External Obsolescence

Easier to explain and observe, external obsolescence refers to an undesirable factor *outside* the property and is generally not curable. This can include:

- **Highways:** Unless you're a NASCAR fan, having traffic buzz past your front yard at 55 mph isn't the most desirable situation.
- **Power Lines:** Not the small feed directly to a home, but rather the high voltage towers that supply an entire town. Even if you don't believe scientific studies (<http://www.cancer.gov/cancertopics/factsheet/Risk/magnetic-fields>) they're still unsightly. **CELL TOWERS WOULD FALL IN THIS CATEGORY*
- **Commercial Buildings:** Gas stations, shopping malls, 24 hour pharmacies – generally any business (<http://agbeat.com/business-news>) with non-neighborhood traffic.
- **Railroad:** Similar to highway traffic but without the NASCAR effect.

Functional Obsolescence

This occurs when the *interior* of a property suffers from reduced usefulness. It can be cured as long as the cost is less than the added value.



Real Estate Professionals Letters



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Helen@HomesSantaClarita.com
www.HomesSantaClarita.com

Helen LaPrairie, Broker-Associate
SCV's Choice in Real Estate since 1987
CalBRE# 00973656

Date: 4/25/2014

To Whom it May Concern,

I am writing this letter to state my opinion, as a Broker-Realtor, on the matter of the Cell Tower installation going on in the neighborhood of Valencia known as Northbridge.

In my professional opinion, the installation of a cell tower could, depending on the location and direction, negatively affect the sale price of neighboring homes within it's radius. Many times, the buyer purchasing a home with the tower close by has a perception that cannot be overcome, whether true or not, in which the tower not only could be unsightly, but could emit some unknown health hazard.

The homeowner, must, as required by law, disclose the location of the cell tower if it's known, and that it is in close proximity to the homeowner.

Regards,

Helen LaPrairie
Re/Max of Valencia
27720 Dickason Drive
Valencia, CA 91354
661-253-2112

Valencia Northbridge HOA Letter of Objection



**ROSS MORGAN
& COMPANY, INC., AAMC®**
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(661) 288-1064
Fax (661) 288-1080

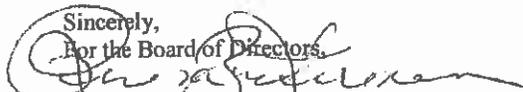
April 25, 2014

To Whom It May Concern;

I am writing on behalf of the Valencia Northbridge Homeowners Association. Please be advised that many members of the Association have expressed concerns regarding the proposed installation of a cell tower. The location would be less than 300 feet from the homes and just over 600 feet from the elementary school. The homeowners have sited concerns that the look of a fake cell tower tree in the middle of their association will not be in line with the aesthetic values we aim to achieve, therefore, negatively impacting their property values. Additionally, please be advised that pursuant to the recorded governing documents of the Homeowners Association owners are entitled to an 80% view. The cell tower will be a view issue for the homeowners living in close proximity to it.

Please consider the concerns of the homeowners and residents of the Valencia Northbridge Homeowners Association prior to making a determination regarding the installation of the cell tower

Thank you for giving this important matter your consideration.

Sincerely,
For the Board of Directors,

Reina Zuckerman, CMCA, AMS
General Manager, Valencia

cc: Board of Directors

Proudly serving our clients since 1982



Dan Andrizzi
23301 Preston Way
Valencia, CA 91354

April 22, 2014

C/O Mike Marshall

City of Santa Clarita
23920 Valencia Blvd., Ste. #140
Santa Clarita, CA 91355

RE: Master Case 13-110, Conditional use permit 13-009

Dear City Council Members:

As a resident and full time practicing real estate agent, I am deeply concerned about the proposed ATT cell tower.

Part of my job involves talking with local homeowners daily about buying and selling real estate. In the past 2-3 months, I have not spoken with one person living in Northbridge who wants this tower installed. On the other hand, I have spoken to several who believe this tower is a significant item which will affect the value and desirability of their property.

The stigma this will create on nearby properties, many in the "Countrygate" tract of which I am also an owner, will negatively affect property values.

Furthermore, homeowners are required to disclose whether "anything has 'stigmatized' the subject property" on the California Department of Real Estate required disclosure titled, Addendum to the Transfer Disclosure Statement, and are instructed that "something they may not feel is material or significant may be perceived differently by a buyer." This is a high degree of liability to place onto homeowners.

I strongly suggest the Council not approve this tower for installation at this residential site.

Sincerely,



Dan Andrizzi, CA BRE#01440387

Bernard Kash
27352 Cheshire Lane
Valencia, CA 91354
500 feet from proposed cell tower

April 20, 2014

c/o Mike Marshall
City of Santa Clarita
23920 Valencia Blvd
Suite 140
Santa Clarita, CA 91355

RE: Master Case 13-110, Conditional use permit 13-009

Dear City Council Members:

My family lives about 500 feet from the proposed cell phone tower. Actually, we'll see it every time we walk out our front door. It's also right above our children's school, Charles Helmers Elementary, and the park. Community pools and residential homes are all just a few feet away from the proposed cell phone tower. The possibility that a cell phone tower may be built right in the middle of our neighborhood is shocking.

I am a Licensed Realtor with ReMax of Valencia and have been selling homes in the Santa Clarita Valley for 25 years. If this cell phone tower goes up in our neighborhood, it will definitely bring our property values down. In all real estate transactions, it's all about DISCLOSURE. Having to disclose the cell tower will bring a negative stigma to our neighborhood, which will directly affect our property values. In addition to the issue of disclosure, no matter how they try to disguise it, any structure extending above the water tank will not be aesthetically pleasing. Aside from

lowering property values, this also affects my quality of life because it limits my ability to enjoy my home and my view when I'm sitting in my front yard.

I respectfully request that the City Council reject the application from AT&T to build the cell phone tower in our residential community. Wireless facilities are commercial facilities and have no business in residential areas, parks and schools. They should be placed in less obtrusive and commercial locations.

Thank you for your time.

Sincerely,



Bernard Kaah

Jury awards Vermont couple \$1million in cell tower lawsuit

Posted on December 14, 2013 by admin



A jury awarded a million dollars to Olga Julinska and Felix Kniasev in a big win against Vermont Electric Power Corp for building a communications tower right next to their mountain top property.

Julinska and Kniasev are artists who purchased the mountaintop home as much for its inspiring 360 degree view as for the privacy it afforded. They said the jury verdict was a victory for themselves and every other Vermont resident bullied by an eminent domain process that takes property for public good without always compensating property owners fairly. [Read more.](#)

This entry was posted in [Cell towers](#), [Legal](#) and tagged [cell towers](#), [lawsuit](#). Bookmark the [permalink](#).



**"Our lives begin to end
the day we become
silent about things that
matter."**

- Martin Luther King, Jr.

**Electromagnetic
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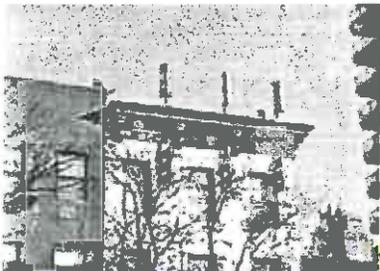
[Media Story Leads](#)

[Community Health Assessment](#)

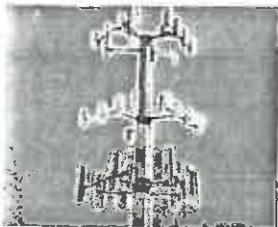
[Contact Us](#)

EMF Real Estate Survey Results: "Neighborhood Cell Towers & Antennas—Do They Impact a Property's Desirability?"

03.07.2014 by emily Category [Electromagnetic Health Blog](#)



The National Institute for Science, Law and Public Policy's survey **"Neighborhood Cell Towers & Antennas—Do They Impact a Property's Desirability?"** initiated June 2, 2014, has now been completed by 1,000 respondents as of June 28, 2014. The survey, which circulated online through email and social networking sites, in both the U.S. and abroad, sought to determine if nearby cell towers and antennas, or wireless antennas placed on top of or on the side of a building, would impact a home buyer's or renter's interest in a real estate property.



The overwhelming majority of respondents (94%) reported that cell towers and antennas in a neighborhood or on a building would impact interest in a property and the price they would be willing to pay for it. And 79% said under no circumstances would they ever purchase or rent a property within a few blocks of a cell tower or antenna.

- 94% said a nearby cell tower or group of antennas would negatively impact interest in a property or the price they would be willing to pay for it.
- 94% said a cell tower or group of antennas on top of, or attached to, an apartment building would negatively impact interest in the apartment building or the price they would be willing to pay for it.
- 95% said they would opt to buy or rent a property that had zero antennas on the building over a comparable property that had several antennas on the building.
- 79% said under no circumstances would they ever purchase or rent a property within a few blocks of a cell tower or antennas.
- 88% said that under no circumstances would they ever purchase or rent a property with a cell tower or group of antennas on top of, or attached to, the apartment building.
- 89% said they were generally concerned about the increasing number of cell towers and antennas in their residential neighborhood.

The National Institute for Science, Law and Public Policy (NISLAPP) was curious if respondents had previous experience with physical or cognitive effects of wireless radiation, or if their concern about neighborhood antennas was unrelated to personal experience with the radiation. Of the 1,000 respondents, 57% had previously experienced cognitive effects from radiation emitted by a cell phone, wireless router, portable phone, utility smart meter, or neighborhood antenna or cell tower, and 43% had not experienced cognitive effects. 63% of respondents had previously experienced physical effects from these devices or neighborhood towers and antennas and 37% had not experienced physical effects.

The majority of respondents provided contact information indicating they would like to receive the results of this survey or news related to the possible connection between neighborhood cell towers and antennas and real estate decisions.

Comments from real estate brokers who completed the NISLAPP survey:

"I am a real estate broker in NYC. I sold a townhouse that had a cell tower attached. Many potential buyers chose to avoid purchasing the property because of it. There was a long lease."

"I own several properties in Santa Fe, NM and believe me, I have taken care not to buy near cell towers. Most of these are rental properties and I think I would have a harder time renting those units... were a cell tower or antenna nearby. Though I have not noticed any negative health effects myself, I know many people are affected. And in addition, these antennas and

towers are often extremely ugly—despite the attempt in our town of hiding them as chimneys or fake trees.”

“We are home owners and real estate investors in Marin County and have been for the last 25 years. We own homes and apartment building here in Marin. We would not think of investing in real estate that would harm our tenants. All our properties are free of smart meters. Thank you for all of your work.”

“I’m a realtor. I’ve never had a single complaint about cell phone antennae. Electric poles, on the other hand, are a huge problem for buyers.”

Concern was expressed in the comments section by respondents about potential property valuation declines near antennas and cell towers. While the NISLAPP survey did not evaluate property price declines, a study on this subject by Sandy Bond, PhD of the New Zealand Property Institute, and Past President of the Pacific Rim Real Estate Society (PRRES), [The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods](#), was published in *The Appraisal Journal* of the Appraisal Institute in 2006. The Appraisal Institute is the largest global professional organization for appraisers with 91 chapters. The study indicated that **homebuyers would pay from 10%–19% less to over 20% less for a property if it were in close proximity to a cell phone base station. The ‘opinion’ survey results were then confirmed by a market sales analysis. The results of the sales analysis showed prices of properties were reduced by around 21% after a cell phone base station was built in the neighborhood.**

The Appraisal Journal study added,

“Even buyers who believe that there are no adverse health effects from cell phone base stations, knowing that other potential buyers might think the reverse, will probably seek a price discount for a property located near a cell phone base station.”

James S. Turner, Esq., Chairman of the National Institute for Science, Law & Public Policy and Partner, Swankin & Turner in Washington, D.C., says,

“The recent NISLAPP survey suggests there is now a high level of awareness about potential risks from cell towers and antennas. In addition, the survey indicates respondents believe they have personally experienced cognitive (57%) or physical (63%) effects from radiofrequency radiation from towers, antennas or other radiating devices, such as cell phones, routers, smart meters and other consumer electronics. Almost 90% are concerned about the increasing number of cell towers and antennas generally. A study of real estate sales prices would be beneficial at this time in the United States to determine what discounts homebuyers are currently placing on properties near cell towers and antennas.”

Betsy Lehrfeld, Esq., an attorney and Executive Director of NISLAPP, says,

“The proliferation of this irradiating infrastructure throughout our country would never have occurred in the first place had Section 704 of the Telecommunications Act of 1996 not prohibited state and local governments from regulating the placement of wireless facilities on health or environmental grounds. The federal preemption leaves us in a situation today where Americans are clearly concerned about risks from antennas and towers, some face cognitive and physical health consequences, yet they and their families increasingly have no choice but to endure these exposures, while watching their real property valuations decline.”

The National Institute for Science, Law, and Public Policy (NISLAPP) in Washington, D.C. was founded in 1978 to bridge the gap between scientific uncertainties and the need for laws protecting public health and safety. Its overriding objective is to bring practitioners of science and law together to develop intelligent policy that best serves all interested parties in a given controversy. Its focus is on the points at which these two disciplines converge.

NISLAPP contact:
James S. Turner, Esq.

Dear Mayor and Council Members,

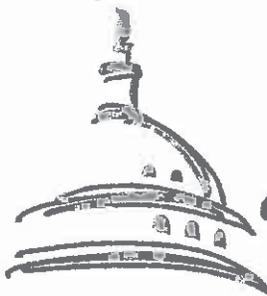
Enclosed is a copy of the Congressional Research Service Report for Congress: The Siting of Wireless Communications Facilities: An Overview of Federal State and Local Law with relevant tabbed and highlighted pages regarding Substantial Evidence, Aesthetics Views and Property Values including that “a person not being able to enjoy their own home” would be a valid criteria to rejecting a cell tower permit, and lastly, information about the “Shot Clock”

In addition to that are relevant pages from the CUP Code and the Town General Plan that we feel are so important to us and we hope that you will use as guidance and interpret them in the favor of your residents when making your deliberations of how you will vote on the CUP application.

It was our belief that this code and our Town Plan would give us protection from adverse effects and harm. And yet we are here at this final hour begging for your consideration to follow them.

The fact is, we never thought it possible that this cell tower issue would ever have gotten this far. In the very beginning, when Telecom approached the town, if the spirit of the code and Town Plan were considered, Telecom might have been told that this will bring up too many issues that go against the intent of the Code and the Plan and for them to find another location.

We are confident that if you reject this application that they will find another location, even if it is back up on the ridge of Mingus, building as many towers as needed to fill the gaps in service. Their main reason for not doing so is expense. But should they be given the location in the middle of a residential neighborhood at our expense so that they can save money?



**Congressional
Research
Service**

The Siting of Wireless Communications Facilities: An Overview of Federal, State, and Local Law

Kathleen Ann Ruane
Legislative Attorney

May 21, 2012

Congressional Research Service

7-5700

www.crs.gov

RS20783

CRS Report for Congress

Prepared for Members and Committees of Congress

4117308

Summary

The siting of wireless communications facilities has been a topic of controversy in communities all over the United States. Telecommunications carriers need to place towers in areas where coverage is insufficient or lacking to provide better service to consumers, while local governing boards and community groups often oppose the siting of towers in residential neighborhoods and scenic areas. The Telecommunications Act of 1996 governs federal, state, and local regulation of the siting of communications towers by placing certain limitations on local zoning authority without totally preempting state and local law. This report provides an overview of the federal, state, and local laws governing the siting of wireless communications facilities, including recent amendments to federal law governing tower siting contained in the Middle Class Tax Relief and Job Creation Act of 2012.

This report will also discuss the Federal Communications Commission's (FCC or Commission) recent actions related to streamlining the tower siting application process at the state and local level. As corporations that won recent spectrum auctions begin to build-out new facilities, new towers may need to be constructed. These industry participants expressed concern to the Commission over the length of time frequently taken for action on tower siting applications. On November 18, 2009, the FCC issued a declaratory ruling to clarify certain portions of Section 332 of the Communications Act. This decision may be significant, because it could streamline the tower siting application process across the country.

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Federal Law Governing the Placement of Wireless Telecommunications Facilities

Section 704 of the Telecommunications Act of 1996 governs federal, state, and local regulation of the siting of “personal wireless service facilities” or cellular communication towers.¹ Under the 1996 Act, state and local governments are prohibited from unreasonably discriminating among “providers of functionally equivalent services.”² This prohibition has been interpreted to provide state and local governments with the “flexibility to treat facilities that create different visual, aesthetic, or safety concerns differently to the extent permitted under generally applicable zoning requirements even if those facilities provide functionally equivalent services.”³ However, state and local governments cannot adopt policies that prohibit or have the effect of prohibiting the provision of personal wireless services.⁴ This provision not only applies to outright bans on tower siting, but also to situations where a state or local government’s “criteria or their administration effectively preclude towers no matter what the carrier does.”⁵ In these cases, the carrier must show “not just that this application has been rejected but that further reasonable efforts are so likely to be fruitless that it is a waste of time even to try.”⁶

The act also prescribes certain procedures that a state or local government must follow when reviewing a request to place, construct, or modify personal wireless service facilities. The state or local government must “act on any request for authorization to place, construct or modify personal wireless service facilities within a reasonable period of time after the request is duly filed.”⁷ If the state or local government denies the request, the denial must be in writing and supported by “substantial evidence contained in a written record.”⁸ Substantial evidence has been defined as “such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.”⁹

¹ Codified at 47 U.S.C. § 332(c)(7).

² 47 U.S.C. § 332(c)(7)(B)(i)(I).

³ *Sprint Spectrum, L.P. v. Willoth*, 176 F.3d 630, 639 (2nd Cir. 1999).

⁴ 47 U.S.C. § 332(c)(7)(B)(i)(II). Under this provision, wireless providers may have a claim that some state or local regulations have prevented the wireless providers from filling a “significant gap” in their coverage, thereby effectively prohibiting the provision of wireless services in that geographic area. *Second Generation Properties v. Pelham*, 313 F.3d 620, 630 (1st Cir. 2002). There are two sets of circumstances that may be classified as effective prohibitions. The first occurs when local governments enact regulations that are impossible to meet. The second occurs when the plan or site proposed by the applicant is the only feasible plan; denial then may amount to an effective prohibition of wireless services depending upon the surrounding circumstances. *Id.* See also, *T-Mobile USA, Inc. v. City of Anacortes*, 572 F.3d 987 (9th Cir. 2009) (finding that while the district court was correct in holding that there was substantial evidence to deny a tower siting application under the relevant municipal code, T-Mobile had shown that their proposal was the least intrusive means to fill a significant gap in coverage and, absent a showing by the city of a feasible alternative, the denial of the application amounted to a prohibition on the provision of wireless service).

⁵ *Town of Amherst, New Hampshire v. Omnipoint Communications Enterprises, Inc.*, 173 F.3d 9, 14 (1st Cir. 1999).

⁶ *Id.*

⁷ U.S.C. § 332(c)(7)(B)(ii).

⁸ U.S.C. § 332(c)(7)(B)(iii).

⁹ *Nextel Partners of Upstate New York, Inc. v. Town of Canaan*, 62 F.Supp.2d 691, 695 (N.D. N.Y. 1999), citing *Universal Camera v. NLRB*, 340 U.S. 474, 477 (1951).

Recently, Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 contained a provision that appears intended to streamline the local approval process by easing restrictions on what is known as “collocation.”¹⁰ State and local governments now must grant the requests for modifications of existing wireless towers or base stations if the request would not substantially change the physical dimensions of the tower or base station. No definition is provided in the statute for the terms “tower” or “base station.” Furthermore, no definition is provided for what it might mean to “substantially change the physical dimensions” of a tower. These ambiguities may cause difficulty in applying the new provision to future collocation requests. However, ambiguities may be resolved either by federal courts or by the FCC in a rulemaking to define the terms.

Assuming that the new exception does not apply to an application to site a tower, courts have found that aesthetics may constitute a valid basis for the denial of a wireless permit so long as there is substantial evidence of the adverse visual impact of the proposed tower.¹¹ In fact, according to one court, “nothing in the Telecommunications Act forbids local authorities from applying general and nondiscriminatory standards derived from their zoning codes, and ... aesthetic harmony is a prominent goal underlying almost every such code.”¹² Federal courts therefore have routinely upheld the denials of applications to construct wireless towers where the decisions of local entities were in writing and based on evidence that the tower would diminish property values, reduce the ability of property owners in the vicinity of the proposed tower to enjoy their property, or damage the scenic qualities of the proposed location.¹³ However, generalized aesthetic concerns will not be considered “substantial evidence” to support the denial of a permit.¹⁴ For example, the Seventh Circuit upheld the reversal of a denial of a petition based on aesthetic concerns where the only evidence that the proposed tower would be unsightly was the testimony of a few residents that they did not like poles in general, and those residents admitted that they had no objection to flagpoles, the proposed disguise for the wireless tower.¹⁵ Blanket opposition to poles could not constitute “substantial evidence,” in the opinion of the court.¹⁶

¹⁰ P.L. 112-96, § 6409(a). “Collocation” is the term used by the wireless industry and government authorities to describe when a wireless carrier seeks to add a wireless antenna to a tower or structure that already exists and supports a wireless antenna of a different wireless carrier. See *In the Matter of Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(b) to Ensure Timely Siting Review and to Preempt under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance, Declaratory Ruling*, WT Docket No. 08-165, FCC 09-99, released November 18, 2009. However, it should be noted that P.L. 112-96 does not define the term “collocation.”

¹¹ See e.g., *Preferred Sites, LLC v. Troup County*, 296 F.3d 1210 (11th Cir. 2002), *Southwestern Bell Mobile Sys. v. Todd*, 244 F.3d 51 (1st Cir. 2001), *Omnipoint Corp. v. Zoning Board*, 181 F.3d 403 (3^d Cir. 1999), *AT&T Wireless PCS, Inc. v. Winston-Salem Bd. of Adjustment*, 172 F.3d 307 (4th Cir. 1999).

¹² *Aegerter v. City of Delafield*, 174 F.3d 886, 891 (7th Cir. 1999).

¹³ See *USCOC of Greater Iowa, Inc. v. Zoning Bd. of Adjustment*, 465 F.3d 817 (8th Cir. 2006) (upholding the denial of a permit to construct a tower based in part upon the fact that the tower would obstruct the view from the window of nearby residential property), *Omnipoint Commc'n v. City of White Plains*, 430 F.3d 529 (2nd Cir. 2005) (concluding that the zoning board was entitled to rely on aesthetic objections raised by members of the community that are familiar with the area), *Voicestream Minneapolis, Inc. v. St. Croix County*, 342 F.3d 818 (7th Cir. 2003) (holding that the county's denial of a wireless tower permit was supported by substantial evidence that the proposed tower would mar an especially scenic stretch of land).

¹⁴ *New Par v. City of Saginaw*, 301 F.3d 390, 398 (6th Cir. 2002).

¹⁵ *Prime Co Personal Commc'n v. City of Mequon*, 352 F.3d 1147, 1151 (7th Cir. 2003).

¹⁶ *Id.*

Many community groups also oppose the siting of towers based on health and environmental concerns.¹⁷ However, the Telecommunications Act of 1996 prohibits state and local governments from regulating the placement of personal wireless service facilities on the basis of the effects of radio frequency emissions if the facility in question complies with the Federal Communications Commission's regulations concerning such emissions.¹⁸ "As written, the purpose of the requirement is to prevent telecommunications siting decisions from being based upon unscientific or irrational fears that emissions from the telecommunications sites may cause undesirable health effects."¹⁹ Courts have enforced this provision of the act and have noted that "concerns of health risks due to the emissions may not constitute substantial evidence in support of denial."²⁰

The act also provides for the appeal of a state or local government's denial of a request to place, construct, or modify a facility.²¹

Section 704(c) of the Telecommunications Act provided that within 180 days of the enactment of the act, "the President or his designee shall prescribe procedures by which Federal departments and agencies may make available on a fair, reasonable, and nondiscriminatory basis, property, rights-of-way, and easements under their control for the placement of new telecommunications services."²² President Clinton issued a memorandum on August 10, 1995, directing the Administrator of General Services, "in consultation with the Secretaries of Agriculture, Interior, Defense, and the heads of such other agencies as the Administrator may determine, to develop procedures necessary to facilitate appropriate access to Federal property for the siting of mobile services antennas."²³ The General Services Administration published procedures for the placement of commercial antennas on federal property in the Federal Register on March 29, 1996.²⁴ On March 14, 2007, the General Services Administration published updated procedures for the placement of commercial antennas on federal property in the Federal Register.²⁵ The agency also declared that these replacement procedures should remain in effect indefinitely.²⁶

However, in 2012, Congress has required the Administrator of General Services to refine the process for granting easements for wireless infrastructure on federal property. Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 contained provisions intended to standardize and facilitate the placement of towers on federal property.²⁷ First Section 6409(b) granted the authority for placing towers on buildings controlled by federal agencies to the

¹⁷ Malcolm J. Tuesley, *Not in My Back Yard: The Siting of Wireless Communications Facilities*, 51 Fed. Comm. L. J. 887, 902.

¹⁸ 47 U.S.C. § 332(c)(7)(B)(iv). Cellular Phone Task Force challenged the FCC's RF radiation guidelines. *Cellular Phone Task Force v. FCC*, 205 F.3d 82 (2nd Cir. 2000). The Court upheld the FCC's radiation guidelines, finding that they were not arbitrary and capricious under the circumstances. *Id.* at 96.

¹⁹ 51 Fed. Comm. L. J. at 902.

²⁰ *Telespectrum, Inc. v. Public Service Commission of Kentucky*, 227 F.3d 414 (6th Cir. 2000). See also *Illinois RSA No. 3, Inc. v. County of Peoria*, 963 F.Supp. 732, 745 (C.D. Ill. 1997).

²¹ 47 U.S.C. § 332(c)(7)(B)(v).

²² P.L. 104-104, § 704(c).

²³ *Facilitating Access to Federal Property for the Siting of Mobile Services Antennas*, 31 Weekly Comp. Pres. Doc. 1424 (August 10, 1995).

²⁴ 61 Fed. Reg. 14,100 (1996).

²⁵ 72 Fed. Reg. 11,881 (2007).

²⁶ 72 Fed. Reg. 11,881 (2007).

²⁷ P.L. 112-96, § 6409.

agencies controlling that building or property. The Administrator of General Services is required to develop a standard application for easements related to siting wireless towers on federally controlled property, which can be used for submission to the agency that controls that property and will be in charge of granting the easement. The General Services Administration is also required by Section 6409(c) to develop master contracts for wireless facilities siting. The contracts will govern the placement of wireless antenna structures on buildings and other property owned by the federal government. In developing the contracts, the GSA is required to standardize the treatment of the placement of wireless antennae on federal property, among other considerations.

FCC's November 2009 Declaratory Ruling

In 2008, CTIA – The Wireless Association (CTIA) filed a petition with the Commission requesting a declaratory ruling clarifying the provisions of the Communications Act that apply to the siting of wireless facilities, particularly 47 U.S.C. § 332(c)(7).²⁸ CTIA, and other commenters in the proceeding, expressed concern that when applying to construct wireless facilities wireless services providers were encountering unreasonably long delays, some that stretched beyond two years.²⁹ The Communications Act grants applicants seeking to construct wireless facilities the right to file suit in court when a state or local government authority fails to act upon a tower siting application.³⁰ CTIA argued that, without guidance on the subject from the FCC, it was unclear when a state or local authority had failed to act.³¹ CTIA further alleged that some states and localities were denying applications to place towers in certain areas solely on the basis of the presence of another wireless service provider in that area. CTIA asked the FCC to declare that such denials were the equivalent of an effective prohibition on the provision of personal wireless services in violation of the Communications Act.

As corporations that won recent large spectrum auctions begin to build out new facilities, new towers may need to be constructed. These industry participants expressed concern to the Commission over the length of time frequently taken for action on tower siting applications. On November 18, 2009, the FCC issued a declaratory ruling to clarify certain portions of Section 332 of the Communications Act.³² This decision may be significant because it could streamline the tower siting application process across the country. The ruling defines a reasonable time period in which state and local governments should act upon tower siting requests as 90 days for the review of collocation applications and 150 days for the review of applications other than those for collocation.³³ Also, the FCC held that the denial of a tower siting application solely because “one or more carriers serve a given geographic market” is an action that prohibits or has the effect of

²⁸ In the Matter of Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(b) to Ensure Timely Siting Review and to Preempt under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance, WT Docket No. 08-165, filed July 11, 2008.

²⁹ Declaratory Ruling, *supra* note 32, at para. 33.

³⁰ 47 U.S.C. §332(c)(7)(B)(v).

³¹ Declaratory Ruling, *supra* note 32, at para. 27.

³² In the Matter of Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(b) to Ensure Timely Siting Review and to Preempt under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance, Declaratory Ruling, WT Docket No. 08-165, FCC 09-99, released November 18, 2009 (“Declaratory Ruling”).

³³ *Id.* at para. 27-53.

prohibiting the provision of personal wireless services and is a violation of the Communications Act.³⁴

The FCC found that the evidence in the record supported CTIA's allegations that there were unreasonable delays in the review and final action upon applications for the siting of wireless facilities.³⁵ In the FCC's estimation, these delays are inhibiting the deployment of next generation wireless technologies to an unacceptable degree.³⁶ Consequently, the Commission adopted the presumption that state and local governments should act on applications for collocation within 90 days, and that applications other than those for collocation should be acted upon within 150 days.³⁷ The rule applying to collocation requests may be affected by Section 6409 of the Middle Class Tax Relief Act discussed in the previous section. As mentioned, Section 6409 requires local authorities to grant applications for collocations if the collocation would not substantially change the physical dimensions of a tower. The FCC may wish to clarify what types of applications would qualify for this required approval.

CTIA also had requested that, if state or local governments failed to act within the time delineated by the FCC, the application to site the wireless facility be deemed granted. The FCC declined to issue that form of relief. Rather, upon the expiration of the applicable period of time, the applicant may file suit alleging violation of Section 332 in the appropriate federal court.³⁸ If more time is needed to process the application, the parties may consent to extend the review period or the state or locality may argue in court that the length of time for processing the particular application was reasonable under the circumstances. *THE SHOT CLOCK RUNNING OUT DOES NOT MEAN THE APPLICATION IS AUTOMATICALLY GRANTED.*

The FCC also determined that "a State or local government that denies an application for personal wireless service facilities siting solely because 'one or more carriers serve a given geographic market' has engaged in unlawful regulation that 'prohibits or ha[s] the effect of prohibiting the provision of personal wireless services.'"³⁹ This determination adds the FCC's voice to a split in the circuits regarding whether denying applications to serve an area amounts to the effective prohibition of wireless services if the denial occurs solely because another company already provides the area with wireless services. The First Circuit, for example, had observed that "a straight forward reading is that 'services' refers to more than one carrier."⁴⁰ Consequently, the presence of another carrier serving an area does not necessarily mean that an effective prohibition on the provision of wireless services is not occurring. Whereas, the Fourth Circuit has found that the statute limits localities from prohibiting *all* personal wireless services, not from preventing any one company from serving that particular area.⁴¹ Under this reasoning, if one carrier is serving an area, then wireless services are not being effectively prohibited.

The FCC determined that the better reading of the statute was to apply the provision to all carriers seeking to enter a particular wireless market, adopting the reasoning of the First Circuit.⁴²

³⁴ *Id.* at para. 54-67.

³⁵ *Id.*, at para. 33.

³⁶ *Id.*, at para. 34 - 35.

³⁷ *Id.*, at para. 46; 48.

³⁸ *Id.* at para. 49.

³⁹ *Id.* at para. 56.

⁴⁰ *Second Generation Properties, L.P. v. Town of Pelham*, 313 F.3d 620, 634 (1st Cir. 2002).

⁴¹ *AT&T Wireless PCS v. City Council of Va. Beach*, 155 F.3d 423, 428 (4th Cir. 1998).

⁴² Declaratory Ruling, *supra* note 32, at para. 58-62.

Therefore, if a carrier is effectively prohibited from serving a particular area by the denial to site its facilities, then the Communications Act may have been violated even if wireless services are available in that area from another carrier. The agency found that the word “services” in the statute applied to multiple wireless carriers. Furthermore, a first entrant into a market may not provide services to the entire area. Therefore, the presence of one carrier in an area does not necessarily mean that wireless services have not been effectively prohibited for others, according to the Commission’s reasoning. The Commission also reasoned that its interpretation of the statute was more consistent with the broader goals of the Communications Act, in that it could allow for increased competition among wireless providers, and decrease gaps in wireless service coverage across the country.

Opponents to the declaratory ruling raised questions about the FCC’s authority to interpret this particular provision, because the provision is judicially enforced and the meaning of the words were meant to be interpreted by the courts.⁴³ The Commission disagreed, finding that it did have the authority to interpret the provision, even though the agency does not actively enforce the provision. To support its contention, the FCC cited the Sixth Circuit’s decision upholding the FCC’s authority to issue its order interpreting Section 621 of the Communications Act, also known as the Local Franchising Order. The Local Franchising Order provided guidance for interpreting the statutory phrase “unreasonably refus[ing] to award” cable franchises, the granting of which is traditionally determined by local franchising authorities. The Sixth Circuit found that the FCC possessed “clear jurisdictional authority to formulate rules and regulations interpreting the contours of section 621.”⁴⁴ The FCC argued that the Sixth Circuit decision applies similarly to this order because Section 332’s silence on the FCC’s rulemaking authority “does not divest the agency of its express authority [elsewhere in the Communications Act] to prescribe rules interpreting” the act, as the Sixth Circuit found to be the case for Section 621. This issue may be raised in subsequent litigation by state and local governments facing lawsuits for failing to grant applications within the time period described by the FCC. In January of 2012, the Fifth Circuit Court of Appeals agreed with the FCC and upheld the FCC’s authority to issue this declaratory order.⁴⁵

State Statutory Provisions

Apart from the specific limitations set forth in the Telecommunications Act of 1996, federal law does not appear to affect state or local zoning authority with regard to the placement of wireless communications towers.⁴⁶ Most states delegate zoning authority to local bodies. However, some states offer guidance on what factors should be considered by the local entities when considering applications for permits to construct wireless communications facilities. For example, the state of New Hampshire has enacted a law concerning the visual effects of tall wireless antennas.⁴⁷ The law does not alter any municipal zoning ordinance or preempt the Telecommunications Act of 1996.⁴⁸ It does, however, recognize that the visual effects of tall antennas “may go well beyond

⁴³ *Id.* at para. 20-26.

⁴⁴ *Alliance for Community Media v. FCC*, 529 F. 3d 763, 773-74 (6th Cir. 2008).

⁴⁵ *City of Arlington v. FCC*, 668 F. 3d 229 (5th Cir. 2012).

⁴⁶ 47 U.S.C. § 332(c)(7)(A).

⁴⁷ R.S.A. 12-K:1, effective August 7, 2000.

⁴⁸ R.S.A. 12-K:1(I) and (VI).

the physical borders between municipalities,” and in doing so it encourages local governing bodies to address the issue “so as to require that all affected parties have the opportunity to be heard.”⁴⁹ The statute also provides that carriers wishing to build personal wireless service facilities should consider commercially available alternatives to the tall towers, such as lower antenna mounts, disguised or camouflaged towers, and custom-designed facilities to minimize the visual impact on the surrounding area.⁵⁰

An Illinois law sets forth guidelines for telecommunications carriers to consider when choosing a location for and designing a facility.⁵¹ The law specifically states that it does “not abridge any rights created by or authority confirmed in the federal Telecommunications Act of 1996.”⁵² Rather, the law offers a list of locations—from “most desirable” to “least desirable”—for the siting of telecommunications facilities, with non-residentially zoned lots as the most desirable and residentially zoned lots that are less than 2 acres in size and used for residential purposes as the least desirable.⁵³ The guidelines set forth for designing a facility include preserving trees in the area or replacing trees removed during construction, landscaping around the facility, and designing facilities that are compatible with the residential character of the area.⁵⁴

In addition to the alternatives listed above, states can encourage the use of existing infrastructure as opposed to the construction of new facilities in order to reduce the total number of towers in an area. For example, in Kentucky, state law allows the local planning commission to require the company applying for the construction permit “to make a reasonable attempt to co-locate” their equipment on existing towers if space is available and the co-location does not interfere with the structural integrity of the tower or require substantial alterations to the tower.⁵⁵ The statute gives the planning commission the authority to deny an application for construction based on the company’s unwillingness to attempt to co-locate.⁵⁶ Connecticut has also enacted a law which allows local entities to require the sharing of towers whenever it is “technically, legally, environmentally and economically feasible, and whenever such sharing meets public safety concerns.”⁵⁷

Local (Municipal or County) Law

Many local governments, through the use of their zoning authority, attempt to limit the impact cellular towers have on the surrounding environment. One county in Georgia enacted a “Telecommunications Tower and Antenna Ordinance,” which set up a new permit system for the construction of cellular towers in an effort to encourage construction in nonresidential areas.⁵⁸ In

⁴⁹ R.S.A. 12-K:1(II).

⁵⁰ R.S.A. 12-K:1(III).

⁵¹ 55 ILCS 5/5-12001.1.

⁵² 55 ILCS 5/5-12001.1(b).

⁵³ 55 ILCS 5/5-12001.1(d).

⁵⁴ 55 ILCS 5/5-12001.1(e).

⁵⁵ K.R.S. § 100.987(6). Under federal law, utilities are required to provide telecommunications carriers “with nondiscriminatory access to any pole, duct, conduit, or right-of-way owned or controlled by [the utility].” 47 U.S.C. § 224(f)(1).

⁵⁶ K.R.S. § 100.987(7).

⁵⁷ Conn. Gen. Stat. § 16-50aa.

⁵⁸ Robert Long, *Allocating the Aesthetic Costs of Cellular Tower Expansion: A Workable Regulatory Regime*, 19 Stan. (continued...)

commercial or light industrial areas, a wireless service provider can build a tower without review by the County Board of Commissioners as long as a certain set of specifications are met.⁵⁹ However, if a service provider wants to construct a tower in a residential area, a hearing is held on the matter, and construction permits are subject to denial if a set of nine criteria is not met.⁶⁰ In an effort to reduce the number of facilities in the area, the City of Bloomington, MN, enacted an ordinance that requires wireless facilities to be designed to accommodate multiple users.⁶¹

In direct response to the limitations set forth in the Telecommunications Act of 1996, several communities enacted moratoria on permits for cellular towers in an effort to prevent or delay the construction of cellular communications towers.⁶² Under the act, local governments cannot act to prohibit or have the effect of prohibiting wireless communication services in their communities.⁶³ Local governments justify the imposition of moratoria by claiming that they need time to study the problems with tower siting and how they should change their zoning ordinances to accommodate construction.⁶⁴ Courts have upheld moratoria that have a fixed length, such as six months.⁶⁵ However, they are less likely to uphold those that are for long periods of time or indefinite.⁶⁶

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(...continued)

Env'tl. L. J. 373, 378. The full text of the ordinance is available at <http://www.gwinnettcounty.com/departments/planning/pdf/tower.pdf>

⁵⁹ *Id.*

⁶⁰ *Id.* The ordinance states that towers built in residential areas must comply with certain requirements, such as topography, height, setback, access driveways or easements, parking, fencing, landscaping, and adjacent uses. *Id.* at n. 35.

⁶¹ 51 Fed. Comm. L. J. at 909, citing Bloomington, Mn., Code 19.63.05(a)(1)-(4)(1996).

⁶² David W. Hughes, *When NIMBY's Attack: The Heights to Which Communities Will Climb to Prevent the Siting of Wireless Towers*, 23 Iowa J. Corp. L. 469, 488.

⁶³ 47 U.S.C. § 332(c)(7)(B)(i).

⁶⁴ 23 Iowa J. Corp. L. at 488.

⁶⁵ See *Sprint Spectrum L.P. v. City of Medina*, 924 F. Supp. 1036 (W.D. Wash. 1996).

⁶⁶ See e.g. *Spring Spectrum L.P. v. Jefferson County*, 968 F. Supp. 1457 (N.D. Ala. 1997).

Section 5-4 Denial by the Commission

If the permit request is denied by the commission, and the property owner and/or applicant desires a review before the Town Council, the property owner and/or applicant must file a written request for a review with the Town Community Development Director within fifteen (15) days after the Commission action.

When the request for the review is filed with the Community Development Director, the notice of the time and place of the hearing including a general explanation and the general location of the matter to be reconsidered, shall be given in the same manner noted in the aforementioned Section 5-3, A1. a-d. Council shall evaluate the request at the next possible meeting (after public notice requirements are satisfied), and may affirm, reverse, or modify in whole or in part, the decision of the Commission. Notice shall be given to the Planning Commission of the request for a review, and the Commission shall submit a report to the Town Council setting forth the reasons for its action taken. The Commission may be represented at the hearing by the Chairperson of the Planning Commission or their designee.

If the Town Council makes a decision to grant a previously denied permit request, the Town Council may designate such conditions in connection with the permit as it deems necessary to secure the intent and purpose of this ordinance and conformity to the Town General Plan by requiring such guarantees and evidence that such conditions are being, or will be complied with.

The Town Council's decision shall be final and shall become effective immediately. Notice of the decision shall be mailed to the property owner and/or applicant at the address shown on the application.

Section 5-5 Required Findings

- A. In order to make recommendations on a Conditional Use Permit, the Planning Commission should make findings based on the following elements (as applies to that particular case):
1. Applicable Regulations: Those conditions necessary to assure compatibility of the development of the land in question will be consistent with the purpose of the Zoning Ordinance, Town of Clarkdale General Plan, other statutes, and any ordinance or policies that may be applicable.
 2. Bulk Regulations: The site is adequate in size and topography to accommodate proposed use, population density, building height, lot coverage, setbacks, spaces, landscaping, fences, and parking. That these elements are compatible with the general character of development in the vicinity of the proposed conditional use and are adequate to properly relate the proposed use with the existing land uses in the vicinity.

3. **Performance:** That the location, design and operation characteristics of the proposed use are such that it will have minimal adverse impact on the livability, public health, safety, welfare, or convenience on persons residing or working in the vicinity, to adjacent property, to the neighborhood or to the public welfare in general.
4. **Traffic Impacts:** The provisions for ingress and egress, public streets and traffic circulation are adequate, or can be upgraded through street improvements as a condition of approval.
5. **Landscaping:** Landscaping, and/or fencing of the proposed development, assures that the site development will be compatible with adjoining areas and with the intent of Town policies.
6. **Nuisance:** That the proposed use will not create a hazard to persons and property from possible explosion, contamination, fire or flood. That the use will not create a nuisance arising from, but not limited to noise, smoke, odors, dust, vibration, signage or illumination.

Section 5-6 Required Conditions for a Use Permitted by Conditional Use Permit

- A. All Conditional Use Permits, including those that require that the applicant and/or developer obtain a building permit, shall meet minimum requirements of all Town ordinances, restrictions, regulations, and policies of the Town of Clarkdale which are in effect at the time of issuance of the Conditional Use Permit. Compliance with same is a condition of the use permit, including but are not limited to:
 1. **Consistency with the General Plan.**
 2. Sanitary waste improvements.
 3. Street and/or sidewalk improvements.
 4. Fire protection measures.
 5. Utility service improvements.
 6. Amount, type and location of outdoor lighting and signage.
 7. Off-street parking area, aisles and access drives shall be designed and constructed so as to provide a durable, dustless surface.
 8. Storm drainage improvements, based on a drainage report prepared by a licensed engineer, and approved by the Town Engineer.
 9. Water service improvements.
 10. Hours of operation.
 11. Access.
 12. Landscaping standards.
 13. Compliance with applicable Federal, State and Local regulations.

- Protect the historic, aesthetic & visual attractiveness of the Town.
- Maintain & strengthen Clarkdale's reputation as a historic community.
- Maintain Clarkdale's historic Town character.
- Maintain a strong sense of place.
- Emphasize significance of the Verde River and marshes.
- Achieve quality architecture and design of public and private projects that reflect Clarkdale's identification.
- Smart, sensible growth/development that serves the economy, community and the environment.
- Key words - unique, balance, character.

Other "Clarkdale Values" expressed during the process:

- A small Town look and feel.
- Light motor vehicular traffic.
- Cordial and friendly people.
- Knowing one's neighbors regardless of where in the community they live.
- Beautiful unobstructed surrounding scenery.
- A sense of personal safety and security, i.e., a low crime rate.
- An opportunity to contribute meaningfully to the community.
- Enjoying the community with fellow residents.
- A relatively 'dark sky' community.
- A quiet and peaceful "family" environment, "...we even have a gazebo!"
- Few, if any, adverse distractions, e.g., no large industrial parks, no loud and heavy traffic, and few other types of noise and environmental pollution. *RF RADIATION?*
- A community with historical roots, both from the more recent mining era, all the way back to prehistoric Native American cultures.
- A slow-paced, clean lifestyle.
- Community camaraderie.



Chapter 2 LAND USE

The Land Use Element establishes the primary framework for shaping the Town's development pattern. This element is the long range planning tool used to balance the interests of preserving and enhancing the qualities of life which people appreciate with the need to guide growth as it may occur. The Land Use Chapter seeks to integrate land use development with both transportation planning and natural area preservation in a manner respecting the interests of both property owners and the community at large.

REGIONAL PLANNING

It is a goal of the general plan process to recognize that regional conditions have a significant effect on conditions within Clarkdale. The Town does not exist isolated from the effects of regional growth and development especially as this relates to impacts on land uses, transportation networks, infrastructure systems, natural resources and community facilities. It is very important to the long-term wellbeing of the entire region that the various communities, government entities, land management agencies and community groups coordinate their planning to ensure the best, most efficient use of limited resources to meet the needs of a growing population.

The intent of the regional planning process is that municipalities, government jurisdictions and other land management agencies throughout the Verde Valley develop a coordinated and comprehensive plan to address ongoing growth and development, including transportation systems, preservation of open space, air and water resources, scenic vistas and corridors, environmental resources, sustainable agriculture, cultural and historic preservation, affordable housing and economic development concerns.

Regional Planning Issues

The process to enact a regional planning process in the Verde Valley has included efforts to look at economic development, open space preservation, parks and recreation, water resources and transportation planning.

Transportation

The Verde Valley Regional Transportation Planning Organization (VVTPO) includes elected officials and staff from Clarkdale, Cottonwood, Sedona, Camp Verde, and Yavapai County as well as representatives from Northern Arizona Council of Governments (NACOG) and the Arizona Department of Transportation (ADOT). They meet to identify and recommend regional funding priorities and to address annual and long-range priorities.

The Cottonwood Area Transportation Plan prepared by BRW, Inc., includes sections on Clarkdale



LAND USE PLAN

The Land Use Plan has thirteen (13) land use classifications including five residential categories, three commercial categories, two industrial categories, one public lands and facilities category including Open Space, one National Forest and one Mixed Use category. The classifications are based on the density or intensity of use that is allowed, as well as the types of use anticipated.

Density

The concept of density in terms of land use refers to the number of residential units in relation to an acre (43,560 square feet) of land.

Intensity

The intensity of use on a property is typically used to refer to non-residential developments, including various commercial and industrial uses. Intensity may refer to a range of indicators, such as the square feet of building development per acre, the parking requirements of various uses, the amount of traffic generated, the number of employees per development or similar methods to compare the impacts of different uses.

General Plan Land Use Classifications

The classifications for various properties are based on a variety of factors, including an analysis of existing and projected uses, the existing zoning classifications, the availability of infrastructure including roads and utilities, the general topography, the relationship to any flood plains and washes and the general nature of surrounding uses.

- **Residential** classifications are based on the maximum allowable density of development that otherwise meets Town development standards as defined in the Town Zoning Code.
- **Commercial and Industrial** classifications are based on the type of use, the amount of traffic generated, the scale of the operation, whether or not there is outdoor activity and the relationship to surrounding uses.
- **Public Land and Facilities** refers to those uses and properties owned and/or operated by various types of government entities in the public interest.
- **Mixed Use** classification applies to those properties, including planned developments with a mixture of various uses such as residential, commercial, recreational and institutional uses within one development where there is adequate infrastructure, access and separation from other surrounding uses.

It is understood that some of these long-range land use classifications do not correspond to the existing Zoning District classifications in the Town Zoning Code. In order to address the intent of these General Plan classifications, it would be necessary to amend the Zoning Code to include new and revised Zoning Districts.



LAND USE GOALS, OBJECTIVES AND POLICIES:

The following section includes the Goals, Objectives and Policies developed to define the Land Use Chapter. These are intended to address issues relating to various uses that may be found within the Town of Clarkdale so as to identify the Town’s concerns and intentions relating to the character of development, the relationship of the use to the stated community priorities, related environmental considerations and where the proposed use meets the community sustainability criteria.

GOAL 2.1 PROVIDE A BALANCE OF LAND USES AND MEANINGFUL GUIDELINES FOR THE USE OF LANDS

OBJECTIVE 2.1.a Preserve and enhance the unique aspects of the character of Clarkdale.

Policy: Encourage development practices that preserve and enhance existing neighborhoods.

Policy: Support historic preservation of residential, commercial and institutional buildings.

Policy: Promote the preservation and revitalization of the original Town site by establishing a variety of housing, civic, recreational, cultural and business opportunities.

OBJECTIVE 2.1.b Provide for orderly patterns of growth and development.

Policy: Promote development located near existing utility and transportation infrastructure.

Policy: Support well-designed mixed-use, master planned community developments and planned subdivisions.

GOAL 2.2. ENCOURAGE APPROPRIATE ECONOMIC DEVELOPMENT OPPORTUNITIES

OBJECTIVE 2.2.a Promote the development of commercial, business park, and industrial development areas which are compatible with existing land uses and which serve the economic needs of the community.

Policy: Develop standards to address shared access, architectural compatibility and locally appropriate landscaping for commercial areas along arterial and major collector corridors.

Policy: Encourage clustering of commercial development as opposed to strip commercial



development.

GOAL 2.3 SUPPORT HOUSING PROGRAMS TO MEET THE NEEDS OF ALL RESIDENTS

OBJECTIVE 2.3.a Develop policies and incentives to ensure an adequate supply of affordable housing to meet the needs of an economically-diverse and growing population.

Policy: Support policies and programs to improve affordable housing opportunities in existing neighborhoods.

GOAL 2.4 PRESERVE AND PROTECT THE NATURAL ENVIRONMENT, OPEN SPACES AND SCENIC RESOURCES IN CLARKDALE.

OBJECTIVE 2.4.a Provide policies to identify and protect open space resources within existing developed areas by ensuring appropriate standards for compatible development.

Policy: Provide for density increase options in exchange for open space through various development standards.

Policy: Provide options for development to meet open space/recreation requirements.

GOAL 2.5 ENSURE THAT ALL DEVELOPMENT MEET THE TOWN'S SUSTAINABILITY STANDARDS

OBJECTIVE 2.5.a Work to achieve economic, social and environmental sustainability through both local and regional cooperation.

Policy: Identify the standards for Clarkdale that will lead to a culture of sustainability.

Policy: Provide leadership in the development of a sustainable Verde Valley.



OBJECTIVE 5.1.b *Provide and maintain an open space network of Town-owned and private lands throughout the community.*

Policy: Evaluate open space design with these primary determinants: aesthetics, public safety, maintenance needs, water consumption, drainage considerations, wildlife corridors, multi-use and desert preservation.

Policy: Encourage the use of development incentives to promote integrated open space networks within future developments.

Policy: Pursue opportunities to identify and protect natural areas in proximity to existing neighborhoods.

Policy: Encourage the preservation and connection of open spaces within future developments.

Policy: Adopt standards for residential landscaping that preserves native landscaping in new developments including native plant lists, plant survey methods and related procedures.

OBJECTIVE 5.1.d *Protect significant natural areas within the Town, including floodplains, the Verde River corridor, steep slopes and scenic view areas.*

Policy: Identify and prioritize scenic assets and sensitive lands that should be preserved including major topographic features, natural vegetation, drainage ways, wildlife habitat and travel corridors, riparian areas and vista corridors.

Policy: Develop community support for an open space preservation and acquisition program to plan, prioritize, acquire and manage open space.

Policy: Provide adequate land development standards in the Town Zoning Code to address protection of sensitive natural resource areas.

OBJECTIVE 5.1.d *Develop parks and recreation facilities and an interconnected system of trails and urban pathways to meet the community's recreational needs and provide access to open space.*

Policy: Explore further development of partnerships with local school districts and private interests for the joint use of recreational facilities to the ultimate



areas.

Policy: Define policies and implementation strategies designed to:

- -make infrastructure expansion more cost-effective;
- provide for a rational pattern of land development; and
- identify and support opportunities for regional connectivity.

OBJECTIVE 9.1.b *Encourage development to occur in areas served by existing and planned infrastructure, including roads, sewer lines and water lines.*

Policy: Achieve meaningful open space as an integral part of activity cores and conserve significant natural resources and open space areas within growth areas.

Policy: Provide open spaces in designated growth areas encouraging public gathering, enhancing aesthetics, preserving viewsheds, and serving as buffers between uses of significantly differing function and intensity.

OBJECTIVE 9.1.c *Promote development timing guided by the adequacy of existing and/or expandable infrastructure, services, and facilities.*

Policy: Plan and promote the orderly building of infrastructure, such as water, sewer, drainage, and transportation facilities.

Policy: Ensure development approval is related to commitments for the construction of primary water, wastewater, and circulation systems.

Policy: Focus infrastructure improvements in designated growth areas and contiguous to existing development.

Policy: Ensure development outside of designated growth areas pays for all related infrastructure improvements.

Policy: Anticipate the need and secure land for public facilities such as water treatment plants, reservoirs, transportation rights-of-way, parks, libraries, community centers and other public needs such as police and fire.



Dear Mayor and Council,

I am very well aware that you cannot use any health risk criteria for denying a Conditional Use Permit application for a cell tower. However, our town code specifically states that you cannot issue a CUP if there are any health risks to anyone living or working in the vicinity associated with the CUP use.

The FCC law states only that you cannot use those health concerns to reject a tower. It does not and cannot tell you, as Telecom's lawyer tries to convince you, what you can read and what to think.

The FCC claims that the emissions are safe, but remember when our government used to say that putting cocaine into coca cola was good for an energy boost, and that smoking was safe and a healthy way to lose weight, and asbestos was a good safe insulation, and saccharine was a good sugar substitute... and horrifically that that thalidomide was good to give pregnant women to improve their pregnancies.

Mistakes have been made by our governmental agencies in the past as far as safety goes. This might just be one of those things that takes decades to fully understand the effects.

But, in the meantime the following short articles contain information and statements on health risks. The first is by the AMERICAN CANCER SOCIETY, which clearly states that RF radiation can cause biological effects that can ultimately lead to cancer. I've also included a similar report from the EPA; then a biologist's explanation of how RF can cause minute biological changes and effects and a letter from an electron physicist, my neighbor, Brian Daniels' explanation of how these changes can occur.

There is also a detailed communication sent from the Dept. of the Interior regarding the effects of RF radiation on endangered migratory birdlife. I believe that we have four species of endangered migratory birds that nest and breed in the riparian area of the Verde River and this would include the major washes such as the North Fork of Mescal Wash on which the proposed cell tower lot borders.

As a health professional, and owner of one of the houses that would be extremely close to the tower, all I ask is that you would please just read the short highlighted portions from these few articles. If you think that there is even the slightest remote possibility that there could be any biological effects that can harm us, your residents, then PLEASE consider rejecting the tower based on any of the legal criteria that you CAN use to reject the CUP, such as aesthetics, view shed or property value loss. We are depending on you to protect us from harm.

Sincerely,

Cynthia Fawcett, RN, BSN
671 Reta St., Clarkdale, AZ 86324
413 775 3466



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Microwaves, Radio Waves, and Other Types of Radiofrequency Radiation

What is radiofrequency (RF) radiation?

Radiation is the emission (sending out) of energy from any source. X-rays are an example of radiation, but so is the light that comes from the sun and the heat that is constantly coming off our bodies.

When talking about radiation and cancer, many people think of specific kinds of radiation such as x-rays or the radiation made by nuclear reactors. But there are other types of radiation that act differently.

Radiation exists across a spectrum from very high-energy (high-frequency) radiation to very low-energy (low-frequency) radiation. This is sometimes referred to as the *electromagnetic spectrum*.

Examples of high-energy radiation include **x-rays and gamma rays**. They, as well as some higher energy **UV radiation**, are called ionizing radiation, which means they have enough energy to remove an electron from (ionize) an atom or molecule. This can damage the DNA inside of cells, which can result in cancer.

Radiofrequency (RF) radiation is at the low-energy end of the electromagnetic spectrum and is a type of non-ionizing radiation. **Non-ionizing radiation has enough energy to move atoms in a molecule around or cause them to vibrate,** but not enough to ionize (remove charged particles such as electrons). RF radiation has higher energy than extremely low-frequency electromagnetic radiation, but lower energy than some other types of non-ionizing radiation, like visible light and infrared. Ionizing radiation has even higher energy.

If RF radiation is absorbed in large enough amounts by materials containing water, such as food, fluids, and body tissues, it can produce heat. **This can lead to burns and tissue damage. Although RF radiation does not cause cancer by damaging DNA in cells the way ionizing radiation does, there has been concern that some forms of non-ionizing radiation might have biological effects that could result in cancer in some circumstances.**

How are people exposed to RF radiation?

People can be exposed to RF radiation from both natural and man-made sources.

Natural sources include:

- Outer space and the sun
- The sky – including lightning strikes
- The earth itself – most radiation from the earth is infrared, but a tiny fraction is RF

Man-made RF radiation is used for many different things, such as

- Broadcasting radio and television signals
- Transmitting signals from cordless telephones, cellular phones and cell phone towers, satellite phones, and 2-way radios
- Radar



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 16 2002

OFFICE OF
AIR AND RADIATION

Ms. Janet Newton
President
The EMR Network
P.O. Box 221
Marshfield, VT 05658

Dear Ms. Newton:

This is in reply to your letter of January 31, 2002, to the Environmental Protection Agency (EPA) Administrator Whitman, in which you express your concerns about the adequacy of the Federal Communications Commission's (FCC) radiofrequency (RF) radiation exposure guidelines and nonthermal effects of radiofrequency radiation. Another issue that you raise in your letter is the FCC's claim that EPA shares responsibility for recommending RF radiation protection guidelines to the FCC. I hope that my reply will clarify EPA's position with regard to these concerns. I believe that it is correct to say that there is uncertainty about whether or not current guidelines adequately treat nonthermal, prolonged exposures (exposures that may continue on an intermittent basis for many years). The explanation that follows is basically a summary of statements that have been made in other EPA documents and correspondence.

The guidelines currently used by the FCC were adopted by the FCC in 1996. The guidelines were recommended by EPA, with certain reservations, in a letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (enclosed).

The FCC's current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, nonthermal exposure situations. They are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn. The hazard level (for frequencies generally at or greater than 3 MHz) is based on a specific absorption dose-rate, SAR, associated with an effect

that results from an increase in body temperature. The FCC's exposure guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.

These guidelines are based on findings of an adverse effect level of 4 watts per kilogram (W/kg) body weight. This SAR was observed in laboratory research involving acute exposures that elevated the body temperature of animals, including nonhuman primates. The exposure guidelines did not consider information that addresses nonthermal, prolonged exposures, i.e., from research showing effects with implications for possible adversity in situations involving chronic/prolonged, low-level (nonthermal) exposures. Relatively few chronic, low-level exposure studies of laboratory animals and epidemiological studies of human populations have been reported and the majority of these studies do not show obvious adverse health effects. However, there are reports that suggest that potentially adverse health effects, such as cancer, may occur. Since EPA's comments were submitted to the FCC in 1993, the number of studies reporting effects associated with both acute and chronic low-level exposure to RF radiation has increased.

While there is general, although not unanimous, agreement that the database on low-level, long-term exposures is not sufficient to provide a basis for standards development, some contemporary guidelines state explicitly that their adverse-effect level is based on an increase in body temperature and do not claim that the exposure limits protect against both thermal and nonthermal effects. The FCC does not claim that their exposure guidelines provide protection for exposures to which the 4 W/kg SAR basis does not apply, i.e., exposures below the 4 W/kg threshold level that are chronic/prolonged and nonthermal. However, exposures that comply with the FCC's guidelines generally have been represented as "safe" by many of the RF system operators and service providers who must comply with them, even though there is uncertainty about possible risk from nonthermal, intermittent exposures that may continue for years.

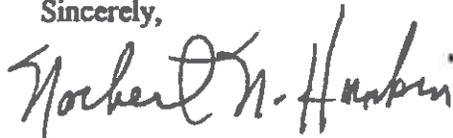
The 4 W/kg SAR, a whole-body average, time-average dose-rate, is used to derive dose-rate and exposure limits for situations involving RF radiation exposure of a person's entire body from a relatively remote radiating source. Most people's greatest exposures result from the use of personal communications devices that expose the head. In summary, the current exposure guidelines used by the FCC are based on the effects resulting from whole-body heating, not exposure of and effect on critical organs including the brain and the eyes. In addition, the maximum permitted local SAR limit of 1.6 W/kg for critical organs of the body is related directly to the permitted whole body average SAR (0.08 W/kg), with no explanation given other than to limit heating.

I also have enclosed a letter written in June of 1999 to Mr. Richard Tell, Chair, IEEE SCC28 (SC4) Risk Assessment Work Group, in which the members of the Radiofrequency Interagency Work Group (RFIAWG) identified certain issues that they had determined needed to be addressed in order to provide a strong and credible rationale to support RF exposure guidelines.

Federal health and safety agencies have not yet developed policies concerning possible risk from long-term, nonthermal exposures. When developing exposure standards for other physical agents such as toxic substances, health risk uncertainties, with emphasis given to sensitive populations, are often considered. Incorporating information on exposure scenarios involving repeated short duration/nonthermal exposures that may continue over very long periods of time (years), with an exposed population that includes children, the elderly, and people with various debilitating physical and medical conditions, could be beneficial in delineating appropriate protective exposure guidelines.

I appreciate the opportunity to be of service and trust that the information provided is helpful. If you have further questions, my phone number is (202) 564-9235 and e-mail address is hankin.norbert@epa.gov.

Sincerely,



Norbert Hankin
Center for Science and Risk Assessment
Radiation Protection Division

Enclosures:

- 1) letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation
- 2) June 1999 letter to Mr. Richard Tell, Chair, IEEE SCC28 (SC4) Risk Assessment Work Group from the Radiofrequency Radiation Interagency Work Group

We are constantly being misled by elements of the mobile phone and electronics industries (who have huge vested interests in the infrastructure) into believing that the pulsed microwaves used in cell phones and Wifi are harmless. Their sole justification for this is that the radiation is too weak to generate significant heat when they are absorbed by living tissues.

However, they are seemingly oblivious to the fact that living cells depend on electricity and electrically charged atoms and molecules (ions) to maintain their healthy functioning. They can therefore be damaged electrically by electromagnetic radiation that is far too weak to generate significant heat.

For example, our cells use the energy from food to pump ions out of mitochondria (the cells' power stations). They are then let back in through an ATPase (an enzyme not unlike a molecular water wheel). Each turn of the wheel generates a molecule of ATP, which is the main energy currency of the cell. In effect, an electric current flowing into and out of these tiny structures provides virtually all of our bodily energy.

Some of this ATP is then used to pump ions out of the cell. When they return via special enzymes (called transporters) in the cell membrane, they can carry with them essential nutrients that the cell needs to absorb. So we use electricity to absorb our food too.

Another example is in our nerve and brain cells. They use ATP to pump sodium and potassium ions across their external membranes. Nerve impulses are generated when these ions are suddenly let back again to give sharp spikes of current.

Last but not least, the membranes themselves (which are only two molecules thick!) are held together electrically. They consist mostly of negatively charged molecules bound together by positively charged ions (mostly calcium), which act as a kind of cement.

Unfortunately, weak electromagnetic fields gently tease out some of these calcium ions, which weakens the membranes and makes them more inclined to leak. As a result, our bodies become less efficient at generating energy and our nerve and brain cells are more likely to generate false impulses.

False impulses generated in sensory cells can give symptoms of electrosensitivity, whereas those generated in the brain can affect mental function and may also lead to stress headaches. Even people who do not regard themselves as electrosensitive, frequently get headaches and other unpleasant symptoms when exposed for long periods to the radiation from Wifi, cordless phones and mobile phones.

Other reported effects from prolonged exposure to pulsed microwaves include an increase risk of cancer and a loss of fertility. This seems to be associated with observable damage to cellular DNA, probably as a result of the leakage of digestive

enzymes from lysosomes (tiny particles in living cells that digest and recycle waste) whose membranes have been damaged by the radiation.

Pulses carried by microwaves are particularly dangerous. This is because their very short wavelength allows the transmission of pulses with extremely rapid rise and fall times, and it is the rate of change of the fields (rather than their total energy) that does most of the biological damage; it catapults vital calcium ions away from cell membranes, which in turn makes them leak. This leakage can explain the great majority of the observed adverse health effects of prolonged exposure to electromagnetic radiation (for more on this, together with references, please visit <http://tinyurl.com/55286a>).

It is therefore unwise and arguably dangerous to be exposed for long periods to the radiation from Wifi transmitters, cordless phones and mobile phones (**especially their base stations, which run 24/7**). They should certainly not be deployed in public places until all the risks have been independently evaluated. Any claims that they are harmless because they do not generate significant heat are completely unwarranted.

Andrew Goldsworthy BSc PhD
Lecturer in Biology (retired)
Imperial College London

Letter to the Editor

Regarding the recent article on the proposed 65 ft. cell tower, I would like to offer a few words about why my wife and I are frightened by it and to suggest an alternative

We live because our bodies contain protein molecules some of which perform vital functions. A protein molecule is a chain of carbon atoms with other atoms attached to the sides. Radiation of high enough frequency can break the main-chain carbon bonds. The frequency required to break these so called primary bonds is much higher than that which will be radiated from the cell tower. And I suspect that is the limited knowledge on which the FCC bases its current "safe limits".

However, there is a lot more to it. Protein molecules fold back upon themselves in a sort of doubled up arrangement. The chemical bonds that form this structure are called secondary bonds and they can be broken by radiation of lower frequency. Stay with me because here comes the dangerous part. The secondary structure often folds back on itself as controlled by so called tertiary bonds. These are so weak that cell tower radiation can affect them. Now this tertiary structure is very important. It often shapes the protein molecule like a cave into which other selected molecules can fit. This is the heart of so called enzyme reactions without which our bodies would not be able to convert food to energy, without which our immune systems would not work and without which a host of other vital functions would not work properly. Microwave disruption of tertiary bonds could cause cancer in some people.

How to solve the problem? Place cell towers in agricultural or wilderness areas where there would be no residents within 2 miles of the radiation source. (Beyond 2 miles the radiation intensity is so low that even I am not scared by it.) The beams could easily be shaped to cover the town or city areas. Yes, it would cost more to lay extra fiber optic cable needed to connect cell towers to each other but is this not a small price to pay to avoid harm to our health?

My microwave oven is, by law, perfectly shielded. It is impossible to turn it on unless the door is closed. All seals are engineered to block all radiation. The proposed cell tower will be 450 feet from me beaming its full energy directly at me day and night year round. Furthermore, my house has metal roof which can focus the microwaves into areas with 2X, 5X or 10X the nominal radiation intensity.

Permission should not be granted for the cell tower in the proposed location

Brian K. Daniels, BSc, Ph.D. (Electron Physics)



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

FEB - 7 2014



In Reply Refer To: (ER 14/0001) (ER 14/0004).

Mr. Eli Veenendaal
National Telecommunications and Information
Administration
U.S. Department of Commerce
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

Dear Mr. Veenendaal:

The Department of the Interior (Department) has reviewed the above referenced proposal and submits the following comments and attachment for consideration. Because the First Responder Network Authority (FirstNet) is a newly created entity, we commend the U.S. Department of Commerce for its timely proposals for NEPA implementing procedures.

The Department believes that some of the proposed procedures are not consistent with Executive Order 13186 Responsibilities of Federal Agencies to Protect Migratory Birds, which specifically requires federal agencies to develop and use principles, standards, and practices that will lessen the amount of unintentional take reasonably attributed to agency actions. The Department, through the Fish and Wildlife Service (FWS), finds that the proposals lack provisions necessary to conserve migratory bird resources, including eagles. The proposals also do not reflect current information regarding the effects of communication towers to birds. Our comments are intended to further clarify specific issues and address provisions in the proposals.

The Department recommends revisions to the proposed procedures to better reflect the impacts to resources under our jurisdiction from communication towers. The placement and operation of communication towers, including un-guyed, unlit, monopole or lattice-designed structures, impact protected migratory birds in two significant ways. The first is by injury, crippling loss, and death from collisions with towers and their supporting guy-wire infrastructure, where present. The second significant issue associated with communication towers involves impacts from non-ionizing electromagnetic radiation emitted by them (See Attachment).

In addition to the 147 Birds of Conservation Concern (BCC) species, the FWS has listed an additional 92 species as endangered or threatened under the Endangered Species Act. Together with the bald and golden eagle, this represents 241 species of birds whose populations are in trouble or otherwise merit special protection, according to the varying criteria of these lists. The Department suggests that FirstNet consider preparing a programmatic environmental impact statement (see attachment) to determine and address cumulative impacts from authorizing FirstNet projects on those 241 species for which the incremental impact of tower mortality, when

added to other past, present, and reasonably foreseeable future actions, is most likely significant, given their overall imperiled status. Notwithstanding the proposed implementing procedures, a programmatic NEPA document might be the most effective and efficient method for establishing best management practices for individual projects, reducing the burden to individual applicants, and addressing cumulative impacts.

Categorical Exclusions

The Department has identified 13 of the proposed categorical exclusions (A-6, A-7, A-8, A-9, A-10, A-11, A-12, A-13, A-14 A-15, A-16, A-17, and A-19) as having the potential to significantly affect wildlife and the biological environment. Given this potential, we want to underscore the importance of our comments on FirstNet's procedural guidance under Environmental Review and Consultation Requirements for NEPA Reviews and its list of extraordinary circumstances in Appendix D.

Environmental Review and Consultation Requirements for NEPA Reviews

To ensure there are no potentially significant impacts on birds from projects that may otherwise be categorically excluded, the Department recommends including the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act to the list of requirements in this section.

Extraordinary Circumstances

To avoid potentially significant impacts on birds from projects that may otherwise be categorically excluded, the Department recommends including species covered under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act to the list of environmentally sensitive resources. Additionally, adding important resources to migratory birds such as sites in the Western Hemisphere Shorebird Reserve Network and Audubon Important Bird Areas to the paragraph on areas having special designation or recognition would help ensure their consideration when contemplating use of a categorical exclusion.

Developing the Purpose and Need

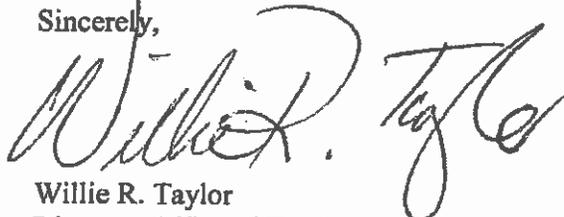
The Department recommends inclusion of language that would ensure consideration of all other authorities to which NEPA is supplemental as opposed to simply the FirstNet mission. As currently written, the procedures are limited to ensuring the purpose and need considers the FirstNet mission. If strictly applied, this approach would severely limit the range of reasonable alternatives, and likely preclude consideration of more environmentally benign locations or construction practices.

Environmental Review Process, Apply NEPA Early in the Process, Where Action is by Non-Federal Entity

The Department recommends that FirstNet be required to coordinate with federal agencies having jurisdiction by law or special expertise on construction and lighting of its network of towers.

Thank you for the opportunity to comment on the draft document. If you have any questions concerning the comments, please contact Diana Whittington, NEPA Migratory Bird lead, at (703) 358-2010. If you have any questions regarding Departmental NEPA procedures, contact Lisa Treichel, Office of Environmental Policy and Compliance at (202) 208-7116.

Sincerely,

A handwritten signature in black ink, appearing to read "Willie R. Taylor". The signature is written in a cursive, flowing style with a large initial "W".

Willie R. Taylor
Director, Office of Environmental Policy
and Compliance

Enclosure

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- U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern, 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. 85 pages. <http://www.fws.gov/migratorybirds>.

Enclosure A

Background

The placement and operation of communication towers, including un-guyed, unlit, monopole or lattice-designed structures, impact protected migratory birds in two significant ways.

The first is by injury, crippling loss, and death from collisions with towers and their supporting guy-wire infrastructure, where present. Mass mortality events tend to occur during periods of peak spring and fall songbird migration when inclement weather events coincide with migration, and frequently where lights (either on the towers and/or on adjacent outbuildings) are also present. This situation has been well documented in the U.S. since 1948 in the published literature (Aronoff 1949, see Manville 2007a for a critique). The tallest communication towers tend to be the most problematic (Gehring *et al.* 2011). However, mid-range (~400-ft) towers as proposed by the First Responder Network Authority (FirstNet, a newly created entity under the Department of Commerce) can also significantly impact protected migratory birds, as can un-guyed and unlit lattice and monopole towers (Gehring *et al.* 2009, Manville 2007a, 2009, 2013a). Mass mortalities (more than several hundred birds per night) at un-guyed, unlit monopole and lattice towers were documented in fall 2005 and 2011 in the Northeast and North Central U.S. (*e.g.*, Manville 2007a). It has been argued that communication towers including “short” towers do not impact migratory birds, including at the population level (*e.g.*, Arnold and Zink 2011), but recent findings have contradicted that assertion (Manville 2007a, 2013a, Longcore *et al.* 2012, 2013).

The second significant issue associated with communication towers involves impacts from non-ionizing electromagnetic radiation emitted by these structures. Radiation studies at cellular communication towers were begun circa 2000 in Europe and continue today on wild nesting birds. Study results have documented nest and site abandonment, plumage deterioration, locomotion problems, reduced survivorship, and death (*e.g.*, Balmori 2005, Balmori and Hallberg 2007, and Everaert and Bauwens 2007). Nesting migratory birds and their offspring have apparently been affected by the radiation from cellular phone towers in the 900 and 1800 MHz frequency ranges -- 915 MHz is the standard cellular phone frequency used in the United States. However, the electromagnetic radiation standards used by the Federal Communications Commission (FCC) continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today. This is primarily due to the lower levels of radiation output from microwave-powered communication devices such as cellular telephones and other sources of point-to-point communications; levels typically lower than from microwave ovens. The problem, however, appears to focus on very low levels of non-ionizing electromagnetic radiation. For example, in laboratory studies, T. Litovitz (personal communication) and DiCarlo *et al.* (2002) raised concerns about impacts of low-level, non-thermal electromagnetic radiation from the standard 915 MHz cell phone frequency on domestic chicken embryos -- with some lethal results (Manville 2009, 2013a). Radiation at extremely low levels (0.0001 the level emitted by the average digital cellular telephone) caused heart attacks and the deaths of some chicken embryos subjected to hypoxic conditions in the laboratory while controls subjected to hypoxia were unaffected (DiCarlo *et al.* 2002). To date, no independent, third-party field studies have been conducted in North America on impacts of tower electromagnetic radiation on migratory birds. With the European field and U.S. laboratory evidence already available,

independent, third-party peer-reviewed studies need to be conducted in the U.S. to begin examining the effects from radiation on migratory birds and other trust species.

Discussion

Collision Deaths and Categorical Exclusions

Attempts to estimate bird-collision mortality at communication towers in the U.S. resulted in figures of 4-5 million bird deaths per year (Manville 2005, 2009). A meta-review of the published literature now suggests, based on statistically determined parameters, that mortality may be 6.8 million birds per year in Canada and the U.S.; the vast majority in the United States (Longcore *et al.* 2012). Up to 350 species of birds have been killed at communication towers (Manville 2007a, 2009). The Service's Division of Migratory Bird Management has updated its voluntary, 2000 communication tower guidelines to reflect some of the more recent research findings (Manville 2013b). However, the level of estimated mortality alone suggests at a minimum that FirstNet prepare an environmental assessment to estimate and assess the cumulative effects of tower mortality to protected migratory birds.

A second meta-review of the published mortality data from scientific studies conducted in the U.S. and Canada (Longcore *et al.* 2013) strongly correlates population effects to at least 13 species of Birds of Conservation Concern (BCC, USFWS 2008). These are mortalities to BCC species based solely on documented collisions with communication towers in the U.S. and Canada, ranging from estimated annual levels of mortality of 1 to 9% of their estimated total population. Among these where mortality at communication towers was estimated at over 2% annually are the Yellow Rail, Swainson's Warbler, Pied-billed Grebe, Bay-breasted Warbler, Golden-winged Warbler, Prairie Warbler, and Ovenbird. Longcore *et al.* (2013) emphasized that avian mortality associated with anthropogenic sources is almost always reported in the aggregate, *i.e.*, "number of birds killed," which cannot detect species-level effects necessary to make effective and meaningful conservation assessments, including determining cumulative effects. These new findings strongly suggest the need for at least an environmental assessment by FirstNet, or more likely, an environmental impact statement.

Radiation Impacts and Categorical Exclusions

There is a growing level of anecdotal evidence linking effects of non-thermal, non-ionizing electromagnetic radiation from communication towers on nesting and roosting wild birds and other wildlife in the U.S. Independent, third-party studies have yet to be conducted in the U.S. or Canada, although a peer-reviewed research protocol developed for the U.S. Forest Service by the Service's Division of Migratory Bird Management is available to study both collision and radiation impacts (Manville 2002).

As previously mentioned, Balmori (2005) found strong negative correlations between levels of tower-emitted microwave radiation and bird breeding, nesting, and roosting in the vicinity of electromagnetic fields in Spain. He documented nest and site abandonment, plumage deterioration, locomotion problems, reduced survivorship, and death in House Sparrows, White Storks, Rock Doves, Magpies, Collared Doves, and other species. Though these species had historically been documented to roost and nest in these areas, Balmori (2005) did not observe these symptoms prior to construction and operation of the cellular phone towers. Balmori and Hallberg (2007) and Everaert and Bauwens (2007) found similar strong negative correlations

among male House Sparrows. Under laboratory conditions, DiCarlo *et al.* (2002) raised troubling concerns about impacts of low-level, non-thermal electromagnetic radiation from the standard 915 MHz cell phone frequency on domestic chicken embryos – with some lethal results (Manville 2009). Given the findings of the studies mentioned above, field studies should be conducted in North America to validate potential impacts of communication tower radiation – both direct and indirect – to migratory birds and other trust wildlife species.

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SELL & ASSOCIATES, INC.

REAL PROPERTY APPRAISERS AND CONSULTANTS

April 28, 2015

Karen F. Daniels
1565 N. Cholla Lane
Clarkdale, Arizona

Via email: compassroseorganics@yahoo.com

Re: Consultation regarding the proposed Cell Tower as it relates to the Residential Property owned by Karen Daniels, located at 1565 N. Cholla Lane, Clarkdale, Yavapai County, Arizona
Sell & Associates, Inc. File Number 15.0032C

Dear Ms. Daniels:

Pursuant to your request, I have been asked to provide consulting services regarding the proposed Cell tower located at 1450 SR 89A, Clarkdale, Arizona.

The client of this consulting report is Karen F. Daniels. The intended use of this report is for your use in objecting to the issuance of a special use permit by the Town of Clarkdale for the erection of the proposed cell tower. The intended users of this consulting report are Karen F. Daniels and the Town Council of Clarkdale.

The scope of the consultation services included an inspection of the Daniel's residence, a viewing of the proposed location of the proposed cell tower and its relationship to the Daniel's property, internet research regarding articles and studies relating to cell towers and their effect on the marketability and value as it relates to residential properties, interviews with various brokers, appraisers, real estate professors, and a review of the materials provided by Karen Daniels; including a depiction of the proposed tower and the view from the Daniels' residence before and after the installation of the tower. This was done to solve the problem, which is to determine what impact the installation of the proposed tower will have on the marketability of the Daniels' property.

4625 SOUTH LAKESHORE DRIVE, TEMPE, ARIZONA 85282-7127
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480-345-4400 (main) 480-345-4500 (direct) 480-345-4455 (fax)
www.sellassoc.com (website) jan@sellassoc.com (email)

Not included with the scope of this report is a specific determination of a loss in value to the Daniels', property (if any). This would have to be accomplished by doing a "Before" and "After" appraisal on the property, which would require a great deal of time and money to accomplish.

Front view of Daniels' residence



The installation of cellular towers, especially in or adjacent to residential neighborhoods is a controversial issue. Usually such installations are opposed by nearby property owners, claiming the adverse impact on their health and property values. These two issues can be inter-related; however, my focus is strictly on the presence of the structure as it relates to a nuisance or, in this instance an obstruction of a view amenity. It must be noted that some studies reflect an adverse impact due to health concerns. This factor alone narrows the market for buyers; thus, creating an adverse impact. In many areas, tower companies are required to have their structures blend in with the environment. This is typical and resolved by "stealth" installations; however, sometimes even with a stealth installation, it cannot resolve the problem. Samples of stealth installations in either residential and commercial areas, or where a view is impacted by such, are flagpoles, bell towers, palm trees, pine trees etc. The point is that the towers are designed so they blend in with their environs. In this instance, due to the

surrounding environs and the view amenity of the subject property, a stealth installation would not resolve the adverse impact.

The impact on the market value or marketability of a particular property by the installation of a cell tower varies. For instance, with a property that receives income from the tower, the value of that particular property will be increased. It is obvious that a cell tower located immediately over the fence of a residential property would have a negative impact on that property. Aesthetics is a key factor as it relates to the price/value and marketability of a single family residence.

Market value is defined as “the most probable price estimated in terms of cash in United States dollars or comparable market financial arrangements that the property would bring if exposed for sale in the open market, with reasonable time allowed in which to find a purchaser, buying with knowledge of all of the uses and purposes to which it was adapted and for which it was capable.”

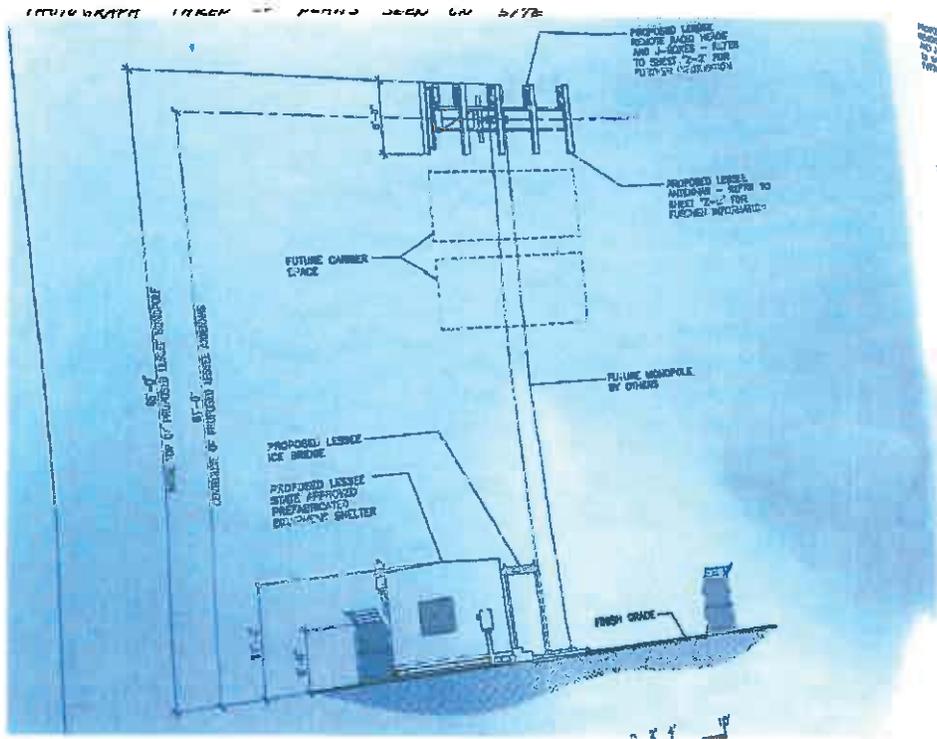
Arizona Revised Statute 28-12-1122(C)

Marketability is defined as “The relative desirability of a property (for sale or lease) in comparison with similar or competing properties in the area. That is, a property with poor marketability would be inferior to competing properties in terms of location, condition, access, etc. Conversely, a property with good marketability has superior features or condition in comparison with competing properties.” *The Dictionary of Real Estate Appraisal 5th Edition, Appraisal Institute, page 120.*

Aerial view of residence and tower location



Tower plans



Current view from Daniels' residence



Depiction of view with tower at 85 feet



Depiction of view with tower at 65 feet



In the past, I have measured the impact of a variety of conditions both within a property and external to a property. In this instance, I have been asked to provide an opinion as to the effect on the marketability of the subject property after the installation of the 65 to 85 foot cellular tower. In order to accomplish this, I have reviewed the following items:

Following is a list of sources and materials/sources reviewed:

Title

The Impact of Cell Phone Towers on House Prices in Residential Neighborhoods by Sandra Bond, PhD and Ko-Kang Wang

National Association of Realtors Appraisal Institute.

Notre Dame Journal of Law, Ethics & Public Policy by John Copelan Nagle

ARF Danger by Andrew Goldsworthy

Do cell phone towers affect the value of your home

A Pushback Against Cell Towers by Marcelle S. Fischler

US Dept of Housing and Urban Development

The Sitting of Wireless Communications Facilities by Kathleen Ann Ruane

EMF Real Estate Survey Results by Emily Category

Cell Towers, Antennas Problematic for Buyers by Daily Real Estate News

Coldwell Banker - Mabery Real Estate

Towers, Turbines & Transmission Lines: Inspection on Property Value

The effect of distance to cell phone towers on house prices by Sandy Bond

Cellular Phone Towers: Perceived impact on residents and property values. SOURCE: Pacific Rim Real Estate Society website

In another case, a Houston jury awarded 1.2 million dollars to a couple because a 100-foot-tall cell tower that was determined to have lessened the value of their property and caused them mental anguish: Nissimov, R., "GTE Wireless Loses Lawsuit over Cell-Phone Tower," Houston Chronicle, February 23, 1999, Section A, page 11. (Property values depreciate by about 10 percent because of the tower.)

The study performed by Ko Wang appears to be the most objective study available. Some of the above referenced sources, and others, generally conclude

that a cell tower has an adverse impact on residential properties. The problem with the studies for the most part is that they are not property specific; however, their conclusions can only support the opinion that the presence of the proposed cell tower would not have a positive impact, but would more obviously have a negative impact on the subject property due to the tower's location, design, proximity and view obstruction/distraction.

Based upon my inspection of the site and review of all of the materials referenced, it is my opinion that the presence of the cellular tower at this location as depicted, will adversely affect the overall esthetics and the view of the subject property, and thus, have a negative impact on the property's marketability and market value. In order to provide an opinion of the exact diminution in value a before and after analysis would have to be performed which is beyond the scope of this report.

The effective date of this consultation report is April 9, 2015, the same date of my inspection of the subject property. The date of this consultation report is April 28, 2015.

I certify, to the best of my knowledge and belief, that:

1. The statements of fact and data reported by the consultant are true and correct.
2. The analyses, opinions, and conclusions in this consultation are limited only by the assumptions and limiting conditions stated in this report and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.
3. I have no present or prospective interest in the property that is the subject of this consultation, and no personal interest with respect to the parties involved.
4. I have no bias with respect to the property that is the subject of this consultation report or to the parties involved with this assignment.
5. My engagement in this assignment is not contingent upon developing or reporting predetermined results.
6. My compensation for completing this assignment is not contingent upon an action or an event resulting from the analyses, opinions, or conclusions in this consultation report or from its use.

7. My analyses, opinions, and conclusions were developed, and this consultation report was prepared, in conformity with, the Uniform Standards of Professional Appraisal Practice (USPAP) as well as the Code of Professional Ethics of the Appraisal Institute.
8. The use of this consultation report is subject to the requirements of the Appraisal Institute relating to appraisal consulting by its duly authorized representatives.
10. As of the date of this consultation report, I have completed the requirements under the continuing education program of the Appraisal Institute.
11. No one provided significant appraisal, appraisal review, or appraisal consulting assistance to me in the preparation of this report.
12. I hereby state that I have the knowledge and experience necessary to complete the assignment competently.
13. I personally inspected the subject property. I am familiar with the area and the location of the proposed cell tower.
14. To the best of my knowledge and belief, I have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding the acceptance of this assignment.

Respectfully submitted,



Jan A. Sell, MAI, FRICS, SR/WA, SRA, CCIM
Certified General Real Estate Appraiser
Certificate Number 30120, State of Arizona
Expires August 31, 2016

ASSUMPTIONS AND LIMITING CONDITIONS

This real property consultation service has been made with the following limiting conditions:

1. Possession of this real property appraisal consulting report, or a copy thereof, does not carry with it the right of publication.
2. This consulting report is intended for use only by the client, and the Town Council of Clarkdale. Neither all nor any part of the contents of the consultation report shall be disclosed to any other parties without prior written consent and approval of the consultant.
3. The consultant is not required to give further consultation or testimony, or to be in attendance in court with reference to the property that is the subject of this real property consulting report, unless arrangements have been previously made.
4. The analyses, opinions, and conclusions in this consulting report are based solely on the data, analyses, and conclusions as specified in the report.
5. The consultant reserves the right to consider any new or additional information or data, which may subsequently become available and to revise their opinions and conclusions if such data and information indicates the need for change.

QUALIFICATIONS OF THE CONSULTANT

JAN A. SELL MAI, FRICS, SR/WA, SRA, CCIM

Jan Sell has been appraising property in the southwestern part of the nation since 1973. He graduated from Arizona State University in 1974 with a Bachelors of Science degree in Business Administration with a specialization in real estate. Prior to graduation, he began his appraisal career and was awarded the "Outstanding Real Estate Appraisal Student" awarded by the Society of Real Estate Appraisers and Arizona State University. Just prior to graduating, he was hired by Valley National Bank as a staff appraiser. Shortly after graduation, Mr. Sell continued his education there as well as acting as a liaison between the appraisal profession and the university. He also was a mentor for numerous students seeking a start in the business. In 1983, he was the recipient of the University's Real Estate Professional of the Year award. He also serves as a guest lecturer at Arizona State University undergraduate program as well as the Master of Science in Real Estate Development program. He continues to occasionally serve as a lecturer, speaker and or panel member at various seminars on real estate related issues. In the spring of 2008, he obtained a Master of Science degree in Real Estate Appraisal (4.0 GPA) from the Opus Graduate School of Business, University of St. Thomas, St. Paul, Minnesota.

In 1978 he started his own business which expanded to 88 employees with offices in Arizona, Nevada, California and New Mexico. His appraisal practice, which was traditionally lender based, broadened over the years to include larger financial, corporate, governmental and legal clients. During this period, his litigation support practice grew substantially.

During the late 1980's and early 1990's, he provided appraisals, appraisal reviews, counseling, litigation support and expert witness services for most of the banking industry's regulatory agencies, including the Resolution Trust Corporation, the Federal Deposit Insurance Corporation, the Federal Home Loan Bank Board, and the Federal National Mortgage Association (FNMA). From 1985 to 1990, Mr. Sell helped to organize and subsequently sell Sun National Bank, where he served on the board of directors and loan committee.

Also, he has been retained by numerous entities to perform forensic services involving financial and real estate fraud. He assisted in the discovery of fraudulent activities, which led to the prosecution of numerous individuals. His involvement also included the identification, valuation and disposition of real estate assets and as an expert witness. He has participated in numerous appraisal assignments with other leading professional from across the country on complex assignments. He has also served as a court appointed commissioner in a land partition action and has been retained as an expert in similar matters.

Mr. Sell also acts as a consultant for legal counsel in a variety of real estate related valuation issues. He was involved in the 6,500 acre Mohave Desert Tortoise Habitat in southern Utah for both the government and property owners. During that assignment, he attended a congressional hearing in Washington D.C. While appraising all of the land for Bank One Ballpark in Phoenix, he performed a study on the effect of the development of a new stadium on the surrounding area. He was also involved in research and analysis regarding the effect of under- ground water contamination on property values in the Phoenix metro area. Mr. Sell also has valued numerous properties in real property tax disputes, including Turf Paradise, a horse racetrack in Phoenix. Numerous other assignments include Brownfield projects, deficiency actions, a variety of types of easements including underground pipelines, "Rails to Trails", surface and air rights and diminution in value involving title insurance claims, construction defects, mold and other detrimental property conditions.

Mr. Sell's years of knowledge and experience in real estate appraisal, brokerage, development and property management has made him a confident, reputable and well-respected expert witness. His experience in litigation matters is well balanced between plaintiffs and defendants.

Mr. Sell is a Certified General Appraiser in Arizona, Nevada and Hawaii. He holds the MAI and SRA designations from the Appraisal Institute, the SR/WA designation from the International Right of Way Association, the CCIM designation from the CCIM Institute and the FRICS designation from the Royal Institution of Chartered Surveyors. Furthermore, he is a licensed Real Estate Broker in Arizona, a Member of the Real Estate Counseling Group of America, a Registered Property Tax Agent in Arizona and a licensed private pilot.

Currently, Mr. Sell is President of Sell & Associates, Inc., with offices in Tempe and Pinetop, Arizona and Lahaina, Maui, Hawaii. He also is the General Partner and Managing Member of numerous real estate investment and development entities.

Jan can be reached at:

Office: 480-345-4500
Fax: 480-345-4455
Cell: 602-525-7980
Email: jan@sellassoc.com
Web: www.sellassoc.com

On the following pages are Mr. Sell's "Qualifications of the Appraiser".

Professional Designations and Licenses:

MAI: Member, Appraisal Institute, Certificate #6137, Awarded 1980
FRICS: Fellow, Royal Institution of Chartered Surveyors, Awarded 2008
SR/WA Member, International Right of Way Association, Awarded 2007
SRA: Senior Residential Appraiser, Appraisal Institute Awarded 1977
CCIM: Certified Commercial Investment Member, CCIM Institute, Certificate #7302, Awarded 1997

Member-Real Estate Counseling Group of America 2004-Present

Certified General Real Estate Appraiser, Certificate No. 30120, State of Arizona
Certified General Appraiser, License No. A.0000071-CG, State of Nevada
Certified General Appraiser, License No. CGA848, State of Hawaii
Certified General Appraiser, License No. TX 1348433 G State of Texas

Licensed Real Estate Broker, License No. BR005056000, State of Arizona (1981)

Property Tax Agent, State of Arizona, Registration #2010044

Licensed Private Pilot

Education:

Master of Science in Real Estate Appraisal (4.0 GPA), Opus Graduate School of Business, University of St. Thomas, St. Paul, Minnesota, May 2008

"Certificate of Advanced Appraisal Study", Opus Graduate School of Business, University of St. Thomas, St. Paul Minnesota, May 2006

Post Graduate Study in Real Estate, College of Business Administration, Arizona State University, Tempe, Arizona, 1974-1978

Bachelor of Science Degree in Business Administration, Specialization in Real Estate, Arizona State University, Tempe, Arizona, 1974

Robert Morris College, Pittsburgh, Pennsylvania, 1970 – 1972

AIREA Hydrology Seminar," Tempe, Arizona, February, 1986

AIREA Course 3, "Rural Valuation," Dallas, Texas, February, 1986

AIREA "Highest and Best Use Seminar," Tucson, Arizona, April, 1986

Planning Association of Arizona, "Planning for Change", Tucson, Arizona, September, 1986

SREA Federal Home Loan Bank Board R41-c Seminar," Oakland, California, December, 1986

SREA International Convention Seminars, Anaheim, 1986, Montreal, 1987

AIREA Course 6, "Computer Assisted Investment Analysis", Tempe, Arizona, March, 1987

AIREA Seminar, "Adjusting Market Sales", Tempe, Arizona, August, 1987

AIREA Southwest Regional Convention/Seminars, San Francisco, California, September, 1987

AMA, "Cash Equivalency Seminar," Tucson, Arizona, February, 1988

The City of the 21st Century Conference, Department of Planning, College of Architecture and Environmental Design, Arizona State University, Tempe, Arizona, April, 1988

Arizona Condemnation and Zoning Seminar, Scottsdale, Arizona, June, 1988

SREA "Professional Practice Seminar," Tempe, Arizona, December, 1988

AIREA/SREA "Toxic Waste," Phoenix, Arizona, April, 1989

AIREA "Standards of Professional Practice Update," Santa Fe, New Mexico, June, 1989

SREA Seminar, "Further Developments in Business Enterprise, Value Analysis and the Value Effects of Property Contamination," SREA Symposium, San Antonio, Texas, September, 1990

United States League of Savings Institutions "Post-FIRREA Appraisal Management," Los Angeles, California, October, 1990

AIREA Course 10, "Market Analysis for Real Estate Appraisers," Winter Park, Florida, October, 1990

Appraisal Institute "Standards of Professional Appraisal Practice, Parts A & B" Tempe, Arizona, February, 1991

Appraisal Institute and the University of Texas School of Law, "Valuation of Assets in Bankruptcy," Austin, Texas, July, 1991

Action Environmental Services, "Site Assessments, the Legal Approach," Tempe, Arizona, August, 1991

Mortgage Bankers Association of America, Commercial Real Estate Finance/Multifamily Housing Conference, San Diego, California, February, 1992

Appraisal Institute "Standards of Professional Appraisal Practice, Part B" Phoenix, Arizona, May, 1992

American Arbitration Association "Mediation Resolutions," Phoenix, AZ, October, 1992

Arizona Board of Appraisal, "Impact of Highway Construction on Real Estate," Phoenix, Arizona, January, 1993

Appraisal Institute "Subdivision Analysis," Phoenix, Arizona, April, 1993

Lincoln Graduate Center "Yield Capitalization," Dallas, Texas, April, 1993

Seminar "Americans with Disabilities Act," Tempe, Arizona, May, 1993

State Bar of Arizona - Instructor, "Real Estate Appraisal," Phoenix, Arizona, October, 1993

Appraisal Institute "Survey Research," Park City, Utah, February, 1994

Appraisal Institute "Standards of Professional Appraisal Practice, Parts A & B," Tempe, Arizona, February, 1994

New York University "Annual Pension Fund Conference," New York, New York, May, 1994

Appraisal Institute Symposium: "The Changing Role of the Real Estate Analyst," Washington, D.C., October, 1994

Appraisal Institute "Environmental Risk and the Real Estate Appraisal Process," Park City, Utah, February, 1995

ULI (Urban Land Institute) Phoenix District Council "Environmental Issues in Metro Phoenix," Phoenix, Arizona, May, 1995

Appraisal Institute Symposium: "Rapidly Changing Environment in the Real Estate Industry," New Orleans, Louisiana, September, 1995

National Council of Real Estate Investment Fiduciaries (NCREIF) "Valuation Committee Symposium," Phoenix, Arizona, November, 1995

Appraisal Institute "Diversification of Appraisal Services," San Francisco, California, December 1995

Arizona School of Real Estate "Arizona Fair Housing Law, #3269," Phoenix, Arizona, January, 1996

Arizona Board of Appraisal "USPAP and You" Phoenix, Arizona, April, 1996

The American Society of Farm Managers and Rural Appraisers, Inc., "Ranch Appraisal Seminar," Tempe, Arizona, May, 1996

CCIM, "CI 201: Market Analysis for Commercial Investment Real Estate," Phoenix, Arizona, September, 1996

CCIM, "CI 301: Decision Analysis for Commercial Investment Real Estate," Chicago, Illinois, November, 1996

Arizona School of Real Estate & Business "USPAP – Appraisal of Professional Standards & Ethics, #1016017," Scottsdale, Arizona, July, 1998

Appraisal Institute "Litigation Skills for Appraisers; An Overview," Sacramento, California, November, 1998

Appraisal Institute "Valuation of Detrimental Conditions in Real Estate," Sacramento, California 1998

Neutral's Conference, "American Arbitration Association," Orlando, Florida, 1998

Appraisal Institute "Condemnation Appraising: Advanced Topics and Applications," Lake Buena Vista, Florida, June, 1999

Arizona School of Real Estate "Federal Fair Housing and the Americans with Disabilities Act," Scottsdale, Arizona, August, 1999

Appraisal Institute "The Appraisal of Local Retail Properties", Sun Valley, Idaho, September, 1999

Appraisal Institute "Special-Purpose Properties: The Challenges of Real Estate Appraising in Limited Markets," Sun Valley, Idaho, September 1999

National Council of Real Estate Investment Fiduciaries (NCREIF) and the Appraisal Institute, 1999 Symposium "Valuation and the Evolution of the Real Estate Capital Markets", Naples, Florida, October, 1999

Appraisal Institute "Attacking and Defending an Appraisal in Litigation", Lake Tahoe, Nevada, October, 1999

Appraisal Institute "Lease Abstracting and Analysis", Lake Tahoe, Nevada, October, 1999

The Counselors of Real Estate "Real Estate Trends" Annual Convention, Lake Buena Vista, Florida, November, 1999

Arizona Appraisal Coalition "The Impact on Value of Highway Freeway Construction", Tempe, Arizona, October, 2000

Appraisal Institute "The Law and Value: Communications Corridors, Tower Sites and Property Rights," Sacramento, California, April, 2001

Appraisal Institute "Section 8/HUD Rent Comparability Studies and Standards", Dallas, Texas, April, 2001

Appraisal Institute "Standards of Professional Appraisal Practice", Redmond, Washington, May, 2001

Mealey's Mold Litigation Conference, Marina del Rey, California, June, 2001

International Right of Way Association, Course 403, "Easement Valuation", Las Vegas, Nevada, November, 2001

Appraisal Institute "Standards of Professional Appraisal Practice", San Diego, CA, May, 2002

Instructor-CLE International, "The Appraisal of Real Estate", Phoenix, AZ, August, 2002

American Arbitration Association, "Commercial Arbitrator II", Phoenix, AZ, October, 2002

American Arbitration Association, "Pro Se: Managing Cases Involving Self-Represented Parties", AAA Web Radio, December 31, 2003

Real Estate Counseling Group of America, "Spring Conference", April 2004, Half Moon Bay, California

International Right of Way Association, Course 600, "Environmental Awareness", Tempe, Arizona, April, 2004

Valuation 2004 'Standards of Professional Practice Update', Las Vegas, Nevada, May, 2004

Real Estate Counseling Group of America, "Fall Conference", San Antonio, Texas, October, 2004

American Property Tax "Fall Conference", October 2004, Scottsdale, Arizona

Appraisal Institute, Case Studies in Limited Partnership and Common Tenancy Valuation, Las Vegas, Nevada, October 2004

International Right of Way Association, Course 200, "Principles of Real Estate Negotiation", Phoenix, Arizona, December 2004

Appraisal Institute, Course 800, "Separating Real and Personal Property from Intangible Business Assets", Denver, Colorado, December, 2004

Real Estate Counseling Group of America, "Spring Conference", Savannah, Georgia, March, 2005

Appraisal Institute Course 400, "2005 National USPAP Update", Tucson, Arizona, April, 2005

International Right of Way Association, Course 140, "Principles of Wireless Site Development", Palo Alto, California, September, 2005

International Right of Way Association, Course 800, "Principles of Real Estate Law", Sacramento, California, September, 2005

American Property Tax Council and Real Estate Counseling Group of America "Fall Conference", October 2005, Dana Point, California

International Right of Way Association, Course 900, "Principles of Real Estate Engineering", Reno, Nevada, November, 2005

Advanced Topics in Real Estate Appraisal (FINC 745), St. Thomas University, Minneapolis, Minnesota, January, 2006

International Right of Way Association, Course 205, "Bargaining Negotiations", Tempe, Arizona, February, 2006

International Right of Way Association, Course 500, "Uniform Relocation Act", Tempe, Arizona, February, 2006

International Right of Way Association, Course 900, "Engineering Plan Development", Tucson, Arizona, March, 2005

Real Estate Counseling Group of America, "Spring Conference", Sedona, Arizona, March 2006

CCIM Institute, "STDB Training Class" Scottsdale, Arizona April 2006

International Right of Way Association, Course 802, "Legal Aspects of Easements", Tucson, Arizona, April, 2006

International Right of Way Association, Course 205, "Bargaining Negotiations", Los Angeles, California, July, 2006

Market Analysis and Feasibility Studies (FINC 746), St. Thomas University, Minneapolis, Minnesota, August, 2006

Effective Communications (FINC 742), St. Thomas University, Minneapolis, Minnesota, August, 2006

International Right of Way Association, Course 213, "Conflict Management", Tempe, Arizona, September, 2006

American Property Tax Council "Fall Conference", October 2006, Dana Point, California

Real Estate Counseling Group of America, "Fall Conference", Philadelphia, Pennsylvania, October, 2005

International Right of Way Association, Course 140, "Principles of Wireless Site Development", Phoenix, Arizona, November, 2005

Legal Issues in Valuation (BLAW 730), St. Thomas University, Minneapolis, Minnesota, January, 2007

Appraisal Institute "2007 Litigation Shared Interest Group" Los Angeles, CA, March, 2007

Arizona School of Real Estate, "2006 National USPAP Update", Scottsdale, Arizona, April, 2007

Appraisal Institute Course 102, "Uniform Standards of Professional Appraisal Practice" (USPAP), Salt Lake City, Utah, May, 2007

Statistical Analysis for Real Estate Appraisers (DSCI 600-37), St. Thomas University, Minneapolis, Minnesota, August, 2007

Urban Land Economics (FINC 743), St. Thomas University, Minneapolis, Minnesota, August, 2007

American Arbitration Association, Arbitrator Ethics and Disclosure, AAA Online, November, 2007

Guest Lecturer, Master of Science in Real Estate Development program, Arizona State University, Tempe, Arizona, 2006-2007

International Right of Way Association, Course 403, "Easement Valuation", Honolulu, Hawaii, October, 2008

Appraisal Institute, "Uniform Appraisal Standards for Federal Land Acquisitions" (Yellow Book), Baltimore, Maryland, November 2008

Arizona School of Real Estate, "2008-09 National USPAP Update", Scottsdale, Arizona, February, 2009

Marshall & Swift, "Cost Segregation Best Practices", Bloomington, Minnesota, September, 2009

Forensic Expert Witness Association, "Web 2.0", Irvine, California, September, 2009

Real Estate Counseling Group of America, "Fall Conference", Chicago, Illinois, October, 2009

Forensic Expert Witness Association, "Web 2.0", Irvine, California, September, 2009

Appraisal Institute "Business Practices and Ethics", Online Education, October, 2009

Real Estate Counseling Group of America, "Current Real Estate Market Report", Henderson, Nevada, April, 2010

Appraisal Institute "Appraisal Curriculum Overview", Mesa, Arizona, November, 2010

Arizona School of Real Estate "2010-2011 National USPAP Update", Scottsdale, Arizona, January, 2011

Appraisal Institute "Appraising Nursing Homes", Online Education, February, 2011

Appraisal Institute "Appraising Manufactured Housing", Online Education, April, 2011

International Right of Way Association #73, Speaker, Surviving the Right of Way Jungle, Tucson, Arizona, September, 2011

Condemnation Summit IX, Phoenix, Arizona, October 12, 2011

Appraisal Institute Course 800 "Fundamentals of Separating Real Property, Personal Property, and Intangible Business Assets", Chicago, Illinois, December 15-16, 2011

Appraisal Institute "2012-2013 National USPAP Update Course", Phoenix, Arizona, February, 2012

Maricopa County Bar Association, Lecturer, "Real Estate Appraisal Testimony", Phoenix, Arizona, February, 2012

Turnaround Management Association-Arizona, Panel Member, "A Team Approach to a Successful Reorganization", Phoenix, Arizona, February, 2012

Condemnation Summit X, Panel Member, Phoenix, Arizona, May, 2012

Condemnation Summit XIII, Panel Member, Phoenix, Arizona, October, 2012

Arizona School of Real Estate, "2014-2015 National USPAP Update Course", Scottsdale, Arizona, January, 2014

American Society of Farm Managers and Rural Appraisers – 2014 Spring Ag Forum, Phoenix, Arizona, February 2014

Appraisal Institute, Online Data Verification Methods, July, 2014

Appraisal Institute, Online Using Your HP12C Financial Calculator, November, 2014

Appraisal Institute, Online Business Practices and Ethics, November, 2014

Appraisal Institute, National USPAP Update Course, Tucson, Arizona, February, 2015

Appraisal Institute, Online Forecasting Revenue, March, 2015

Arizona Appraisers State Conference, LLC, "Pitfalls of Commercial Appraisals, March, 2015

Organizations

- Appraisal Institute
- Royal Institution of Chartered Surveyors
- CCIM Institute
- International Right of Way Association
- Real Estate Counseling Group of America
- Lambda Alpha International
- National Association of Realtors
- Board of Realtors - SouthEast Valley Regional, White Mountain and Arizona Association of Realtors
- Business Leaders Confidence Index (BLCI) Eller College of Management, University of Arizona/Compass Bank
- RERC Regional Survey Participant, RERC Real Estate Report
- Forensic Expert Witness Association
- Past Member, National Roster of Neutrals, Commercial Panel Member, American Arbitration Association
- Past Member, Urban Land Institute
- Past Member, Baseline Rotary Club, Mesa, Arizona
- Past Member-Turn Around Management Association
- Past Member-The American Real Estate Society

-Past Member-Institute of Real Estate Management

Professional and Civic Activities:

Society of Real Estate Appraisers: Member National Computer Applications Committee, 1985 to 1986

Society of Real Estate Appraisers: Chapter 68 -- Chairman, Professional Practice Committee and Past Chairman Nomination Committee

Society of Real Estate Appraisers: Special Assistant to the International President, 1980 to 1981

Society of Real Estate Appraisers: Young Advisory Council, 1977 and 1978

Society of Real Estate Appraisers: Chapter 68 -- Member, Board of Directors, 1976 to 1982; President, 1980 to 1981; Vice President, 1979 to 1980; Treasurer, 1978 to 1979

Society of Real Estate Appraisers: Chapter 68 Chairman, Internship Committee, 1978 to 1982 and 1985

Society of Real Estate Appraisers: Chapter 68 Member, Education and Program Committee, 1977

Dobson Ranch Homeowner's Association: President, Board of Directors, 1980 to 1981

College of Business Administration, Arizona State University: Guest Lecturer, 1976 to 1982

State Bar of Arizona, Faculty Member, 1993 - 1994

City of Mesa, Arizona: Chairman, Zoning Adjustment Board, 1982 and 1983; Member from 1976 to 1983

City of Mesa, Arizona: Member, Traffic Safety Committee, 1984 to 1986

City of Mesa, Arizona: Member, Design Review Advisory Board, 1986 to 1990

Leadership Training and Development Graduate, Mesa Chamber of Commerce, 1984 to 1985

New Hope for the Blind, Board of Directors, 1984-1986

American Institute of Real Estate Appraisers, Arizona Chapter, Admissions Committee 1984-1987

Appraisal Institute, Review and Counseling Committee Member, 1984 to 1987, 1990 to Present

Deputy Voter Registrar, Maricopa County, Arizona, 1982 to 1984

Valley Partnership, R.E.O. Ad-Hoc Committee, 1989

Appraisal Institute: Assistant Regional Member, Ethics Administration Division, 1994 to Present

International Youth Exchange Chairman, District 5510 Rotary International 1990-1995

Assessor's Panel, Royal Institution of Chartered Surveyors, 2007 to Present

City of Tempe, Zoning Adjustment Board Member, 2011 to Present

Achievements:

Awarded the "Real Estate Appraisal Student of the Year" by Chapter 68, Society of Real Estate Appraisers in conjunction with the College of Business Administration of Arizona State University, 1974

Recipient of the "Real Estate Professional Award" by the College of Business Administration, Arizona State University, April, 1983

Established the second largest Real Estate Valuation and Consulting firm in the nation with offices in Arizona, Nevada, New Mexico and California, 1984-1996

Appraisal Experience:

Assistant Appraiser: Iver C. Johnson Company, 6502 North 35th Avenue, Phoenix, Arizona 85017; April 1973 to June 1974

Staff Appraiser: Valley National Bank of Arizona, 201 North Central Avenue, Phoenix, Arizona; June, 1974 to October, 1978

President/Vice-President: Appraisal Research Consultants, Inc., 3225 North Central Avenue, Phoenix, Arizona 85012; October, 1978 to January, 1980

President: J. A. Sell Corporation, 2111 East Baseline Road, Suite C-4, Tempe, Arizona 85283; January, 1980 to September, 1981

President: Sell, Huish & McFadden, Inc., 4625 South Lakeshore Drive, Tempe, Arizona 85282-7127; October, 1981 to May, 1984.

President: Sell, Huish & Associates, Inc., 4625 South Lakeshore Drive, Tempe, Arizona 85282-7127; May 1984 to March 1998.

President: Sell & Associates, Inc., 4625 South Lakeshore Drive, Tempe, Arizona 85282-7169; April 1998 to Present

Note: I have appraised or assisted in the appraisals, market and feasibility analyses or have provided real estate counseling and valuation services for many types of properties and projects including raw land, subdivisions, proposed and existing single-family and condominium developments, offices, commercial buildings, shopping centers, truck stops, apartments, timeshares and fractional interests, HUD multi-family projects, industrial properties, motels, hotels, restaurants, resorts, family fun parks, sports complexes, corridor/pipeline/power line, odor easement and other right-of-way valuations, communication towers, sand and gravel, inert landfills and golf courses in the metropolitan Phoenix area and throughout the Southwestern United States. I have participated in Eminent Domain valuations in the states of Arizona and Nevada have testified as an Expert Witness in the Superior Court in Maricopa, Navajo and Yavapai Counties, Arizona. Also in the State Court in Clark County, Nevada, San Mateo, California and the U.S. Courts in Phoenix, Arizona, Las Vegas, Nevada and San Diego, California. Other areas of experience include forensic valuation services, interim construction inspections, valuations for property tax appeals, detrimental conditions valuation, appraisal reviews, real estate brokerage and counseling, commercial property management and litigation support. Also, I have acted as an appraisal management consultant for several financial institutions in Arizona. Furthermore, I have been an arbitrator in numerous real estate lease negotiations.

Publications and Working Papers

"Use of the Income Approach in Valuing a Sand and Gravel Property in a Condemnation Proceeding", Hamilton, T. W., and Sell, Jan A. Real Estate Issues, 34(2), 35-40, 2009.

Hamilton, T. W. and Sell, J. A. (2011) Use of the Income Approach in Valuing a Sand and Gravel property in a Condemnation Proceeding. In D. C. Lennhoff, MAI, SRA (Ed), A Business Enterprise Value Anthology (Second Edition pp. 209-216). Chicago: Appraisal Institute.

"Phoenix Light Rail: The Affect on Corridor Property Values in Tempe, Arizona" Working Paper presented at the "Condemnation Summit XIII, Ritz Carlton, Phoenix, Arizona, October 11, 2013

Other Experience and Business Associations

Founding Director: Sun National Bank, Mesa, Arizona, 1984-1987

Member: Loan Committee and Business Development Committee, Sun National Bank, Mesa, Arizona, 1984 -1987

Vice President: Anredon Mortgage Corporation, 1981-1983

Real Estate Sales Agent: Century 21, Tempe, Arizona, 1975-1981

Designated Broker: Anredon Properties, Inc., a Real Estate Brokerage and Property Management Corporation, 1981-1998

Designated Broker: CarrAmerica Realty Corporation, 2720 W. Camelback Rd., Suite 280, Phoenix, AZ, July-October 1999

Designated Broker: Sell & Associates, Inc., 1998-2005 (except for July-October 1999)

Designated Broker: Sell Properties L.L.C., 2005-Present

I have remodeled numerous residential structures and commercial buildings as well as developed a custom family residence, two professional office buildings, a restaurant, and a proposed 92-room motel, retail center and a 26 unit apartment complex. Furthermore, I manage or have managed numerous residential units, office and retail buildings and other commercial properties and vacant land.

Expert Witness Experience:

State Courts: Maricopa, Navajo, Coconino, Cochise and Yavapai Counties, Arizona;
Clark County, Nevada, San Mateo County, California
Federal District Courts: Phoenix, and; Tucson, Arizona, San Diego and San Francisco Calif.; Lubbock,
Texas

Geographical Areas of Appraisal Experience:

States of Arizona, Nevada, New Mexico, Utah, Colorado, California, Texas, Wyoming, Missouri, Hawaii, Alaska,
Pennsylvania, Washington, Oregon and the States of Baja California Del Norte and Sonora, Mexico

SUMMARY OF TESTIMONY 1996-PRESENT

(NOTE: FIRST TESTIMONY OCCURRED IN 1984)

	DATE	TYPE	CASE REFERENCE	PARTIES (BOLD signifies on behalf of)
	1996			
1	02/09/1996	Testimony	CV95-12784	Ubogy v. Garrison, et al
2	05/22/1996	Testimony		City of Tempe v. Kemp
3	05/23/1996	Testimony	CV96-90860	City of Tempe v. Starks
4	06/24/1996	Testimony	B95-06757-GBN	Adobe Pass Limited Partnership Creditor
5	07/23/1996	Deposition		City of Mesa v. Mobil Oil Corp.
6	07/26/1996	Testimony	CV96-90860	City of Tempe v. Starks
7	10/03 & 04/1996	Deposition	CV94-15731	Fannie Mae v. Misener
8	10/17 & 17/1996	Deposition	CV94-15731	Fannie Mae v. Misener
9	11/14/1996	Deposition	CV94-10606	Casa Grande Villages, Inc. et al v. Transamerica Title Insurance Company
	1997			
1	01/05/1997	Deposition	CV96-0753	State of Arizona v. Cole
2	03/14/1997	Deposition	CV95-05483	Maricopa Co. Stadium District v. Oens
3	05/20/1997	Deposition		State of Arizona v.
4	06/24-26/97	Testimony	CV95-05438	Maricopa County Stadium District v. Oens
5	09/12/1997	Deposition	A354719	Clark County School District v. Beesley, et al
6	10/06/1998	Testimony		DRH Investment Part. V. Ehrlich
7	11/04/1997	Testimony	A354719	Clark County School District v. Beesley, et al
8	11/10/1997	Testimony	B97-04487-PHX-SSC	Forest City Adventures Creditor
9	12/11/1997	Deposition	CIV91-0634-PHX-SMM	R.T.C. /F.D.I.C. v. Rice et al
	1998			
1	01/15/1998	Deposition	CV95-05472	Maricopa Co. Stadium District v. Arena Park Place
2	02/19-23/98	Testimony	CV95-05472	Maricopa Co. Stadium District v. Arena Park Place
3	03/06/1998	Deposition	CV-95-000320	Shumway v. Larsen
4	05/04/1998	Testimony		Zude v. Zude
5	07/21/1998	Testimony	CV98-09865	State of Arizona v. Scibienski
6	08/06/1998	Testimony	CV95-000320	Shumway v. Larsen
7	09/04/1998	Testimony	CV98-09865	State of Arizona v. Scibienski
8	10/06/1998	Testimony	CV94-08167	Hartunian v. Ehrich et al.
9	11/06/1998	Testimony	B-97-11258-PHX-RGM	Docu-Form, Inc. Creditor
	1999			
1	02/05/1999	Testimony	CV99-00021	State of Arizona v. Sweetwater Pima LTD
2	02/09/1999	Deposition	A3624219	Clark County v. Rouseau
3	02/24/1999	Testimony	A3624219	Clark County v. Rouseau
4	06/02/1999	Testimony	98-12312-PHX-RGM	Arden Properties Inc Creditor
5	10/28/1999	Deposition	CV92-02603	Melody Baker, et al v. Motorola, Inc. et al
6	11/10/1999	Testimony	B99-07579-PHX-RGM	MarVen Development Creditor
7	11/12/1999	Deposition	CV98-03597	Airport Auth., Washoe County, NV v. Barnett
	2000			
1	02/17/2000	Deposition	CV96-00573	State of Arizona v. Alma School Landfill
2	03/21/2000	Testimony	CV96-00573	State of Arizona v. Alma School Landfill
3	04/10/2000	Deposition	CV98-03594	Airport Auth., Washoe County, NV v. Walters
4	05/08/2000	Testimony		City of Chandler v. Purdy
5	09/19/2000	Deposition	302230	Kral v. English
6	12/11/2000	Deposition	CV95-05484	Maricopa Co. Stadium District v. Phillip Exum et al.
	2001			
1	03/01&02/01	Testimony	302230(San Francisco)	Kral v. English
2	04/13/2001	Deposition	CV970000048	Huiskamp v. Navajo County, AZ
3	08/03/2001	Deposition	CV99-11130	City of Scottsdale v. Hook

2002				
1	02/14/2002	Testimony	B-00-11538-ECF-RJH	Regala International L.L.C. Creditor
2	02/15/2002	Testimony	B-00-11539-ECF-EWH	Gemini Projects U.S., L.L.C. Creditor
3	02/21/2002	Deposition	BC147860 (L.A. Coty)	Nassgil v. Hughes Electronics
4	03/07/2002	Deposition	CV2000-018375	Lund Inc. v. M&B Capital Group, L.L.C.
5	12/03/2002	Deposition	CV	City of Mesa v.
2003				
1	06/10/2003	Testimony	03-02193-PHX-SSC	J A Manufacturing, Inc., John Abate International, Jocca LLC- Debtor
2	10/02/2003	Deposition	CV200299	City of Sedona v. Northern Shadows Realty, Inc.
2004				
3				
4	02/20/2004	Deposition	TX 202-000393	Mountain Ridge Est, LLC v. Maricopa County, AZ
5	06/17/2003	Testimony	CV200299	City of Sedona v. Northern Shadows Realty, Inc.
6	09/28/2004	Deposition	DR2000-009053	Wenzlick v. Wenzlick
7	10/13/2004	Deposition	CV2003-003706	Orton v. Beazer Homes
2005				
1	01/06/2005	Deposition	CV2000-0299	City of Sedona v. J. Trevillyan & David Tracy
2	01/28/2005 01/31/2005	Testimony	CV2000-0299	City of Sedona v. J. Trevillyan & David Tracy
3	06/17/2005	Testimony	Arbitration	Kimmell v. Virginia Auto
4	08/18/2005	Testimony	CV2005-063754	City of Tempe v. McGregor etal
5	11/16/2005	Testimony	B-04-10492PHX-RJH	ADOT v. I-17
6	12/07/2005	Deposition	CV2003-008175	Hackney et al v. Courtland Homes
2006				
1	03/09/2006	Deposition	CV2003-02368	City of Phoenix v. Edw C. Levy etal
2	04/13/2006	Testimony	AB-1174	Pederson Group v. AZ Land Dept.
3	04/17/2006	Testimony	CV2003-008175	Hackney et al v. Courtland Homes
4	05/16/2006	Deposition	TX2004-000882	G&J Prop. Ltd :HGJ Inv. Crackerjax Family Centers I v. Maricopa County
5	05/17/2006	Testimony	2-02-00576-SSC	Birdsell v. Peterson
6	05/24/2006	Deposition	CV2003-023698	City of Phoenix v. Edw C. Levy et al
7	06/05/2006	Testimony	CV2006-006501	Town of Buckeye v. Hindman et al
8	06/06/2006	Testimony	CV2006-006499	Town of Buckeye v. Ray
9	07/20/2006	Deposition	CV2005-003032	SRP v. Outer Ring LLC
10	07/21/2006	Deposition	CV2004-000243	Kassai v. McCleve, et al
11	08/04/2006	Deposition	CV2004-010126	City of Tempe v. Singer
12	08/09/2006	Deposition	76-181-00344-05-LMT	Lopez v. Continental Homes
13	11/07/2006	Deposition	05-02829	Eagle Peak, Inc v. Washoe County, Nevada
14	12/04/2006	Testimony	CV2006-011182	City of Chandler v. McCullough
2007				
1	01/19/2007	Deposition	02-12581-PHX RTB A. No. 2:05-ap-00010-RTB	7 TH & Mill, Parking Assessment, LLC v. The Orchidhouse Condominium Association
2	04/17/2007	Deposition	CV2005-051876	Bruse Investments v. Ferrin Air et al
3	07/20/2007	Testimony	CV2005-010349	Western United Life Assurance Co. v. Farrokh
4	10/10,12,15/2007	Deposition	CV2003-023698	City of Phoenix v. Edw C. Levy et al
2008				
1	01/16/2008	Deposition	CV2006-018404	Stearns Bank v. Rim Country Mall L.L.C.
2	04/10/2008	Deposition	CV8-20020150	Engelhardt v. Cody
3	04/22/2008	Testimony	Arbitration	Sun Valley LTD etal. v. Gillenwater etal.
4	04/25/2008	Deposition	76-110-E-00267-07	Davis v. Pulte Home Corporation
5	07/15/2008	Deposition	CV2007-015082	Flash & The Boys LLC v. Butcher
6	08/04/2008	Testimony	CV2007-015082	Flash & The Boys LLC v. Butcher
7	09/09/2008	Deposition	CV2004-010126	City of Tempe v. Singer
8	09/11/2008	Testimony	CV2004-010126	City of Tempe v. Singer
9	10/15/2008	Testimony	CV2006-000399	Cooley v. Downs
10	10/21/2008	Deposition	CV2006-009633	City of Phoenix v. Phoenix Nineteen Properties
11	11/12/2008	Deposition	CV2003-023698	City of Phoenix v. Edw C. Levy et al
12	12/20/2008	Deposition	CV2006-017079	City of Phoenix v. Gold Building, L.L.C.,

2009				
1	01/13/2009	Deposition	CV2008-015279	Harman v. Greer Ranch South
2	02/24/2009	Deposition	CV2008-011414	Fisher Financial v. Logan R.E. Appraisal Service
3	03/20/2009	Deposition	CV2004-010126	City of Tempe v. Singer
4	04/08/2009	Testimony	2-03-bk-03546-RJH	Dexter Distributing Corp. (Castle Mega Stores) American National Mortgage
5	05/19/2009	Deposition	CV2007-013315	City of Phoenix v. Shawnee Building, L.L.C.
6	05/20/2009	Deposition	CV2007-053132	Ambatemarco v. Canterra at Squaw Peak CA Inc.
7	06/18/2009	Testimony	Arbitration	Stevens v. T.W. Lewis
8	08/12/2009	Deposition	CV 07-2370-PHX-LOA	Transwestern v. Darl Properties, LLC, et al
9	09/17/2009	Testimony	CV2008-011414	Fisher Fin. Group Inc. v Logan R.E. Services
10	09/23/2009	Deposition	CV 07-02363-PHX-JWS	Transwestern v. M. Raja, Bharti-Sona Trust et al
11	10/21/2009	Deposition	4:09-bk-20903-EWH	LCG MARICOPA, LLC/ Wells Fargo Bank
12	11/04/2003	Deposition	CV2008-017001	Desert Hills Bank v. Security Mortgage Corporation./Norris Property Consultants, Inc.
13	11/06/2009	Testimony	4:09-bk-20903-EWH	LCG MARICOPA, LLC/ Wells Fargo Bank
14	11/09/2003	Deposition	CV2008-027152	Silvercrest v. Novus Construction
15	12/18/2009	Deposition	CV2008-006858	Salita Del Sol v. Security Title Agency, Inc.
16	12/21,24/2009	Deposition	CV2008-008695	City of Phoenix v. Camelback Vector, L.L.C. et al
17	12/23/2008	Deposition	CV072321-23 & 2488	Transwestern v. Midway Farms/Elaine Farms
2010				
1	01/26/2010	Deposition	CV2008-014536	Rickey Hatch v. Exeter Development, Inc. et al
2	01/28/2010	Deposition	CV2008-011867	Broadway & Watson First Mtg. LLC v. Kalish et al
3	02/03/2010	Deposition	CV2007-053132	Ambatemarco v. Canterra at Squaw Peak CA Inc.
4	02/17-18/2010	Testimony	CV2008-008695	City of Phoenix v. Camelback Vector, L.L.C. et al
5	03/02/2010	Testimony	CV2007-053132	Ambatemarco v. Canterra at Squaw Peak CA Inc.
6	03/ 09, 11, 26 /2010	Testimony	CV2008-011867	Watson & Broadway First Mortgage. v. Kalish
7	03/11/2010	Testimony	76-417-00389-08 SUBR	Banovac v. Pulte Homes Corp.
8	03/16/2010	Deposition	CV2008-054616	Ferro etal v. Pulte Homes
9	03/22/2010	Testimony	FC2009-090844	Bliven v. Bliven
10	05/04-05/2010	Testimony	CV2007-013315	City of Phoenix v. Shawnee Building L.L.C.
11	05/18-20/2010	Testimony	CV2005-014682	City of Phoenix v. Gold Building L.L.C.
12	05/26-28/2010	Testimony	4:09-BK-26457-JMM	H.I.E. Servicing, LLC. v. Sunrise Hospitality LLC.
13	06/08/2010	Deposition	TX 2008-000551	G&J Properties/Crackerjax v. Maricopa County
14	07/23/2010	Deposition	3:07-CV-8068/8070	BNSF Railway Co. v. Coconino Land & Cattle Co.
15	09/09/2010	Deposition	CV2009-004395	Daryl A. Wolfswinkel v. Meridian SPE
16	09/13/2010	Deposition	AAA765270014210SUBR	Moreno v. D.R. Horton et al
17	09/15/2010	Deposition	CV2008-024077	Rosebud/Picacho LLC v. Zaugg et al.
18	09/23/2010	Testimony	CV2007-052952	SC34, LLC v. Desert Mountain Master Assoc. etal
19	10/06/2010	Testimony	CV2008-054616	Ferro etal v. Pulte Homes
20	10/25/2010	Deposition	TX 206-000397	Anthem Golf, LLC v. Maricopa County
2011				
1	01/27/11	Testimony	CV2009-054882	ICB/CNB v. Del Sur & La Peter
2	03/09/2011	Testimony	4:10-BK-33267-EWH	National Bank of Arizona v. Michael Kobylinski
3	03/30/2011	Deposition	CV2009-053341	Wenlma Devel. LLC v. Lawyers Title Ins. Corp.
4	03/31/2011	Deposition	2:11-BK-2238-JMM	Karlin Surprise, LLC, GVSW Surprise Plaza, LLC
5	05/11/2011	Testimony	2:11-BK-4197-RJH	Security National Financial Corp. v. Konenko
6	06/15/2011	Deposition	CV2010-000044	Pacific Western Bank v. Desert Sunshine, LLC
7	06/24/2011	Deposition	CV2010-012419	National Bank v. DMLI Partners, LLC
8	07/01/2011	Deposition	2:10-36475 CGC	Interchange Holdings v. Double G West Acres
9	08/12/2011	Testimony	CV2010-000044	Pacific Western Bank v. Desert Sunshine, LLC
10	09/02/2011	Testimony	CV2010-054682	Bank of Arizona v. Pulley
11	11/01/11	Deposition	C.N. 090500665	Day v. Park City Title

2012				
1	02/22/12	Deposition	2:11-bk-27322-CGC	National Bank of Arizona v. Brewer
2	03-21-2012	Deposition	CV2011-007855	Enterprise Bank v. BCO Buckeye, L.L.C.
3	03-30-2012	Testimony	CV2011-007855	Enterprise Bank v. BCO Buckeye, L.L.C.
4	04-06-2012	Deposition	C.N. 090500665	Day v. Park City Title
5	07-10-2012	Deposition	CV2010-099451	Silverstone Inv. LLC v. Pioneer Title Agency, Inc.
6	09-26-2012	Deposition	CV2006-008394	City of Phoenix v. Saia Family Ltd Partnership
7	10-22-2012	Testimony	V1300CV201280331	Big Park W.I.D. v. Camino Del Diamante, LLC
8	10-30,31/2012	Testimony	CV2010-005362	Guaranty Bank & Trust v. Rancho Tuscana, LLC
9	11-06-2012	Testimony	2:12 bk-154286-rjh	Parkway Bank v. 44th & Camelback Loan I&II LLC
10	11-08-2012	Testimony	CV2009-032530	Great Western Bank v. LJC Development LLC
11	11-14-2012	Testimony	CVC2006-008394	City of Phoenix v. Saia Family Ltd Partnership
2013				
1	01-12-2013	Deposition	12-bk-16548-JMM	MV AZ LLC v. Moon Valley Country Club
2	01-17&02/11-2013	Testimony	12-bk-16548-JMM	MV AZ LLC v. Moon Valley Country Club
3	01-28-2013	Testimony	Private Arbitration	Dugger et al v. Richmond American Homes et al
4	02-19-2013	Deposition	AAA No.76148Y00093 12	Coastline RE Holding v. 48th & Washington LLC
5	03-19&20-2013	Testimony	AAA No.76148Y00093 12	Coastline RE Holding v. 48th & Washington LLC
6	09-30-13	Deposition	CV2006-004696	City of Phoenix v. Edw C. Levy Company et al
7	10-11-13	Testimony	CV2012-009493	BMO Harris Bank, N.A. v. Mahmood & Noon
8	10/24/2013	Testimony	CV2011-08127	Inspirador LLC et al v. BBVA Compass Bank et al
9	11/01/2013	Deposition	CV2012-008687	Coastline RE Holding v. Marina Vista Inv.
10	11/12/2013	Testimony	CV2012-008687	Coastline RE Holding v. Marina Vista Inv.
2014				
1	02/10/2014	Testimony	CV2010-080615	Guerrera v. Sawyer, Berg, Bonnell, Keller Williams
2	08/13/2014	Deposition	V1300CV201280331	Big Park W.I.D. v. Camino Del Diamante, LLC
3	08/25/2014	Testimony	PB2013-091530	Estate of Virginia G. Myrman v. U.S. Bank, N.A.
4	09/25/2014	Deposition	2:12-cv-01781-LRH-PAL	Branch Banking & Trust v. Southern Holding, LLC
5	10/14/2014	Testimony	PB2012-002237	The James R. Baum & Myra W. Baum Trust
2015				
1	01/05/2015	Deposition	CV2012-00339	Court Appointed Commissioner Snitzer v. Snitzer