

Electromagnetic Safety Alliance, Inc
3031 N. Gaia Place
Tucson AZ 85745

April 18, 2013

Mr. Linus Kafka
Zoning Examiner, Planning and Development Services
City of Tucson
201 N. Stone Avenue, 1st Floor
Tucson, Arizona 85701

Regarding: SE-12-94 AT&T – Presidio Road (Ward 3)

Dear Mr. Kafka,

I live at 3031 N. Gaia Place in the City of Tucson, 85745. While I do not live in the immediate area of the proposed 65 foot AT&T cell tower at St. Francis Cabrini Catholic Church, I am a city taxpayer, a voter and also reside in Ward 3. I also know many people who reside in that neighborhood.

I think the application submitted by AT&T to site a foot cell tower, 65 feet high, in very close proximity to a quiet residential neighborhood is ill advised and should be denied. Cell towers do not make good neighbors. Here are some of the reasons why:

Towers create visual blight: Although this proposed 65 foot tower would be disguised as a fake palm tree, it would loom over the homes nearby, where the zoning does not permit building heights to exceed 25 feet. This tower would be totally off scale to the homes and would be seen standing alone against the Tucson skyline from miles around. The neighbors will not be convinced that a cell tower, partially disguised as a palm tree, with nine (9) transmission or receiving panels, panel being eight (8) feet long, will blend in with natural scenery they prefer to see. There are no native palm trees in Tucson, and none of the imported palm trees here are nearly 65 feet tall. Rather than hide the presence of this cell tower, camouflaging nine antennas in it as a palm tree only will draw more attention to how unusual it is.

Towers deflate property values: The commonly held view is, if you can see a cell tower or an antenna from your property, your property is worth less. It is well known that the presence of a nearby cell tower devalues property values and lowers rental income. Real estate agents are required to disclose the presence of towers and power lines located near to properties they show to potential buyers for this reason.

Cell towers attract more lightening strikes to the area. Tucson is frequently hit by lightning strikes but not all of them are visible. Leon Byerley, a local lightning expert, reviewed the proposed site for this location. He reported that "A 65 ft. cellular telephone tower proposed for erection on the grounds of the St. Francis Cabrini church in Tucson, AZ will be about 4 times more likely to be struck by lightning than a 30 ft. tall flag pole at the same location." He goes on to say, "The electrical conduction, induction and electromagnetic radiation effects of a lightning attachment to the proposed tower may cause electrical overstress of electrical equipment used by the church as well as equipment used by the nearest neighbors of the church." People standing or congregating in the near vicinity of the tower are most at risk of "injuries from streamer currents, ground potential differences and/or surface arcs associated with a lightning discharge to the tower." (See Appendix A)

Tower safety concerns: The cell tower industry and many local government wireless ordinances across the country require that towers be set back from the property lines and from neighboring buildings. A minimum of two times the height, or 120 feet, is a typical setback requirement. Considering there is a greater risk of lightning strikes for a tower of this extreme height and that materials may fall from the tower could damage buildings in the area, a better location should be found. This tower is proposed to be located close to the northern property line. Directly to the north and in closest proximity to the tower is another church. To the north east, a slightly further distance is the Blake Foundation, a child welfare service program. These facilities and the Pastor's home on church property are most at risk from safety issues related to proximity to this proposed tower.

For all these reasons, I strongly recommend this permit application be denied. I can be reached at 520 743-0125

Sincerely, 
Elizabeth Kelley, MA
Director, Electromagnetic Safety Alliance, Inc.

Attachment A

Regarding Lightning Issues Related to a Proposed Cellular Telephone Tower on the Cabrini Church Grounds

Leon Byerley
Lightning Protection Technology
April 12, 2013

The approximately 60 ft. cellular telephone tower proposed for erection on the grounds of the St. Francis Cabrini church in Tucson, AZ will be about 4 times more likely to be struck by lightning than a 30 ft. tall flag pole at the same location. Strong electromagnetic effects will accompany all lightning strikes to this tower and these effects will not be mitigated in any way by the tower or by the ground electrode configuration of the tower. Some electromagnetic effects associated with a lightning discharge to the tower, such as the strong radiation, will only be *enhanced* by the presence of the tall metal structure.

Prior to the erection of a 60 ft. tall lightning "strike-object" on the church grounds, lightning strike points in the immediate vicinity of the tower would be somewhat random and would favor the more elevated objects and structures around the church and the immediate neighborhood such as elevated power lines, flag poles, light standards, tall trees, church steeples, etc. After the installation of a 60 ft. tall strike-object, lightning will strike somewhat less randomly as lightning attachments will tend to favor the tallest object in the near vicinity providing benefits in some instances and ill effects in others. Just as people are advised to not seek shelter from lightning under tall trees, so should people not seek protection from lightning in the near vicinity of a tall metal tower.

For example, lightning "streamer currents" that accompany a cloud-to-ground return stroke that attaches to the tower will affect a large area around the tower that includes some of the church grounds and some of the immediate neighborhood. If the tower shares, or is located in close proximity to, electric utilities used by the church and neighborhood such as commercial electric power, telephone lines and co-axial cable TV conductors, then some additional electrical overstress to these shared utilities and connected equipment may occur when the tower is struck by lightning than would otherwise occur if lightning made ground attachments

more randomly in the neighborhood.

The electrical conduction, induction and electromagnetic radiation effects of a lightning attachment to the proposed tower may cause electrical overstress of electrical equipment used by the church as well as equipment used by the nearest neighbors of the church. People standing or congregating in the near vicinity of the tower may be somewhat protected by the tall structure or they may be disposed so as to be subject to injuries from streamer currents, ground potential differences and/or surface arcs associated with a lightning discharge to the tower. The balance of benefits vs. hazards to people cannot be stated with certainty nor can the additional electrical overstress suffered by electrical equipment in the near vicinity be quantified or predicted. From a lightning safety standpoint, people should not be situated near an energized lightning conductor. From an electrical/electronic equipment standpoint, it is difficult to realize trouble-free operation at the time of a nearby cloud-to-ground lightning discharge.

Generally, the problems caused by lightning to the tower and suffered by the immediate neighbors of the tower including the church facilities, parishioners, grounds keepers, etc. will tend to increase over the normal background of such problems after the erection of a 60 ft. tall lightning strike object on the church grounds. In that the normal background of such problems may be deemed low by all concerned, an increase of ill effects due to the tower may or may not be noticed.

Please refer to the paper titled:

Towers, Lightning and Human Affairs by Byerley, et al. that was presented at the 11th International Conference on Atmospheric Electricity, June 7-11, 1999, for a more thorough discussion of these issues.

LGB 4/12/13

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