

REGULAR MEETING

Lebanon Township Board of Adjustment

March 14, 2012

The Regular Meeting of the Lebanon Township Board of Adjustment was called to order at 7:30 p.m. by Chairman Bruce Terzuolo. Present were: Mr. Kozlowski, Mr. MacQueen, Mr. Perry, Mr. Nagie, Mr. Abuchowski, 1st Alternate Maurizio, 2nd Alternate Machauer, Attorney Gallina, Planner Bolan and Engr. Risse arrived at 7:35 p. m. **Excused:** Mr. Eberle

Notice of this meeting was published in the "Annual Meeting Notice Schedule" adopted by this board on January 25, 2012, faxed to the Hunterdon Review, Hunterdon County Democrat, Express Times, Courier News, Star Ledger and posted on the bulletin board in the Municipal Building on March 7, 2012.

PRESENTATION OF MINUTES: February 22, 2012 Regular Meeting

Ms. Glashoff announced the minutes from February 22nd will be on the March 28th agenda for approval.

UNFINISHED BUSINESS:

New Cingular Wireless
340 Mt. Kimble Ave
Morristown, N.J. 07962

Block #24 Lot #37
Wilde Lane RC 7½

CONTINUATION OF A PUBLIC HEARING

Conditional Use/Site Plan
Variances

Chairman Terzuolo announced that the applicant is finished with their witnesses and this evening we will hear from the objectors. Also, the Chairman asked that everyone turn off their cell phones and electronic devices.

Attorney Schmidt asked to have their Engineer sworn in to give testimony. Engineer Hank Menkes was sworn in and gave his qualifications. Attorney Fairweather asked Engineer Menkes if he has ever designed a wireless system for any major carriers. Engineer Menkes said his role has always been in management positions. He noted that he has been responsible for reviewing thousands of predictive plots for all of the technologies that AT&T was using. Attorney Fairweather asked if he is the manager in overseeing the equipment that's used by AT&T and other carriers. Engineer Menkes said he has been responsible for assisting AT&T in some of their RF engineering studies and recently their deployment for wideband CDMA. Attorney Fairweather asked again if he has ever designed a wireless system for AT&T. Engineer Menkes said no.

Attorney Schmidt asked Engineer Menkes if he had the opportunity to review the RF Engineers report dated November 30, 2011. Engineer Menkes said yes and also reviewed exhibits **A9, A10 & A11** that was presented to the board on January 25, 2012. Engineer Menkes said in reviewing the comprehensive report of RF Engr. Joseph, Engineer Menkes found a great deal of subjective narrative on the need for the proposed cell site, but a lack of credible supporting technical data to justify the claim. Engineer Menkes said there were a lot of questions asked by the board and the public on radio propagation and RF Engineering. Radio waves in free space propagate for ever and as they propagate they diminish in magnitude as the distance from the source increases. Also, in free space it is easier to calculate the receive signal strength anywhere at any time in free space. Engineer Menkes said if you know the radiating sources power at point A and the distance between the radiating source and point B where you want to measure the signal, you can calculate the path loss accurately any time in free space and that kind of calculation or kind of formula is referred to as a deterministic formula. Engineer Menkes said the problem is we don't live in free space. Engineer Menkes said that in the real world radio waves have to contend with a whole bunch of additional issues that cause reflections, absorption and de-fraction. An example is terrain, topography. The deterministic formula that applies in free space doesn't work in the real world. The RF Engineer has to come up with something else if they want to calculate receive signal level in the environment in which we live. They come up with what's referred to as an empirical formula. An empirical formula is defined as a formula based on observation. Starting with a deterministic absolute calculation for path loss, you need to add a number of additional variables to the formula that are specific to the area. Engineer Menkes gave an example: stating if you were to measure receives signal strength or path loss in downtown Manhattan, the terrain is relatively flat, topography smooth. There are significant obstructions in the form of buildings, bridges and towers that form clutter. Clutter has the effect of diminishing the amplitude of a radio wave. It causes absorption, reflection and de-fraction.

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This deterministic formula that applies anywhere and everywhere in free space has to be modified to account for all of the objects in the world that we have to deal with. The formula is calibrated by doing a drive by test. A drive test consists of equipping a vehicle with a calibrated sensitive RF receiver in conjunction with a GPS receiver. A van is used to travel the roadways of the area of interest and makes thousands of RF measurements in conjunction with GPS measurements for latitude and longitude. The data can then be brought back and compared with the results of this empirical model or empirical formula. Engineer Menkes said engineers have come up with a shorthand scale, called a db scale. RF engineers refer to it as a dBm since it is referenced to one milliwatt. Zero dBm refers to one milliwatt which is one thousandth of a watt. The scale is logarithmic, every 10 db is an order of magnitude either greater or less than one milliwatt. When you're talking about numbers in the range of minus 80 dBm, these are very small RF signal strength.

Engineer Menkes said what the FCC requires of its license providers in terms of signal level. When the FCC granted it's PCS licenses, personal communication services licenses, back decades ago of which AT&T us a PCS licensee. The FCC put a requirement in place that anybody that received a license and the spectrum, associated with that license had to meet certain requirements. It is referred to as a build out requirement. They are specified clearly in Title 47 of the Code of Federal Regulations. AT&T or New Cingular is a PCS service provider. They have license spectrum at 1900 megahertz. To meet their FCC requirements, AT&T had to prove to the government at their 10 year point they met the objective of providing service to 2/3 of the population within their licensed area. Engineer Menkes said they did by filing a federal form 601. AT&T put on their form 601 filing to justify their service was for GSM systems, GSM is the area interface technology that AT&T has employed for years which stands for global systems for mobile communications. For GSM systems AT&T mobility defines adequate coverage as minus 102 dBm. The minus 102 level is the lowest value that the mobile phones use by AT&T mobility will consistently carry a discernible call. Engineer Menkes said he is not suggesting that minus 102 dBm is the appropriate level to use in Lebanon Township. When it serves AT&T purposes to justify to the government that they met their objectives, the number that AT&T used by saying minus 102 dBm is the lowest value that the mobile phones use by AT&T mobility will consistently carry a discernible call.

Engineer Menkes said it is technically impossible and financially unachievable to design a network for 100% coverage. What the service providers recognize is that inevitably there will be some failures within their network on the RF side. The major service providers in the US accept the fact that approximately 2% of the calls that are made will fail and they are expected to fail. Based on having done drive test results and with a little understanding of what the receive signal strength need to provide reliable communications is, the RF Engineer is able to identify a search ring. The search ring is for use by the site acquisition team within which to find viable properties to locate a new cell site. Once a potential cell site within the search ring has been identified, the carrier may choose to do a crane test. In circumstances where the terrain topography varies significantly as a result of hills and valleys like in Lebanon Township a crane test consists of elevating an antenna to the proposed antenna height of the new cell site radiating a continuous wave signal and then conducting another drive test. The data from the drive test can be used to calibrate the empirical path loss model, so future predictions need to be made so you have a calibrated model from which to work from. Planner Menkes stated what their software package does, it encodes into software the empirical path loss model that I spoke of earlier. The software package takes into account the terrain data.

Engineer Menkes said if the computer is aware of the terrain information, the clutter information, the transmit power, the antenna height, it is able to calculate a predicted value for the receive signal level over a small area of land. Engineer Menkes stated that it is interesting to note that neither the comprehensive report nor the exhibits show any search ring whatsoever. All that was said is that there is a lack of coverage in the area. There was no search ring presented that would identify where a site acquisition team should go and look for an appropriate cell site. The frequency employed to produce the predicted RF coverage plots isn't even mentioned. Engineer Menkes said a doubling of the frequency results in a quarter of the signal strength, a six dB reduction which has the effect of making the coverage gap look even bigger. The computer predicted RF coverage plots are present with no information on the path loss model at all. The RF Engineer needs to make the decision as to which one is the appropriate module to use. There was no information presented on the terrain topography database that was used. The USGS has different resolutions of terrain databases. Engineer Menkes said it is important that the resolution of the terrain database be consistent with the resolution of the predictions. It is not the accuracy

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that can be compromised. There is no information provided at all with regard to a clutter database of the morphology choice that was made in producing the predictions. Planner Menkes said it was mentioned in Engineer Joseph's testimony that there was no calibration data in the form of any recent drive test presented at all to calibrate or verify the accuracy of the positions.

Engineer Menkes said there was a lot of discussion about the tree heights in the area and Engineer Joseph mentioned even with the antenna heights that were selected with this particular cell site location, it would be in the area of insufficient signal on the northeast portion of Route 513. There was no current five year or seven year old sites, alternative sites along Route 513 that were even considered, addressed or proposed that would address the outage on Route 513. Engineer Menkes stated from Engineer Joseph's testimony regarding building coverage, that AT&T requires minus 75 dBm of receive signal strength to provide reliable service in homes. That signal is 10 times stronger than what was claimed to provide reliable service in vehicles. Engineer Joseph claimed they are getting coverage in the homes. If minus 75 dBm is required for reliable in-home coverage, the coverage they will get with minus 85 dBm can't be reliable. Engineer Menkes stated this is inconsistent with Engineer Joseph's statement that they don't design for poor service levels. If they are designing to provide reliable coverage to the county roads, why is it acceptable for the northeasterly portion of Road 513 to have no coverage at all?

Engineer Menkes noted in the Township zoning code that a full complete description of all alternative technologies not requiring the use of towers be provided. Engineer Menkes said the courts have ruled that is a privilege reserved for the FCC and Engineer Joseph dismisses this topic completely saying that currently there aren't any other feasible means to be able to fill the gap. In fact, AT&T and Cingular have used micro cells and distributed antenna systems in rural areas in a number of states to provide service along critical roadways and neighborhoods. Attorney Schmidt asked Engineer Menkes if the applicant has established there is in fact a gap in coverage anywhere along Route 513. Engineer Menkes said not with data that has been presented.

At the conclusion of Engineer Menkes testimony, Chairman Terzuolo asked if the board had questions of the witness. Mr. Machauer asked Engineer Menkes if he had objection to this cell tower on the basis of any health issues or interference with machinery or equipment in the area. Engineer Menkes said no. Mr. Machauer asked in granting a license from the FCC, doesn't the applicant continually need to provide to the FCC they are making good on their licensing requirements. Engineer Menkes said he wasn't sure about that answer. Mr. Machauer asked the importance of these test drives and these tests being made prior to installation of cell towers, if this is done by just about every applicant when they're putting a cell tower up. Engineer Menkes said he thinks it depends on the service provider. Mr. Maurizio asked Engineer Menkes; from the comments made that the applicant has not provided all of the data that would really be required to make a viable judgment on this application. Engineer Menkes said that was correct.

Mr. Kozlowski said based on the testimony that the proposal by Cingular wouldn't work. Engineer Menkes said he is not sure the data presented justifies the fact that they need a new cell tower right now. Mr. MacQueen said referring to the interference that there will be no interference with any other type of electrical devices in the area if this tower were to be installed at that location or any location. Engineer Menkes said he has been personally involved with situations where there has been interference as a result of cell sites going up. But in some cases it has been able to be resolved. Mr. MacQueen said if a cell tower were to be put at this location, the path loss, that the path of the radio frequency going from car to cell tower to another car to house that would be the path lost. Engineer Menkes said yes that the attenuation the signal experiences in traversing that path. Mr. MacQueen said if there is a lack of service in that area right now, what would be a better method to make the service better if it isn't with a cell tower. Engineer Menkes said that it hasn't been proven that this is the best location or that these antenna heights are the only antenna heights that are acceptable.

Mr. Nagie noted that only 2% of the calls will be dropped or lost and asked if that isn't a small percentage. Engineer Menkes said that is a pretty good service. Mr. Nagie referred to a statement that the FCC requires two thirds of the public to require service. Engineer Menkes said the FCC says that two thirds of the population within the license coverage areas has to have service. Mr. Nagie referred to the radio waves that go out into outer space and remain there and asked they never disappear? Engineer Menkes said they never dissipate which allows us to measure radio signals from distance stars light years away. Mr. Nagie asked about radio frequencies and what affect they have on the humans, animals, trees and the environment.

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Engineer Menkes said it is not his area of expertise. Mr. Perry noted that health care is a concern of a lot of people. Attorney Gallina said that field has been preempted by state and federal regulations and there has been testimony that the applicant is in compliance. Mr. Abuchowski asked Engineer Menkes if there is no effort needed for a tower. Engineer Menkes said was that the evidence that has been presented is not complete, not technically. Mr. Abuchowski said when driving up and down Route 513 and Route 628 there is no signal. You get dropped signals. Engineer Menkes said he is not suggesting that there isn't the need for an additional cell site. The data that has been presented to this point is not technically complete per Engineer Menkes. During Mr. Abuchowski questions, Attorney Schmidt interjected paraphrasing what Engineer Menkes said and Attorney Fairweather objected to Attorney Schmidt's comments. Attorney Gallina said Attorney Schmidt is trying to paraphrase or clarify what his client said. Mr. Abuchowski asked if we put a cell tower at this site will it improve the signal on Route 513 and Route 628. Engineer Menkes said it will improve the signal in some areas, that's indisputable, however, as pointed out and as Engineer Joseph pointed out that there's an area on the northeast portion of Route 513 according to his plots that shows no signal level.

Mr. Abuchowski said within the white area there is limited number of pieces of property where a cell tower can go and asked if that is correct. Engineer Menkes said his doesn't know. Mr. Abuchowski noted that because the white area is defined it can only be a limited number of properties not an infinite number of properties. Engineer Menkes agreed. Mr. Abuchowski said the issue that is before this board is the height of the tower going from 150' to 185'. Engineer Menkes said the higher you go the better the signal. Attorney Schmidt asked Engineer Menkes would a lower tower meet the needs of AT&T subscribers. Engineer Menkes said no because there's been no predictive or drive test data done at any lower antenna heights. Attorney Schmidt asked Engineer Menkes in prior testimony, there is alternative technology that can be used that would eliminate the need for a tower in this site. Engineer Menkes said there is alternative technology that AT&T has used elsewhere. Chairman Terzuolo asked Engineer Menkes, from testimony and for the edification of this board and interested parties, did you make the statement that you cannot every achieve 100% for several reasons. Engineer Menkes said yes. Chairman Terzuolo said one technology and the second financially. Engineer Menkes answered yes. Mr. Machauer asked is there significant influence or effort regarding this cell tower or the way it's proposed in terms of the surrounding trees and the hills, is that going to impair the signal. Engineer Menkes said there is not enough data to make that determination from what's been presented.

At this time, Attorney Fairweather did a cross examination of the witness, Engineer Menkes. Attorney Fairweather asked Engineer Menkes if he did a drive test. Engineer Menkes said no. Engineer Menkes was then asked if he did any testing with any telephones to see what kind of coverage there is. Engineer Menkes said no. Attorney Schmidt did a redirect of Engineer Menkes testimony and asked that within the report that was submitted other than the mention of a drive test, there was absolutely no data presented concerning the findings of the drive test. Engineer Menkes said that was correct.

Chairman Terzuolo asked if there were any questions of the witness by interested parties. The following people asked questions: Mr. Wilhelm, Mr. Kornicke and Ms. Altieri. At the conclusion of the public's questions, Mr. Abuchowski asked about the micro cells and if they amplify an existing signal. Engineer Menkes said no, they are not repeaters. Micro cells are small cell sites. They are self-contained cell sites. Mr. Abuchowski asked how do they pick up a signal that a tower can't. Engineer Menkes said you put them in a location where you have a coverage gap, and they operate and act as a self-contained small cell site. Attorney Schmidt did a redirect and asked Engineer Menkes where would these micro cells be placed. Engineer Menkes said they are placed along the roadways having been granted rights-of-ways from the Township. They can be placed on a utility pole and sometimes on separate poles that are erected specifically to hold a micro cell or a distributed antenna node. Mr. Abuchowski asked instead of putting up a single tower that would serve everybody, we would put up a bunch of micro cells all over the place. Engineer Menkes said yes but they are inconspicuous.

When Mr. Abuchowski was done with his questions, Chairman Terzuolo asked about the small cells noting that they sometimes have barely 100' or 100 yards of range and wanted to know if you have to stack a series of them. Engineer Menkes said it depends on the frequency and the power and their elevation. Chairman Terzuolo said you're talking several hundred yards. Engineer Menkes said yes. Chairman Terzuolo said that would effectively eliminate any service to residents that a bigger tower such as a 185' tower that can reach a wider square footage area.
On

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a county road that would be 100 yards with a 30' ROW. Planner Bolan said it is a 50' ROW. Engineer Risse said the county ROW is 66'. Engineer Menkes said it depends on what the path loss is between the small cell and the receive handset. Chairman Terzuolo said it is a line of site communication basically. Engineer Menkes said yes. Chairman Terzuolo announced that the board will take a recess at this time 8:40 p.m. When the board reconvened at 8:55 p.m. Attorney Schmidt had Amanda Mesa sworn in to give testimony. Ms. Mesa said her house is 100' or so from the property line on which the tower will be located. Ms. Mesa had pictures which were marked into evidence as **O2** –property to the left and south of the Mesa property. Each picture was marked individually. **O3**-photo taken from Meiers Lane, **O4**-depicts what the proposed cell tower would look like, **O5**-photo taken in front of the Mesa house, **O6**-photo with a superimposed photo of what the proposed cell tower would look like, **O7**-photo taken in the Mesa driveway looking towards to proposed site, **O8**-photo with the proposed site superimposed as to where and what the tower would look like. Ms. Mesa expressed concerns regarding property values and how they will be affected. At the conclusion of Ms. Mesa testimony, Chairman Terzuolo asked if the board had questions of the witness. At this time, the board had many questions of Ms. Mesa.

Planner Bolan asked Ms. Mesa how she calculated where the tower was. Ms. Mesa said it's not an exact science but we didn't have the plans of where the proposed tower would be located. We based it on a walk of the property and where we believed the tower would be placed. Planner Bolan asked what the distance was from her house. Ms. Mesa said it was based on the maps and the notices that I got from the corporate attorney. Attorney Schmidt interjected stating that the tower would be approximately 675' from Ms. Mesa home. Planner Bolan said since the picture was taken in the front of the house which would add an additional 50' it would bring the distance to 725'. At the conclusion of the board's questions of Ms. Mesa, Chairman Terzuolo asked if there were any interested parties wanting to give testimony. Mr. Richard Kornicke, Ms. Francine Gregory, Mr. Thomas Donnelly, Ms. Deborah Goodsite, Ms. Adrian Collett, Ms. Jennifer Matyas and Mr. John Zeleznik were all sworn in individually and gave their testimony. During Ms. Matyas testimony she expressed concern regarding the cell tower since she has a daughter who is profoundly deaf. Her daughter attends Woodglen School and uses a cochlear implant to assist her with hearing. Ms. Matyas is concern with the radio frequencies that will be transmitted from this cell tower and will it cause any distortion to her daughter because she receives radio frequencies in her head to hear. Her daughter has a minimal hearing loss with the implant. If there is any distortion or un-clarity with the implant that could affect her safety this would be a huge concern. At the conclusion of each of their testimony, the board asked questions of each witness.

Attorney Fairweather said she would like to ask a question of their RF Engineer. Mr. Joseph if we in any way interfered with the impact we would have to correct it or lose our FCC license. Engineer Joseph said yes, by law we can't interfere with other devices or other services or risk penalties and fines. Attorney Fairweather noted they are on most hospitals in New Jersey. Engineer Joseph said that is correct. Attorney Fairweather said almost any hospital you go to you are going to find antennas for cell phones for other major carriers. At the conclusion of the questions, Chairman Terzuolo had Planner Bolan sworn in to give testimony. Planner Bolan gave testimony on behalf of the board and referred to his report. Planner Bolan said in considering this application, if the board approves this application, they need to specify how many co-location sites to have on the tower. Also how many different equipment compounds could fit within the leased area? Chairman Terzuolo asked if the board had questions of Planner Bolan. Mr. Kozlowski as do we have anything regarding abandonment. Chairman Terzuolo said it would be covered in the resolution. Mr. Anthony Casale was sworn in to give testimony. Mr. Casale asked Planner Bolan if he has experienced anywhere where commercial activity or visual things that are placed in a municipality affect the property values. Planner Bolan said no. Mr. Casale asked Planner Bolan about design standards and property values. Planner Bolan said design standards and property values have nothing to do with each other. Mr. Casale said he has seen other locations or proposals where cell towers are camouflaged and wondered if the board or the applicant had taken that into consideration. Planner Bolan said the applicant had not provided any testimony on doing any camouflaging with the tower. Mr. Casale said he doesn't want the board to ignore property values when considering this application.

Chairman Terzuolo had Engineer Risse sworn in to give testimony. Engineer Risse said this site is currently a pervious and developed site. The tower and compound is going to be sitting on the same footprint of an area that's already being used for parking equipment. Engineer Risse said we heard testimony from both witnesses regarding radio frequency that negative 85 decibel dBm is not a health concern. Regarding land use engineering, there is really not that many issues in front of this board. The fall zone is within the inside of the property. At the conclusion of

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Engineer Risse's testimony, Chairman Terzuolo asked if there were any interested parties. Being none, motion by Mr. MacQueen and seconded by Mr. Abuchowski to close the public portion of the hearing. Unanimously approved. Chairman Terzuolo said due to the late hour and the summations by both Attorneys and the board's deliberations this hearing will be carried to our next meeting. Chairman Terzuolo asked Ms. Glashoff for a date to continue with this application. Ms. Glashoff said the next date is April 25th. Attorney Gallina announced to the public this matter will be a continued with closing arguments and board deliberations on April 25, 2012 at 7:30 p.m. with no further notice will be given.

PRESENTATION OF BILLS:

- | | |
|-----------------------|--|
| a. John Gallina, Esq. | \$468.75 – Escrow (New Cingular Wireless) |
| | \$ 70.00 - Attend Bd Meeting 2/22/2012 |
| b. Court Stenographer | \$200.00 - Attend Bd Meeting 3/14/2012 |
| | Total: \$738.75 |

Ms. Glashoff referred to the agenda addendum with additional bills of Planner Bolan for **\$482.80** bringing the grand total to **\$1,221.55**. Motion by Mr. Kozlowski and seconded by Mr. Abuchowski to approve the bills as presented. Unanimously approved.

CORRESPONDENCE: a. Law of Land Articles

Being no further business to come before the board, nor comments from the public, motion by Mr. Nagie and seconded by Mr. Perry to adjourn the meeting at 10:20 p.m. Unanimously approved.

CHAIRMAN BRUCE TERZUOLO

GAIL W. GLASHOFF, BOARD SECRETARY