January 27, 2020

The workshop portion of the meeting was called to order at 7:31 p.m. by Mr. Marotta, Chairman.

**ROLL CALL:**

**Members Present:**
Mr. Marotta
Ms. Daly
Mr. Ashrafi
Mr. Lucas
Mr. Quinn
Mr. Salomon

**Members Absent:**
Mr. Aschenbach

**Alternates Present:**
Mr. Savino
Mr. Rees

**Alternates Absent:**
None

Also in attendance: Mark Rothman, Esquire, Kathy Lenahan, Board Administrator

**COMMUNICATIONS:**
**None**

**MINUTES:**
Motion to adopt the minutes of the December 16, 2019 meeting was made by Ms. Daly, seconded by Mr. Salomon and passed on unanimous voice vote.

Motion to adopt the minutes of the January 6, 2020 meeting was made by Ms. Daly, seconded by Mr. Salomon and passed on unanimous voice vote.

Motion to adopt the minutes of the January 13, 2020 meeting was made by Ms. Daly, seconded by Mr. Savino and passed on unanimous voice vote.

**RESOLUTIONS:**
None

**OLD/NEW BUSINESS**
None

The workshop portion of the meeting concluded at 7:35 p.m.

**PUBLIC PORTION:**

A public meeting of the Cranford Board of Adjustment was called to order by Mr. Marotta on January 27, 2020 at 7:45 p.m. in Room 107 of the Municipal Building, 8 Springfield Avenue, Cranford, New Jersey. Mr. Marotta announced in accordance with the terms and conditions of the Open Public Meetings Act, the Westfield Leader or Star Ledger has been notified and the agenda posted in the municipal building as required.

Mr. Marotta explained the protocol, purpose and procedure that will be followed during the hearing.

1. **Application # ZBA 19-010 - Continued from January 13, 2020**
**Applicant: New York SMSA Limited Partnership**
**d/b/a Verizon Wireless, T-Mobil Northeast LLC**
**New Cingular Wireless PCS, LLC**
**Union County College**
**1033 Springfield Avenue**
**Block: 121 Lot: 2.01, E-1 Zone**

**Applicant is requesting preliminary and final site plan approval, a d(1), d(3) and a d(6) variance for a wireless telecommunications facility §255-37I(5) & (6), plus numerous c(2) variances. A variance for height where the maximum height permitted is 70 feet, and 140 feet to the top of the tower and 148 feet to the top of the concealment branches is proposed §255-37I(10)(a), a variance for setback where the minimum required setback to the closet property line is 185 feet and 112 feet 9 inches is proposed §255-7I(10)(b)(1), a variance for separation from the nearest residential unit where the minimum is 444 feet and 229 feet 7 inches is proposed §255-37I(10)(c) and if so required, variances to permit more than one principal use on a lot, for the continuation of the existing non- conforming lot area §255-37G(1)(c) and open space ratio §255-37G(1)(e).**

Mr. Marotta stated due to the nature of this application, there is a time limit on the proceedings and is requesting that questions are not repeated if previously asked. Also asked that only questions, not comments or opinions be asked at this time

Gregory Meese, Esq. appeared and stated Mr. Pierson is back for questions from the Public and cross by Mr. Simon and he reminded him he is still under oath.

Mr. Pierson testified to the following posed by Mr. Simon:
It is his estimate that AT&T will have more than 80% coverage in the UCC buildings at the higher frequencies. T-Mobil should be similar at the higher frequencies. AT&T will evaluate after the site is up and see if coverage is adequate. The propagation showed 95% of the area covered. Closer to the buildings could be 100%. There was no technical information provided to the Board other then 1900 and 2100 frequencies. There was no capacity data provided to the Board.

Mr. Pierson testified to the following posed by Mr. Meese:
He was not asked for any drive test data by Dr. Eisenstein or by the Board. Drive test data does not present well and does not do an entire area. Propagation maps are used to provide more of a coverage area. Referred to an FCC Report marked Exhibit A-23 titled FCC Fact Sheet Communications Marketplace Report. Explained the color graph on page 13 which shows 2010 to 2017 mobile usage. Stated there is 82% growth; almost 5 times what it was in 2013. Stated it is nationwide wireless growth. He did not provide any studies with antennas at lower heights. T-Mobil at 110 feet is as low as you can go. Tower height proposed is the minimal height to fill the gaps in coverage. If you reduce the threshold from minus 95 you will reduce the coverage. The site at 151 Kenilworth Blvd. is 30 feet lower in ground elevation, so would need to have a structure 30 feet higher. Also, the site is only 8 acres and has residences to the north and south. A Femtocell is a little cell site connected to cable for internet service.

It is a personal solution which covers about 2000 sq. ft. It depends on commercial power and if there is no internet it will not work.

Questions from the Board for this witness ascertained the following:
He is not aware of any poles proposed from Rt. 22 to Rt. 28 or the Parkway to Westfield. He does not know the distance from other sites that were looked at to the Library or the proposed site. Green Acres property criteria is that there is no feasible alternative. Anything along Rt. 22 would only get to the same point as the Springfield site. There would still be a gap north and south. Anything over 200 feet has to have lighting. Referring to Exhibit A-12, increasing the pole elevation from 130 feet to 200 feet you could increase the coverage to maybe 30% more.

Mr. Meese cited a Mendham case regarding Green Acres.

There were no further questions by the Board.

Mr. Marotta asked if the Public had any questions for this witness, the following appeared:

Marietta Horne – 42 Princeton Road – Asked about the 82% increase usage demands and homes that eliminated land lines.

Mr. Pierson stated the 82% is for the United States. The report was for all types of usage showing a trend.

Marlene Buckman – 24 Colby Lane – Asked about a chart for increased cell towers.

Mr. Pierson stated the data growth is from 2013 and up.

Christine Licata – 10 Dartmouth Road – Asked about an alternate location on Fadem Road.

Mr. Pierson stated on Exhibit A-12 looking at the northern portion there is an industrial/commercial site which would be same as the Jefferson Avenue site. Stated you will still have a gap. Site covers about ¾ of a mile. Stated a site can only handle a certain amount of customers at a time.

Tara Stevens – 1029 LaCorte Terrace – Asked about DAS 1-9 and about other locations.

Mr. Pierson stated the DAS nodes are not a power protected, reliable solution. There is no back up power and there are a lot of restrictions on utility poles.

Mr. Pierson testified to the following follow up questions from Mr. Simon:
Drive test data does not present well. He was involved in at least 1000 applications before Boards with one or more of these carriers. He has presented drive test data to Boards but does not know how many times. Drive test data shows readings along roadways at different strengths. The 2012 needs assessment included drive test data. Stated on Exhibit A-5 page 13, 14 & 15 showed drive test data for each carrier.

Dr. Bruce Eisenstein appeared was sworn in. He is appearing as a Board expert. His credentials were presented to the Board and he was accepted as an expert in Radio Frequency Engineering. Stated he is here to answer questions from the Board and the Public and will not offer an opinion until all the evidence has been presented including Public comment. Stated he is not an advocate nor an opponent.

Questions from the Board to Dr. Eisenstein ascertained the following:
There were no propagation maps at the lower frequencies and does not know what the coverage is there. Based on what he has seen, the gap could be smaller and there could be more coverage at the lower frequency. Described that lower frequencies have longer wavelengths, the higher the frequency the shorter the wavelengths. Longer wavelengths can get around obstacles easier. The 1900 wavelength is about 4 cm. There are larger gaps at the higher frequencies then the lower frequencies. The FCC licenses the frequency bands and the providers are entitled to put in coverage at these frequency bands. The phone cannot decide what frequency band it will operate on. Providers need all their bands. He would have preferred to see the propagation maps from the lower frequencies. Propagation of wireless signals is interfered with by trees, cars, airplanes, snow, rain, building material, etc. The plots calculate the medium. Cannot design a network on one day of travel. There is not a precise measurement. Radio waves never stop they just get weaker. Designing a network using a geographic area. Instead of one large pole, many smaller poles would be needed. A medium size pole may not clear tree lines. Lowest of 3 carriers needs to clear the tree line.

In 1996, the United States was far behind in wireless telecommunications and passed a Telecommunications Act. In 1999 Congress passed the 911 Act. In other parts of the world, the cell phone sites are everywhere and there have been no negative health effects. Sender does not know how long it takes to send a text message. Voice calls are different, they go through digital information. Signal is based on the noise ratio. Negative 105 is the design limit for a phone. You will be able to make calls at negative 96 or 97. At negative 98 calls will be noisy or get dropped. The propagation maps show distance not power. Applications present what is critical for their design. Recently, he has mostly seen 1900 or 2100 propagation maps. Feels UCC is irrelevant. Only reason UCC would be relevant, would be for density of people, which would affect the number of users. This is not the highest tower he has seen and for a three tower carrier the height is about right. Described different types of emergencies trying to call a 911 network and what will go through or be blocked out. To have a robust 911 system you would like to have it work under a worst case scenario. Saturation could be within the next 3 to 5 years, then 5G will kick in at that point. There is no real 5G yet. 5G will be used in conjunction with the monopoles. Stated you could move the monopole 300 to 500 feet and would make almost no difference, moving it 1000 feet might start to create gaps in coverage. Does not feel it could be put on the Library building. A planner would be able to determine what impact there would be moving it to another location. Does not know anything about the swim club application. Has heard of a pole being raised or lowered, based on the coverage area. You do not want the antenna to tall or to short.

Mr. Marotta asked if the Public had any questions for this witness the following appeared:

Christine Licata – 10 Dartmouth Road – Asked about other specific cell towers.

Dr. Eisenstein stated tower would be too close going east and west. Cell towers should be close to center of gap area.

Dr. Eisenstein testified to the following as posed by Mr. Meese:
Mr. Pierson has not refused to provide him with any information. Does think it would have been a good idea for propagation maps at lower frequency. He will comment on the health effects of a cell tower when he gives his opinion later in the hearing.

Dr. Eisenstein testified to the following as posed by Mr. Simon:
There has been no capacity testimony. He has no information on UCC being a landlord for the cell site. Negative 95 dBm RSRP as an RSSI is equivalent to negative 85 dBm based on a calculation. Calculations have not been supplied to him. He does not know any of the clutter types put into the propagation maps. Topography comes from USGS survey and vegetation comes from engineer doing the design. He was not provided with that information. Drive test data is a snapshot in time. Propagation

plots average out the drive test data. Topography can dictate how fast a signal will weaken. He does not know if FirstNet is on a lower frequency. Moving the tower approximately 800 feet, you could adjust the height of the tower and/or tilt of antennas to accommodate the same propagation. Did not do an analysis on height of trees at site.

Follow up questions by Board members for Dr. Eisenstein ascertain the following:
Described the computer program tool used by the carriers to propagate maps based on different parameters such as power of antenna, antenna type, tilt of antenna and clutter factors.

Follow up question from the Public for Dr. Eisenstein were the following:

Brian O'Leary – 105 Elmora Avenue – Asked about the Federal Guidelines for Human Impact.

Mr. Eisenstein stated the FCC put out a document telling radio frequency providers how to calculate health effects of a site. There is a formula and a calculation. He will give his opinion on that at the end of the hearing.

Tom Ganley – 29 Cornell Road – Asked about calculations for propagation maps and assumptions made.

Dr. Eisenstein stated there is sworn testimony from a Radio Frequency expert and he requested the information be supplied to the Board.

No one else appeared and this portion of the hearing was closed with the matter referred back to the Board.

Mr. Marotta stated the next meeting will be Feb. 3rd at 7:30 p.m. for the workshop and a continuance at 7:45 pm of this application. Mr. Simon stated he is not available next Monday and requested any witnesses be available for cross examination at a future meeting.

Discussion was had about bring witnesses back for Mr. Simon to cross examine.

Mr. Rothman stated there are 3 meetings left and one is for deliberations.

Mr. Marotta stated there is a time limit for this application.

Mr. Rothman explained the "shot clock" regarding this application and the dates that have been scheduled.

**PUBLIC PORTION:**

None

**CONCLUSION:**
There being no further business, a motion to adjourn the meeting was regularly made, seconded and passed. The meeting concluded at 10:39 p.m.

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Dan Aschenbach, Secretary