

# Memorandum

Date: December 14, 2009

From: Sam Casella, FAICP, P.P.

To: Hillsborough County, Florida

Re: **Application Number SU10-0072 CW (Communications Tower)**

## Impact on Residential Property Values: Scholarly Evidence

S.G. Bond and J. Xue<sup>i</sup> conducted a study that involved analysis of residential transaction data in a total of ten suburbs of Christchurch, NZ: five suburbs with cell phone towers located in them and five control suburbs without towers. A total of 9,514 geo-coded property sales were used (approximately 1000 sales per suburb).

In terms of the effect that proximity to a tower has on price, the overall results indicated that it is statistically significant and negative. Generally, the closer a property is to the tower, the greater the decrease in price. The effect of proximity to a tower reduces price by 15% on average. Bond and Xue found that this effect is reduced with distance from the tower and is negligible after 1000 feet.

Another study by Bond,<sup>ii</sup> conducted in Orange County, Florida, examined the potential impact of proximity to a cell phone tower on the price of residential property in the United States. Parcel data was collected from the Office of the Property Appraiser for Orange County, Florida. Overall, 5783 single-family, residential properties were selected from northeast Orange County. The residential properties studied were between 100 and 500 meters (or 328 to 1,640 feet) from a cell phone tower.

The results showed that cell phone tower has a statistically significant effect on prices of residential property located near it, and that the price of residential property increases with its distance from a tower. The price of properties within 200 meters (656 feet) decreased, on average, by just over 2%. While this is a relatively low percentage, one can deduce, based on the trend in the data, that the decrease in property value at 15408 Woodway Drive could be significantly greater for two reasons. First, in the Bond study the closest residential properties were 100 meters (328 feet) away from the cell phone tower, and 15408 Woodway would be only 75 feet (23 meters) away from one. Second, 15408 Woodway is within the Fall Zone of the proposed 160 foot tall WCA which could make a

significant difference because of both the perception of hazard and the limitations it could imply for future expansion of the house on the property.

**Inadequate Residential Separation: Evidence from Planning Practice**

Hillsborough County’s standard for separation between a cell phone tower and residential property is one foot of separation for four feet of tower height, which would require 40 feet separation for a 160 foot tall tower. The proposed separation in Application SU10-0072 CW is 75 feet. To see if these are within the norms of planning practice I examined a sample of twelve municipal and county codes. Each code was studied to identify what setback it requires in similar circumstances to the application (i.e., a monopole cell phone tower located in a non-residential zoning district, but adjacent to a residential district). Seven Florida codes and were chosen on the basis of similarity to Hillsborough in terms of location or size. (The Florida seven are Sarasota County, City of Orlando, City of Jacksonville, City of Tampa, City of Tallahassee, Lee County and Pinellas County). Five non-Florida codes were chosen on the basis of similar size, geographic dispersion, or designation as a model code. (The non-Florida codes are Denver, CO, Cuyahoga County, OH, Charlotte, NC, San Jose, CA, and the Scenic America Model Ordinance).

The data is shown in Table 1. For a 160 foot tall tower, the average minimum distance required between a cell phone tower and an adjacent residential property line is 362.5 feet. Individual ordinances ranged from 160 feet to 1,120 feet. The model code recommended 400 feet. No ordinance allowed less than a distance equal to the height of the tower.

**Table 1 – Typical Setbacks Required from Residential Property**

| Land Development Code | Ordinance Language  | Min. Distance from 160’ tower to residential property |
|-----------------------|---|---|
| Sarasota County, FL   | Requires a horizontal separation of 700% of Tower height <sup>iii</sup> | 1,120 feet  |
| Denver, CO            | “500 feet or 3 times the height whichever is greater” <sup>iv</sup>     | 500 feet  |

|                                     |  |          |
|-------------------------------------|--|----------|
| City of Orlando, FL                 | “200 feet or 300% height of tower, whichever is greater” <sup>v</sup>  | 480 feet |
| Scenic America Model Ordinance      | “No new tower shall be constructed without a setback from the tower’s base of at least 1.5 times the tower height to a public or private road and at least 2.5 times the tower height to the nearest property line.” <sup>vi</sup>   | 400 feet |
| City of Jacksonville, FL            | “the tower shall be set back a distance of at least: (a) 250 feet or 200 percent of the tower height, whichever distance is greater, from the nearest residentially zoned parcel” <sup>vii</sup>   | 320 feet |
| City of Tampa, FL                   | “Monopoles of one hundred forty (140) feet or less may be permitted by right on designated Hillsborough County School Board sites when they maintain the following distance separation:<br>a. Towers over one hundred (100) feet in height three hundred (300) feet from a residentially zoned and used property” <sup>viii</sup>                        | 300 feet |
| Cuyahoga County, OH Model Ordinance | “the minimum distance to any single-family or two-family residential use or district lot line shall be 300 feet” <sup>ix</sup>   | 300 feet |
| City of Tallahassee, FL             | “antenna support structures shall be at least 250 feet from the nearest lot line under different ownership of the subject site of any single-family detached, single-family attached or duplex residential dwelling” <sup>x</sup>  | 250 feet |
| Charlotte, NC                       | “If such a structure is located on a lot in or abutting a residential district, it must be located at least two hundred (200) feet from all abutting property lines.” <sup>xi</sup>  | 200 feet |
| Lee County, FL                      | “All new antenna-supporting structures must meet the setback requirements for the zoning district in which they are proposed or a distance equal to their overall height from all lot lines of the fee property on which they are proposed, which ever is greater; unless a greater distance is required as a condition of the approval.” <sup>xii</sup> | 160 feet |
| Pinellas County, FL                 | “Towers shall be set back from residential property lines a distance equal to the height of the tower.” <sup>xiii</sup>  | 160 feet |
| City of San Jose, CA                | “Freestanding monopoles should be located no closer to a parcel developed for use as a single-family or multi-family residence than 35 feet or a distance equal to 1 foot for every 1 foot of structure height, whichever is greater.” <sup>xiv</sup>  | 160 feet |

The City of Tampa applies a 300 foot separation from adjacent residential property for monopoles on Hillsborough County School Board sites. In addition, Tampa imposes a height limitation of 140 feet for monopoles on Hillsborough County School Board sites.

The difference between the residential separation standards of the sample of 12 land development codes and Hillsborough County's standard is startling. In Hillsborough County the monopole that is the subject of this application requires separation of only 40 feet, the sample codes averaged 362.5 feet. Hillsborough calculates its separation as a small fraction of the height of the cell phone tower; the sample codes calculate it as equal to or a multiple of tower height. Hillsborough allows a residential house to be within the Fall Zone of the tower, none of the sample codes do.

Sarasota County, Florida requires written authorization from any property owner within the Fall Zone of a wireless support facility with this language:

“Unless specifically authorized in writing by the property owner(s) owning land within the Fall Zone, no buildings other than wireless Facility Support Facilities shall be allowed within the Fall Zones.”<sup>xv</sup>

Pasco County, Florida requires that personal wireless service facilities (PWSF) must be certified to not pose a danger from collapse to habitable structures or outdoor areas where people congregate.

“An applicant for a PWSF mount must provide a certificate from a state-licensed structural engineer or evidence satisfactory to the county that the mount and attached PWSFs will not pose a material danger from collapse or debris fall to habitable structures or outdoor areas where people congregate.”<sup>xvi</sup>

In the case of 15408 Woodway Drive, the proposed monopole has a Fall Zone that extends 85 feet into the residential lot. This could pose a physical hazard of collapse and make the house unsuitable for future expansion.

It appears that both the Hillsborough County Code requirement of only 40 feet separation and the proposed 75 foot separation are outside the norms of planning practice, which would be in the range of 300 to 400 feet and not less than 160 feet for a tower of this height.

### **Visual Intrusion**

A site visit was made on December 11, 2009. The photo below was taken looking south from the edge of the residential property at 15408 Woodway Drive. The school property begins in the foreground, and the proposed monopole would be just beyond the chain link fence. Some trees

are located to the right, but there are no trees to the left. The scale of the existing neighborhood is one-story houses interspersed with trees of varying height, but none appear to be more than about 40 to 50 feet. The scale of the proposed monopole would be 160 feet, which is approximately the height of a 15 story building.



### **Conclusion and Opinion**

An objective of the Hillsborough County Comprehensive Plan is that telecommunications facilities are located in a manner that is compatible with surrounding land uses.<sup>xvii</sup> Compatibility is defined as uses, activities, or designs that are harmonious and refers to the sensitivity of development proposals in maintaining the character of existing development.<sup>xviii</sup> By this definition, telecommunications facilities adversely impact residential property values, create a hazardous condition in a residential area, or are grossly out of scale with an existing residential neighborhood could be counted as incompatible.

In my professional opinion, the evidence presented above is substantial and has to be included in a determination of compatibility. This includes:

1. Scholarly studies finding that cell phone towers adversely affect property values.
2. Additional evidence of adverse impact on property values from the fact that 15408 Woodway Drive is even closer to the proposed towers than the properties in the Bond studies.
3. The fact that 15408 Woodway Drive would be within the Fall Line of the proposed tower, which would further aggravate the adverse impact on property value because it would pose a hazard of collapse into an area where people congregate and a habitable structure, and because it would make the house unsuitable for expansion.
4. Evidence that both the Hillsborough County Code and the proposed Application SU10-0072 CW are outside the norms of planning practice with respect to setbacks from residential property. This adversely affects compatibility with surrounding residential land uses by bringing the tower too close to the nearest houses. In other words, in this case both the code and the application are not consistent with the comprehensive plan.
5. Visual evidence that the proposed tower, at a height of 160 feet and only 75 feet distant, would be visible from nearby properties and being visible, would be grossly out of scale with the residential neighborhood at that combination of height and proximity.

When the evidence presented above is considered, it becomes clear that Application SU10-0072 is not compatible with surrounding land uses and is therefore not consistent with Objective 46 of the Future Land Use Element of Hillsborough County's Comprehensive Plan.

**Objective 46:** To ensure that telecommunications facilities are located in a manner that is compatible (as defined in Policy 1.4) with surrounding land uses and compliant with State and Federal law.

Therefore, Application SU10-0072 should be denied a special use permit on the grounds that it is not consistent with the Comprehensive Plan.

I am aware that the Planning Commission staff found the Application to be consistent with the Comprehensive Plan in a memo prepared on 12/4/2009. But I see no evidence that the Planning Commission staff had considered the evidence presented above relating to loss of residential property value, potentially hazardous conditions, and norms of planning practice. Furthermore, based on visual evidence (see photo above) I disagree as a matter of fact with the staff finding that "the adjacent subdivision is visually buffered from the tower by dense tree cover." I believe the facts leave no doubt that the proposed tower would be intrusive to the adjacent residential properties.

## Notes:

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

<sup>ii</sup> Bond, Sandy; Ph.D., "The effect of distance to cell phone towers on house prices in Florida" *The Appraisal Journal* LXXV (2007): 362-370.

<sup>iii</sup> Sec. 118-36 (d) [http://library7.municode.com/default-test/home.htm?infobase=11511&doc\\_action=whatsnew](http://library7.municode.com/default-test/home.htm?infobase=11511&doc_action=whatsnew) Accessed 12/12/2009

<sup>iv</sup> Denver Municipal Code, Sec. 59-84(d)(2)f [http://library2.municode.com/default-test/home.htm?infobase=10257&doc\\_action=whatsnew](http://library2.municode.com/default-test/home.htm?infobase=10257&doc_action=whatsnew) Accessed 12/12/2009

<sup>v</sup> Sec. 58.844 <http://library.municode.com/index.aspx?clientId=13349&statelId=9&stateName=Florida> Accessed 12/12/2009

<sup>vi</sup> <http://www.scenic.org/pdfs/TT%20Model%20Ordinance.pdf> Accessed 12/12/2009

<sup>vii</sup> Sec. 656-1507 (3)(a) [http://library7.municode.com/default-now/home.htm?infobase=12174&doc\\_action=whatsnew](http://library7.municode.com/default-now/home.htm?infobase=12174&doc_action=whatsnew) Accessed 12/12/2009

<sup>viii</sup> Sec 27-134.1(c)(5) [http://library7.municode.com/default-test/home.htm?infobase=10132&doc\\_action=whatsnew](http://library7.municode.com/default-test/home.htm?infobase=10132&doc_action=whatsnew) Accessed 12/12/2009

<sup>ix</sup> <http://planning.co.cuyahoga.oh.us/documents/pdf/celltower.pdf> Accessed 12/12/2009

<sup>x</sup> Sec. 10-245(e)(1)

<http://library.municode.com/index.aspx?clientId=19980&statelId=9&stateName=Florida> Accessed 12/12/2009

<sup>xi</sup> Sec. 12.108(7)

<http://library.municode.com/index.aspx?clientId=19970&statelId=33&stateName=North%20Carolina> Accessed 12/12/2009

<sup>xii</sup> Sec. 34-1447(d)(1) [http://library7.municode.com/default-test/home.htm?infobase=12625&doc\\_action=whatsnew](http://library7.municode.com/default-test/home.htm?infobase=12625&doc_action=whatsnew) Accessed 12/12/2009

<sup>xiii</sup> Sec. 138-1347 (10) [http://library7.municode.com/default-test/home.htm?infobase=10274&doc\\_action=whatsnew](http://library7.municode.com/default-test/home.htm?infobase=10274&doc_action=whatsnew) Accessed 12/12/2009

<sup>xiv</sup> [http://www.sanjoseca.gov/planning/counter/policies/pol\\_wireless.pdf](http://www.sanjoseca.gov/planning/counter/policies/pol_wireless.pdf) Accessed 12/10/2009

<sup>xv</sup> Sarasota County Code of Ordinances Sec. 118-36 (c) 5 [http://library7.municode.com/default-test/home.htm?infobase=11511&doc\\_action=whatsnew](http://library7.municode.com/default-test/home.htm?infobase=11511&doc_action=whatsnew) Accessed 12/12/2009

<sup>xvi</sup> Pasco County Land Development Standards Sec 616.7.A [http://library7.municode.com/default-test/home.htm?infobase=14292&doc\\_action=whatsnew](http://library7.municode.com/default-test/home.htm?infobase=14292&doc_action=whatsnew) Accessed 12/12/2009

<sup>xvii</sup> Objective 46, Future Land Use Element

<sup>xviii</sup> Policy 1.4, Future Land Use Element: Compatibility is defined as the characteristics of different uses or activities or design which allow them to be located near or adjacent to each other in harmony. Some elements affecting compatibility include the following: height, scale, mass and bulk of structures, pedestrian or vehicular traffic, circulation, access and parking impacts, landscaping, lighting, noise, odor and architecture. Compatibility does not mean "the same as." Rather, it refers to the sensitivity of development proposals in maintaining the character of existing development.